



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I**
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

August 20, 2013

Mr. Michael J. Pacilio
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer, Exelon Nuclear
4300 Winfield Rd.
Warrenville, IL 60555

**SUBJECT: THREE MILE ISLAND STATION - NRC EVALUATION OF CHANGES, TESTS,
OR EXPERIMENTS AND PERMANENT PLANT MODIFICATIONS TEAM
INSPECTION REPORT 05000289/2013007**

Dear Mr. Pacilio:

On July 12, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Three Mile Island, Unit 1 (TMI) facility. The enclosed inspection report documents the inspection results, which were discussed on July 12, 2013, with Mr. Mark Newcomer, TMI Plant Manager, and other members of your staff.

The 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. In conducting the inspection, the team reviewed selected procedures, calculations and records, observed activities, and interviewed station personnel.

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

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) 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, Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Paul G. Krohn, Chief
Engineering Branch 2
Division of Reactor Safety

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

M. J. Pacilio

2

Enclosure:

Inspection Report 05000289/2013007

w/ Attachment: Supplemental Information

cc: Distribution via ListServ

Distribution w/encl:

W. Dean, RA (R1ORAMAIL Resource)
D. Lew, DRA (R1ORAMAIL Resource)
D. Roberts, DRP (R1DRPMAIL Resource)
M. Scott, DRP (R1DRPMail Resource)
R. Lorson, DRS (R1DRSMail Resource)
J. Rogge, DRS (R1DRSMail Resource)
G. Hunegs, DRP
B. Bickett, DRP
A. Dugandzic, DRP
T. Setzer, Acting SRI
J. Heinly, DRP, RI
A. Diaz, DRP, AA
V. Campbell, RI OEDO
RidsNrrPMThreeMileIsland Resource
RidsNrrDorlLp1-2 Resource
ROPReports Resource

Mr. Michael J. Pacilio
 Senior Vice President, Exelon Generation Company, LLC
 President and Chief Nuclear Officer, Exelon Nuclear
 4300 Winfield Rd.
 Warrenville, IL 60555

SUBJECT: THREE MILE ISLAND STATION - NRC EVALUATION OF CHANGES, TESTS,
 OR EXPERIMENTS AND PERMANENT PLANT MODIFICATIONS TEAM
 INSPECTION REPORT 05000289/2013007

Dear Mr. Pacilio:

On July 12, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Three Mile Island, Unit 1 (TMI) facility. The enclosed inspection report documents the inspection results, which were discussed on July 12, 2013, with Mr. Mark Newcomer, TMI Plant Manager, and other members of your staff.

The 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. In conducting the inspection, the team reviewed selected procedures, calculations and records, observed activities, and interviewed station personnel.

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

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) 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, Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Paul G. Krohn, Chief
 Engineering Branch 2
 Division of Reactor Safety

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

DOCUMENT NAME: G:\DRS\Engineering Branch 2\Kern\TMI MODS Report 2013007.docx
 ADAMS ACCESSION NUMBER: ML13233A228

<input checked="" type="checkbox"/> SUNSI Review		<input checked="" type="checkbox"/> Non-Sensitive		<input checked="" type="checkbox"/> Publicly Available	
RI/DRS	RI/DRP	RI/DRS			
DKern/PGK per telecon	GHunegs/GH	PKrohn/PK			
8/15/2013	8/15/2013	08/20/2013			

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.: 50-289

License No.: DPR-50

Report No.: 05000289/2013007

Licensee: Exelon

Facility: Three Mile Island Nuclear Power Plant

Location: Middletown, PA

Inspection Period: June 24 through July 12, 2013

Inspectors: David Kern
Senior Reactor Inspector
Division of Reactor Safety (DRS)
Team Leader

Stephen Pindale
Senior Reactor Inspector, DRS
Richard Montgomery
Project Engineer, DRP

Approved By: Paul Krohn, Chief
Engineering Branch 2
Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000289/2013007; 6/24/2013-7/12/1013; Three Mile Island Nuclear Power Plant (TMI); Evaluation of Changes, Tests or Experiments, and Permanent Plant Modifications.

