



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

August 8, 2018

Mr. Bryan C. Hanson  
Senior Vice President, Exelon Generation Company, LLC  
President and Chief Nuclear Officer, Exelon Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: NINE MILE POINT NUCLEAR STATION – INTEGRATED INSPECTION  
REPORT 05000220/2018002 AND 05000410/2018002

Dear Mr. Hanson:

On June 30, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Nine Mile Point Nuclear Station, LLC (NMPNS), Units 1 and 2. On July 19, 2018, the NRC inspectors discussed the results of this inspection with Mr. Robert Kreider, Plant Manager, and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented two violations of very low safety significance (Green) in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violations or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement; and the NRC Resident Inspector at NMPNS. In addition, if you disagree with a cross-cutting aspect assignment, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region I, and the NRC Resident Inspector at NMPNS.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Part 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

**/RA/**

Christopher Cahill, Acting Chief  
Reactor Projects Branch 1  
Division of Reactor Projects

Docket Numbers: 50-220 and 50-410  
License Numbers: DPR-63 and NPF-69

Enclosure:  
Inspection Report 05000220/2018002  
and 05000410/2018002

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SUBJECT: NINE MILE POINT NUCLEAR STATION – INTEGRATED INSPECTION  
REPORT 05000220/2018002 AND 05000410/2018002 DATED AUGUST 8, 2018

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DATE	8/7/18	8/7/18	8/8/18		

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**U.S. NUCLEAR REGULATORY COMMISSION**  
**Inspection Report**

Docket Numbers: 05000220 and 05000410

License Numbers: DPR-63 and NPF-69

Report Numbers: 05000220/2018002 and 05000410/2018002

Enterprise Identifier: I-2018-002-0057

Licensee: Exelon Generation Company, LLC (Exelon)

Facility: Nine Mile Point Nuclear Station, LLC (NMPNS)  
Units 1 and 2

Location: Oswego, New York

Inspection Dates: April 1, 2018 to June 30, 2018

Inspectors: E. Miller, Senior Resident Inspector  
J. Dolecki, Resident Inspector  
B. Sienel, Resident Inspector  
J. Kulp, Senior Reactor Inspector  
M. Modes, Senior Reactor Inspector  
R. Rolph, Health Physicist  
A. Rosebrook, Senior Project Engineer  
C. Safouri, Project Engineer  
J. Schoppy, Senior Reactor Inspector  
B. Smith, Resident Inspector, Peach Bottom

Approved By: C. Cahill, Acting Chief  
Reactor Projects Branch 1  
Division of Reactor Projects

Enclosure

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring Exelon's performance at NMPNS Units 1 and 2 by conducting the baseline inspections described in this report in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information. NRC identified and self-revealing findings, violations, and additional items are summarized in the table below.

### List of Findings and Violations

Failure to Ensure Proper Control of the Standby Gas Treatment System Damper Valve, 2GTS*V2000B, Within Procedures, Materials, and Design Control Measures			
Cornerstone	Significance	Cross-Cutting Aspect	Inspection Results Section
Barrier Integrity	Green NCV 05000410/2018002-01 Closed	P.1 – Problem Identification and Resolution, Identification	71111.19
The inspectors identified a Green finding and associated non-cited violation (NCV) of Title 10 <i>Code of Federal Regulations</i> (10 CFR) Part 50, Appendix B, Criterion III, Design Control, when Exelon failed to ensure proper control of the standby gas treatment system (SGTS) damper valve 2GTS*V2000B within procedures, materials, and design control measures. Specifically, on April 15, 2018, operators attempted to run 'B' SGTS for containment purge; however, no flow was observed and the system was secured. Operators discovered the 2GTS*V2000B closed due to the failure of the operating mechanism to maintain control of the valve position.			

Inadequate Procedure Causes Water Hammer Condition Resulting in Isolation and Inoperability of the 12 Train of the Emergency Condenser System			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green Finding/NCV 05000220/2018002-02 Closed	[H.1] – Human Performance: Resources	71152
The inspectors identified a Green finding and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, Instructions, Procedures and Drawings, when Exelon did not provide appropriate quantitative or qualitative criteria and guidance to operators in procedure N1-OP-13, "Emergency Cooling System," to return an emergency condenser loop to service without inducing a water hammer condition, which caused operators to re-isolate the emergency condenser loop and declare it inoperable.			

### Additional Tracking Items

Type	Issue number	Title	Report Section	Status
LER	05000220/2017-001-00	Manual Reactor Scram Due to High Turbine Vibration	71153	Closed
LER	05000410/2017-002-00	Secondary Containment Inoperable Due to Wind	71153	Closed

URI	05000220/2018001-01	Potential Failure to Submit an 8-Hour Event Notification for a Valid Actuation of HPCI	71153	Closed
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## PLANT STATUS

Unit 1 began the inspection period at or near rated thermal power. Unit 1 remained at or near rated thermal for the remainder of the inspection period.

Unit 2 began the inspection period at or near rated thermal power. On April 15, 2018, operators shut down the reactor to commence refueling and maintenance outage N2R16. Upon completion of N2R16, operators performed a reactor startup on May 11. The generator was placed on the grid on May 14, ending N2R16. On May 14, operators raised reactor power to 17 percent, and maintained this power level to search for the source of elevated offgas flow rates. On May 16, operators raised reactor power to 30 percent to place the moisture separator reheaters in service to continue searching for the source of elevated offgas flow rates. On May 17, following the identification of the source of elevated offgas flow rates, operators continued power ascension. On May 18, Unit 2 achieved rated thermal power. On May 21, operators reduced reactor power to 90 percent to perform a control rod sequence exchange. Unit 2 was restored to rated thermal power the same day. On June 16, operators reduced reactor power to 60 percent to perform power suppression testing. On June 18, Unit 2 was returned to rated following testing. On June 19, Unit 2 experienced an unplanned dual reactor recirculation pump (RRP) downshift in speed causing reactor power to be reduced to 30 percent. On June 20, operators commenced power ascension, after isolating a degraded portion of the RRP downshift circuit. Operators achieved 100 percent on June 21. Unit 2 remained at or near rated thermal power for the remainder of the inspection period.

