July 29, 2004

Mr. Christopher M. Crane
President and CEO
AmerGen Energy Company, LLC
200 Exelon Way, KSA 3-E
Kennett Square, PA 19348

SUBJECT: THREE MILE ISLAND STATION, UNIT 1 - NRC INTEGRATED INSPECTION REPORT 05000289/2004003

Dear Mr. Crane:

On June 30, 2004, the Nuclear Regulatory Commission (NRC) completed an inspection at Three Mile Island, Unit 1 (TMI) facility. The enclosed report documents the inspection findings that were discussed on July 8, 2004 with Mr. George Gellrich 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.

The report documents one NRC identified finding of very low safety significance (Green). The finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it was entered into your corrective action program, the NRC is treating it as a non-cited violation (NCV) consistent with Section VI.A of the NRC Enforcement Policy. If you contest the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis of your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector at Three Mile Island.

In accordance with 10 CFR 2.390 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 the NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

We appreciate your cooperation. Please contact me at 610-337-5234 if you have any questions regarding this letter.

Sincerely,

/RA by Richard S. Barkley Acting For/

Peter W. Eselgroth, Chief
Reactor Projects Branch 7
Division of Reactor Projects

Docket No. 50-289
License No. DPR-50

Enclosure: Inspection Report 05000289/2004003
w/Attachment: Supplemental Information

cc w/encl:
Chief Operating Officer - AmerGen
Site Vice President - TMI Unit 1, AmerGen
Plant Manager - TMI Unit 1, AmerGen
Regulatory Assurance Manager - TMI Unit 1, AmerGen
Senior Vice President - Nuclear Services, AmerGen
Vice President - Mid-Atlantic Operations, AmerGen
Vice President - Operations Support, AmerGen
Vice President - Licensing and Regulatory Affairs, AmerGen
Director - Licensing and Regulatory Affairs - AmerGen
Manager Licensing - TMI, AmerGen
Associate General Counsel, AmerGen
Correspondence Control Desk - AmerGen
Chairman, Board of County Commissioners of Dauphin County
Chairman, Board of Supervisors of Londonderry Township
R. Janati, Chief, Division of Nuclear Safety
M. Schoppman, Framatome ANP
J. Johnsrud, National Energy Committee
E. Epstein, TMI-Alert (TMIA)
D. Allard, PADER

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U.S. NUCLEAR REGULATORY COMMISSION

REGION 1

Docket No:	05000289
License No:	DPR-50
Report No:	050000289/2004003
Licensee:	AmerGen Energy Company, LLC (AmerGen)
Facility:	Three Mile Island Station, Unit 1
Location:	PO Box 480 Middletown, PA 17057
Dates:	April 1, 2004 - June 30, 2004
Inspectors:	David M. Kern, Senior Resident Inspector Galen D. Smith, Senior Resident Inspector (Acting) Javier M. Brand, Resident Inspector Richard S. Barkley, Senior Project Engineer, DRP Jamie C. Benjamin, Reactor Inspector, DRS Thomas F. Burns, Reactor Inspector, DRS Leonard S. Cheung, Senior Reactor Inspector, DRS Douglas A. Dempsey, Resident Inspector, Fitzpatrick Craig W. Smith, Senior Resident Inspector, Peach Bottom
Approved by:	Peter W. Eselgroth, Chief Projects Branch 7 Division of Reactor Projects (DRP)

CONTENTS

SUMMARY OF FINDINGS

IR 05000289/2004003; 04/01/2004 - 06/30/2004; AmerGen Energy Company, LLC; Three Mile Island, Unit 1; Surveillance Testing.

The report covered a three-month period of inspection by resident and region-based inspectors and an announced modification inspection by three regional reactor inspectors. One Green non-cited violation (NCV) was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Rev. 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. On March 9, 2004, AmerGen did not recognize that vibration levels on the 1C Nuclear River (NR) Pump (NR-P-1C) motor exceeded predictive maintenance program alert levels. The failure to recognize the elevated vibration and take corrective actions resulted in the pump vibration levels continuing to increase. Subsequent vibration resulted in the pump being declared inoperable. The pump shaft and bearings were ultimately replaced.

  This finding is more than minor since the failure to take timely action reduced the reliability and availability of a mitigating systems component. Corrective action to address the slowly degrading motor bearings could have been commenced prior to the vibration levels exceeding the fault level. This finding was determined to be of very low safety significance because at least two NR pumps remained available. (Section 1R22)

B. Licensee-Identified Findings

No findings of significance were identified.

REPORT DETAILS

Summary of Plant Status

AmerGen Energy Company, LLC (AmerGen), operated Three Mile Island, Unit 1 (TMI) at essentially 100 percent power throughout the inspection period, except from April 30 to May 4, 2004, when power was reduced to 70 percent to perform maintenance on each main feedwater pump.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

The inspectors walked down the intake structure of TMI on June 4, 2004 and assessed AmerGen's protection from storms and adverse river conditions. The inspectors evaluated the adequacy of various emergency and surveillance procedures associated with river water and intake systems. The inspectors verified that operator actions under adverse river conditions maintained the readiness of the various river water systems. The inspectors also interviewed system engineers concerning the condition of the plant's cooling water systems. The inspectors reviewed all river water related action requests for the past year to verify if AmerGen was identifying and resolving intake equipment problems. Documents reviewed during the inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

1R02 Evaluations of Changes, Tests, or Experiments (71111.02)

a. Inspection Scope

The inspectors reviewed the only two safety evaluations (SE) that were associated with plant modifications completed during the past two years. These SEs were reviewed to verify that changes to the facility or procedures as described in the Updated Final Safety Analysis Reports (UFSAR) and changes to tests not described in the UFSAR were reviewed and documented in accordance with 10 CFR 50.59, and that the safety issues pertinent to the changes were properly resolved or adequately addressed. The reviews also included the verification that the licensee had appropriately concluded that the changes and tests did not require license amendments to permit their conduct.