This report covers a two week on-site inspection period of the evaluations of changes, tests, or experiments and permanent plant modifications. The inspection was conducted by two region based engineering inspectors and one region based reactor projects inspector. No findings were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R17 Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications (IP 71111.17)

.1 Evaluations of Changes, Tests, or Experiments (25 samples)

a. Inspection Scope

The team reviewed five safety evaluations to determine whether the changes to the facility or procedures, as described in the Updated Final Safety Analysis Report (UFSAR), had been reviewed and documented in accordance Title 10 of the *Code of Federal Regulations* (10 CFR) 50.59 requirements. In addition, the team evaluated whether Exelon had been required to obtain U.S. Nuclear Regulatory Commission (NRC) approval prior to implementing the changes. The team interviewed plant staff and reviewed supporting information including calculations, analyses, design change documentation, procedures, the UFSAR, Technical Specifications (TS), and plant drawings to assess the adequacy of the safety evaluations. The team compared the safety evaluations and supporting documents to the guidance and methods provided in Nuclear Energy Institute (NEI) 96-07, "Guidelines for 10 CFR 50.59 Evaluations," Revision 1, as endorsed by NRC Regulatory Guide 1.187, "Guidance for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments," to determine the adequacy of the safety evaluations.

The team also reviewed a sample of twenty 10 CFR 50.59 screenings, applicability reviews, item equivalency changes, commercial change packages, equivalency change packages, temporary configuration change packages, and commercial grade dedications for which Exelon had concluded that a safety evaluation was not required. These reviews were performed to assess whether Exelon's threshold for performing safety evaluations was consistent with 10 CFR 50.59. The sample included design changes, calculations, and procedure changes.

The team reviewed the safety evaluations and screenings that Exelon had performed and approved during the time period covered by this inspection that had not been previously reviewed by NRC inspectors. All safety evaluations since the last modifications inspection were reviewed, and the screenings and applicability determinations selected were based on the safety significance, risk significance, and complexity of the change to the facility.

In addition, the team compared Exelon's administrative procedures used to control the screening, preparation, review, and approval of safety evaluations to the guidance in NEI 96-07 to determine whether the procedures adequately implemented the requirements of 10 CFR 50.59. The reviewed safety evaluations and screenings are listed in the Attachment.

b. Findings

No findings were identified.

.2 Permanent Plant Modifications (12 samples)

.2.1 Equivalent Pressure Switch for FW-PS-29A

a. Inspection Scope

The team reviewed equivalent change TM 11-00571-000, which modified the alarm function of components connected to the output of the 1A feedwater pump governor oil pressure switch (PS29A). This pressure switch had been recently replaced; however, Exelon discovered that certain switch contacts opened instead of closing upon decreasing governor oil pressure. As a result, annunciator M-2-2 and a computer point did not respond as expected to governor oil pressure signals. This modification changed annunciator M-2-2 and computer point S2045 to alarm on decreasing oil pressure when PS29A output contacts opened instead of when they closed. The redundant features associated with PS29B still alarmed on decreasing oil pressure and therefore that pressure switch was not changed.

The team reviewed the modification to verify that the design and licensing bases had not been degraded by the reversed contacts. The team interviewed the responsible engineer and reviewed associated evaluations to verify that the modified configuration was consistent with existing design assumptions. The team reviewed the associated procedures and drawings to ensure the necessary changes were implemented. The 10 CFR 50.59 screening determination associated with this modification was reviewed as described in section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.2 Alternate Once-Through Steam Generator Tube Stabilizer

a. Inspection Scope

The team reviewed equivalent change TM 11-00543-000, which permitted the use of a standard full-length stabilizer for specific tube locations in the once-through steam generators (OTSG), as opposed to the hybrid design stabilizer. The purpose of tube stabilizers is to maintain the structural integrity of a tube that has shown indications via eddy current testing, such that in the presence of flow-induced vibration the tube does not completely sever. The hybrid design incorporated a solid alloy rod along the length of the assembly in combination with strand wire rope cables, and was designed for installation along the periphery of the OTSG grid and for tubes with indications in the top span of the tube. Due to installation interference issues, this modification evaluated the use of the standard full-length stabilizer. The 30 degraded tubes affected by this

