November 13, 2002

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

SUBJECT: THREE MILE ISLAND STATION, UNIT 1 - TRIENNIAL FIRE PROTECTION INSPECTION REPORT 50-289/02-011

Dear Mr. Skolds:

On October 25, 2002, the NRC completed a triennial fire protection inspection at your Three Mile Island Unit 1 facility. The enclosed report documents the inspection findings that were discussed on October 25, 2002, 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.

Based on the results of this inspection, the NRC identified one finding of very low safety significance (Green) that was a violation of NRC requirements. However, because of the very low safety significance and because the issue was entered into your corrective action program, the NRC is treating this issue as a Non-cited Violation, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. A violation of very low safety significance was also identified by your staff and is listed in Section 4OA7 of the inspection report. If you deny these Non-cited Violations, you should provide a response within 30 days of the date of this letter, with the basis for 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 NRC Resident Inspector at the Three Mile Island Unit 1 Station.

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 610-337-5129 if you have any questions regarding this letter.

Sincerely,

/RA/

James C. Linville, Chief
Electrical Branch
Division of Reactor Safety

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

Enclosure: NRC Inspection Report 50-289/02-011

cc w/encl:
AmerGen Energy Company - Correspondence Control Desk
Chairman and CEO, AmerGen Energy
Vice President TMI Unit 1
Plant Manager
Director-Licensing
Licensing and Regulatory Affairs- Vice President, Exelon Corporation
TMI-Alert (TMIA)
R. Janati, Chief, Division of Nuclear Safety
D. Allard, PADER
M. Schoppman, Framatome

Distribution w/encl:
Region I Docket Room (with concurrences)
J. Orr, DRP - NRC Resident Inspector
H. Miller, RA
J. Wiggins, DRA
J. Rogge, DRP
R. Barkley, DRP
H. Neih, OEDO
R. Laufer, NRR
J. Andersen, NRR
T. Colburn, NRR
P. Tam, NRR
W. Lanning, DRS
R. Crlenjak, DRS

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OFFICE	RI:DRS		RI;DRS		RI:DRP		RI/DRS			
NAME	LScholl		JLinville		JRogge		Trapp/Cobey			
DATE	11/07/02		11/13/02		11/13/02		11/07/02			

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U.S. NUCLEAR REGULATORY COMMISSION

REGION 1

Docket No:	50-289
License No:	DPR-50
Report No:	50-289/02-011
Licensee:	AmerGen Energy Company, LLC (AmerGen)
Facility:	Three Mile Island Station, Unit 1
Location:	P. O. Box 480 Middletown, PA 17057
Dates:	October 7 - 25, 2002
Inspectors:	Larry L. Scholl, Senior Reactor Inspector, DRS (Team Leader) George W. Morris, Reactor Inspector, DRS Christopher G. Cahill, Senior Reactor Inspector, DRS
Approved by:	James C. Linville, Chief Electrical Branch Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000289/02-011, on 10/07 - 10/25/2002, Three Mile Island Unit 1, triennial fire protection inspection report.

The report covered a two week team inspection by specialist 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 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,” Revision 3, dated July 2000.

A. Inspector Identified Findings

GREEN. The team found that the licensee had exceeded the combustible limits for the relay room, fire area CB-FA-3d, as stated in the Fire Hazards Analysis Report (FHAR) without evaluating the condition or implementing compensatory actions as described in administrative procedure number 1038, "Control of Transient Combustible Materials, Revision 30," section 4.2.1.

The failure to implement and maintain in effect all provisions of the fire protection program as described in the FHAR is a violation of license condition 2.(C)4. The finding was determined to be of more than minor significance per NRC Manual Chapter 0612, Appendix E Section 4.k. However, this issue did not have a significant affect on any of the fire mitigation defense-in-depth elements and as a result it screened out as Green, very low safety significance per figure 4-1 of Appendix F. (Section1RO5.3)

B. Licensee Identified Violations

A violation of very low safety significance which was identified by the licensee has been reviewed by the team. This issue has been entered into the licensee’s corrective action program. The violation and corrective action tracking number are listed in Section 4OA7 of this report.