The reviewed SEs were:

SE-000564-001 R0	Circulating Water Chemical Addition System Improvements, Rev. 0
SE-000670-002 R1	Removal of Chlorine Detection System, Rev. 1

The inspectors also reviewed 21 screening evaluations for changes, tests and experiments for which the licensee determined that safety evaluations were not required. This review was performed to verify that the licensee's threshold for performing safety evaluations was consistent with 10 CFR 50.59.

In addition, the inspectors reviewed the administrative procedures that were used to control the screening, preparation, and issuance of the safety evaluations to ensure that the procedure adequately covered the requirements of 10 CFR 50.59.

The listing of the safety evaluations and screen-out evaluations reviewed is provided in the attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

Partial System Walkdown.

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

- On April 7, 2004, the inspectors walked down the 'B' low pressure injection train including its support systems while the 'A' train was out of service for planned maintenance.
- On April 8, the inspectors walked down the 'B' station battery and 125 volt DC inverter train while the 'A' battery charger was out of service for planned maintenance.
- On April 20, the inspectors walked down the 'B' emergency feedwater (EFW) train while the 'A' train was out of service for planned maintenance.

The partial system walkdowns were conducted on the redundant and standby equipment to ensure that trains and equipment relied on to remain operable for accident mitigation were properly aligned and protected. The inspector utilized the applicable flow diagrams to perform the walkdowns. Documents reviewed during the inspection are listed in the attachment.

Complete System Walkdown.

The inspectors performed complete system walkdowns on the following systems and components:

- Instrument Air (IA) System
- Makeup/High Pressure Injection (HPI) System

The inspectors conducted a detailed review of the alignment and condition of the associated components. The inspectors reviewed the applicable flow diagrams for the makeup/HPI and instrument air systems. In addition, the inspectors reviewed and evaluated the open work orders and corrective action program condition reports for impact on system operation. The system health reports were also reviewed and open issues were discussed with the system engineers. The inspectors also verified system parameters were within the required band for current plant conditions as determined by TMI operating logs and procedures. Documents reviewed during the inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope

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

- Zone AB-FZ-2A, Auxiliary Building Elevation 281', Makeup & Purification Pump A
- Zone AB-FZ-2B, Auxiliary Building Elevation 281', Makeup & Purification Pump B
- Zone AB-FZ-2C, Auxiliary Building Elevation 281', Makeup & Purification Pump C
- Zone AB-FZ-3, Auxiliary Building Elevation 281', Valve Gallery
- Zone AB-FZ-1, Auxiliary Building Elevation 271', Heat Exchanger Vault
- Zone CB-FA-2A, Control Building 1P Switchgear Room
- Zone CB-FA-2B, Control Building 1S Switchgear Room
- Zone CB-FA-2C, Control Building Technical Support Center Area
- Zone CB-FA-2D, Control Building East Battery Charger Area
- Zone FH-FZ-3, Fuel Handling Building Elevation 329'

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 assessment of transient combustible material control, fire detection and suppression equipment operability, and compensatory measures established for degraded fire protection equipment. In addition, the inspectors verified that applicable clearances between fire doors and floor met the specified criteria per Technical Evaluation CC-AA-309-101, “Fire Door Acceptance Criteria,” Rev. 0. The

inspectors also verified that minor deviations from the National Fire Protection Association Code-80 pertaining to the applicable clearances between control building switch gear area, elevation 322' fire doors (C-202, 208, and 211) and floor (1 inch vs 3/4 inch) had been properly evaluated and met the conditions specified in Technical Evaluation EC-EVAL 339805, "Fire Door Acceptance Criteria," Rev. 0.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07A)

a. Inspection Scope

The inspectors evaluated the heat removal capability of the 'D' nuclear service closed cooling water heat exchanger. This component is a water-to-water heat exchanger with river water from the nuclear river water system on the tube side and nuclear services closed cooling on the shell side. The inspectors reviewed work order AR1831798, which documented a clean and inspect activity performed on February 6, 2004. The inspectors verified the results met the acceptance criteria. The responsible system engineer and GL 89-13 program engineer were interviewed to ensure the inspection results were appropriately categorized against preestablished acceptance criteria, the frequency of inspection is sufficient, and that various bio-fouling treatment processes are utilized to ensure continued satisfactory heat exchanger performance.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

On June 7, 2004, the inspectors observed licensed operator requalification training at the control room simulator. The inspectors reviewed the operators' ability to correctly evaluate the simulator training scenario and implement the emergency plan. The inspectors assessed the operators' simulator drill performance and compared it to the criteria listed in simulator scenario #20a, "ESAS Failure, RCP Seal Failure, Small Break LOCA, and Loss of 25°F Subcooled Margin," Rev. 8. The inspectors evaluated supervisory oversight, command and control, communication practices, and crew assignments to ensure they were consistent with normal control room activities. The inspectors weighed operator response during the simulator drill transient and verified the fidelity of the simulator to the actual plant. The inspectors noted the effect training evaluators had in recognizing and correcting individual and operating crew mistakes including post-training remediation actions. Additional documents used for this inspection activity included:

- OP-TM-EOP-001, “Reactor Trip,” Rev. 4
- OP-TM-EOP-002, “Loss of 25° F Subcooled Margin,” Rev. 2
- OP-TM-EOP-006, “Loss of Coolant Accident Cooldown,“ Rev. 2
- OP-TM-EOP-010, “Abnormal Transients Rules, Guides, and Graphs,” Rev. 2
- 1203-16, “Reactor Coolant Pump and Motor Malfunction,” Rev. 43
- EP-AA-111, “Emergency Classification and Protective Action Recommendations,” Rev. 7

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors evaluated Maintenance Rule (MR) implementation for the two issues listed below. Specific attributes reviewed included MR scoping, characterization of failed structures, systems, and components (SSCs), MR risk categorization of SSCs, SSC performance criteria or goals, and appropriateness of corrective actions. The inspectors verified that the issues were addressed as required by 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 Power Plants,” Rev. 2, and AmerGen procedure ER-AA-310, “Implementation of the Maintenance Rule,” Rev. 2.