Enclosure

modification did not have indications in the top span of the tubes. The associated analysis accepted the use of this stabilizer for two operating cycles. The team reviewed the modification to verify that the design and licensing bases had not been degraded by the use of the alternate OTSG tube stabilizer. The team interviewed the responsible engineers and reviewed the associated evaluations to verify that the modified configuration was consistent with existing design assumptions. A sample of post-installation tests of the OTSG tube stabilizers was reviewed to verify the integrity of the installed components. Also, the team reviewed Exelon's current plans to initiate actions to further assess the alternate configuration beyond the two operating cycles permitted by this modification. The 10 CFR 50.59 screening determination associated with this modification was reviewed as described in section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.3 MU-V-16A/B Multiple Spurious Operation Modification

a. Inspection Scope

The team reviewed modification TM 12-00331-000, which modified make-up system valves MU-V-16A and MU-V-16B to address a specific multiple spurious operation (MSO) scenario, MSO Scenario 53 (spurious motor-operated valve operation, and wire-to-wire short(s) bypass torque and limit switches). Previously, only the open function for these valves was addressed for this scenario. This modification implemented a similar circuitry modification to provide defense-in-depth to protect the valves while being closed for the same postulated scenario. Specifically, the valves' torque and limit switches were electrically repositioned to the ground side of their respective close contactor coils, and sleeving was applied to jumpers within the valve motor control center buckets to add protection for a postulated localized motor control center fire.

The team reviewed the modification to verify that the design and licensing bases had not been degraded by repositioning the torque and limit switches. The team interviewed the responsible engineer and reviewed associated evaluations to verify that the modified configuration was consistent with existing design assumptions and regulatory requirements. Operation and design of similar valves to evaluate whether the valves were the team also reviewed the appropriately protected for the same MSO scenario. Drawings were reviewed to verify that the necessary updates were implemented, and post-modification testing was reviewed to verify that the testing confirmed acceptable valve operation. The 10 CFR 50.59 screening determination associated with this modification was reviewed as described in section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.4 Engineered Safeguards Actuation System Alternating Current (AC) Relay Replacement

a. Inspection Scope

The team reviewed modification TM 12-00471-002, which was designed to replace the engineered safeguards actuation system (ESAS) relays. The existing relays were problematic (e.g., armature misalignment, abnormal buzzing, high resistance contacts) and are expected to be discontinued. The project scope for this modification included replacement of 238 relays. At the time of this inspection, one upgraded ESAS relay had been installed, which was implemented via modification TM 12-00534. Each relay or relay group will be implemented via a separate modification number, which is a sub-modification to parent modification TM 12-00471-002.

The team reviewed the modification to verify that the design and licensing bases had not been degraded by the relay replacement modification. The team interviewed the responsible engineer and reviewed associated evaluations to verify that the modified configuration and relay operating characteristics were consistent with design assumptions. The team conducted a walkdown to observe a mockup relay installation that was performed prior to implementing the work package, as well as a walkdown of the installed replacement relay in ESAS Cabinet 4A. Drawings requiring revision due to the modification were reviewed to verify appropriate changes were made, and post-modification test results were reviewed to verify that the testing confirmed acceptable relay installation and operation. The 10 CFR 50.59 screening determination associated with this modification was reviewed as described in section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.5 Issue Nuclear Service Pump In-Service Testing Flow Accuracy Calculation

a. Inspection Scope

The team reviewed equivalent change TM 11-00031 that issued calculation C-1101-541-E420-037. TMI implemented this modification to evaluate the Nuclear Service Closed Cycle Cooling Water pump in-service testing quarterly flow accuracy and to prove that the flow accuracy satisfied the American Society of Mechanical Engineers (ASME) Operations and Maintenance (OM) code requirement of two percent of full scale. While the design basis was changed, no physical plant changes were made by this modification.

The team reviewed the calculation to verify that the design bases, licensing bases, and performance capability of the Nuclear Service pumps (NS-P-1A/B/C) had not been degraded by the modification. The team interviewed design engineers and reviewed associated calculations, evaluations, and issue reports to verify that the modification adequately determined that the current design was capable of meeting the ASME OM code requirements for flow measurement accuracy. The 10 CFR 50.59 screening

Enclosure

determination associated with this modification was reviewed as described in section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.6 Replacement Valve for DF-V-23A/B

a. Inspection Scope

The team reviewed Item Equivalency Change (IEC) TM 11-00085, which permitted, the replacement of the currently installed and obsolete single poppet diesel fuel oil tank foot valve (Dover OPW Part Number 85) with the manufacturer's new recommended double poppet foot valve (Dover OPW Part Number 86-0033). The double poppet design provided redundancy for holding the prime in the system and was recommended for installation in applications where the valve is not easily accessible.