Report Details

Background

This report presents the results of a triennial fire protection inspection conducted in accordance with NRC Inspection Procedure (IP) 71111.05, "Fire Protection." The objective of the inspection was to assess whether AmerGen Energy Company, LLC. has implemented an adequate fire protection program and that post-fire safe shutdown capabilities have been established and are being properly maintained at the Three Mile Island (TMI) Station, Unit 1. The following fire areas (FAs) and fire zone (FZ) were selected for detailed review based on risk insights from the Three Mile Island Individual Plant Examination of External Events (IPEEE):

- Relay Room (CB-FA-3d)
- East Inverter Room (CB-FA-2d)
- 1D Switchgear Room (CB-FA-3a)
- Penetration Area (AB-FZ-4)

This inspection was a reduced scope inspection in accordance with the September 22, 2000, revision to IP 71111.05, "Fire Protection." Issues regarding equipment malfunction due to fire-induced failures of associated circuits were not inspected. Criteria for review of fire-induced circuit failures are currently the subject of a voluntary industry initiative. The definition of associated circuits of concern used was that contained in the March 22, 1982, memorandum from Mattson to Eisenhut, which clarified the requests for information made in NRC Generic Letter 81-12.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems

1R05 Fire Protection (71111.05)

.1 Fire Area Boundaries and Barriers

a. Inspection Scope

The team walked down accessible portions of the selected fire areas to observe material condition and the adequacy of design of fire area boundaries, fire doors, and fire dampers. The team reviewed engineering evaluations, as well as surveillance and functional test procedures for selected items. The team also reviewed the licensee submittals and NRC safety evaluation reports (SERs) associated with fire protection features at TMI Unit 1. Additionally, the team reviewed the design and qualification testing of raceway fire barriers and performed a walkdown of selected barriers and reviewed surveillance procedures for fire wrap, structural fire barriers, penetration seals and structural steel. These reviews were performed to ensure that the passive fire barriers were properly maintained and met the licensing and design bases as described in the licensee submittals, NRC SERs, the TMI Unit 1, Final Safety Analysis Report (FSAR) and the Fire Hazards Analysis Report (FHAR).

b. Findings

No findings of significance were identified.

.2 Post-Fire Safe Shutdown Lighting and Communications

a. Inspection Scope

The team observed the placement and aim of 8-hour emergency lights throughout the selected fire areas to evaluate their adequacy for illuminating access and egress pathways and any equipment requiring local operation for post-fire safe shutdown. The team also reviewed preventive maintenance procedures and various documents, including the vendor manual and surveillance tests, to determine if adequate surveillance testing and periodic battery replacements were in place to ensure reliable operation of the emergency lights.

b. Findings

No findings of significance were identified.

.3 Programmatic Controls

a. Inspection Scope

During tours of the facility, the team observed the material condition of fire protection systems and equipment, the storage of permanent and transient combustible materials, and control of ignition sources. The team also reviewed the procedures that controlled hot-work activities and combustibles at the site. These reviews were accomplished to ensure that the licensee was maintaining the fire protection systems, controlling hot-work activities, and controlling combustible materials in accordance with the Fire Hazard Analysis Report (FHAR), administrative procedure (AP) 1038, "Administrative Controls - Fire Protection Program, Revision 59," and other fire protection program procedures.

Based on the high combustible loading in the relay room, the team conducted walk downs of the area by utilizing the inspection criteria provided in AP 1035, "Control of Transient Combustible Materials," Revision 30. This was accomplished to ensure that the licensee had maintained the combustible loading in this risk significant area in accordance with the design and licensing bases as described in the FHAR.

b. Findings

Introduction

The team found that the licensee implementation of programmatic controls in the fire protection area was generally good. However, the team identified that the licensee had exceeded the combustible loading limits for the relay room, fire area CB-FA-3d, as stated in the FHAR without evaluating the condition or implementing compensatory actions as required by section 4.2.1 of administrative procedure 1035, "Control of Transient Combustible Materials." The finding was determined to be greater than minor

significance based on Section 4.k of Appendix E to NRC Manual Chapter 0612, “Power Reactor Inspection Reports,” but of very low safety significance (Green). This issue is being treated as a non-cited violation.

Description

The team compared the transient combustibles in the relay room against the analyzed combustibles listed in AP 1035, "Control of Transient Combustible Materials, Revision 30," Exhibit 3. The team identified several items in the area that were not analyzed for combustible loading. Specifically, the team identified three chairs, two wooden brooms, a filing cabinet, a computer printer, and various electrical components that were not analyzed for combustible loading. AP 1035, "Control of Transient Combustible Materials, Revision 30," section 4.2.1 and Exhibit 1 states that no transient combustibles, above those already identified, are permitted in the relay room without evaluation or compensatory action.

