



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

July 30, 2013

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

**SUBJECT: THREE MILE ISLAND STATION, UNIT 1 – NRC INTEGRATED
INSPECTION REPORT 5000289/2013003**

Dear Mr. Pacilio:

On June 30, 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 19, 2013 with Mr. Rick Libra, Site Vice President, 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. The inspectors reviewed selected procedures and records, observed activities, and interviewed 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 (ADAMS). ADAMS is accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Gordon K. Hunegs, Chief
Reactor Projects Branch 6
Division of Reactor Projects

Docket Nos.: 50-289
License Nos.: DPR-50

Enclosure: Inspection Report 05000289/2013003
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

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 President and Chief Nuclear Officer (CNO), Exelon Nuclear
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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No: 50-289

License No: DPR-50

Report No: 05000289/2013003

Licensee: Exelon Generation Company

Facility: Three Mile Island Station, Unit 1

Location: Middletown, PA 17057

Dates: April 01 through June 30, 2013

Inspectors: D. Werkheiser, Senior Resident Inspector
J. Heinly, Resident Inspector
S. Galbreath, Reactor Inspector
T. Moslak, Health Physicist

Approved by: G. Hunegs, Chief
Projects Branch 6
Division of Reactor Projects (DRP)

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SUMMARY

IR 05000289/2013003, 04/01/2013-06/30/2013; Three Mile Island, Unit 1, Integrated Inspection Report.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4.

No findings were identified.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent power. On May 25, 2013, operators reduced power to 89 percent to perform turbine valve testing. Operators returned the unit to 100 percent on May 26, 2013. The unit remained at or near 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 2 samples)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of Exelon's readiness for the onset of seasonal high temperatures. The review focused on the control building ventilation system and its ability to maintain control building temperatures within FSAR limits. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), technical specifications, control room logs, and the corrective action program to determine what temperatures or other seasonal weather could challenge the system, and to ensure Exelon personnel had adequately prepared for these challenges. The inspectors reviewed station procedures, including Exelon's seasonal weather preparation procedure and applicable operating procedures. The inspectors performed walkdowns of the selected system to ensure station personnel identified issues that could challenge the operability of the systems during. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

.2 Summer Readiness of Offsite and Alternate Alternating Current (AC) Power Systems

a. Inspection Scope

The inspectors performed a review of plant features and procedures for the operation and continued availability of the offsite and alternate AC power system to evaluate readiness of the systems prior to seasonal high grid loading. The inspectors reviewed Exelon's procedures affecting these areas and the communications protocols between the transmission system operator and Exelon. This review focused on changes to the established program and material condition of the offsite and alternate AC power equipment. The inspectors assessed whether Exelon established and implemented appropriate procedures and protocols to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system. The inspectors evaluated the material condition of the associated equipment by interviewing the responsible system manager, reviewing issue reports and open work orders, and

walking down portions of the offsite and AC power systems including the 500 kilovolt (KV) and 220 KV switchyards.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial System Walkdowns (71111.04 – 3 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- 'A' emergency feedwater system and turbine-driven sub-system during 'B' motor-driven emergency feedwater valve maintenance on May 14, 2013
- 'A' reactor river water system during maintenance on 'B' reactor river water valve RR-V-10B on June 12, 2013
- 'A' emergency safeguards actuation system relays and components during 'B' channel testing after a planned relay replacement on June 19, 2013

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the UFSAR, technical specifications, work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of their intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether Exelon staff had properly identified equipment issues and entered them into the corrective action program for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Resident Inspector Quarterly Walkdowns (71111.05Q – 4 samples)

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that Exelon controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire

barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Control building 'A' train ventilation component (AH-E-95A) fire protection lagging on April 5, 2013
- Intake screen and pump house fire zone 2 [ISPH-FZ-2], on April 18, 2013
- Auxiliary building, elevation 331 foot, chemical addition room [AB-FZ-10], on June 13, 2013
- Fuel handling spent fuel pool floor, elevation 348 foot [FH-FZ-4], on June 18, 2013

b. Findings

No findings were identified.

.2 Fire Protection – Drill Observation (71111.05A – 1 sample)

a. Inspection Scope

The inspectors observed station response to an actual small fire in a trash can at the waste handling packaging facility on April 4, 2013, which involved station fire brigade response. The fire was quickly extinguished by local personnel and resulted in no damage or injuries. Also, the inspectors observed a fire brigade drill scenario conducted on April 10, 2013 that simulated a fire in the 'A' station battery room on the 322' elevation of the Control Building. The inspectors evaluated the readiness and actions of the plant fire brigade to fight fires. The inspectors verified that Exelon personnel identified deficiencies; openly discussed them in a self-critical manner at the post-drill/event debrief, and took appropriate corrective actions as required. The inspectors evaluated specific attributes as follows:

- Proper wearing of turnout gear and self-contained breathing apparatus
- Proper use and layout of fire hoses
- Employment of appropriate fire-fighting techniques
- Sufficient fire-fighting equipment brought to the scene
- Effectiveness of command and control
- Search for victims and propagation of the fire into other plant areas
- Smoke removal operations
- Utilization of pre-planned strategies
- Adherence to the pre-planned drill scenario
- Drill objectives met

The inspectors also evaluated the fire brigade's actions to determine whether these actions were in accordance with Exelon's fire-fighting strategies.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)Review of Cables Located in Underground Bunkers/Manholesa. Inspection Scope