The team reviewed the modification to verify that the design bases, licensing bases, and performance capability of the diesel fuel oil tank foot valves would not be degraded by the modification. The team interviewed design engineers and reviewed associated calculations, evaluations, drawings, and issue reports to verify that the modified configuration was consistent with existing design assumptions. The team also reviewed IEC TM 09-00689, which was superseded by this IEC to ensure that a complete re-evaluation was performed. The 10 CFR 50.59 screening determination associated with this modification was reviewed as described in section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.7 Diesel Generator Ventilation Calculation Revision

a. Inspection Scope

The team reviewed equivalent change TM 12-00005, which involved a revision to the Emergency Diesel Generator (EDG) ventilation calculation (C-1101-831-5360-002). Revision 0 of this calculation incorrectly assumed that EDG room fans AH-E-29A/B needed to be manually restarted after a Loss of Offsite Power (LOOP). The calculation assumed it would take an operator 20 minutes to manually restart the fans. However, fans AH-E-29A/B run continuously during normal operation and start automatically upon an EDG start following a LOOP. No manual operator action was necessary to start these fans. Therefore, the scope of this calculation revision was to remove the 20 minute manual operator requirements to start the fans. While the design basis of the fans was changed, no physical plant changes were made by this modification. The team reviewed the calculation to verify that the design bases, licensing bases, and performance capability of the EDG fans AH-E-29A/B had not been degraded by the

Enclosure

modification. The team interviewed design engineers and reviewed associated calculations, evaluations, drawings, procedures, and issue reports to verify the modification was consistent with existing design assumptions. Additionally, the team walked down the control room to verify that the fans were running and that operators were familiar with the fans' continuous mode of operation. The 10 CFR 50.59 screening determination associated with this modification was reviewed as described in section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.8 Security Improvements

a. Inspection Scope

The team reviewed commercial change TM 10-00114, for advance work associated with a security improvements project to verify that the design bases, licensing bases, and performance capability of the plant had not been degraded by the modification. The team interviewed the responsible engineer, Site Operations Security Manager, and Station Fire Marshal and reviewed associated calculations, evaluations, drawings, work orders, and procedures to verify that the modifications were appropriately implemented and would function in accordance with the design assumptions. Additionally, the team walked down the accessible portions of the multiple modifications to ensure they were installed in accordance with the design instructions. The 10 CFR 50.59 screening determination associated with this modification was reviewed as described in section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.9 Recent Security Upgrades

a. Inspection Scope

The team reviewed commercial change TM 12-00210, for advance work associated with the recent security upgrades to verify that the design bases, licensing bases, and performance capability of the plant had not been degraded by the modification. The team interviewed the responsible engineer and Site Operations Security Manager, as well as reviewed associated evaluations, drawings, work orders, and procedures to verify that the modifications were appropriately implemented and would function in accordance with the design assumptions. Additionally, the team walked down the accessible portions of the multiple modifications to ensure they were installed in accordance with the design instructions. The 10 CFR 50.59 screening determination associated with this modification was reviewed as described in section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.10 12-00395, Fire Hazards Analysis Report Change for Letdown Manual Actions, Revision 0

a. Inspection Scope

The team reviewed modification TM 12-00395, which removed manual operator actions for reactor coolant system letdown restoration from the Fire Hazards Analysis Report (FHAR) for certain fire zones/areas. Letdown restoration is required for Fire Safe Shutdown when reactor coolant pump seal cooling has been maintained and one of the following conditions is met in a fire zone/area: 1) High pressure injection cooling is credited for decay heat removal in the fire zone/area or 2) Both pressurizer heater groups are subject to unavailability in the fire zone/area. Engineers had determined that several of the station fire zones/areas for which letdown restoration was credited in the FHAR, did not meet either of the two conditions specified above. Accordingly engineers removed letdown restoration requirements from the FHAR for those identified fire zones/areas.

The team reviewed the modification to verify that the design and licensing bases for postulated 10 CFR Part 50, Appendix R events had not been degraded by the modification. The team interviewed engineering staff and reviewed the FHAR, selected procedures, and drawings to confirm the details and assumptions in the modification. The team reviewed the revised FHAR to ensure it was properly updated for the fire zones/areas which did not require manual operator actions for letdown restoration. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.11 Commercial Grade Dedication of One Time UL Class K5 General Purpose Fuse 250 Volts

a. Inspection Scope

The team reviewed commercial grade dedication (CGD) TI-92-0013, which certified commercially procured 6 amp fuses for use in safety related applications. The CGD technical evaluation identified six critical characteristics to be verified for acceptance of the fuses. A 10 CFR Part 50, Appendix B certified facility was contracted to perform testing and evaluation to verify the fuses met the specified critical characteristics. Procurement engineers reviewed the test results and implemented this CGD on April 22, 2010 to certify eight fuses. Material inventory records indicated six of the eight fuses were subsequently issued for use and two remained in stock. Three of the fuses were issued under work order R2153711, EDG 1B Generator (EG-Y-1B) relay cabinet inspection and cleaning, performed on June 14, 2011.