Analysis

The failure to properly control transient combustible materials can result in an increase in the ignition frequency for a fire area and thereby affect the initiating events cornerstone. This finding was determined to be greater than minor significance based on the example provided in Section 4.k of Appendix E to NRC Manual Chapter 0612, “Power Reactor Inspection Reports.”

The safety significance of this issue was evaluated using the guidance in Inspection Manual Chapter 0609, Appendix F, "Determining Potential Risk Significance of Fire Protection and Post-Fire Safe Shutdown Inspection Findings." The team determined that this issue did not have a significant affect on any of the fire mitigation defense-in-depth elements and as a result it screened out as Green, very low safety significance per figure 4-1 of Appendix F.

Enforcement

License condition 2.C(4) require that AmerGen implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report. The FSAR identifies the FHAR as part of the fire protection program. The FHAR establishes the combustible limits for the areas and states that transient combustibles are controlled in accordance with AP 1035, "Control of Transient Combustible Materials".

Contrary to the above, the licensee failed to control transient combustibles in the relay room in accordance with the limits established in the FHAR and AP 1035, "Control of Transient Combustible Materials". This violation is being treated as a Non-Cited Violation (NCV), consistent with Section VI.A.1 of the NRC Enforcement Policy. These deficiencies were entered into the licensee’s corrective action program as AR 126426. It was not immediately evident exactly when the violation occurred but it appeared that the uncontrolled transient combustibles gradually accumulated over a period of time. The licensee took immediate actions to remove unnecessary combustibles and to evaluate and control remaining transient combustible materials in accordance with

procedure AP 1035. The licensee was continuing to review the cause of the violation and was developing long term corrective actions at the completion of the inspection. **(NCV 50-289/02-011-01)**

.4 Fire Detection Systems and Equipment

a. Inspection Scope

The team reviewed the adequacy of the fire detection systems in the selected plant fire areas. This included a walk down of the systems and review of the type of installed detectors as shown per location drawings. The team also reviewed licensee submittals and the NRC SERs associated with the selected fire areas. These reviews were performed to ensure that the fire detection systems for the selected fire areas were installed in accordance with the design and licensing bases of the plant. Additionally, the team reviewed fire detection surveillance procedures to determine the adequacy of the fire detection component testing and to ensure that the detection system would function as required.

b. Findings

No findings of significance were identified.

.5 Fixed Fire Suppression Systems

a. Inspection Scope

Fixed Carbon Dioxide Systems and Equipment

The team reviewed the adequacy of the relay room total flooding carbon dioxide (CO_2) system by performing walkdowns of the system, including the relay room envelope. The team also reviewed the design and installation specifications, NFPA 12, "Standard on Carbon Dioxide Extinguishing Systems," (1973 edition), and the adequacy of surveillance procedures. These reviews were performed to ensure that the relay room total flooding CO_2 system met the design and licensing bases as described in the licensee submittals and NRC SERs and that the system could perform its intended function in the event of a fire in the relay room.

Sprinkler Systems and Equipment

The team reviewed the adequacy of the pre-action sprinkler systems for the penetration area, fire zone AB-FZ-4, by performing walkdowns of the systems and observing their material condition. Additionally, the team reviewed the design and installation specifications, installation drawings, the adequacy of surveillance procedures and the hydraulic calculations. These reviews were performed to ensure that the sprinkler systems met the design and licensing bases as described in the licensee submittals and NRC SERs and that the systems could perform their intended function in the event of a fire in the respective areas.

b. Findings

No findings of significance were identified.

.6 Manual Fire Suppression Capability

a. Inspection Scope

The team walked down selected standpipe systems and observed portable extinguishers to determine the material condition of the manual fire fighting equipment and verify locations as specified in the firefighting strategies (pre-fire plans) and fire protection program documents. The team reviewed electric and diesel fire pump flow and pressure tests to ensure that the pumps were meeting their design requirements. The team also reviewed the fire main loop flow tests to ensure that the flow distribution circuits were able to meet the design requirements. The team inspected the fire brigade's protective ensembles, self-contained breathing apparatus (SCBA), and various fire brigade equipment to determine operational readiness for fire fighting.