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed plant status activities described in IMC 2515 Appendix D, "Plant Status" and conducted routine reviews using IP 71152, "Problem Identification and Resolution." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess Exelon's performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

## REACTOR SAFETY

### 71111.04 - Equipment Alignment

#### Partial Walkdown (5 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Unit 2 Division I emergency diesel generator (EDG) on April 10, 2018
- (2) Unit 2 Division I service water (SW) system on April 23, 2018

- (3) Unit 2 'A' spent fuel pool cooling system on April 24, 2018
- (4) Unit 2 'A' residual heat removal (RHR) shutdown cooling system on April 27, 2018
- (5) Unit 2 offgas system on May 15, 2018

#### Complete Walkdown (1 Sample)

The inspectors evaluated system configurations during a complete walkdown of the service water system on June 21, 2018

### 71111.05Q - Fire Protection Annual/Quarterly

#### Quarterly Inspection (4 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) Unit 2 steam tunnel, fire area (FA) 50 on April 19, 2018
- (2) Unit 2 'A' remote shutdown room, FA 17 on April 19, 2018
- (3) Unit 2 drywell, FA 50 on April 25, 2018
- (4) Unit 2 'A' heater bay, FA 50 on April 26, 2018

### 71111.08 – Inservice Inspection Activities (1 Sample)

The inspectors evaluated Exelon's non-destructive examination and welding activities at Unit 2 by reviewing the following examinations from April 23 – 25, 2018:

- (1) Volumetric Examinations
  - a) Ultrasonic examination of the H2 core shroud weld
  - b) Ultrasonic examination of the N4C dissimilar metal nozzle weld

### 71111.11 - Licensed Operator Regualification Program and Licensed Operator Performance

#### Operator Regualification (2 Samples)

- (1) The inspectors observed a Unit 1 simulator evaluation that involved the failure of a reactor vessel water level transmitter, the loss of all offsite 115 kV power, the rupture of a circulating water expansion joint, and a large break loss of coolant accident on June 6, 2018
- (2) The inspectors observed a Unit 2 simulator evaluation that involved a transfer of operating instrument air compressors, a feedwater level control system failure, a control rod drift, offgas system isolation and scram, and a loss of coolant accident on June 6, 2018

#### Operator Performance (2 Samples)

- (1) The inspectors observed Unit 1 operations personnel during EDG 102 testing on May 21, 2018
- (2) The inspectors observed Unit 2 operations personnel during a reactor shutdown for planned refueling and maintenance outage N2R16 on April 15, 2018

### Routine Maintenance Effectiveness (3 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) Unit 2 primary containment (suppression pool) structural monitoring on April 26, 2018
- (2) Unit 2 cooling tower structural monitoring on May 2, 2018
- (3) Unit 2 primary containment (drywell) structural monitoring on May 3, 2018

### 71111.13 - Maintenance Risk Assessments and Emergent Work Control (6 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Unit 1 unplanned 12 emergency condenser water hammer on April 3, 2018
- (2) Unit 2 planned 115 kV Line 6 outage on April 10, 2018
- (3) Unit 1 planned 115 kV Line 4 outage on April 11, 2018
- (4) Unit 2 planned Division II 4 kV switchgear outage on April 25-26, 2018
- (5) Unit 2 planned Division I, II, and III EDGs during decay heat removal operations on May 8, 2018
- (6) Unit 2 planned power suppression testing on June 16, 2018

### 71111.15 - Operability Determinations and Functionality Assessments (10 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Unit 2 'B' reserve station transformer degraded flexible links on April 2, 2018
- (2) Unit 1 12 emergency condenser following water hammer on April 3, 2018
- (3) Unit 2 drywell floor drain system following 'A' and 'B' pump failure on April 16, 2018
- (4) Unit 2 main steam isolation valve 2MSS\*AOV6B not as found tested due to computer data issue on April 16, 2018
- (5) Unit 2 high pressure core spray (HPCS) isolation check valve 2CSH\*V108 failure on April 18, 2018
- (6) Unit 2 missed portion of source range monitor surveillance on April 22, 2018
- (7) Unit 2 HPCS following main control room alarms during turbine bypass valve oscillations on April 23, 2018
- (8) Unit 2 Division II standby liquid control system following loss of squib continuity light and alarms during Division II ECCS surveillance on May 1, 2018
- (9) Unit 2 change in core flow observed on May 26, 2018
- (10) Unit 2 'C' RHR 2RHS\*RV61C relief valve failed as-found seat leakage test on June 26, 2018

### 71111.18 - Plant Modifications (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Temporary Modification – Unit 2 catch containment for service water check valve 2SWP\*V202B packing leak



71111.19 - Post Maintenance Testing (12 Samples)

The inspectors evaluated post maintenance testing for the following maintenance/repair activities:

- (1) Unit 2 standby gas treatment system 2SWP\*V2000B failure on April 14, 2018
- (2) Unit 2 Division II EDG K-1 relay replacement on April 20, 2018
- (3) Unit 2 Division II EDG voltage regulator modification on April 22, 2018
- (4) Unit 2 unannealed red brass instrument air piping replacement on April 24, 2018
- (5) Unit 2 redundant reactivity control system on April 27, 2018
- (6) Unit 2 'B' RHR heat exchanger on May 1, 2018
- (7) Unit 2 'D' SW pump relay replacement on May 2, 2018
- (8) Unit 2 hardened containment vent system rupture disc replacement on May 4, 2018
- (9) Unit 2 reactor pressure vessel and all Class I systems leakage test following reactor coolant system maintenance on May 10, 2018
- (10) Unit 2 digital electro-hydraulic control (EHC) system post modification functional testing at 10 percent reactor power on May 14, 2018
- (11) Unit 2 digital EHC system post modification functional testing at 90 percent reactor power on May 18, 2018
- (12) Unit 2 control rod 10-19 scram solenoid replacement on May 25, 2018

71111.20 - Refueling and Other Outage Activities (1 Sample)

The inspectors evaluated Unit 2 refueling and maintenance outage N2R16 activities from April 16-May 14, 2018.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Routine (4 Samples)

- (1) Unit 2 N2-OSP-EGS-R004, Operating Cycle Diesel Generator Simulated Loss of Offsite Power With and Without Emergency Core Cooling System (ECCS) Division 1/2 on April 19, 2018
- (2) Unit 2 N2-OSP-SLS-R001, Standby Liquid Control Manual Initiate Actuation and ASME XI Pressure Test on May 3, 2018
- (3) Unit 2 N2-ISP-SVV-R102, Operating Cycle Channel Calibration of Safety Relief Valve Acoustic Monitor Position Indication Channels on May 6, 2018
- (4) Unit 2 N2-PM-R@003, Turbine Overspeed Testing on May 15, 2018

Inservice (3 Samples)

- (1) Unit 2 N2-MSP-ADS-2Y003, ADS Safety Relief Valve Operability Test on May 5, 2018
- (2) Unit 2 N2-OSP-ICS-Q@002, RCIC Pump and Valve Operability Test and System Integrity Test and ASME XI Functional Test and Analysis on May 14, 2018
- (3) Unit 1 Core Spray 121 Pump, Valve and Shutdown Cooling Water Seal Check Valve Operability Test on May 24, 2018

### Containment Isolation Valve (3 Samples)

- (1) Unit 2 N2-OSP-MSS-003, Main Steam Isolation Valve Leak Rate Test (Inboard Static Head of Water) for MSIV 7C on April 16, 2018
- (2) Unit 2 N2-OSP-MSS-CS001, Main Steam Isolation Valve Operability Test on April 16, 2018
- (3) Unit 2 N2-OSP-MSS-003, Main Steam Isolation Valve Leak Rate Test (Inboard Static Head of Water) for MSIV 6D on April 18, 2018

## **RADIATION SAFETY**

### 71124.01 - Radiological Hazard Assessment and Exposure Controls

#### Radiological Hazard Assessment (1 Sample)

The inspectors reviewed recent plant radiation surveys and radiological hazards to onsite workers or members of the public. The inspectors evaluated assessments and controls for new radiological hazards.

#### Instructions to Workers (1 Sample)

The inspectors evaluated instructions provided to workers.

#### Radiological Hazards Control and Work Coverage (1 Sample)

The inspectors evaluated in-plant radiological conditions during facility walkdowns and observation of radiological work activities. The inspectors assessed whether posted surveys, radiation work permits, worker radiological briefings, the use of continuous air monitoring and dosimetry monitoring were consistent with the present conditions.

#### High Radiation Area and Very High Radiation Area Controls (1 Sample)

The inspectors evaluated risk-significant high radiation area and very high radiation area controls including postings and physical barriers.

#### Radiation Worker Performance and Radiation Protection Technician Proficiency (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician radiological performance.

### 71124.02 - Occupational As Low As Reasonably Achievable (ALARA) Planning and Controls

#### Verification of Dose Estimates and Exposure Tracking Systems (1 Sample)

The inspectors evaluated dose estimates and exposure tracking.

#### Radiation Worker Performance (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician performance.

### 71124.03 - In-Plant Airborne Radioactivity Control and Mitigation

#### Engineering Controls (1 Sample)

The inspectors evaluated engineering controls for in-plant airborne radioactivity.

### 71124.04 - Occupational Dose Assessment

#### Source Term Characterization (1 Sample)

The inspectors evaluated Exelon's source term characterization at Unit 2.

#### Special Dosimetric Situations (1 Sample)

The inspectors evaluated Exelon's performance for special dosimetric situations.

## **OTHER ACTIVITIES – BASELINE**

### 71152 - Problem Identification and Resolution

#### Semiannual Trend Review (1 Sample)

The inspectors reviewed Exelon's corrective action program for trends that might be indicative of a more significant safety issue.

#### Annual Follow-up of Selected Issues (1 Samples)

The inspectors reviewed Exelon's implementation of its corrective action program related to the following issue:

- (1) Condition Report (CR) 4122437, secured 12 emergency condenser due to rising shell side temperature

### 71153 - Follow-up of Events and Notices of Enforcement Discretion

#### Events (3 Samples)

The inspectors evaluated response to the following events:

- (1) Unit 2 loss of 115 KV offsite power source Line 6, automatic start of the Division II EDG, and loss of shutdown cooling on May 10, 2018
- (2) Unit 2, control rod 10-19 scram during 'B' reactor protection system half-scram testing on May 22, 2018
- (3) Unit 2, unplanned downshift of 'A' and 'B' reactor recirculation pumps on June 19, 2018

#### Licensee Event Reports (2 Samples)

The inspectors evaluated the following licensee event reports (LERs) which can be accessed at <https://lersearch.inl.gov/LERSearchCriteria.aspx>:

- (1) LER 05000220/2017-001-00, Manual Reactor Scram Due to High Turbine Vibration (ADAMS accession: ML17044A007)

The inspectors determined it was not reasonable to foresee or correct the cause discussed in the LER, therefore no performance deficiency was identified. The inspectors also concluded that no violation of NRC requirements occurred. This LER is closed.