- Condition Report (CR) 225198 evaluated spurious alarms on the auxiliary building fire panel FS-ID-301. The spurious alarms caused a locked in condition in the fire panel which resulted in the loss of communication between the fire panel and the control room. The inspectors verified that the required compensatory hourly fire watch was instituted and that engineers properly categorized this issue as a maintenance rule functional failure.

- CR 230483 described a failure of a safeguards time delay relay. This relay provided the five second time delay to start the ‘B’ reactor river pump, as well as restart the reactor building ventilation fan in slow speed. The relay is one of three relays which provides the two-out-of-three safeguards logic and failed to the de-energized or fail-safe state. The inspectors evaluated Amergen’s response to this failure from a maintenance rule perspective and verified all three relays in the actuation train were replaced.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed five samples for the scheduling and control of maintenance activities in order to evaluate the effect on plant risk. This review was against criteria contained in AmerGen Administrative Procedure, "TMI Risk Management Program," Rev. 4. The inspectors reviewed the routine planned maintenance, restoration actions, and/or emergent work for the following equipment removed from service:

- On April 13 and 14, 2004, the inspectors observed ongoing maintenance and diving activities for silt accumulation inspection and cleanup from the TMI intake pump house floor. The inspectors also verified that operators properly documented and managed the risk associated with the isolation of the single bay being worked and that adequate contingencies were in place to ensure continued operation of the remaining bays and associated pumps.

- On May 12, station personnel initiated planned maintenance activities to replace the constant voltage transformer for the 'B' inverter. The inspectors reviewed the on-line station risk evaluation, and verified that the 'B' inverter was properly powered from its alternate power supply per procedure 1107-2B, "120 Volt Vital Electrical system," Rev. 7.

- On May 20, the 'B' control tower chiller failed while the remaining train ('A' control tower chiller) of control building cooling was out of service. Operators implemented OP-TM-AOP-034, "Loss of Control Building Cooling," Rev. 1 due to the associated increase in control room and switchgear room temperatures. Planned maintenance on the high and low pressure injection engineered safeguards actuation system was deferred until control building cooling could be restored. OP-TM-AOP-034 required immediate plant shutdown if control room temperature reached 95° Fahrenheit. Technicians successfully restored the 'B' control tower chiller within four hours, during which time the control room temperature rose from 70° to 81°.

- On May 12 and 13, technicians replaced three-way valves IA-V-1626A/B which provide backup instrument air to actuate EFW flow valves. The work involved both trains of EFW. The work was performed within the conditions evaluated in On-line Station Risk Evaluation Document #1081. Unexpected problems, including a cracked replacement valve (IA-V-1626B) and system leakage during post maintenance testing of IA-V-1626A, were properly managed to ensure at least one train of EFW remained fully operable at all times.

- On April 27 and 28, the inspectors performed an assessment of the maintenance risk associated with a planned 'A' train low pressure injection (LPI) system outage. The inspectors verified that the licensee effectively managed risk with one train of LPI unavailable.

1R14 Personnel Performance During Non-routine Plant Evolutions (71111.14)

a. Inspection Scope

The inspectors reviewed human performance during the following two plant transients to determine whether personnel performance caused unnecessary plant risk or challenges to reactor safety. Documents reviewed during the inspection are listed in the attachment.

- On June 14, 2004, at 0908, the operators received a plant computer alarm associated with Nuclear Instrument (NI)-6. At 0912, the unit load demand (ULD) star module transferred to hand (i.e., manual mode) due to a high power level condition. The operators noted that at 0906 and 0908 two separate automatic rod pulls occurred due to an average coolant temperature error. Although the 6 minute and 4 hour thermal power averages were reading less than 100 percent power, the operators conservatively lowered power to 98.4 percent power until a troubleshooting plan could be developed. The inspectors evaluated the operators' performance as well as the performance of the event response team (ERT). The ERT ultimately concluded that normal fluctuations in feedwater flow caused the calculated thermal power to be greater than 100.5 percent power for a short period of time which caused the ULD to shift to hand. The alarm associated with NI-6 had previously been lowered from 102 to 101 percent power for troubleshooting of the instrument due to excessive noise on the channel. This alarm was considered unrelated to the star module swapping to hand. Plant power was restored to 100 percent at 1710.

- The inspectors evaluated the operators' performance following a loss of letdown which occurred on June 15, 2004. At 1956, the control room received a "Radiation Level Hi Alarm" associated with the letdown line. The operators noted that the high range letdown radiation monitor was in alarm and that letdown had automatically isolated. The operators entered Emergency Operating Procedure (EOP) 1202-11, "High Activity in the Reactor Coolant System," Rev. 28. This procedure directed the operators to compare the readings between the high and low range radiation monitors. Since the low range instrument read normal values and the area radiation surveys were also normal, letdown was reinitiated at 2012.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed five samples of degraded conditions in the facility to verify they 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 performed several field walkdowns, interviewed plant engineers and

technicians, and consulted with regional NRC specialists. The inspectors also referenced IMC Part 9900, "Operable/Operability-Ensuring the Functional Capability of a System Component" and AmerGen procedure LS-AA-105, "Operability Determination," Rev. 1, to determine acceptability of AmerGen's operability evaluations. The inspectors reviewed operability evaluations for the following degraded equipment issues:

- On May 12, 2004, during replacement of instrument air valve IA-V-1626A (work order C2007339), technicians observed unexpected leakage from the two-hour EFW backup air system. Subsequent troubleshooting determined that the system depressurization was due to seat leakage past IA-V-1629A which is a normally open valve. Engineers and operators correctly concluded that the seat leakage did not affect EFW operability, due to the normal system configuration and procedural controls in place when the system is not in its normal configuration.