Enclosure

The team reviewed the modification to verify that the design bases, licensing bases and performance capability of the EDG had not been degraded by the modification. The team interviewed procurement engineering staff and reviewed technical evaluations, industry test standards, and test results associated with the CGD to determine if the EDG and its support systems would function in accordance with design assumptions (Issue Report (IR) 1534891). The team reviewed the associated work order to verify that maintenance personnel implemented the modification as designed. The team reviewed the associated post-modification test results and performed a field verification of the fuse installation in the EG-Y-1B relay cabinet to verify the fuses were properly installed and no abnormal visual characteristics were present. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.12 Joslyn Clark XKPM-10 Magnet and Rod Relay Kit

a. Inspection Scope

The team reviewed commercial grade dedication 09-00772, which certified commercially procured magnet and rod relay kits for use in safety related applications. The CGD technical evaluation identified nine critical characteristics to be verified for acceptance of the relay kits. The critical characteristics and acceptance criteria were developed based on TMI site operating experience, troubleshooting, corrective action program evaluations of failed relays, and a consultation with the manufacturer. All verification of critical characteristics for the group of 20 relay kits was performed by TMI staff. Material inventory records indicated one of these relay kits was issued for installation in ESAS cabinet 4B.

The team reviewed the modification to verify that the design bases, licensing bases and performance capability of the ESAS had not been degraded by the modification. The team interviewed procurement engineering staff and reviewed technical evaluations, industry test standards, and test results associated with the CGD evaluate whether the ESAS and its support systems would function in accordance with design assumptions. The team reviewed the associated work order to verify that maintenance personnel implemented the modification as designed. The team reviewed the associated post-modification test results and performed a field verification of the relay kit installation in ESAS cabinet 4B to verify the relay kit was properly installed and no abnormal visual characteristics were present. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (IP 71152)

a. Inspection Scope

The team reviewed a sample of issue reports associated with 10 CFR 50.59 and plant modification issues to evaluate whether Exelon was appropriately identifying, characterizing, and correcting problems associated with these areas, and whether the planned and/or completed corrective actions were appropriate. In addition, the team reviewed IRs written on issues identified during the inspection to verify adequate problem identification and incorporation of the problem into the corrective action system. The IRs reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4OA6 Meetings, including Exit

The team presented the inspection results to Mr. M. Newcomer, Plant Manager, and other members of Exelon's staff at an exit meeting on July 12, 2013. The team returned the proprietary information reviewed during the inspection and verified that this report does not contain proprietary information.

ATTACHMENT
SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Exelon Personnel

C. Armer	System Engineer
D. Atherholt	Manager, Regulatory Assurance
D. Auch	Mechanical Design Engineer
P. Bennett	Manager, Mechanical Design Engineering
S. Diven	System Engineer
S. Dunkelberger	Mechanical Design Engineer
J. Dullinger	Director, Site Engineering
R. Ezzo	Electrical Design Engineer
M. Fitzwater	Senior Regulatory Assurance Engineer
D. Hull	Mechanical Design Engineer
K. Hurstic	Mechanical Design Engineer
D. McGettrick	Lead Design Engineer
F. McGuire	Mechanical Design Engineer
W. McSorley	Flood Protection Engineer
M. Mullens	Mechanical Design Engineer
M. Newcomer	Plant Manager
J. Piazza	Senior Manager, Design Engineering
J. Sherk	Mechanical Design Engineer
B. Shumaker	Manager, Emergency Preparedness
P. Sier	Electrical Design Engineer
B. Stein	Supervisor, Procurement and Procurement Engineering
W. Stanley	Reactor Engineer
K. Tremblay	Senior Procurement Engineer

NRC

D. Werkheiser	NRC, Senior Resident Inspector
J. Heinly	NRC, Resident Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