- (2) LER 05000410/2017-002-00, Secondary Containment Inoperable Due to Wind (ADAMS accession: ML17346A745)

The inspectors determined it was not reasonable to foresee or correct the cause discussed in the LER, therefore no performance deficiency was identified. The inspectors also concluded that no violation of NRC requirements occurred. This LER is closed.

#### Unresolved Issue Follow Up (1 Sample)

The inspectors evaluated the following Unresolved Issue (URI):

- (1) URI 05000220/2018001-01, "Potential Failure to Submit an 8-Hour Event Notification for a Valid Actuation of HPCI." ADAMS accession: ML18129A297

The inspectors concluded that no violation of NRC requirements occurred. This URI is closed.

### **INSPECTION RESULTS**

Failure to Ensure Proper Control of the Standby Gas Treatment System Damper Valve, 2GTS*V2000B, Within Procedures, Materials, and Design Control Measures			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Barrier Integrity	Green NCV 05000410/2018002-01 Closed	P.1 – Problem Identification and Resolution, Identification	71111.19
The inspectors identified a Green finding and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, Design Control, when Exelon failed to ensure proper control of the SGTS damper valve 2GTS*V2000B within procedures, materials, and design control measures. Specifically, on April 15, 2018 operators attempted to run 'B' SGTS for containment purge; however, no flow was observed and the system was secured. Operators discovered the 2GTS*V2000B closed due to the failure of the operating mechanism to maintain control of the valve position.			
<u>Description:</u> The SGTS is a two-train system used to provide a filtered path from primary and secondary containment to the environment during a radionuclide release. The secondary function is to drawdown reactor building pressure below turbine building pressure. Each train contains a fan, filtration, and associated dampers. On April 15, 2018 operators attempted to run the 'B' SGTS fan to perform a containment purge. The operator was forced to immediately secure the fan due to no flow. Exelon immediately entered Technical Specification (TS) Limited Condition for Operation (LCO) 3.6.4.3 Condition A.1, which required restoration of operability within 7 days. Follow-up by operators determined the manual discharge damper (butterfly valve), 2GTS*V2000B, had failed closed due to disengagement of the thumb screw to the mounting plate, lack of friction fit. Operators noted the thumb screw was bent. It was determined that the damper was last manipulated on			

April 13 for performance of N2-OSP-GTS-R001, "Secondary Containment Drawdown," Revision 01400.

Exelon immediately replaced the thumb screw with an alternative locking screw. Exelon declared SGTS operable and exited TS LCO 3.6.4.3. Exelon then documented the issue in the Corrective Action Program (CAP) as IR 04126851, and performed a work group evaluation (WGE). Exelon determined operators lacked a questioning attitude to ensure proper engagement of the thumb screw.

The inspectors reviewed the WGE and performed a walkdown of the affected equipment. The inspectors determined that the WGE failed to evaluate the degradation of the thumb screw, did not identify lock mechanism design differences between the two trains, evaluate the design of the damper, or evaluate the adequacy of the procedures used to maintain configuration control. During system walkdowns, the inspectors identified that the replacement thumb screw was tightened enough to bend the mounting plate. The inspectors determined there was no procedural guidance for the staff to ensure the locking mechanism was properly engaged and not over or under torqued. Exelon captured the inspectors concerns as part of IR 04157970 to address the concern of N2-OSP-GTS-R001 not containing an adequate configuration control and verification method. Exelon also generated IR 04157973 to capture the inspectors concerns regarding the inadequacy of the CAP evaluation.

The inspectors determined the design of the 2GTS\*V2000A/B controls were not translated within procedures, materials, and design control measures, as required by 10 CFR Part 50, Appendix B, Criterion III. Dampers 2GTS\*V2000A/B were not designed to be locked in an intermediate position, only fully open or fully shut. Specifically, the design of the 2GTS\*V2000A/B controls (i.e., hand level assembly for butterfly valve) includes two 1/8-inch diameter at the depth of the drill point positive locking functions for the fully open and fully closed position; however, these design features and associated function do not exist in the field. When the damper's design function was modified to maintain the damper in an intermediate position, the locking mechanism design was not revised. With the damper in the intermediate position, the failure of the locking mechanism results in the damper failing closed which prevents the train from performing the safety function from being fulfilled, to drawdown reactor building pressure. As a result, the locking mechanism should have been reclassified as safety-related. The locking mechanism and associate parts are classified as non-safety-related. Furthermore, design requirements were not adequately translated to operating procedures. Operating procedures treated the operation of the locking mechanism as skill of the craft and did not provide guidance or acceptance criteria for the locking mechanism to ensure the safety function was maintained. Specifically, over-torqueing can damage the device as demonstrated by the deformed mounting plate and bent thumb screw and under-torqueing can result in inadequate friction fit to maintain the locking mechanism in place.

Corrective Action: As an immediate corrective action, on April 15, 2018, Exelon generated IR 04126851, and replaced the bent thumb screw with an alternate locking screw. Exelon also generated IR 04158622 to document the design control issue and to recommend an action to modify the locking mechanism on 2GTS\*V2000B. Exelon also generated IR 04157970 to address the concern of N2-OSP-GTS-R001 not containing an adequate configuration control and verification method. Exelon also generated IR 04157973 to capture the inspectors concerns regarding the inadequacy of the CAP evaluation.