The inspectors conducted an inspection of underground bunkers/manholes subject to flooding that contain cables whose failure could affect risk-significant equipment. The inspectors performed walkdowns of risk-significant areas, including cable vault E-4E and E-4W containing power cables scoped in the license renewal program, to verify that the cables were not submerged in water, that cables and/or splices appeared intact, and to observe the condition of cable support structures. The inspectors reviewed the passive water mitigation features designed to prevent water intrusion into the cable vaults were intact and effectively performing their function. The inspectors also ensured that drainage was provided and functioning properly in areas where dewatering devices were not installed.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11Q – 2 samples).1 Quarterly Review of Licensed Operator Requalification Testing and Traininga. Inspection Scope

The inspectors observed licensed operator simulator training on June 24 and 28, 2013, which included the use of severe accident mitigating guidelines, walkthrough of upcoming control system relay replacements and how it would affect plant operations, and a review of NUREG-1022, Event Reporting Guidelines, Revision 3 changes. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the technical specification action statements entered by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Rooma. Inspection Scope

The inspectors observed control room operations during instrumentation and control surveillance testing conducted on June 25 and 26, 2013. The inspectors observed

licensed operators performance to verify that procedure use, crew communications, and coordination of activities between work groups met the criteria specified in Exelon's OP-AA-1, "Conduct of Operations," Revision 0. In addition, the inspectors verified that licensee supervision and management were adequately engaged in plant operations oversight and appropriately assessed control room operator performance and similarly met established expectations and standards.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 3 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on SSC performance and reliability. The inspectors reviewed system health reports, corrective action program documents, maintenance work orders, maintenance rule periodic assessment report and maintenance rule basis documents to ensure that Exelon was identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by Exelon staff was reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that Exelon staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- 'B' emergency diesel generator criteria exceeded as documented in IR 1498010, on April 8, 2013
- Maintenance Rule Periodic Assessment Topical Report for January 2011 to December 2012, on April 14, 2013
- Loose parts monitor alarm maintenance preventable functional failure evaluation, on May 10, 2013

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 5 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that Exelon performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that Exelon personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When Exelon performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk.

The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- Station risk regarding Foxboro power supplies affected by issues documented in 10 CFR 21 notice EN# 48863 and documented in IR 1496437, on April 2 – 15, 2013
- Station risk during 'B' emergency diesel generator work and diving operations to desilt river intake area #2 affecting safety-related river water pumps, on April 22 - 23, 2013
- Station risk during diving operations to desilt river intake areas #4 and #5 affecting safety-related river water pumps, on May 2 – 3, 2013
- Station risk during 'B' emergency diesel generator work and maintenance on emergency feedwater valve EF-V-30D, on May 14, 2013
- Station risk evaluation of emergency diesel generator surveillance testing with an impending severe thunderstorm warning, on June 13, 2013

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 7 samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions:

- Station blackout diesel generator (EG-Y-4) control room voltage indication lower than local indication as documented in IR 1503158, on April 17, 2013
- Reinstallation of original speed switch for 'B' emergency diesel generator, on April 24, 2013
- Make-up pump discharge pressure transmitter (MU2-PT) out of tolerance as documented in IR 1507280, on May 1, 2013
- 'B' emergency diesel generator fuel leak at injector #9 documented in IR 1513793, May 14-15, 2013
- Intake and pump screen house safety-related pump ventilation issues as documented in IR 1512260, May 10, 2013
- 'B' control building normal ventilation fan (AH-E-17B) delayed stop as documented in IR 1512953, on May 12, 2013
- 'B' control building emergency ventilation fan (AH-E-18B) trip as documented in IR 1515220, on May 20, 2013

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and

design criteria in the appropriate sections of the technical specifications and UFSAR to Exelon's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by Exelon. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 1 sample)

Temporary Modifications

a. Inspection Scope

The inspectors reviewed the temporary modifications listed below to determine whether the modifications affected the safety functions of systems that are important to safety. The inspectors reviewed 10 CFR 50.59 documentation and post-modification testing results, and conducted field walkdowns of the modifications to verify that the temporary modifications did not degrade the design bases, licensing bases, and performance capability of the affected systems.

- TC-0151517 – ESAS J-C Relay Replacement, on June 13, 2013

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 7 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure was consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- 'A' control building ventilation damper replacements on April 5, 2013
- Replacement of circuit breaker (EG-H-2B-BK) under A1730435 that supports 'B' emergency diesel generator (EDG), on April 25, 2013
- 'B' EDG post maintenance-outage under WOs R2184442 and R2206257, on April 26, 2013
- 'B' EDG speed switch repairs under WO C2012150-04, on April 24, 2013

- Station blackout diesel generator control room voltage meter replacement under WO R2215121, on May 10, 2013
- Air intake tunnel deluge sump pump (SD-P-7) after motor bearing greasing, on May 14, 2013
- 'B' control building normal ventilation fan (AH-E-17B) after damper solenoid replacement under A2329938, on May 15, 2013

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors observed performance of the calibration and surveillance test of spent fuel pool area refueling bridge limit switches and fuel-assembly transfer system in May and June 2013.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 7 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied technical specifications, the UFSAR, and Exelon procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

- CY-AA-170-1000, Meteorological Tower Instrumentation Test on April 11, 2013
- 1450-013, 4160/480 Volt Transformer Overcurrent Relay Test on April 13, 2013
- 1303-4.2A RPS Channel A CRD Breaker and Test Module Testing on April 22, 2013
- ST-1303-4.16, Monthly Test of the 'B' EDG, on April 26, 2013
- ST-OP-TM-212-02, In-service test of 'A' decay heat pump (DH-P-1A), on May 6, 2013 (in-service test)
- ST-1303-4.16, Annual Voltage/Frequency Checks for 'A' EDG, on May 9, 2013
- OP-TM-220-251, RCS Leak Rate Determination, June 24, 2013 (leak rate)

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 - 1 sample)

a. Inspection Scope

The inspectors evaluated the conduct of emergency event identification, classification, and notification during an evaluated hostile-action based emergency preparedness drill conducted on April 16, 2013. Exelon planned for this evolution to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that Exelon's evaluators noted the same issues and entered them into the corrective action program.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

a. Inspection Scope

Groundwater Protection Initiative (GPI) Program

During the period April 15 - 19, 2013, the inspector reviewed groundwater monitoring results and changes to Exelon's program for identifying, mitigating, and monitoring contaminated spills/leaks to on-site groundwater pathways. The inspector used the guidance contained in Nuclear Energy Institute (NEI) 07-07, Industry Ground Water Protection Initiative (GPI), to evaluate the licensee's implementation of the GPI.