The team reviewed fire fighting strategies and smoke removal plans for the selected fire areas to determine if appropriate information was provided to fire brigade members and plant operators to identify safe shutdown equipment and instrumentation, and to facilitate suppression of a fire that could impact safe shutdown.

The team performed in-plant walkdowns to evaluate the physical configuration of electrical raceway and safe shutdown components in the selected fire areas to determine whether water from an inadvertent fire suppression system pipe rupture or from manual fire suppression activities in the selected areas could cause damage that could inhibit the plant's ability to safely shutdown.

b. Findings

No findings of significance were identified.

.7 Alternative Shutdown Capability

a. Inspection Scope

The team reviewed the fire response procedures and emergency operating procedures (EOPs) for the selected fire areas to evaluate the methods and equipment used to achieve hot shutdown following a fire. The team also reviewed piping and instrumentation drawings for post-fire safe shutdown systems to identify required components for establishing flow paths, to identify equipment required to isolate flow diversion paths, and to verify appropriate components were properly evaluated and included in the safe shutdown equipment list. The team also reviewed selected alternate shutdown components and their control circuits to ensure that proper isolation was provided for alternate shutdown capability and performed field walkdowns to evaluate the protection of the equipment from the effects of fires.

Post-fire shutdown procedures for the selected areas were also reviewed to determine if appropriate information was provided to plant operators to identify protected equipment and instrumentation and if recovery actions specified in post-fire shutdown procedures considered manpower needs for performing restorations and area accessibility. The team also reviewed training lesson plans for the alternative shutdown procedures, discussed training with licensed operators, reviewed selected alternate shutdown equipment tests, reviewed the adequacy of shift manning, and evaluated the accessibility of the alternative shutdown operating stations and required manual action locations.

Specific procedures reviewed included OP-TM-EOP-20, "Cooldown From Outside of Control Room," Revision 0; procedure 1202-31, "Fire," Revision 63, and 1104-45P, "Fire Mitigation (supplement to 1202-31)," Revision 18.

A procedure walkdown was performed for procedure OP-TM-EOP-20, "Cooldown From Outside of Control Room," Revision 0. The walkdown was performed on Unit 1 by a licensed operating crew and focused primarily on the portion of the procedure associated with achieving stable hot shutdown conditions. Plant operators were accompanied by NRC team members during the walkdown and the approximate time for critical steps, such as establishing emergency feedwater flow to the steam generators and establishing make-up flow and boration of the reactor coolant system, were noted and evaluated to assess the ability of the operators to maintain plant parameters within procedural limits.

b. Findings

No findings of significance were identified.

.8 Safe Shutdown Circuits

a. Inspection Scope

The team reviewed power and control cable routing for a sample of components required for post-fire safe shutdown to determine if the cables were properly evaluated as part of the safe shutdown analyses in the FHAR.

The team reviewed electrical fuse and circuit breaker coordination studies to ensure equipment needed to conduct post-fire safe shutdown activities would not be impacted due to a lack of coordination. The team also reviewed the electrical isolation capability of selected equipment needed for post-fire safe shutdown to ensure that such equipment could be operated locally, if needed.

The team also reviewed the overcurrent protection associated with the 4160 volt bus ducts that provide power to safety-related buses 1D and 1E. The overcurrent protection was reviewed to determine if adequate protection was available to limit the potential effects of fire in the switchgear and/or bus ducts since the bus ducts pass through the wall between the 1D and 1E switchgear rooms. The wall is rated for 3 hours but the bus ducts do not have a specific fire rating and contain only a fiberglass smoke seal at the wall penetration.

Due to the issuance of Change Notice 00-020 to Inspection Procedure 71111.05, “Fire Protection,” the team did not review associated circuit issues during this inspection. This change notice has suspended this review pending completion of an industry initiative in this area.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems

.1 Corrective Actions for Fire Protection Deficiencies

a. Inspection Scope

The team reviewed the fire impairments log, open corrective maintenance work orders for fire protection and safe shutdown equipment, selected condition reports for fire protection and safe shutdown issues to evaluate the prioritization for resolving fire protection related deficiencies and the effectiveness of corrective actions. The team also reviewed recent Quality Assurance Audits, and Engineering Self-Assessments of the fire protection program to determine if the licensee was identifying program deficiencies and implementing appropriate corrective actions.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

.1 Exit Meeting Summary

The team presented their preliminary inspection results to Mr. George Gellrich and other members of the Three Mile Island Station, Unit 1 staff at an exit meeting on October 25, 2002.