None

LIST OF DOCUMENTS REVIEWED

10 CFR 50.59 Evaluations

ECR 10-00717, TMI Unit 1 Cycle 19 Core Reload Design, Revision 1
ECR 11-00487, Attachment 2, River Stage Discharge Analysis Revision, Revision 1
ECR 11-00512, Alternative Design for OTSG Nozzle Dam Seals, Revision 0
ECR 12-00129, TMI 50.2 EFPY P-T Limits, Revision 0
SE 08-00872, Spent Fuel Pool Rerack Project Phase 3, Revision 0

10 CFR 50.59 Screened-out Evaluations

Commercial Grade Dedication 08-00518, Joslyn Clark Silver Contact Kit, Model KPM-1A dated July 18, 2011
Commercial Grade Dedication T1-96-0001, ½ Inch Anderson Greenwood Crosby Relief Valve, EG-V-1A/B, Revision 3
ECR 10-00017, Permanent Normal Reactor Building Cooling Changes Supporting Temporary Cooling, Revision 0
ECR 10-00129, MU-V-1A/1B/1C Discharge Vent (MU V-250A/250B/250C), Revision 0
ECR 10-00184, AH-C-1/1B Cooling Coil Replacement Modifications, Revision 0
ECR 10-00308, T1R19 FAC Piping Repairs, Revision 3
ECR 10-00309, Perform Weld Overlay on Pressurizer Spray Line, Revision 0
ECR 10-00429, Main Transformer Cooling Power Modification, Revision 4
ECR 11-00144, TMI Radio Refresh Project, Revision 2
ECR 11-00246, New River Level Instrumentation for IST, Revision 1
ECR 11-00426, External Flood Design Improvements, Revision 1
ECR 11-00537, DC-V-2A and DC-V-2B Packing Retaining Plate, Revision 0
ECR 12-00035, Decay Heat River Water Line Leak Repair, Revision 0
ECR 12-00071, Update Main Steam Safety Valve Calculation, Revision 0
ECR 12-00115, Alternate Power to MU9-FT-1/2/3/4, Revision 2
ECR 12-00207, AG-E-4B Discharge Damper Support, Revision 1
ECR 12-00240, Relay for Loss of Phase Event Modification, Revision 1
ECR 12-00277, Letdown Nozzle Full Structural Weld Overlay, Revision 0
ECR 12-00278, TMI-1 Pressurizer Heater Bundle Replacement, Revision 0
ECR 12-00283, EG-Y-1A Lube Oil Monitoring Capability, Revision 0
ECR 12-00452, Revise Set Point of Differential Relay RC-P-1C/87, Revision 0
OS-24 (Batch), Conduct of Operations during Abnormal and Emergency Events, dated August 23, 2011

Audits and Self-Assessments

AR 1235081 (NOSA-TMI-11-05), Engineering Design Control Audit Report dated August 2011
AR 1452503, 10 CFR 50.59 Focused Area Self- Assessment Report dated March 28, 2013

Calculations

C-1101-411-5350-025, Setpoint Accuracy of Main Steam Safety Valves Tested in Place: MS-V-17's, 18's, 19's, 20's and 21's, Revision 2
C-1101-541-E420-037, TMI-1 NS Pump IST Flow Accuracy, Revision 0
C-1101-862-E410-005, Diesel Fuel Transfer Pump HPSH, Revision 0
C-1101-831-5360-002, Diesel Generator Room Heating and Ventilation, Revision 1

Completed Surveillance or Post-Modification Tests

1303-4.14, RB 30 PSIG Analog Channels, performed 3/26/13
 1420-EL-2, Preoperational Startup Testing of Electrical Equipment, performed on March 25, 2013
 Delta SAP Expansion Result (OTSG Plug Roll Torque Plots), R026C036.00 and R026C037.00, performed 11/4/11
 OP-TM-211-212, IST of MU-V-16A and MU-V-16B, performed on September 6, 2012

Issue Reports

0385281	1249905	1375469	1491049
1106397	1250175	1421916	1527464
1148906	1252965	1466929	1533843*
1184881	1260301	1486912	1534604*
1188866	1272726	1487470	1534641*
1191892	1286515	1490074	1534736*
1249758	1310997	1490081	1534891*