Walkdowns and Observations

The inspector reviewed the recent results of water samples taken from the monitoring well MS-22, located near the Unit 1 borated water storage tank (BWST), where elevated tritium concentrations were detected in April 2012. The inspector reviewed Exelon's measures to identify the source and control the spread of contamination by installing additional monitoring well clusters in the vicinity of MS-22.

The inspector assessed the current on-site ground water sample results to determine the trends in the concentrations of tritiated water in the monitoring wells, determine the adequacy of the sampling program, and evaluate the suitability for the locations of new monitoring wells.

Problem Identification and Resolution

The inspector assessed whether problems associated with the GPI program are being identified by the licensee at an appropriate threshold and are properly addressed for resolution in the Exelon's corrective action program.

b. Findings and Observations

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (71124.07 – 1 sample)

a. Inspection Scope

During the period April 15 - 19, 2013, the inspector verified that the radiological environmental monitoring program (REMP) quantifies the impact of radioactive effluent releases to the environment and sufficiently validates the integrity of the radioactive gaseous and liquid effluent release program.

The inspector used the requirements in 10 CFR Part 20; 10 CFR Part 50 Appendix A Criterion 60 - Control of Release of Radioactivity to the Environment; 10 CFR 50 Appendix I Numerical Guides for Design Objectives and Limiting Conditions for Operations to Meet the Criterion "As Low as is Reasonably Achievable" (ALARA) for Radioactive Material in Light-Water- Cooled Nuclear Power Reactor Effluents; 40 CFR Part 190 Environmental Radiation Protection Standards for Nuclear Power Operations; 40 CFR Part 141 Maximum Contaminant Levels for Radionuclides; the guidance in RGs 1.23 Meteorological Measurements Program for Nuclear Power Plants, RG 4.1 Radiological Environmental Monitoring Programs for Nuclear Power Plants; RG 4.15 Quality Assurance for Radiological Monitoring Programs; NUREG 1301 Offsite Dose Calculation Manual (ODCM) Guidance: Standard Radiological Effluent Controls; applicable industry standards; and licensee procedures as criteria for determining compliance.

The inspector reviewed the Three Mile Island Annual Radiological Environmental Operating Reports for 2010 and 2011, and the results of licensee assessments since the last inspection to verify that the REMP was implemented and reported in accordance with requirements. This review included changes to the ODCM with respect to environmental monitoring, commitments in terms of sampling locations, monitoring and measurement frequencies, land use census, inter-laboratory comparison program, and analysis of data.

The inspector reviewed the Three Mile Island ODCM to identify locations of environmental monitoring stations. The inspector reviewed the Three Mile Island UFSAR for information regarding the environmental monitoring program and meteorological monitoring instrumentation. The inspector reviewed quality assurance audits and technical evaluations performed on the vendor's analytical laboratory program. The inspector reviewed the Three Mile Island Annual Radioactive Effluent Release Reports and the most recent results from waste stream analysis, to determine if Exelon is sampling and analyzing for the predominant radionuclides likely to be released in effluents.

Site/Environmental Inspection

The inspector walked down seven air sampling stations (Nos. E1-2, F1-3, G2-1, M2-1, A3-1, H3-1, Q15-1)) and eleven optically stimulated luminescent dosimeter (OSLD) monitoring locations (Nos. J1-1, F1-1, C1-1, L1-1, K1-1, J1-3, H3-1, E1-2, A3-1, Q15-1, M2-1) to determine whether they are located as described in the ODCM and to determine the equipment material condition.

For the selected air samplers, the inspector reviewed the calibration and maintenance records to verify the operability of the sampler's components.

The inspector observed the collection and preparation of six environmental water samples. Included in these observations were three surface water samples (monitoring locations: J1-2, A3-2, Q9-1) and three drinking water samples (monitoring locations: Q9-1, G15-2, G15-3). The inspector determined whether the environmental sampling was representative of the release pathways as specified in the ODCM and that sampling techniques were performed in accordance with procedures.

The inspector toured milk sampling locations (E2-2, F4-1, G2-1, P4-1) to verify that the locations were as described in the ODCM. The inspector performed an assessment of whether Exelon has initiated sampling of other appropriate media upon loss of a required sampling station; e.g., establishing vegetation sampling to replace the loss of milk sampling.

Based on direct observation and review of records, the inspector assessed whether the meteorological instruments were operable, calibrated, and maintained in accordance with procedures. The inspector determined whether the meteorological data readout and recording instruments in the control room and at the meteorological tower were operable and were reading similar values. The inspector confirmed that redundant instrumentation was available and that the recovery rate for meteorological data was greater than 90%.

The inspector evaluated whether missed and/or anomalous environmental samples were identified and reported in the Annual Radiological Environmental Operating Reports. The inspector selected events that involved a missed sample, inoperable air sampler, lost TLDs/OSLDs, or anomalous measurement to verify that Exelon has identified the cause and has implemented appropriate corrective actions.