- On April 28, during performance of a routine inservice test (IST) of decay heat removal pump DH-P-1A, a significant increase (more than 50 percent from the last surveillance performance) in the pump inboard bearing vibration reading was identified. The test was performed following scheduled preventive maintenance activities including repair of a fitting leak on the cyclone separator line, oil change in the motor, and a preventive maintenance activity to re-torque the pump casing bolts. Engineering investigations and evaluations documented under CR 217389 determined that the increased vibration could not have resulted from the work activities performed and that the increased vibration was at the vane pass frequencies. This indicated a flow induced condition rather than a pump or component mechanical degradation or failure. The investigation concluded that air intrusion due to inadequate venting of the pump following the maintenance was the most probable cause, and that the pump tests demonstrated adequate hydraulic and mechanical performance. The inspectors verified that subsequent venting of the pump was performed and that actions to continue monitoring of the pump and associated components were implemented. In addition, the inspectors reviewed vibration data taken on June 18, during a subsequent IST test, and verified that vibration readings had returned to normal.

- On April 1, the inspectors reviewed the aggregate effects and past operability impact for several deficiencies identified by technicians and operators during a scheduled 'A' emergency diesel generator outage. The issues included a jacket cooling water leak (CR 212590), a bent cylinder and leaking ball check valves identified during a hydro test (CR 211882), a broken lock-wire on the drive spring pack (CR 211678), and a loose control side camshaft locking nut (CR 211792). No operability concerns were identified.

- The inspectors reviewed CR 213544 which evaluated a condition identified by the inspectors on April 6 regarding discoloration (oxide buildup) of safety-related relays installed in the screen house electric switch gear. The engineering evaluation concluded that no immediate operability concerns existed and actions

were initiated to evaluate the existing preventive maintenance practices associated with the relays.

- CR 217587 described a condition adverse to quality where snubber MU-H-319 was found empty of hydraulic fluid during the performance of procedure 1301-9.9, "Hydraulic Snubber Visual Inspection," Rev. 45. This snubber is mounted on the letdown line in the vicinity of MU-V-4, letdown orifice isolation valve. The inspectors reviewed an engineering evaluation which concluded that the letdown line and isolation valve remained operable even with this snubber unable to perform its function since the remaining supports and snubbers provided adequate seismic protection. The snubber was ultimately replaced under WO A2047055. The cause of the loss of fluid was due to a deteriorated o-ring associated with the bleed screw.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17B - 15 Samples)

a. Inspection Scope

The inspectors reviewed 15 risk-significant plant modification packages selected from among the design changes that were completed within the past two years. The review was to verify that: (1) the design bases, licensing bases, and performance capability of risk significant structures, systems or components had not been degraded through modifications; and, (2) modifications performed during increased risk configurations did not place the plant in an unsafe condition.

The selected plant modifications were distributed among initiating event, mitigating system, and barrier integrity cornerstones. For these selected modifications, the inspectors reviewed the design inputs, assumptions, and design calculations to determine the design adequacy. The inspectors also reviewed field change notices that were issued during the installation to confirm that the problems associated with the installation were adequately resolved. In addition, the inspectors also reviewed the post-modification testing, functional testing, and instrument and relay calibration records to determine readiness for operations. Finally, the inspectors reviewed the affected procedures, drawings, design basis documents, and UFSAR sections to verify that the affected documents were appropriately updated.

In addition, the inspectors also reviewed additional information provided by the licensee voluntarily on June 24 and June 30, 2004, which pertained to the findings of failure to update operation procedures prior to the completion of a modification.

For the accessible components associated with the modifications, the inspectors also walked-down the systems to detect possible abnormal installation conditions. This inspection activity represents 15 samples.

The following 15 modifications were reviewed:

TM 01-01011	FW-C-5A/B end closure stroke using limit switch;
TM 03-00026	DR-P-1A Install larger impeller;
TM 02-01194	MU-V-3/18/20/26 AOV Replacement;
TM 03-00894	Pressurizer lower bundle replacement;
TM 02-01069	Circulating Water Chemical Addition System Improvements;
TM 03-00484	ACE AOV Setpoint Evaluation for System 525 CA-V-189;
TM 02-00754	Replacement of Check Valve MU-V-116, System 211 Equivalence Change;
TM 03-00358	Modification of Valve IC-V-2, System 542, Improve MOV Setup Margin;
TM 02-01068	Circulating Water Chemical Addition System - Mechanical Changes;
TM 02-01070	Control Room Habitability Evaluation;
TM 03-00492	Replace “B” HPI Thermal Sleeve with Improved Design;
TM-03-00367	ESAS Load Sequencer Timer Replacement;
TM-04-00093	EGS Environmental Qualification 5 kV Splices;
TM-03-00686	1E Inverter Interconnect Upgrade;
TM-03-00631	Increased Inlet Line Pressure for IC-V-2.

a. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed and/or observed seven post-maintenance tests (PMTs) to ensure: (1) the PMT was appropriate for the scope of the maintenance work completed; (2) the acceptance criteria were clear and demonstrated operability of the component; and (3) the PMT was performed in accordance with procedures. The following PMTs were observed and/or evaluated:

- On April 20, 2004, ‘A’ motor-driven EFW pump EF-P-2A was taken out of service for planned maintenance. The PMT consisted of partial performance of surveillance test 1300-3F, “IST of EF-P-2A/B and Valves,” Rev. 51.

- The inspectors reviewed the PMT associated with the 'A' decay heat removal pump. The inspector verified that OP-TM-212-201, rev 4, “IST of DH-P-IA and Valves from ES Standby Mode” was adequate to verify the operability of the system following scheduled maintenance on April 27.