* IR written as a result of this inspection

Drawings

02-1227163D, OTSG Wire Rope Stabilizer Assembly and Details, Revision 8
 02-5064097D, EOSTG Hybrid Stabilizer Assembly, Revision 5
 1E-120-01-001, Sht. 1, Site Plan – Units No. 1&2 Above Ground Facilities Three Mile Island Generating Station, Revision 76
 1E-133-07-019, Sht. 1, Site composite underground facilities TMI Nuclear Generating Station, Revision 17
 1E-133-07-019, Sht. 2, Site composite underground facilities TMI Nuclear Generating Station, Revision 18
 85-C-70013, Sht. 102A, MCC1A Engineered Safeguard Valves Wiring, Revision 1
 201-235, Sht. 4, Facilities Off-Site Elec. Sys. Loadcenter Distribution Loadcenter #3, Revision 9
 208-690, Sht. 1, Electrical Elementary Diagram, 480V Cont. Ctr. 1A-ESV – Unit 2D (Make-up Pump Recirc Isolation Valve MU-V-36, Revision 6)
 208-690, Sht. 2, Electrical Elementary Diagram, 480V Cont. Ctr. 1B-ESV – Unit 2D (Make-up Pump Recirc Isolation Valve MU-V-37, Revision 4)
 208-442, Sht. 1, Electrical Elementary Diagram, 480V Cont. Ctr. 1A-ESV – Unit 4B (Emerg. Make-up Valve MU-V-16A), Revision 13
 208-442, Sht. 2, Electrical Elementary Diagram, 480V Cont. Ctr. 1A-ESV – Unit 4C (Emerg. Make-up Valve MU-V-16B), Revision 5
 209-1047, Annunciator System Electrical Elementary Diagram Annunciator Light Box #M, Revision 1
 302-645, Decay Heat Flow Diagram, Closed Cycle Cooling Water, Revision 39
 302-660, Make-up and Purification Flow Diagram, Revision 45
 302-661, Make-up and Purification Flow Diagram, Revision 60
 302-844, Sht. 1, Turbine Bldg. Diesel Gen. Sys & Out-Building H & V Flow Diagram, Revision 38
 308-946, Sht. 1, Reactor Coolant System RCS Benchmark Elevations Schematic Layout, Revision 5

509E254CE, Sht. 1, Diagram Wiring and VM-TM-0299, Revision 9
D42-421115, Sht. 1, Wiring Diagram – Compartment 4A, Revision 13

Engineering Evaluations

32-9080237 (90A1504), Engineering Analysis for the Three Mile Island
Nuclear Generating Station Replacement Steam Generator Nozzle Dams

Maintenance Work Orders

C2022551	C2027589	C2029137
C2024127	C2027877	R2153711
C2026726	C2028141	R2184190

Miscellaneous

#138, Three Mile Island Pre-Fire Plan, Revision 3
Appendix R Evaluation Report – Three Mile Island Unit 1, Revision 25
ASME Omb Code – 1998, updated through 2000 addenda
Electric Power Research Institute (EPRI) TE CGIFU02 CGI Joint Utility Task Group Commercial
Grade Item Evaluation for UL 198D Listed Fuses, Revision 1
EPRI TE CGIPR01, CGI Joint Utility Task Group Commercial Grade Item Evaluation for
Pressure Regulators, Single Stage, Revision 0
EPRI TE CGIVA11, CGI Joint Utility Task Group Commercial Grade Item Evaluation for
Non-ASME Section III Metallic Relief Valves, Revision 0
EPRI Topical Report 017218-R1, Guideline for Sampling in the Commercial Grade Item
Acceptance Process dated January 1999
EPRI Topical Report 105849, Generic Seismic Technical Evaluations of Replacement Items for
Nuclear Power Plants – Item Specific Evaluations, dated March 1996
Fire Model Analysis of TMI Unit 1 MSO Scenarios, Revision 1
IST-TMI-BDOC-V-01, Amergen Energy Company, LLC. Three Mile Island –
Unit 1 Pump & Valve In-service Testing (IST) Program Bases Document, Revision 0
NEI 96-07, Guidelines for 10 CFR 50.59 Implementation, Revision 1
NRC Regulatory Guide 1.187, Guidance for Implementation of 10 CFR 50.59, Changes,
Tests, and Experiments, dated November 2000
NRC Regulatory Guide 1.186, Guidance and Examples for Identifying 10 CFR 50.2
Design NUREG-1482, Guideline for In-service Testing at Nuclear Power Plants,
Revision 2
TM-RN, Sht. 531, Gilbert Associates, INC. Bill of Material for Piping Specialties,
Three Mile Island Nuclear Station – Unit 1
TMI-1 Updated Final Safety Analysis Report, Revision 21
TMI-1 Technical Specifications, Amendment 279
Three Mile Island Nuclear Station Pre-fire plan, SBO Diesel Generator Elev. 280'-6",
Revision 1