The inspector assessed whether the controls associated with the Unit 1 condensate storage tanks, sodium thiosulfate tank, borated water storage tank, sodium hydroxide tank, radwaste piping, turbine building sump, and auxiliary building sump included operational and engineering measures to identify credible pathways for radioactive material to reach ground water. The inspector assessed whether Exelon has implemented a monitoring program to provide early detection of leakage from these components and has implemented mitigation measures to limit the migration of tritiated groundwater.

The inspector reviewed the decommissioning files, per 10 CFR 50.75 (g), to verify that any spills or leaks of contaminated material, were documented and monitored.

The inspector reviewed any significant changes made by Exelon to the ODCM as the result of changes to the land census, long-term meteorological conditions or

modifications to the sampler stations since the last inspection. The inspector reviewed technical justifications for any changed sampling locations to verify that Exelon performed the reviews required to ensure that the changes did not affect its ability to monitor the impacts of radioactive effluent releases on the environment.

The inspector assessed whether the detection sensitivities for environmental samples met the lower limits of detection specified in the ODCM. The inspector reviewed the results of the Exelon inter-laboratory and intra-laboratory comparison programs to verify the adequacy of environmental sample analyses performed by the licensee. The inspector assessed whether the results included the radionuclide mix appropriate for the facility.

Identification and Resolution of Problems

The inspector assessed whether problems associated with the REMP are being identified by Exelon at an appropriate threshold and appropriate corrective actions are assigned for resolution in the licensee's corrective action program.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Reactor Coolant System (RCS) Specific Activity and RCS Leak Rate (2 samples)

a. Inspection Scope

The inspectors reviewed Exelon's submittal for the RCS specific activity and RCS leak rate performance indicators for TMI for the period of April 1, 2012 through April 1, 2013. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors also reviewed RCS sample analysis and control room logs of daily measurements of RCS leakage, and compared that information to the data reported by the performance indicator. Additionally, the inspectors observed surveillance activities that determined the RCS identified leakage rate, and chemistry personnel taking and analyzing an RCS sample.

b. Inspection Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 3 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that Exelon entered issues into the corrective action program at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the corrective action program and periodically attended issue report screening meetings.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues, as required by Inspection Procedure 71152, "Problem Identification and Resolution," to identify trends that might indicate the existence of more significant safety issues. In this review, the inspectors included repetitive or closely-related issues that may have been documented by Exelon outside of the corrective action program, such as trend reports, performance indicators, major equipment problem lists, system health reports, maintenance rule assessments, and maintenance or corrective action program backlogs. The inspectors also reviewed Exelon's corrective action program database for the first and second quarters of 2013 to assess issue reports written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRCs daily condition report review (Section 4OA2.1). The inspectors reviewed the available Exelon quarterly trend reports for 2013 to verify that Exelon personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures.

b. Findings and Observations

No findings were identified.

The inspectors evaluated a sample of various department issues that were provided as input into the quarterly trend report and rolled-up and identified as monitored trends. This review included a sample of issues and events that occurred over the course of the past two quarters to objectively determine whether issues were appropriately considered or ruled as emerging or adverse trends, and in some cases, verified the appropriate disposition of resolved trends. The inspectors verified that these issues were addressed within the scope of the corrective action program. For example, the inspectors noted that consistent with an identified adverse trend in transient combustible-free zone violations and other fire protection issues into the 1st quarter 2013, a common-cause and root cause evaluation was completed by Exelon and corrective actions implemented in the 2nd quarter 2013. The inspectors noted a significant improvement in the implementation of fire protection requirements with no adverse trend noted by the end of the 2nd quarter 2013. Regarding the only other root cause, involving flood protection barriers, issues continue to be identified by the inspectors, however the issues were not safety-significant nor contributed to an adverse trend.

In other cases, Exelon has identified an adverse trend in the use of the corrective action program and took corrective actions, specifically with the staff and corrective action coordinators by reinforcing CAP standards and procedures, to address the trend. The inspectors have observed measurable improvement in the identification of issues and the use of CAP evaluations. An adverse trend was noted with the integrated control system unit load demand module tripping to manual (IR 1511473). Exelon has an open troubleshooting matrix to support further evaluation.

The inspectors noted TMI now more clearly documents operating experience with respect to defects reported to the NRC; the licensee documents each reported condition communicated to the station in their CAP for evaluation regardless if it directly affects TMI. Additionally, the inspectors recently observed, consistent with Exelon issue reports, an apparent increase in chemistry performance issues. Exelon has entered these issues in their CAP and has taken immediate management actions to address the issues.

.3 Annual Sample: Review of Single-Rod Power Supply Failures

a. Inspection Scope

The inspectors performed a review of multiple Single Rod Power Supply (SRPS) failures, similar to those documented in IRs 1449888 and 1436736, of the digital control rod drive system that was installed at the station in November 2011. This system is not safety-related, but throughout the subsequent operating cycle, the station has experienced a high number and rate of SRPS failures. The inspectors reviewed the failures as they occurred and assessed the overall station impact, including Exelon's review of the issue. The inspectors evaluated whether station personnel had identified, assessed, and reviewed causal factors leading to these failures and any long-term corrective actions. The inspectors also walked the system in the field and reviewed operating conditions and visually inspected failure power supplies.

b. Findings and Observations

No findings were identified.