- On May 12-13, technicians replaced three-way instrument air valves IA-V-1626A/B using work orders C2007339 and C2007340 respectively. The valves were replaced due to incorrect actuation setpoints. The PMT verified the as left

actuation setpoints for these valves met design criteria as specified in OP-TM-999-015, “Set Up, Replace and Test IA-V-1626A and IA-V-1626B,” Rev. 0.

- ‘B’ emergency safety actuation system testing performed on May 21 in accordance with procedure 1303-5.2, “Emergency Loading Sequence and HPI Logic Channel/Component Test ,” Rev. 81, following replacement of the high pressure injection block/loading relay contacts. The inspectors also performed field and control room walkdowns and interviewed electricians and operators.

- On May 24, the 243 penetration air cooling system was taken out of service for planned filter change-out. The PMT was performed in accordance with procedure U-2, “D/P Check of Air Handling Filters,” Rev. 19.

- On June 6, maintenance replaced the motor associated with the ‘C’ main condenser vacuum pump following a bearing failure on May 27. The inspectors reviewed the PMT which was performed under AR A2071870.

- The inspectors reviewed the PMT associated with EF-FI-788A which was replaced on June 15 due to a fluctuation of the digital readout. This instrument provides flow indication of the ‘A’ train of emergency feedwater at the remote shutdown panel.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed and reviewed the following operational surveillance tests, concentrating on verification of the adequacy of the test to demonstrate the operability of the required system or component safety function.

- On March 23, 2004, procedure E-1, “Vibration Monitoring for Rotating Equipment,” Rev. 19

- On April 19, procedure OP-TM-212-202, “IST of DH-P-1B and Valves From ES Standby Mode,” Rev. 4

- On May 24, procedure 1303-5.5, “Control Room Emergency Filter System Operational Test,” Rev. 30

- On May 27, procedure 1303-4.14, “RB 30 PSIG Analog Channels Test,” Rev. 27

b. Findings

Abnormally High Nuclear River (NR) Pump Vibrations

Introduction. The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, of very low safety significance (Green). On March 9, 2004, AmerGen did not recognize that vibration levels on the 1C Nuclear River Pump (NR-P-1C) motor exceeded predictive maintenance program alert levels. The inadequacy to take the appropriate action led to the NR-P-1C becoming inoperable.

Description. On March 23, AmerGen identified increased upper vertical NR-P-1C motor vibration levels (0.35 ips) during bi-weekly testing (AR 210282). Consequently the pump was declared inoperable and the limiting condition for operation was briefly entered until the swing pump was placed in service. The pump was declared inoperable based on the rate of rise in vibration levels compared to the pump's mission time.

On March 23, an NRC inspector identified that AmerGen did not recognize a March 9 abnormally high NR-P-1C upper vertical motor vibration level (0.22 ips) with a rising trend. Consequently, AmerGen did not place the pump on double testing frequency as required by their Predictive Maintenance Program MA-AA-716-230, Rev. 2, nor were Operations and Engineering contacted of the notable pump vibration changes as assigned as a long-term corrective action intended to address known potential NR pump column deficiencies (AR 161470).

On March 25, in an attempt to improve vibration levels, a pump balance was performed. Subsequent performance testing determined that the pump balance was not successful in reducing vibration levels to an acceptable range. On April 6, the NR-P-1C line shafts were removed and inspected. Examination revealed approximately 20 millimeters of wear on several of the line shafts at specific areas located adjacent to the rubber cutlass bearings. The wear patterns were similar to wear patterns discovered on the nonsafety-related SR-P-1B shaft in May 2003 (AR 161470). These wear patterns were unusual in that they were on the same vertical plane with a 180° arc. Additional examination revealed that many NR-P-1C line shafts were incorrectly installed. Specifically, line shafts 3, 4, 5, 6 and 7 were mounted upside down. Consequently, the stainless steel shaft area, with designed hard facing, was not properly aligned with its respective cutlass rubber journal bearing on these particular line shafts.

Operability Evaluation OPE-04-006 evaluated the consequences that may have resulted from the incorrectly installed NR-P-1C line shafts. Additionally, the operability specifically looked at the extent of condition for similar pumps. The operability evaluation concluded that, while the DR-P-1A line shafts may have been installed in a similar fashion, the incorrectly installed line shafts still provide an adequate line shaft bearing assembly. Furthermore, the evaluation concluded that, while this type of assembly may decrease pump life, the DR-P-1A will be capable of performing its safety function with any wear examined by the routine vibration monitoring program if this condition does exist.

Analysis. AmerGen's inadequacy to take the appropriate actions upon the NR-P-1C exceeding program vibration alert levels is a performance deficiency. This is a

performance deficiency since AmerGen did not implement a previously assigned corrective action nor did they meet the requirements of their Predictive Maintenance Program MA-AA-716-230, Rev. 2. Accelerated shaft wear resulted in the NR-P-1C becoming inoperable which may have been prevented. Traditional enforcement does not apply for this finding because it did not have any actual safety consequences or the potential for impacting the NRC's regulatory function and was not the result of any willful violations of NRC requirements.

This finding is greater than minor since it was associated with the attributes of, and affected the objective of, both the Initiating Events and Mitigating Systems cornerstones. This finding was associated with the Initiating Events and Mitigating Systems equipment performance attribute. This finding affected the Initiating Events objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. This finding affected the Mitigating Systems objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent or mitigate adverse conditions (i.e., core damage).

This finding was determined to be of very low safety significance (Green) using Phase 1 and Phase 2 of the SDP for Reactor Inspection Findings for At-Power Situations. A Phase 2 was required since this performance deficiency degraded both the initiating events and mitigation systems areas of the SDP phase 1 Screening Worksheet. Additionally, this finding was determined to be of very low safety significance because at least two NR pumps remained available and all mitigation capabilities described on the SDP Phase 2 worksheet for the applicable core damage sequences were maintained. AmerGen entered this issue into their corrective action program as AR 210880.