Modifications

Commercial Grade Dedication TI-92-0013, One Time UL Class K5 General Purpose Fuse 250 Volts dated April 22, 2010
Commercial Grade Dedication 09-00772, Joslyn Clark XKPM-10 Magnet and Rod Relay Kit
TM-09-00689, Evaluate Replacement Valve for DF-V-23A/B, Revision 0, (superseded by TM-11-00085, Replacement Valve for DF-V-23A/B, Revision 0)TM 10-00114, Air Intake Security Improvements, Revision 0
TM 11-00031, Issue NS Pump IST Flow Accuracy Calc, Revision 0
TM 11-00085, Replacement Valve for DF-V-23A/B, Revision 0
TM 11-00543, Alternate OTSG Tube Stabilizer, Revision 0
TM 11-00571, Equivalent Pressure Switch for FW-PS-29A, Revision 0
TM 12-00005, DV Ventilation Calculation Revision, Revision 0
TM 12-00210, 2012 Security Upgrades, Revision 0
TM 12-00331, MU-V-16A/B MSO Modification, Revision 0
TM 12-00395, FHAR Change for Letdown Manual Actions, Revision 0
TM 12-00471, ESAS AC Relay Replacement, Revision 2

Procedures

1104-24M, Diesel Generator Building H & V System, Revision 20
1105-21, Main Annunciator Panel Beta Control System, Revision 14
1107-10, 13.2KV Distribution, Revision 43
1407-8, Computer Systems Maintenance, Revision 8
AD-AA-101-F-01, 13.2 KV distribution, Revision 37, update to procedure 1107-10
AD-AA-101-F-01, 13.2 KV distribution, Revision 42, update to procedure 1107-10
AD-AA-101-F-01, Document Site Approval Form for Swapping Steam Generator Compartment Fans (AH-E-4A/B), Revision 4;
AD-AA-101-F-01, Document Site Approval Form for Stopping Steam Generator Compartment Fan AH-E-4B, Revision 4
AD-AA-101-F-01, Testing Security Surveillance Systems, update to procedure TSEC-IMP-1530.05, Revision 38
CC-AA-102, Design Input and Configuration Change Impact Screening, Revision 26
CC-AA-103, Configuration Change Control for Permanent Physical Plant Changes, Revision 24
CC-AA-112, Temporary Configuration Changes, Revision 19
LS-AA-104, Exelon 50.59 Review Process, Revision 7
LS-AA-104-1000, 50.59 Resource Manual, Revision 7
NF-AA-100, Reload Control Procedure, Revision 14
OP-AA-201-008, Attachment 2, Pre-fire plan change approval form, Revision 3 for Pre-fire plan #138, Revision 2
OP-TM-212-000, Decay Heat Removal System, Revision 17
OP-TM-212-451, Control of DH Train A Flow and Temperatures, Revision 4
PES-S-004, Sampling Plan, Revision 2
SM-AA-300, Procurement Engineering Support Activities, Revision 6
SM-AA-300-1001, Procurement Engineering Process and Responsibilities, Revision 14
TMI-IST-PLAN-INT4, In-service Testing (IST) Program Plan, Fourth Ten-Year Interval, September 23, 2004 – September 22, 2014, Commercial Service Date: September 2, 1974, Revision 4

Vendor Technical Manuals

Attachment 5, Vendor Technical Manual Revision Notice for VM-TM-0190, Revision 16,
Date 12/20/11

VM 01-9146505-000, Loose Parts Monitoring System VI System Manual for
TMI Nuclear Generating Station, Revision 0

VM-TM-0190, TMI Vendor Manual, MFR.: Henry Pratt Co Butterfly Valves, VM-TM-0190,
Revision 16

LIST OF ACRONYMS

10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
AC	Alternating Current
ADAMS	Agency-Wide Documents Access and Management System
ASME	American Society of Mechanical Engineers
CGD	Commercial Grade Dedication
EDG	Emergency Diesel Generator
EPRI	Electric Power Research Institute
ESAS	Engineered Safeguards Actuation System
FHAR	Fire Hazards Analysis Report
IEC	Item Equivalency Change
IR	Issue Report
LOOP	Loss of Offsite Power
MSO	Multiple Spurious Operation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OM	Operations and Maintenance
OTSG	Once-Through Steam Generator
TMI	Three Mile Island Unit 1
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report