4OA7 Licensee Identified Violations

The following violation of very low safety significance (green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a NCV.

License Condition 2.C(4) requires that AmerGen implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report. FSAR section 9.9.3.1 states that the plant fire protection systems comply with the NFPA codes where pertinent. As described in CR 112699, the licensee identified that the spacing and location of heat detectors in the relay did not meet the requirements of NFPA 72E, Standard on Automatic Fire Detectors, 1974 edition, section 3-5.3. These heat detectors serve as the initiating device for the relay room total flooding CO_2 system. Because the actuation time delay associated with misplacement of the heat detectors was small and the area is protected with independent duct mounted smoke detectors which would provide early indication of a fire, this violation is not more than of very low safety significance, and is being treated as a non-cited violation.

KEY POINTS OF CONTACT

AmerGen Energy Company, LLC

R. Barley, Engineering
H. Crawford, System Engineering
A. Miller, Regulatory Assurance
G. Gellrich, Plant Manager
S. Hutchens, Exelon ROG Electrical Engineer
C. Pragman, Kennett Square Engineering
F. Reeser, Engineering
R. Sieglitz, System Engineering
D. Roberts, Corporate Engineering
L. Terrazas, Engineering

Nuclear Regulatory Commission

W. Lanning, Director, Division of Reactor Safety
J. Linville, Chief, Electrical Engineering Branch
J. Orr, Senior Resident Inspector, Three Mile Island Station
C. Smith, Resident Inspector, Three Mile Island Station

LIST OF ITEMS OPENED AND CLOSED

Opened and Closed

50-289/02-011-01	NCV	Inadequate Control of Transient Combustibles

SUPPLEMENTAL INFORMATION (Cont'd)

LIST OF ACRONYMS USED

AP	Administrative Procedure
AR	Action Request
EFW	Emergency Feedwater
ASP	Auxiliary Shutdown Panel
CFR	Code of Federal Regulations
CO_2	Carbon Dioxide
CR	Condition Report
DID	Defense-in-Depth
DRS	Division of Reactor Safety
EDG	Emergency Diesel Generator
EOP	Emergency Operating Procedure
FA	Fire Area
FHAR	Fire Hazards Analysis Report
FSAR	Final Safety Analysis Report
FZ	Fire Zone
IEEE	Institute of Electrical and Electronics Engineers
IP	Inspection Procedure
IPEEE	Individual Plant Examination of External Events
IR	Inspection Report
MCC	Motor Control Center
NCV	Non-Cited Violation
NFPA	National Fire Protection Association
NRC	Nuclear Regulatory Commission
P&ID	Piping and Instrumentation Drawing
QA	Quality Assurance
SCBA	Self-Contained Breathing Apparatus
SDP	Significance Determination Process
SER	Safety Evaluation Report
SSC	Structures, Systems, Components
SSCL	Safe Shutdown Component List
UL	Underwriters Laboratories

LIST OF DOCUMENTS REVIEWED

Fire Protection Program Documents

AP-1035, Rev. 30	Control of Transient Combustible Materials, Rev 30
AP-1038, Rev. 59	Administrative Controls - Fire Protection Program

Calculations

C-1101-700-E510-010, Rev.6	AC Voltage Regulation Study
C-1101-733-5350-003, Rev.1	Class 1E 480V Unit Substations Solid State Trips
C-1101-732-5350-005, Rev.1	Protective Relays Class 1E SWGR
C-1101-732-5350-006, Rev.1	Protective Relays 4.16 kV BOP SWGR
C-1101-741-E510-005, Rev.2	Loading Summary of EDGs and ES Buses