This finding contains aspects of a cross-cutting area, namely problem identification and resolution. Specifically, the failure to note the elevated motor vibration on March 9 was an example of a failure to promptly identify a problem related to a condition adverse to quality.

Enforcement. 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. Contrary to these requirements, on March 9, AmerGen did not identify abnormally high NR-P-1C upper vertical motor vibrations with a consistent increasing trend. As a result, vibration levels increased until the pump was eventually declared inoperable, removed from service and repaired. This violation has been entered into AmerGen's corrective action program as AR 210880. This violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action is being treated as a non-cited violation consistent with Section VI.a.1 of NRC Enforcement Policy. **(NCV 50-289/2004003-01)**

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed temporary modifications (TMs) and associated implementing documents to verify the plant design basis and the system or component operability was maintained. Procedures CC-AA-112, “Temporary Configuration Changes,” Rev. 7 and CC-TM-112-1001, “Temporary Configuration Change Implementation,” Rev. 0 specified requirements for development and installation of TMs. The inspectors reviewed the following TMs:

- TM LL-99, ”AH-E-29A Duct Heaters,” Rev. 0. This modification lifted leads for one of six duct heaters for the 'A' emergency diesel generator room.

- ECR TM 04-0221, “WDL-LT-805 Troubleshooting Test Equipment,” Rev. 0. This TM disconnected the transmitter associated with the ‘B’ channel of containment sump level indication. This TM facilitates the troubleshooting of an erratically reading containment sump level indicator.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness [EP]

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed an emergency event training evolution conducted at the Unit 1 control room simulator to evaluate emergency procedure implementation, event classification, and event notification. The event scenario involved multiple safety-related component failures and plant conditions warranting a simulated Alert event declaration. The licensee counted this training evolution for evaluation of Emergency Preparedness Drill/Exercise Performance (DEP) Indicators. The inspectors observed the drill critique to determine whether the licensee critically evaluated drill performance to identify deficiencies and weaknesses. Additionally, the inspectors verified the DEP performance indicators (PIs) were properly evaluated consistent with Nuclear Energy Institute (NEI) 99-02, “Regulatory Assessment Performance Indicator Guideline,” Rev. 2.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors reviewed selected station records to verify NRC PIs had been accurately reported to the NRC as required by NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Rev. 2. The PIs listed below were verified for the period from April 2003 to April 2004.

Barrier Integrity Cornerstone

- Reactor Coolant System Leakrate
- Reactor Coolant System Activity

Mitigating Systems Cornerstone

- EDG unavailability

The inspectors reviewed operator logs, licensee event reports, monthly station operating reports, corrective action program database documents, calculation methods, definition of terms, and use of clarifying notes. The inspectors also verified accuracy of the number of reported critical hours used in the calculations. Documents reviewed during the inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

1. Daily Condition Report Review

a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. This review was accomplished by reviewing hard copies of each condition report, attending various daily screening meetings, and when necessary, by accessing the licensee's computerized corrective action program database.

b. Findings

No findings of significance were identified.

2. Inspection Module Problem Identification and Resolution (PI&R) Review

a. Inspection Scope

The inspectors reviewed various CRs associated with the inspection activities captured in each inspection module detailed in this report. During this review, the inspectors assessed the fundamental ability of the licensee to identify adverse conditions for the areas inspected, and verified the licensee had entered these issues into its corrective action program for resolution. Where applicable, CRs reviewed during the inspection are documented under each module; however, for reviews that entailed large number of CRs, these are more appropriately documented in the attachment.

b. Findings

No findings of significance were identified.

3. Semi-Annual Review of Trends (71152)

a. Inspection Scope

The inspectors performed a semi-annual review of common cause issues in order to identify any unusual trends that might indicate the existence of a more significant safety issue. This review included an evaluation of repetitive issues identified via the corrective action process. The results of the trending review were compared with the results of normal baseline inspections.

b. Findings

No findings of significance were identified.

4. 10 CFR 50.59 Issues

a. Inspection Scope

The inspectors reviewed CRs associated with 10 CFR 50.59 issues and plant modification issues to ensure that the licensee was identifying, evaluating, and correcting problems associated with these areas and that the planned or completed corrective actions for the issues were appropriate. The inspectors also reviewed two self-assessments related to 10 CFR 50.59 safety evaluation and plant modification activities at TMI.

The listing of the condition reports and self assessments reviewed is provided in the attachment.

b. Findings

No findings of significance were identified.

5. Cross-References to PI&R Findings Documented Elsewhere

Section 1R22 describes how AmerGen failed to identify an elevated vibration level on the 'C' Nuclear River Pump. This failure to identify a condition adverse to quality prevented AmerGen from addressing this issue prior to pump inoperability.

4OA5 Other

1. Spent Fuel Material Control and Accounting At Nuclear Power Plants (TI 2515/154)

a. Inspection Scope

The inspectors interviewed the station and Exelon corporate special nuclear material custodians. The inspectors reviewed licensee procedures regarding the movement and accountability of special nuclear material. The inspectors also reviewed a sample of recent inventories of nuclear fuel and special nuclear material. Documents reviewed as part of this temporary instruction (TI) are listed in the Attachment. This TI was not a part of the baseline inspection program and was, therefore, not considered a sample.

b. Findings

No findings of significance were identified.

2. Offsite Power System Operational Readiness (TI 2515/156)

a. Inspection Scope

The inspectors interviewed station personnel in order to confirm the operational readiness of offsite power systems in accordance with NRC requirements prescribed in General Design Criterion 17of 10 CFR 50, Appendix A; Criterion XVI of 10 CFR 50, Appendix B; plant technical specifications for offsite power systems, 10 CFR 50.63; and 10 CFR 50.65(a)(4). The inspectors also evaluated the licensee's response to various questions concerning the maintenance rule, station blackout, corrective action, and offsite power design robustness and quality.

b. Findings

No findings of significance were identified.