The inspectors determined that the majority of the SRPS failures occurred within six months of operation and were attributed to a lower than expected DC voltage on one of three output phases. An adverse trend in SRPS failures was identified by Exelon and documented in IR 1353918. Exelon, with assistance from the vendor, determined that the majority of failures were caused by an internal silicon controlled rectifier failure. The licensee determined that the lower DC phase voltage was below a conservative DC setpoint which actuates the control rod system fault logic and main control room alarm when reached. There are two SRPSs in parallel for each control rod drive mechanism; one SRPS can carry full load. A single SRPS failure to a control rod does not impact plant operations. The licensee has monitored SRPS failure rate, which is still higher than expected, and are proactively planning rectifier replacements for a number of SRPSs. The inspectors' review did not identify any issues that would adversely affect the capability of the operators to implement abnormal or emergency operating procedures and concluded Exelon's actions are reasonable.

.4 Annual Sample: Review of Integrated Control System (ICS) and Computer-Based Instrumentation Issues

a. Inspection Scope

The inspectors assessed Exelon's review of multiple issues affecting the Integrated Control System (ICS), Primary Plant Computer (PPC), and Fixed Incore Detector Monitoring System (FIDMS). Together these systems provide indication and control capability of the reactor and power conversion systems to the main control room operators. Particularly, issues reviewed were related to an adverse trend in ICS Unit Load Demand (ULD) module tripping to manual control, as documented in IR 1511473, PPC failovers from one server to another as documented in IR 1476473, and FIDMS calculation issue as documented in IR 1514496 or server failure as documented in IR 1514633.

The inspectors assessed Exelon's problem identification threshold, cause analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of corrective actions to determine whether Exelon was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors compared the actions taken to the requirements of Exelon's corrective action program and 10 CFR 50, Appendix B. In addition, the inspectors performed field walkdowns and interviewed personnel to assess the effectiveness of the implemented corrective actions.

b. Findings and Observations

No findings were identified.

Regarding ICS issues, Exelon has appropriately documented and evaluated each issue in CAP and assembled a team composed of other industry ICS users and designers to review TMI's ICS issues and gain information and experience from others. A number of actions resulted from this team, including the establishment of long term ICS reliability preventive maintenance strategy, which would address ICS usability via a combination of comprehensive module refurbishment, re-engineering, or STAR module replacements until an ICS replacement is determined. Other significant actions and recommendations were documented in IR 1420753-12. Exelon continues to experience, troubleshoot, and monitor the ULD module unexpectedly tripping to manual. No definitive cause has been determined, but the licensee documents the circumstances of each occurrence into CAP and continues to troubleshoot the issue.

Regarding PPC issues, Exelon established a PPC team and evaluated each of the PPC failovers, and in aggregate (CCA 1476473), and determined the causes to be either insufficient memory resources or due to obsolete hardware failure. However, a majority of failures were of unknown cause and resulted in requiring field signal cards to be rebooted. The inspectors noted limited diagnostic capabilities exist for the PPC. The licensee has managed the occurrence of PPC issues and has taken actions to balance field inputs and enforce proper program memory management as much as feasibly possible. System engineering continues to monitor PPC performance with Operations and interfaces with a PPC upgrade project manager for future replacement options.

FIDMS issues are interconnected with PPC issues since FIDMS is an application that runs on the PPC to support plant heat balance calculations, among other functions. The licensee determined that issues experienced with FIDMS are due to the limited resources of the PPC and the method that FIDMS transfers information, via an interfacing file, that may periodically cause FIDMS to 'lock-up'. Exelon has determined that corrective actions for the PPC issues above have minimized this occurrence and that to ultimately correct this issue is to replace or upgrade the PPC hardware. Exelon is planning to replace the PPC in the future and has established a project team to manage this change.

The inspectors reviewed Exelon's actions to the issues in aggregate and determined that Exelon has adequately managed the issues and taken appropriate actions to address, in the interim, and planned projects to upgrade hardware in the long term. The inspectors determined Exelon's overall response to the issue was commensurate with the safety significance, was timely, and included appropriate compensatory actions.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 2 samples)

.1 (Closed) Licensee Event Report (LER) 05000289/2012-002-00: Missing Seals in Air Intake Tunnel Conduits

On August 10, 2012, it was discovered during a flood protection barrier walkdown that conduits carrying cables through the Air Intake Tunnel (AIT) to the auxiliary building did not contain internal flood protection seals. The licensee took immediate compensatory actions and subsequently sealed the conduits as a final corrective action. A root cause evaluation was conducted by the licensee. The enforcement aspects of this issue were previously discussed in reports 05-289/2012005 (ADAMS Accession Nos. ML13042A277, ML13094A219) and 05-289/2013009 (ADAMS Accession No. ML13120A040). The inspectors did not identify any new issues during the review of the LER. This LER is closed.

.2 (Closed) LER 05000289/2012-002-01: Missing Seals in Air Intake Tunnel Conduits

On August 10, 2012, it was discovered during a flood protection barrier walkdown that conduits carrying cables through the Air Intake Tunnel (AIT) to the auxiliary building did not contain internal flood protection seals. The licensee took immediate compensatory actions and subsequently sealed the conduits as a final corrective action. A root cause evaluation was conducted by the licensee. Revision 01 of this LER documents the licensee safety significance of the identified issue. The enforcement aspects of this issue were previously discussed in reports 05-289/2012005 (ADAMS Accession Nos. ML13042A277, ML13094A219) and 05-289/2013009 (ADAMS Accession No. ML13120A040). The inspectors did not identify any new issues during the review of the LER. This LER is closed.