Procedures

AD-TM-101, Rev. 05	Temporary Configuration Changes
CC-AA-102, Rev. 04	Design Input and Configuration Change Impact Screening
CC-AA-103, Rev. 03	Configuration Change Control
ES-025T, Rev. 3	Selection and Setting of Protective Devices
OP 1107-4, Rev. 179	Electrical Distribution Panel Listing
OP 1107-5, Rev. 116	Electrical Distribution Component Listing
OP-TM-EOP-020, Rev.0	Cooldown from Outside the Control Room
PMP IC-140, Rev.9	Fire Detection Panel Battery Replacement
SSP 3301-R1, Rev.20	Fire Service Diesel Engine Inspection
SSP 3301-W2, Rev.23	Fire System Diesel Battery Check
SSP 3301-Q2, Rev.25	Specific Gravity Check - Diesel Fire Pumps
EDGP-4	Preparation of Block Diagrams
EDGP 5	Conduit Layout drawing and Cable Routing
OP-1104-45F	CO_2 Fire Extinguishing System for 338' Elev. Relay Room, Rev 18
PRF-3-5	Alarm Response Procedure, Panel Right Front, Rev 15
SOP 393	CO_2 Fire Extinguishing System
SP-1301-12.3	Fire System Hose Station Inspection and Functional Test, Rev 21
SP-1303-13.1, Rev. 11	Appendix R D.C. Emergency Lighting Functional and Alignment Check
SP-1303-13.1, Rev. 09	Inspect/Test D.C. Lighting

Specifications

SP-1101-41-003, Rev. 7	Installation of Electrical Equipment

System Design Descriptions

SDD-TI-772-A, Rev.3	Electrical Cable and Raceway Routing

Alarm Response Procedures

PRF Rev. 90	Panel Right Front, Alarm Response Procedure
HVA Rev. 45	Heating and Ventilation Panel Annunciator A

LIST OF DOCUMENTS REVIEWED (Cont.)

Completed Surveillance Procedures

SP-1303-12.5	CO_2 Fire CO_2 FireProtection System Test, Rev 19, Completed 10/22/01
SP-1303-12.8	Incipient Fire Detector (IDF) Instrumentation Functional Test, Rev 1, Completed 7/27/02
SP-1303-12.9	Fire Barrier Seal Inspection, Rev 25, Completed 9/24/01
SP-1303-12.25	Technical Requirements Fire Door SP-1303-12.25 Inspection and Maintenance, Rev 1, Completed 9/5/02
SSP-3303-A2	Fire System Main Header Flush and Loop Test, Rev 36, Completed 7/19/01
SSP-3303-A2	Fire System Main Header Flush and Loop Test, Rev 36, Completed 6/18/02

Condition Reports/Action Requests

A2009197	Replace Controllers for FS-P-1 and FS-P-3
A2046385	Revise SP-1101-41-003 and SDD-T1-772-A
00089835	SCBA Eyeglasses (CC)
00101525	Operability Determinations (LS)
00112570	Clam Kill/Fire Service Schedule (CC)
00112699	Relay Room Heat Detector Spacing (CC)
00113079	Relay Room Ionization Detectors (CC)
00114684	Fire Drill Observation (CC)
00118945	Impact on RCP During Loss of Seal Cooling (LS)
00119215	Testing of CO2 manual actuation (CC)
00121342	MIC Leak (CC)
00111961	Incipient Detection System Went Off Line (CC)
CAP T2000-0542	Alternate Shutdown Requirements not met
CAP T2001-0266	FS-P-3 Did not Start

Quality Assurance Audits/Self-Assessments

QSR 99-023 Worker Knowledge Survey - Unit 2 9RIO
TMI Fire Protection Self-Assessment Report dated September 19, 2002

Drawings

201-251	DC Main Distribution Panel 1A
201-252	DC Main Distribution Panel 1B
201-253	DC ES Distribution Panel 1E
201-254	DC ES Distribution Panel 1F
201-255	DC Distribution Panel 1C
201-256	DC Distribution Panel 1D
201-261	DC Distribution Panel 1M
201-413	Remote Shutdown Transfer Switch
206-022	4160 V ES Switchgear One Line
206-032	480 V ES Switchgear One Line
208-027	Substation Bus 8 Primary Lockout Elementary
208-029	Auxiliary Transformer Differential Lockout Elementary
208-039	Auxiliary Transformer Neutral Lockout Elementary
208-043	Substation Bus Differential DC Circuit Elementary
208-130	4160 Volt Switchgear Power Meter and Relay Connections
208-147	4160 Volt Tie Breaker Elementary
208-163	Diesel Generator 1A Breaker Elementary

LIST OF DOCUMENTS REVIEWED (Cont.)