3. Correction to NCV 50-289/03-03-01 Significance Determination

NRC inspection report 2003003 incorrectly described NCV 50-289/03-03-01 as having Green color significance in the Summary of Findings section. This section should have listed the finding as a Severity Level IV cited violation without a color significance.

4OA6 Management Meetings

Exit Meeting Summary

On July 8, 2004, the resident inspectors presented the inspection results to Mr. George Gellrich and other members of his staff who acknowledged the findings. The regional specialist inspection results were previously presented to members of AmerGen management. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

Annual Assessment Meeting

On May 20, 2004, Jim Wiggins, Deputy Regional Administrator; Peter Eselgroth, Projects Branch 7 Chief; Richard Barkley, Senior Project Engineer; and the resident staff conducted the Three Mile Island Unit 1 annual assessment public meeting in the Middletown Borough Hall.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel
K. Bartes, Plant Operations Director
R. Brady, Emergency Preparedness Manager
M. Bruecks, Security Manager
G. Chick, Director, Maintenance
L. Clewett, Director, Site Engineering
E. Fuhrer, Regulatory Assurance
G. Gellrich, Plant Manager
D. Hull, Design Engineer, EP&I
C. Incorvati, Maintenance Manager
D. Laudermilch, Security Analyst
D. Lawyer, Radiological Engineer
L. Lucas, Chemistry Manager
D. Merchant, Manager, Radiological Health and Safety
A. Miller, Regulatory Assurance
F. Mascitelli, Nuclear Oversight
P. Omaggio, Project Planner
S. Queen, Design Engineering Manager
G. Rombold, Regulatory Assurance
B. Shumaker, Plant Engineering
T. Wickel, Electrical I&C Manager
B. Williams, Vice President, TMI Unit 1

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

2004003-01 NCV Failure to Identify Abnormally High River Pump Vibration Levels

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

OM-TM-AOP-005, “River Water Systems Failures,” Rev 2
1203-19, “Secondary River Water System Failure,” Rev 26
1202-38, “Nuclear Services River Water Failure,” Rev 40
1301-9.7, “Intake Pump House Floor, Silt Accumulation and Inspections,” Rev 21
1301-6.7, “Monitoring of Silt Buildup in River Water Screen House,” Rev 17
TMI Operations Plant Manual, Section J-05, “River Water Chemical Treatment,” Rev 9

Section 1R02: Evaluations of Changes, Tests, or Experiments

Plant Modifications

ECR 03-00492	HPI/Makeup Thermal Sleeve Replacement, Rev. 0
ECR 03-00358	Modification of Valve IC-V-2, Rev. 0
ECR 03-00484	CA-V-189 Containment Isolation Valve Capability Design Analysis, Rev. 0
ECR 03-00435	CA-V-5A Capability Design Analysis, Rev. 0
ECR 02-01070	CW Chemical Addition System Improvements, Rev. 0
ECR 02-01069	Design DCP Chemical Addition System Improvements, Rev. 2
ECR-03-00367	ESAS Load Sequencer Timer Replacement, Rev. 0
ECR-03-00686	1E Inverter Interconnect Upgrade, Rev. 0
ECR-03-00631	Increased Inlet Line Pressure for IC-V-2, Rev. 0
ECR-03-00051	ACE Air-Operated Valve Design Capability Calculation for AHV-1A & -1D, Rev. 0
ECR-03-00248	ACE Air-Operated Valve Setpoint Evaluation for RR-V-10A and -10B, Rev. 0
ECR-02-01114	EF-P-1 Labyrinth Seal Installation, Rev. 0
ECR-01-01011	FW-C-5A/B end closure stroke using limit switch, Rev. 1
ECR-03-00026	DR-P-1A install larger impeller, Rev. 0
ECR-02-01194	MU-V-3/18/20/26 AOV replacement, Rev. 3
CER-03-00700	Change EF-V-2A&B MOV gear ratio, Rev. 0
ECR-03-00894	Pressurizer lower bundle replacement, Rev. 0
ECR-03-00877	EF-V-2A MOV replacement, Rev. 0
ECR-01-01020	NR-P-1C Failure to Autostart, Rev. 0
ECR-03-00675	Modify CB patio fan/damper controls, Rev. 0
ECR-02-00755	NS/RR crosstie excess flow valve, NS-V-135 installed, Rev. 0
SA-2002-1209	Modifications and 50.59 Reviews
NOSA-TMI-03-05	Engineering Design Control Audit Report

Section 1R04: Equipment Alignment

Drawings

Drawing 302-082, “Emergency Feedwater Flow Diagram,” Rev. 22
Drawing 206-051, “250/125 VDC System & 120 VAC Vital Instrumentation,” Rev. 29
Drawing 302-640, “Decay Heat Removal,” Rev. 79
Drawing 302-645, “Decay Heat Closed Cycle Cooling Water,” Rev. 36
Drawing 302-202, “Nuclear Services River Water Systems," Rev. 67
Drawing 302-276, “Instrument Air - 2Hr Backup Charging Compressor,” Rev. 5
Drawing 302-273, “Emergency Feedwater & Main Steam - 2Hr Backup Supply Air,” Rev. 20
Drawing 302-272, “Backup Instrument Air,” Rev. 17
Drawing 302-271, “Instrument and Station Air,” Rev. 70
Drawing 302-660, “Makeup and Purification,” Rev. 40
Drawing 302-661, “Makeup and Purification,” Rev. 54
Drawing 302-662, “MU Pump Auxiliary Systems,” Rev. 0

Drawing 302-645, “Decay Heat Closed Cycle Cooling Water,” Rev. 36
Drawing 302-610, “Nuclear Services Closed Cycle Cooling Water,” Rev. 70