Corrective Action References: IR 04126851, IR 04133018

### Performance Assessment:

**Performance Deficiency:** The inspectors determined that the failure to ensure proper control of the SGTS damper (butterfly valve), 2GTS\*V2000B, within procedures, materials, and design control measures was contrary to 10 CFR Part 50, Appendix B, Criterion III, "Design Control," and was a performance deficiency.

**Screening:** The performance deficiency was more than minor because it adversely affected structure, system, or component (SSC) and Barrier Performance attribute of the Barrier Integrity cornerstone objective of ensuring that physical design barriers (containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to control the SGTS damper (butterfly valve), 2GTS\*V2000B resulted in unplanned inoperability when the damper (butterfly valve) failed closed when called upon for operation.

**Significance:** The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3, "Barrier Integrity Screening Questions." The finding screened as of very low safety significance (Green) because the finding only represented a degradation of the radiological barrier function provided for the SGTS.

**Cross-Cutting Aspect:** The inspectors determined that the finding had a cross-cutting aspect of Identification within the cross-cutting area of Problem Identification and Resolution because Exelon did not demonstrate the characteristics of identifying the issue completely, accurately, and in a timely manner in accordance with their program. [P.1]

### Enforcement:

**Violation:** 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that "measures shall be established to assure that applicable regulatory requirements and the design basis... are correctly translated into specifications, drawings, procedures...", "measures shall also be established for the selection and review for suitability of application of materials...", and "the design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program."

Contrary to the above, from 1987 until April 15, 2018, Exelon failed to assure the applicable design basis was translated into procedures, the selection and suitability of application of materials, and the performance of suitable testing program. Specifically, when the damper function was changed to operate in a throttled position, NMPNS staff did not reflect this change in design drawings, system specifications, or plant operating or test procedures. As a result, the locking device was damaged and failed on April 15, 2018 causing a loss of 'B' SBGT function.

**Disposition:** Exelon entered this issue into the CAP as IR 04126851 and 04133018. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy.

Inadequate Procedure Causes Water Hammer Condition Resulting in Isolation and Inoperability of the 12 Train of the Emergency Condenser System			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000220-2018002-02 Closed	[H.1] – Human Performance: Resources	71152 – Problem Identification and Resolution
<p>The inspectors identified a Green finding and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, Instructions, Procedures and Drawings, when Exelon did not provide appropriate quantitative or qualitative criteria and guidance to operators in procedure N1- OP- 13 “Emergency Cooling System” to return an emergency condenser loop to service without inducing a water hammer condition which caused operators to re-isolate the emergency condenser loop and declare it inoperable.</p>			
<p><u>Description:</u> On April 3, 2018, Exelon staff completed maintenance on the 12 emergency condenser loop keep full system and made preparations to return the 12 emergency condenser to its normal standby condition. The 12 emergency condenser loop had been isolated for approximately 18.5 hours for the maintenance and the steam piping had cooled to less than 200 degrees Fahrenheit during that time. Using procedure N1-OP-13, “Emergency Cooling System,” operators placed the system into standby condition from a cold condition in approximately 31 minutes. Shortly after the system was placed in standby and declared operable, operators identified that the 12 emergency condenser steam line pressure was oscillating and water hammer were occurring. Approximately 1.5 hours later, operators isolated the emergency condenser due to the water hammer and declared the emergency condenser inoperable.</p> <p>Exelon staff performed a WGE to determine the causes of the water hammer condition. The WGE identified the cause as: “The amount of time that the 12 emergency condenser vents and drains were open was not sufficient to remove the build-up of condensate while 12 emergency condenser was isolated.” Exelon staff identified and tracked a corrective action to implement procedure change PCR-18-01219 to N1-OP-13 which provided caution statements in the procedure for operator awareness.</p> <p>The inspectors reviewed Exelon’s WGE and corrective actions. The inspectors concluded that the WGE was of sufficient technical detail and scope to identify the likely cause of this condition.</p> <p>The inspectors reviewed and assessed the guidance in procedure N1-OP-13 and the changes enacted by procedure change request PCR-18-1219 following the water hammer event.</p> <p>The inspectors determined that the version of N1-OP-13 in effect during the event did not provide appropriate quantitative or qualitative criteria to operators to place the emergency condenser into a standby condition from an isolated condition, either cold or hot. Specifically, N1-OP-13 did not provide guidance on heat-up or pressurization rates and did not provide guidance on what actions to take in the event that water hammer occurs. The procedure did not direct opening the steam line drain valves until just before opening the steam isolation valve, which does not allow an adequate amount of time for condensate formed during the heat up process to drain from the steam line before placing the system into standby. Exelon PCR-18-1219 added a “Caution” note in the procedure stated that “Opening Steam IV(s) too rapidly may cause water hammer, valve motion may be controlled by using PULL TO STOP,” which did not prevent water hammer from occurring. It is more appropriate to include caution</p>			

statements in a procedure to inform operators of required actions or limits on parameter changes which are required to put a system back into service successfully. The caution statement was revised to reflect the inspector's observation.

Corrective Actions: Exelon entered the occurrence of the water hammer event into the CAP as IR 4122437 and performed a WGE. In response to the WGE, Exelon implemented a procedure change (PCR-18-01219) to N1-OP-13, which provided additional qualitative guidance to operators for returning an isolated emergency condenser loop to service. In response to NRC questions (IR 4147082), Exelon completed a technical evaluation to verify that the loading on the emergency condenser piping and tubing was bound by the design basis. Exelon entered the notification of the finding and NCV into the CAP as IR 4154771.