4OA6 Meetings, Including Exit

On July 19, 2013, the inspectors presented the inspection results to Mr. Rick Libra, TMI Site Vice President, and other members of the TMI staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

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

R. Libra	Site Vice President
T. Alvey	Manager, Chemistry, Environmental, & Radwaste
D. Atherholt	Manager, Regulatory Assurance
R. Campbell	Manager, Site Security
S. Cvijic	Chemistry Manager
D. Divittore	Manager, Site Radiation Protection
J. Dullinger	Director, Engineering
M. Fitzwater	Senior Regulatory Specialist
T. Haaf	Director, Operations
G. McCarty	Supervisor, Radiation Protection
M. Newcomer	Plant Manager
J. Piazza	Senior Manager, Design Engineering
J. Pickett	Supervisor, Maintenance
J. Popielarski	Director, Work Management
C. Six	Supervisor, Shift Operations
G. Smith	Director, Maintenance
B. Shumaker	Manager, TMI Site Emergency Preparedness
S. Taylor	Engineer, TMI Fire Protection
L. Weber	Environmental Chemist

Other Personnel

D. Dyckman	Nuclear Safety Specialist Pennsylvania Department of Environmental Protection Bureau of Radiation Protection
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LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATEDClosed

05000289/2012-002-00	LER	Missing Seals in Air Intake Tunnel Conduits (Section 4OA3.1)
05000289/2012-002-01	LER	Missing Seals in Air Intake Tunnel Conduits (Section 4OA3.2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

1104-19, Control Building Ventilation System, Rev. 79
 1107-11, TMI Grid Operations, Rev. 24
 OP-AA-108-107, Switchyard Control, Rev. 2
 OP-AA-108-107-1001, Station Response to Grid Capacity Conditions, Rev. 3
 OP-TM-739-500, Response to Loss of 13.2KV Off-site Power, Rev. 0
 PJM Emergency Procedures Terms, Rev. 12
 WC-AA-107, Seasonal Readiness, Rev. 11

Drawings

302-611, Reactor Building Normal & Emergency Cooling Water System, Rev. 13

Miscellaneous

IRs 1509576 1504273 1509619 1516968

Section 1R04: Equipment Alignment

Procedures

1303-4.14, RB 30 PSIG Analog Channels, Rev. 31
 OP-TM-534-000, Reactor Building Emergency Cooling Water System, Rev. 1

Drawings

302-611, Reactor Building Normal & Emergency Cooling Water System, Rev. 13

Miscellaneous

IRs 1528209 1526595

Section 1R05: Fire Protection

Procedures

1038, Administrative Controls-Fire Protection Program, Rev. 76
 1440-Y-14, Fire Barrier Envelopes and REHS Repair/Installation, Rev. 17
 AOP-001, Fire, Rev. 8
 OP-MA-201-007, Fire Protection System Impairment Control, Rev. 6

Drawings

AB-FZ-10, TMI Pre-Fire Plan, Rev. 3
 FH-FZ-4, TMI Pre-Fire Plan, Rev. 3

Miscellaneous

CC-AA-309-101, Engineering Technical Evaluations, Rev. 11
 Fire Hazard Analysis Report, Rev. 23
 FHAR of Fire Zone AB-Fz-10, Rev. 23 pages 4-49 through 4-51
 FHAR of Fire Zone AB-Fz-10, Rev. 23 pages 4-124 and 4-125
 Three Mile Island Nuclear Station, Pre-Fire Plan, Rev. 3
 IR 1500215
 WO R2088808

Section 1R06: Flood Protection MeasuresProcedures

ER-TM-450, TMI Structures Monitoring Program, Rev. 1
 MA-TM-153-001, Inspection and Maintenance of TMI-1 Electrical and Telephone Manholes,
 Rev. 3

Miscellaneous

IRs	1497592	1497917	1496992
WOs	R2204153	R2208654	

Section 1R11: Licensed Operator Regualification ProgramProcedures

OP-AA-101-111, Roles and Responsibilities of On-Shift Personnel, Rev. 5
 OP-AA-101-111-1001, Operations Standards and Expectations, Rev. 13
 ST 1303-4.2D, RPS Functional Test 'D' Channel, Rev. 15
 ST 1303-4.19, HPI/LPI Analog Channel Functional Test, Rev. 33

Miscellaneous

LORT Training Schedule week of June 23, 2013

Section 1R12: Maintenance EffectivenessProcedures

ER-AA-310, Implementation of the Maintenance Rule, Rev. 8
 ER-TM-450, TMI Structures Monitoring Program, Rev. 1
 ER-AA-310-1004, Maintenance Rule – Performance Monitoring, Rev. 11

Miscellaneous

ECR 11-00426, "Raise Level of External Flood Protection," Rev. 1
 ECR 12-00402, "Revise AIT Flood Protection Boundary," Rev. 1
 Functional Failure Cause Determination Evaluation for FP-P-2A/B, IR 1260236
 Maintenance Rule Expert Panel Meeting Agenda, May 20, 2013
 Topical Report 208, Maintenance Rule Periodic Assessment Per 10CFR 50.65 (a)(3) January
 2011 to December 2012, Rev. 0

IRs	1104245	1399510	1095333	1102568	1260236	1511289
	1527513					

Section 1R13: Maintenance Risk Assessments and Emergent Work ControlProcedures

1082.1, TMI Risk Management Program, Rev. 8
 WC-AA-101, On-Line Work Control Process, Rev. 18

Drawings

1E-168-02-001, Intake Pump and Screen House – Enhanced Dwg for Desilting, Rev. 1

Miscellaneous

Work management work week plans: 1317, 1318, 1320, and 1324

Section 1R15: Operability EvaluationsProcedures

1107-9, SBO Diesel Generator, Rev. 71
 ER-AA-520, Instrument Performance Trending, Rev. 003
 OP-AA-102-103, Operator Workaround Program, Rev. 013
 OP-AA-108-115, Operability Determinations, Rev. 10
 OP-AA-108-115-1002, Supplemental Consideration for On-Shift Immediate Operability Determinations, Rev. 2