208-164	Diesel Generator 1B Breaker Elementary
208-213	MU-P-1A Elementary
208-215	MU-P-1B Elementary
208-218	Diesel Generator Differential Connections
208-298	480 Volt Screen House Control Center Feeder
208-315	Bus 1R PT and Undervoltage Elementary
208-316	Bus 1T PT and Undervoltage Elementary
208-351	NS-P-1A Elementary
208-353	NS-P-1B (S) Elementary
208-358	NR-P-1C Elementary
208-411	480 Volt Control Center Typical Starter Elementary
208-426	RC-V-2, -3 Elementary
208-429	MS-V-8A,-8B Elementary
208-435	MU-V-1A,-1B Elementary
208-437	MU-V-2A Elementary
208-442	MU-V-16A-D Elementary
208-449	NR-V-15A,-15B Elementary
208-481	NR-V-19 Elementary
208-488	RC-V-1 Elementary
208-499	IC-V-2 Elementary
208-562	MU-P-3C Elementary
208-563	MU-P-3B Elementary
208-690	Valve MU-V-36
208-721	Bypass Valve MU-V-217
208-750	Remote Shutdown Transfer Switch Panel B
208-759	Remote Shutdown EDG B Elementary
209-022	MU-V-3 Elementary
209-050	AC & DC Transfer Switch Lockout Elementary
209-078	IC-V-4 Elementary
209-147	Motor Driven Fire Pump Elementary
210-616	Remote Shutdown Signal Conditioning Panel B2
214-035	Cable Trays - CT Below El. 355
214-036	Cable Trays - CB Below El. 322 & 338
214-037	Cable Trays - CT Below El. 355
214-039	Cable Trays - CT Below El. 355
214-044	Cable Trays - CT El. 322
229-001	Substation One Line
229-002	Substation One Line
600-722	B Diesel Engine Control
831-001	Neutron Flux Monitoring Connection Diagram
53E Sh1, Rev D	Fire Damper Model DAF-6
SECM No. 152	Three Mile Island Nuclear Station Unit 1 Auxiliary Bldg. - Cable Tray Deluge Sys.

Data Bases

Electrical Cable Information System , Various cable information sheets

LIST OF DOCUMENTS REVIEWED (Cont.)

Vendor Documents

Automatic Switch	GS 213-689, MCC 1C Auto Transfer Switch GS 225-609, Fire Pump Auto Transfer Switch
Colt	01760240, Diesel Generator 3-Line and Schematic 11865841, Diesel Engine Control
Foxboro	A1 C004, Channel I, Generator A A2 C001, Channel II, Generator A A2 C004, Channel II, Generator A CD-0004, Signal Conditioning Panel A3 CD-24-2, Saturation Margin Monitor CD-24-3, Saturation Margin Monitor CD-25-1, Saturation Margin Monitor

Piping and Instrument Diagrams

302-011Rev. 60	Main Steam
302-082 Rev. 22	Emergency Feedwater
302-202 Rev. 66	River Water
302-231 Rev. 93	Fire Service Water
302-271 Rev. 67	Instrument and Station Service Air
302-272 Ref. 17	Backup Instrument Air
302-273 Rev. 19	Emergency Feedwater and Main Steam Valve 2 Hour Backup Supply Air
302-610 Rev. 67	Nuclear Services Closed Cycle Cooling Water
302-620 Rev. 48	Intermediate Cooling
302-640 Rev. 78	Decay Heat Removal
302-645 Rev. 36	Decay Heat Closed Cycle Cooling Water
302-650 Rev. 52	Reactor Coolant
302-660 Rev. 38	Makeup & Purification
302-662 Rev. 00	Makeup Pump Auxiliary Systems
302-661 Rev. 52	Makeup and Purification
302-711 Rev. 28	Core Flooding
302-842 Rev. 53	Control Building and Machine Shop Ventilation

Design Change Packages/Evaluations

MD-D542-004 Control Building Incipient Detection
BISCO Test No. 748-14 Metal Clad Fire Wall Penetration Barrier Fire Testing
BISCO Test No. 3301-03-B Fire Test Configuration for BISCO Three Hour Fire Seal
Fire Barrier Penetration Seal Evaluation Report, Vol 1, Rev 0
Proto Power Evaluation 97-E07:
Upgrade of Boxed Penetration Elements 36,40,41,42,343,348,388,535,541,563, and 581 with Mecatiss MPF-60 Fire Barrier System for a 1-Hour Rated Fire Rating
ECR TM 01-00067 IC Pump Trip Alarm

Miscellaneous Drawings

201-403 Rev. 01	Remote Shutdown Panel “B” Front Panel Layout
201-401 Rev. 00	Auxiliary Remote Shutdown Panel “B” Front Panel Layout
B-215-197 Rev. 02	Electrical Conduit and Cable Layout for CO_2 Fire Protection System for Relay Room
B-1792-19 Rev. 01	Fume Tight Wall Seal Assy’s for 5KV 1200A 2000A Bus Duct

LIST OF DOCUMENTS REVIEWED (Cont.)