Corrective Action Reference(s): 4112237, 4147082, 4154771

Performance Assessment:

Performance Deficiency: Exelon did not provide appropriate qualitative or quantitative criteria in procedure N1-OP-13, "Emergency Condenser Operation" for returning an isolated emergency condenser loop to service following maintenance.

Screening: The inspectors determined the performance deficiency was more than minor because it adversely affected the procedure quality attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

Significance: The inspectors assessed the significance of the finding using Inspection Manual Chapter 0609 Appendix A, Exhibit 2 "Mitigating System Screening Questions." The performance deficiency did not affect the design or qualification of a mitigating SSC, did not represent a loss of system or function, did not represent an actual loss of function of at least a single train for greater than its technical specification allowed outage time, and did not represent an actual loss of function of one or more highly safety significant non-technical specification equipment and therefore screened as low safety significance (Green).

Cross-Cutting Aspect: Human Performance, Resources: Leaders ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety (H.1).

Enforcement:

Violation: 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings" requires, in parts, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

Contrary to the above, on April 3, 2018, Exelon did not provide appropriate quantitative or qualitative criteria in procedure N1-OP-13, "Emergency Cooling System" to satisfactorily place the 12 emergency condenser loop into the standby condition from an isolated condition.

Disposition: This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy.



Observations	71152 Semiannual Trend Review
<p>The inspectors evaluated a sample of issues and events that occurred over the course of the first and second quarters of 2018 to determine whether issues were appropriately considered as emerging or adverse trends. The inspectors verified that these issues were addressed within the scope of the CAP or through department review.</p> <p>The evaluation did not reveal any new trends that could indicate a more significant safety issue. The inspectors noted minor trends associated with procedure quality and adherence issues where operators are rationalizing working around inadequate or vague procedure steps. In addition, operators were not adequately initiating actions to make changes to procedures if areas of improvement were identified. Examples include the inspectors' observations of the following:</p> <p><u>Unit 1:</u></p> <ul style="list-style-type: none"> <li>Inspectors identified in N1-OP-13, "Emergency Cooling System," Revision 04200 that the procedure did not contain adequate guidance for restoration of the system from standby while the reactor is at rated power. This resulted in a water hammer event on April 3, 2018, and discussed further in Green NCV 05000220-2018002-02 documented in this inspection report.</li> <li>N1-OP-31, "Tandem Compound Reheat Turbine," Revision 04900 Precaution and Limitation 38 provides ambiguous direction to operators after they identify elevated turbine vibrations. Specifically, the inspectors interviews with operators identified inconsistent opinions regarding the procedures direction to hold power steady at the nearest "practicable level." This same direction is also provided in N1-ARP-A2, "Control Room Panel A2," Revision 01200.</li> </ul> <p><u>Unit 2:</u></p> <ul style="list-style-type: none"> <li>Inspectors identified that operators failed to establish the required flow while placing shutdown cooling in-service in accordance with Section 6.4.18 of N1-OP-31, "Residual Heat Removal System," Revision 03500. Exelon determined after an additional review that the flow rate was adequate to provide sufficient heat removal and did not impact core reactivity.</li> <li>Following failure of SGTS damper (butterfly valve) 2GTS*V2000B, inspectors identified the procedure contained inadequate guidance to ensure proper configuration control, resulting in the mounting plate being bent following restoration of a degraded locking mechanism component. This is discussed further in Green NCV 05000410/2018002-01 documented in this report.</li> <li>During testing, inspectors identified that operators failed to ensure the Division 2 EDG output voltage met TS acceptance criteria during Step 6.2.40 of Attachment 4 of N2-OSP-EGS-R004, "Operating Cycle Diesel Generator Simulated Loss of Offsite Power with and without ECCS Division 1/2," Revision 01800, due to vague procedural guidance. This test was performed in a mode where the EDG was not required by Technical Specifications.</li> <li>While removing a service water pump from service, inspectors identified N2-OP-11, "Service Water System," Revision 01301, Step 1.4 of Section G provides vague</li> </ul>	

guidance to operators when closing a discharge isolation valve at different speeds for service water pump shutdown, instead operators used past knowledge to operate the valve at a constant speed.

- Following Unit 2 control rod 10-19 scram, inspectors identified N2-SOP-08, "Unplanned Power Changes," Revision 01300 does not provide adequate procedure exit criteria following a single control rod scram. Although reactor engineering may conclude core limits are met following an event, the procedure does not provide exit criteria for this condition. Instead, the procedure requires the cause of the event to be corrected before exiting the procedure. This presents a conflict for operators which recognize the core is safe following the event, however per procedure they should still be required to scram the reactor should an additional control rod scram.

Common:

- OP-AA-108-114, "Post Transient Review," Revision 13 provides operators vague guidance for determining if high level isolations or trips occurred in Section E.10. This resulted in Unit 1 operators failing to identify in their post trip review a high level trip that occurred during the scram on September 6, 2017. The trip was an expected plant response for the transient and the instrumentation performed as designed.