Miscellaneous

Immediate Investigation Report for EG-Y-4 voltage indication, dated April 17, 2013
 Immediate Investigation Report for AH-E-17B, dated May 23, 2013
 TMI FSAR Chapter 7.4.5, Habitability, Rev. 21
 TMI TS 3.15, Air Treatment Systems, Amendment 264
 ARs A2329087 A2329032 A2329938
 EDTs 928575
 IRs 1515220 1512953 1513793 1507280 1470302 1205224
 WOs R2186452 R2181337 R2166432 R2205205 M2329938 M2328320

Section 1R18: Plant ModificationsProcedures

CC-AA-102, Design Input and Configuration Change Impact Screening, Rev. 20
 CC-AA-103, Configuration Change Control, Rev. 21

Section 1R19: Post-Maintenance TestingProcedures

1104-19, Control Building Ventilation System, Rev. 79
 1104-40, Plant Sump and Drainage System, Rev. 55

Drawings

1E-168-02-001, Intake Pump and Screen House – Enhanced Dwg for Desilting, Rev. 1
 201-048, 480V CC 1B Rad Waste Diag, Sheet 2, Rev. 016
 302-352, Condensate Seal Water & IB Air Tunnel Sump Pumps, Rev. 21
 302-842, Control Building and Machine Shop Ventilation, Rev. 57

Miscellaneous

NRC Preliminary Risk Determination Top Event AIT-SUMP for AIT missing conduit seal finding, documented in inspection report 2012005, dated April 4, 2013 (ML13094A219)
 Shift Operating Logs during 'B' EDG testing, April 22-25, 2013
 ARs A2330447 A2330459 A2328843 C2030413 C2030417 R2179567
 IRs 1498213 1499108 1507859 1506824 1506822 1505943
 1506821 1506617 1506268 1506249 1506133 1505796
 1505749 1505680 1505064 1504927 1504941 1504942
 1513894 1514674 1514776 1520741 1522429
 WOs R2186452 R2088808 R2205205 M2328320 M2329938

Section 1R22: Surveillance TestingProcedures

1450-013, 4160/480 Volt Transformer Overcurrent Relay Maintenance, Rev. 11, 11A
 CY-AA-170-1000, Radiological Environmental Monitoring Program and Meteorological Program
 Implementation, Rev. 7
 P1009, Meteorological Monitoring Program Equipment Servicing and Data Recovery
 Procedures Manual, Rev. 29
 WC-TM-430, Surveillance Testing Program, Rev. 0
 WC-TM-430-1001, Surveillance Testing Program Database Interface and Maintenance, Rev. 1

Drawings

1E-168-02-001, Intake Pump and Screen House – Enhanced Dwg for Desilting, Rev. 1

Miscellaneous

TMI RCS Leak Rate Quarterly Review, dated May 22, 2013
 IRs 216604 1503586 1503155 1503154 1516446
 WOs R2208979 R2140795

Section 1EP6: Drill EvaluationProcedures

EP-AA-1000, Exelon Nuclear Standardized Emergency Plan (Revision 23)
 EP-AA-1009, Three Mile Island Generating Station Emergency Plan Annex (Revision 20)
 Three Mile Island Emergency Plan Implementing Procedures
 Three Mile Island April 16, 2013, Emergency Exercise Scenario Package
 OP-TM-AOP-008, Security Threat/Intrusion (Revision 10)
 Condition Reports generated as a result of the April 16, 2013, exercise (As documented in TMI
 2013 Graded Exercise Evaluation Report, dated May 10, 2013)

Section 2RS06: Radioactive Gaseous and Liquid Effluent TreatmentProcedures

EN-AA-407	Response to Inadvertent Releases of Licensed Materials to Groundwater, Surface Water or Soil
EN-AA-408	Radiological Groundwater Protection Program
EN-AA-408-4000	Radiological Groundwater Protection Program Implementation
EN-TM-408-4160	RGPP Reference Material for Three Mile Island
CY-TM-170-300	Offsite Dose Calculation Manual
RP-AA-228	10 CFR 50.75(g) and 10 CFR 72.30(d) Documentation Requirements
EML	Collection of Groundwater Samples for Radiological Analysis

IRs

01501811, 01403406

Miscellaneous Reports

Groundwater Sampling Results for January through April 8, 2013
 Evaluation of Tritium in Groundwater Borated Water Storage Tank (BWST) Area

Section 2RS07: Radiological Environmental Monitoring ProgramProcedures

CY-TM-170-300 Offsite Dose Calculation Manual
 ER-TMI-01 Collection of Milk Samples for Radiological Analysis
 ER-TMI-06 Surface/Drinking Effluent Water/Storm Water Samples for Radiological Analysis
 ER-TMI-14 Collection of Air Iodine and Air Particulate Samples for Radiological Analysis
 RP-AA-228 10 CFR 50.75(g) and 10 CFR 72.30(d) Documentation Requirements

IRs

01499482	01499476	01466985	01459647	01384487	013799350
1376592	01374117	01353661	01327164	01326498	01326489

Sampling Locations

Air Particulate and Iodine Samplers: E1-2, F1-3, G2-1, M2-1, A3-1, H3-1, Q15-1
 Surface & Drinking Water Samplers: J1-2, A3-2, Q9-1, G15-2, G15-3
 Milk Sampling: E2-2, F4-1, G2-1, P4-1,
 Dosimeter Locations: J1-1, F1-1, C1-1, L1-1, K1-1, J1-3, H3-1, E1-2, A3-1, Q15-1, M2-1