D-1792-10A Rev. 05	4160V, 4000, 3000, 2000, 1200A, 3P, 3W Bar Duct Layout for Run 5
D-1792-10B Rev. 04	4160V, 4000, 3000, 2000, 1200A, 3P, 3W Bar Duct Layout for Run 5
D-1792-11A Rev. 04	4160V, 4000, 3000, 2000, 1200A, 3P, 3W Bar Duct Layout for Run 6
D-1792-11B Rev. 03	4160V, 4000, 3000, 2000, 1200A, 3P, 3W Bar Duct Layout for Run 6
D-1792-12 Rev. 02	4160Vm 1200A, 3P, 3W Bar Type Bus Duct Layout for Run 7
1-FHA-001, Rev. 05	Fire Area Layout - Legend and Notes
1-FHA-026, Rev. 13	Fire Area Layout - Auxiliary & Fuel Handling Buildings El 281'-0"
1-FHA-035, Rev. 12	Fire Area Layout - Control Room Tower El 322'-0" 7 338'-6"

Miscellaneous Documents

GAI/TMI-ICS/945	Three Mile Island Nuclear Station Unit No. 1, Fire Protection Cable Spreading Room
GAI/TMI-1/4526	Three Mile Island Unit No. 1 Extinguishing System for Relay Room, dated May 10, 1976
G/C/TMI-1CS-11540	Three Mile Island Nuclear Station, Unit 1 Auxiliary Building, El. 281'-0" Penetration Area Sprinkler System Hydraulic Calculation, dated December 5, 1984
NFPA No. 12	Standard on Carbon Dioxide Extinguishing Systems, 1973 edition
NFPA No. 13	Standard for the Installation of Sprinkler Systems, 1974 edition
NFPA No. 13	Standard for the Installation of Sprinkler Systems, 1978 edition
NFPA No. 15	Standard for Water Spray Fixed Systems for Fire Protection, 1973 edition
NFPA No. 72E	Standard on Automatic Fire Detectors, 1974 edition
SDD-T1-845A	System Design Description for Fuel Handling Area ESF Ventilation System, Rev 6
SP-1101-12-082	Dampers for Fuel Handling Area ESF Ventilation System
Topical Report 117	Microbiologically Influenced Corrosion (MIC) Program Description, Rev 1

"Automatic" Model F-1 Spray Nozzle-Introduction, J 6.3
Monthly Ship System Report, P176/811 - Fire Service Water, August 2002
Fire Protection Impairment Log
TMI Individual Plant Examination for External Events

UL 555	Fire Dampers and Ceiling Dampers
VM-TM-0095	Cardox Fire Extinguisher System Cable Room, Main Generator
Memo 5520-85-0520	Evaluation of Delayed EFW for Appendix R Requirements, dated October 01, 1985

NRC SER dated September 19, 1978 for license amendment No. 44.
GPU Nuclear Exemption Request Letter 5211-84-2263, dated October 30, 1984
GPU Appendix R Clarification Letter 5211-86-2124, dated July 22, 1986
GPU Response to Request for Additional Information Letter TLL 124, dated March 19, 1980
NRC Letter dated July 11, 1997, regarding Appendix R Exemption Requests
NRC Letter dated June 4, 1984, regarding Appendix R Exemption Requests
NRC SER Supplement dated November 19, 1980
NRC Letter dated March 19, 1987, Response to Exemption Requests
NRC Letter dated December 30, 1986, Response to Exemption Requests
GPU Response to Request for Additional Information Letter TLL 243, dated May 30, 1980
GPU Response to Request for Additional Information Letter GQL 1250, dated July 29, 1978
GPU Nuclear Exemption Request Letter 5211-86-2143, dated August 19, 1986