The inspectors also identified a trend associated with inadequate CAP screening and evaluation quality in accordance with PI-AA-120, Identification and Screening, Revision and PI-AA-125, "Corrective Action Program Procedure," Revision 6. Examples include:

- IR 04122437 – The inspectors identified Exelon's screening for the issue associated with Unit 1 emergency condenser water hammer was not in accordance with PI-AA-120, to ensure the right significance was applied to the CAP product. The inspectors determined that the screening as a Level 4/D was inadequate, and a Level 3 significance should have been assigned, resulting in a more detailed CAP evaluation using a CAP evaluation. The WGE that was performed also did not adequately assess the hydrodynamic effects of water hammer, and failed to assess the adequacy of N1-OP-13, Emergency Cooling System, Revision 04200 for establishing a proper heatup rate for system restoration. This is discussed further the IP 71152-Annual Follow-up of Selected Issues observation documented in this report
- IR 04122437 – The inspectors identified the WGE did not adequately assess the failure of SGTS damper (butterfly valve) 2GTS\*V2000B. Specifically, the evaluation focused on human performance errors surrounding operators' questioning attitude, and did not develop corrective actions to address it. It also failed to assess the condition of the locking mechanism after the event occurred on April 15, 2018. The inspectors' walkdowns, review of design drawings, and interviews revealed the degraded condition of the thumb screw existed prior to the event, and was not captured. The inspectors also identified the mounting plate for the locking mechanism was bent after the locking bolt was replaced on April 15, 2018, and should have been identified by Exelon. This is discussed further in Green NCV 05000410/2018002-01.
- IR 03951525 – During review of the root cause associated with a Unit 1 scram on December 10, 2016, it was identified that Exelon did not assess the preventive maintenance previously performed on the equipment that failed and caused the scram. Although the inspectors determined that the maintenance was conducted, it showed an opportunity existed to identify the procedure clearer on what inspections are

conducted and how they could be conducted to assess potential degradation in material thickness.

There were no adverse safety consequences as a result of these low-level trend issues. The examples identified by the inspectors were captured in the Exelon CAP as IR 04157970 and IR 04157973. Based on the overall results of the semi-annual trend review, the inspectors determined that Exelon was properly identifying adverse trends at NMPNS before they became more significant safety problems. The inspectors independently evaluated the deficiencies noted above for significance in accordance with the guidance in IMC 0612, Appendix B, "Issue Screening," and Appendix E, "Examples of Minor Issues." The inspectors determined, except as noted, these conditions were deficiencies of minor significance and, therefore, are not subject to enforcement action in accordance with the NRC's Enforcement Policy.

Observations	71152 Annual Follow-up of Selected Issues
<p>On April 3, 2018, while placing the 12 emergency condenser loop into its normal standby condition from a cold maintenance condition, operators noted that the shell side temperatures for the 121 and 122 emergency condensers began to rise coincident with reports of water hammer taking place. Operators isolated the 12 emergency condenser loop and declared it inoperable. Exelon entered the issue into the CAP as IR 4122437. Following engineering walkdown of the 12 emergency condenser loop and warming the loop for a longer period of time, operators successfully placed the 12 loop into standby condition.</p> <p><u>Screening of Condition Report 4122437</u></p> <p>Using procedure PI-AA-120, "Issue Identification and Screening Process," Exelon screened IR 4122437 as a significance level 4 issue, which does not require a formal investigation to determine causes or corrective actions. Exelon did perform a work group evaluation to determine the cause of the event and generate corrective actions.</p> <p>The inspectors reviewed the WGE, which concluded that the cause of the water hammer event was that the amount of time that the 12 emergency condenser steam vents and drains were open was not sufficient to remove the build-up of condensate in the steam lines. The WGE generated a corrective action to implement a change to the operating procedure to preclude another water hammer condition. The inspectors noted that while the cause of the water hammer was identified along with a corresponding corrective action, the effects of the water hammer on the emergency condenser tubes, welds, tube sheet, condensate return valve and steam piping were not evaluated.</p> <p>The inspectors performed an independent assessment of the condition, which generated an integrated timeline of the event and evaluated the effects on the 12 emergency condenser components and the effectiveness of the procedure change implemented by Exelon. The inspectors engaged NRC technical staff from the Division of Nuclear Reactor Regulation who modeled the event using GOTHIC software. The results of the GOTHIC model were used to narrow the scope of the independent assessment to those components where the design basis margin might be challenged. The inspectors developed a series of questions which were asked of NMPNS engineering staff. Nine Mile Point Nuclear Station engineering generated a technical evaluation which addressed the inspectors' concerns and concluded</p>	

that the event was bounded by the emergency condenser design basis and the integrity of the emergency condenser tubes and steam piping was not impacted.

The inspectors reviewed the screening of IR 4122437 as a significance level 4 issue and the examples of significance levels provided in PI-AA-120. The inspectors noted that this condition should have been screened as a significance Level 3 issue because it occurred due to an inadequacy in a procedure that caused an unexpected operation or inoperability of equipment. PI-AA-120 recommends that a CAP evaluation would be the appropriate investigation to be performed for a significance Level 3 issue with a high likelihood of occurrence. PI-AA-120 states that the likelihood involves two elements, uncertainty in the cause and uncertainty regarding the corrective actions. PI-AA-120 states that uncertainty is directly related to the complexity of the event, with a more complex event (i.e. more problems), the greater the uncertainty and the need to utilize more formal analysis tools. This event presented issues in the operations, engineering, and reactivity management areas. It is due to this complexity that the inspectors concluded that a CAP evaluation was more appropriate than a WGE.

The inspectors determined that this observation was minor as it does not meet the more than minor criteria listed in NRC IMC 0612, Appendix B, Issue Screening. Additionally, it is similar to example 4.m of IMC 0612 Appendix E, as a failure to implement a procedural requirement that has no safety impact.

#### Procedure Change PCR-18-1219

The inspectors reviewed the procedure change implemented as a corrective action resulting from the WGE. The inspectors determined that the procedure change inserted caution statements to:

- “Allow enough time for pressure to stabilize after vent valves are opened. Emergency condenser pressures have the potential to oscillate as a result of 2 phase flow when the emergency condenser is being returned to standby following extended out of service periods. Consideration should be made to station an operator locally to monitor for two phase flow conditions.”
- “Opening the steam isolation valves too rapidly may cause water hammer, valve motion may be controlling to by using PULL TO LOCK. Wait approximately 15 minutes between initial throttling maneuvers to allow system to stabilize (Consider length of time the emergency condenser has been out of service and amount of time the pipe has had to cool.”