Calibration Records Reviewed

Air Sampler Flow Orifices: Nos. 2782139, 2782154, 2782143, 2782153, 2782146
 Meteorological Instrumentation performed April 2013
 Water Sampler Compositors: Nos J1-2, Q9-1, G15-2, G15-3, K1-4

Nuclear Oversight Performance Assessment (PA) Reports

Audit NOSA-TMI-12-04 (AR 1310431), Chemistry, Radwaste, Effluent, and Environmental Monitoring

Miscellaneous Reports

Laboratory Cross Check Quarterly Results for 2012
 2010 and 2011 Annual Radiological Environmental Monitoring Reports
 2012 Land Use Census Report
 50.75 (g) Decommissioning Files, RP-AA-228
 March 2013 RGPP Summary Monitoring Report
 Meteorological Evaluation of Dispersion Parameters
 Quarterly Report on the Meteorological Monitoring Program: April 2012, October 2012, December 2012

Section 4OA1: Performance Indicator VerificationProcedures

1301-3, Reactor Coolant System Chemistry and Activity, Rev. 30
 CY-TM-551-807, Chemistry Primary Sampling, Rev. 0
 ER-AP-331-1003, RCS Leakage Monitoring and Action Plan, Rev. 6
 LS-AA-2100, Monthly Data Elements for NRC Reactor Coolant System Leakage, Rev. 5
 N1807.1, Reactor Coolant and Pressurizer Sampling, Rev. 16
 OP-TM-220-251, RCS Leak Rate Determination, Rev. 10

Miscellaneous

TMI Unit 1 Reactor Coolant System Leak Rate PPC Printout, 6/24/2013

Section 40A2: Problem Identification and ResolutionProcedures

LS-AA-125, Corrective Action Program (CAP) Procedure, Rev. 017

LS-AA-125-1005, Coding and Analysis Manual, Rev. 008

NF-AP-713-1502, FIDMS Operations and Maintenance, Rev. 011

NF-TM-100-8010, TMI Core Follow, Rev. 014

WC-AA-101, On-Line Work Control Process, Rev. 020

WC-AA-106, Work Screening and Processing, Rev.013

Miscellaneous*(Review of Single-Rod Power Supply Failures)*

PHC SRPS failure status updated, dated July 23, 2013

IRs:

1507669	1422433	1371384	1353918
1506329	1391632	1371326	1343338
1486740	1383181	1371285	1336119
1486383	1383109	1371258	1336006
1449888	1379005	1371253	1324637
1437186	1376194	1370879	
1436984	1375549	1365949	
1436736	1373898	1363461	

(Review of Integrated Control System and Computer-based instrumentation Issues)

CCA 1411557, Level 5 & 6 Reactivity Issues from Sept 2011-August 2012

CCA 1476473, Review PPC Failovers in Aggregate

EACE 1437770, Loss of Communication between FIDMS and PPC Servers

EACE 1388646, Failure of ICS-03-0-7-6, Signal Lag Module for NI Select

ICS Reliability Strategy (PHC), dated April 3, 2013

QHPI 1509488, PPC RTime Shutdown on Active Server

IRs:

1531738	1512485	1486137	1420695
1527731	1511473	1485738	1379125
1521756	1510240	1485717	1378761
1520332	1509488	1485631	1373367
1520315	1506251	1483707	1373214
1518441	1500674	1476473	1356401
1517378	1494685	1462006	1347465
1517246	1494335	1461098	1325810
1516441	1492605	1439792	1324032
1516044	1491398	1437770	1321772
1515252	1489262	1437706	1309124
1514561	1487638	1426325	1303472

(Semi-Trend Review)

Apparent Cause Evaluation IR 1492840, CAP Standard and Compliance Gaps

TMI CAP Performance Indicators, dated January 2013

TMI Quarterly Aggregate Review, 1Q13 & 2Q13

IRs:

1488337	1483567	1468457	1341674
1483854	1481021	1455042	
1483854	1472014	1454611	
1483567	1471997	1454514	

Section 40A3: Followup of Events and Notices of Enforcement Discretion

LER 2012-002-00, 01 Missing Seals in Air Intake Tunnel Conduits

LIST OF ACRONYMS

AC	Alternating Current
ADAMS	Agencywide Documents Access and Management System
AIT	Air Intake Tunnel
ALARA	As Low As Reasonably Achievable
ASME	American Society of Mechanical Engineers
BWST	Borated Water Storage Tank
CFR	Code of Federal Regulations
DRP	Division of Reactor Projects
EDG	Emergency Diesel Generator
EML	Environmental Midwest Laboratory
EN	Event Notice
FIDMS	Fixed Incore Detector Monitoring System
GPI	Groundwater Protection Initiative
HPCI	High Pressure Coolant Injection
ICS	Integrated Control System
IMC	Inspection Manual Chapter
INPO	Institute of Nuclear Power Operations
IR	Issue Report
kV	Kilovolt
LER	Licensee Event Report
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OSLD	Optically Stimulated Luminescent Dosimeter
pCi/g	Picocuries per Gram
PARS	Publicly Available Records
PPC	Primary Plant Computer
RCS	Reactor Coolant System
REMP	Radiological Environmental Monitoring Program
RGPP	Radiological Groundwater Protection Program
SDP	Significance Determination Process
SRPS	Single Rod Power Supply
SSC	Structure, System, or Component
TLD	Thermoluminescent Dosimeter
TMI	Three Mile Island Unit 1
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
ULD	Unit Load Demand
URI	Unresolved Item
WO	Work Order