Section 1R14: Personnel Performance During Non-routine Plant Evolutions

Condition Reports

CR 228868
CR 228385

Procedures

1202-11, “High Activity in Reactor Coolant,” Rev 28

Section 1R17: Permanent Plant Modifications

Plant Modifications

TM 01-01011 FW-C-5A/B End closure stroke using limit switch;
TM 03-00026 DR-P-1A Install larger impeller;
TM 02-01194 MU-V-3/18/20/26 AOV Replacement;
TM 03-00894 Pressurizer lower bundle replacement;
TM 02-01069 Circulating Water Chemical Addition System Improvements;
TM 03-00484 ACE AOV Setpoint Evaluation for System 525 CA-V-189;
TM 02-00754 Replacement of Check Valve MU-V-116, System 211 Equivalence Change;
TM 03-00358 Modification of Valve IC-V-2, System 542, Improve MOV Setup Margin;
TM 02-01068 Circulating Water Chemical Addition System - Mechanical Changes;
TM 02-01070 Control Room Habitability Evaluation;
TM 03-00492 Replace “B” HPI Thermal Sleeve with Improved Design;
TM-03-00367 ESAS Load Sequencer Timer Replacement;
TM-04-00093 EGS Environmental Qualification 5 kV Splices;
TM-03-00686 1E Inverter Interconnect Upgrade;
TM-03-00631 Increased Inlet Line Pressure for IC-V-2.

Section 1R19: Post Maintenance Testing

Condition Reports

CR 227995
CR 226212

Section 4OA1: Performance Indicator Verification

LS-AA-2090 Monthly PI Data Elements for Reactor Coolant System (RCS) Specific Activity, Rev. 3, Attachment 1

LS-AA-2100 Monthly PI Data Elements for Reactor Coolant System (RCS) Leakage, Rev. 4, Attachment 1
TS 3.1.4 Reactor Coolant System Activity
SP 1301-3 RCS Sampling
SP 1303-1.1 Reactor Coolant System Leak Rate
RSC Leakage Graphs for Weekly Calculated Slope, RB Sump Accumulation Rate and RB Atmosphere Particulate Monitoring

Section 4OA2: Identification and Resolution of Problems

Condition Reports

CR 00173053, CR 00173381, CR 00170498, CR 00164875, CR 00158014, CR 00144557, CR 00145162, CR 00229088, CR 00183266, CR 00216515, CR 00216619, CR 00217211, CR 00229013, CR 00217919, CR 00229013, CR 00145576, CR 00228772, AR 2044873, AR2063912

Procedures

CC-AA-102	Design Input and Configuration Change Impact Screening, Rev. 7
CC-AA-103	Configuration Change Control, Rev. 6
CC-AA-309	Control of Design Analysis, Rev. 3
LS-AA-104	50.59 Review Process, Rev. 3
OP-TM-511-471	Receipt of Sulfuric Acid for Circulating Water System, Rev. 1
OP-TM-511-472	Receipt of Sodium Hypochlorite for Circulating Water System, Rev. 1
OP-TM-AOP-20	Loss of Station Power, Rev. 3
OP-TM-EOP-20	Cooldown from Outside of Control Room, Rev. 3
1202-36	Emergency Procedure, Loss of Instrument Air, Rev. 33
1203-20	Abnormal Procedure, Nuclear Services Closed Cooling System Failure, Rev. 2
1203-15	Abnormal Procedure, Loss of R.C. Make-up/Seal Injection, Rev. 27
1303-4.11	HPI/LPI Logic and Analog Channel Test, Rev. 51
1420-Y-32	Terminating and Splicing Wire and Cable, Rev. 13

Calculations

C-1101-642-E420-007	ESAS Block Loading Timers Uncertainty Calculation
C-1101-211-E540-083	Resistance Coefficients for TMI-1 HPI/MUP System Piping, Rev. 1

Drawings

302-660	Makeup & Purification Flow Diagram, Rev. 35
302-279	Instrument Air Flow Diagram, Sheet 2, Revs 9, 10 and 11
302-279	Instrument Air Flow Diagram, Sheet 9, Revs 17 and 18
302-279	Instrument Air Flow Diagram, Sheet 7, Rev. 10
302-661	Make-up & Purification Flow Diagram, Rev. 46
302-202	Nuclear Services River Water System Flow Diagram, Rev. 48
302-610	Nuclear Services Closed Cycle Cooling Water Flow Diagram, Rev. 62
302-203	Screen Wash & Sluice System Flow Diagram, Rev. 38
302-660	Make-up & Purification Flow Diagram, Rev. 34

Miscellaneous

SDBD-T1-211	Design Basis Document for Make-up and Purification
SDBD-T1-642	Design Basis Document for Engineered Safeguard Actuation System
NEI 96-07	Guidelines for 10 CFR 50.59 Implementation, Rev. 1
EQ-T1-120	EQ File for EGS 5 kV Splices, Rev. 0

LIST OF ACRONYMS

ADAMS	Agencywide Documents and Management System
AmerGen	AmerGen Energy Company, LLC
AR	Assignment Report
CFR	Code of Federal Regulations
CR	Condition Report
DEP	Drill/Exercise Performance
DRP	Division of Reactor Projects
DRS	Division of Reactor Systems
EFW	Emergency Feedwater
EOP	Emergency Operating Procedure
ERT	Event Response Team
GL	Generic Letter
HPI	High Pressure Injection
IA	Instrument Air
IMC	Inspection Manual Chapter
IR	Inspection Report
IST	Inservice Test
LOIA	Loss of Instrument Air
LPI	Low Pressure Injection
MR	Maintenance Rule
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NI	Nuclear Instrument

NR	Nuclear River
NRC	Nuclear Regulatory Commission
PI	Performance Indicator
PMT	Post-maintenance Test
RCP	Reactor Coolant Pump
SDP	Significance Determination Process
SE	Safety Evaluation
SOV	Solenoid Operated Valve
SP	Surveillance Procedure
SSC	Structures, Systems, and Components
TI	Temporary Instruction
TM	Temporary Modification
TMI	Three Mile Island, Unit 1
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
ULD	Unit Load Demand