In reviewing the likely effectiveness of these changes as corrective actions, the inspectors observed the two caution statements leave it to operating personnel to determine the instruments to monitor for two phase flow conditions, the time frame for system warm-up, and the instruments to monitor for stable system pressure. The inspectors concluded this high level guidance alone may not be effective to prevent a water hammer condition absent additional corrective actions such as engineering involvement in work planning and/or pre-job briefs to develop specific instructions. The inspectors did not identify a specific performance deficiency because the revised procedure has not been implemented.

Unresolved Item (URI) 05000220/2018001-01 (Closed)	Potential Failure to Submit an 8-Hour Event Notification for a Valid Actuation of HPCI	71153 Follow-up of Events and Notices of Enforcement Discretion
<p><u>Description:</u> On March 18, 2018, at 1:18 a.m., operators received multiple reactor water low level alarms. Operators responded by adjusting reactor water cleanup reject flow and the feedwater minimum flow control valve to raise reactor water level. Upon the operators making the adjustment to reactor water level, the feedwater low flow control valve was slow to respond, but eventually opened more rapidly, and the increased flow from feedwater resulted in a rapid rise in reactor water level. At 1:28 a.m., reactor water level rose to the 95-inch trip setpoint for the 11 and 12 Yarway level indication instruments, resulting in a turbine trip and HPCI (high pressure coolant injection) initiation signal.</p> <p>The 11 and 12 Yarway level indication instruments provide higher indicated water level during shutdown conditions than the 11 and 12 GEMAC level instruments because the Yarway level indication instruments are not density compensated. Because of the discrepancy between the GEMAC and Yarway level indication instruments, operators control reactor water level by using 11 and 12 GEMAC level indication instruments, since they are density compensated. However, because reactor protection system receives input from the 11 and 12 Yarway level indication instruments, operators keep the GEMAC level lower in the normal band. This keeps the Yarway level indication closer to the normal band, and further away from causing trip signals, should there be a reactor water level perturbation.</p> <p>Operator logs indicated that following the event, it was identified that the reactor water level perturbation was caused by operators performing a tagout removal for the 12 reactor recirculation pump to restore the pump to service following maintenance. Inspectors identified during interviews that the operators in the main control room were unaware that the tagout removal was in progress, and that there was the potential for a reactor water level perturbation, as this was not pre-briefed before operators went to the field to manipulate the tagout for 12 reactor recirculation pump.</p> <p>10 CFR 50.72 (b)(3)(iv)(A) requires submittal of an Event Notification within 8 hours after the occurrence of, "Any event or condition that results in valid actuation of any of the systems listed in paragraph (b)(3)(iv)(B) of this section except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation." 10 CFR 50.72 (b)(3)(iv)(B) states, "The systems to which the requirement of paragraph (b)(3)(iv)(A) of this section apply are: (5) BWR (boiling-water reactor) reactor core isolation cooling system; isolation condenser system; and feedwater coolant injection system." Thus in order to establish that a violation of 10 CFR 50.72, the inspectors must demonstrate (1) the HPCI system is a system described in 10 CFR 50.72 (b)(3)(iv)(B); (2) the actuation was not part of a pre-planned sequence during testing and operations; and (3) that the actuation was valid.</p> <p>Applicable System: The HPCI system on a BWR-2 is a feedwater injection system with an automatic actuation feature. The instrumentation associated with this actuation is covered by TS 3.1.8 "High Pressure Coolant Injection," and actuation is required per TS 3.6.2.k on a turbine trip in order to maintain reactor vessel water level (RVWL) since the main turbine driven 13 feedwater pump is lost and the motor driven feedwater pumps 11 and 12 are in a standby configuration. HPCI is also actuated on low-low RVWL to help mitigate a small break loss of coolant accident, however it is not credited in a safety analysis. The HPCI system is similar to the other systems described in 10 CFR 50.72 (b)(3)(iv)(B)(5) such as reactor core isolation cooling (RCIC), which is also not safety related. There is no discussion in the</p>		

statements of consideration or NUREG-1022 which would exempt this system for reportability requirements. Therefore this is an applicable system described by the regulation.

Pre-planned sequence during testing or reactor operation: NUREG-1022 states, "Preplanned actuations are those that are expected to actually occur due to preplanned activities covered by procedures. Such actuations are those for which a procedural step or other appropriate documentation indicates that the specific actuation is actually expected to occur. Control room personnel are aware of the specific signal generation before its occurrence or indication in the control room. However, if, during the test or evolution, the system actuates in a way that is not part of the planned evolution, that actuation should be reported." In this case, the plant response was not part of a procedure, the plant response was not an expected response for clearing the tagout on the 12 RRP, and the operators did not appear to be standing by or monitoring for this contingency. Therefore, the actuation was not considered to be part of a preplanned sequence during testing or reactor operations.

Valid Actuation: With respect to whether the actuation was valid or invalid, the inspectors reviewed NUREG-1022 and the Federal Register Notice associated with the original 1983 rule [48 FR 33854] states, "actuation of multichannel actuation systems is defined as actuation of enough channels to complete the minimum actuation logic." NUREG-1022, Section 3.2.6, System Actuation, are those actuations that result from "valid signals" or from intentional manual initiation unless it is part of a preplanned test. Valid signals are those signals that are initiated in response to actual plant conditions or parameters satisfying the requirements for initiation of the safety function of the system. 48 FR 33854 states, "This paragraph requires events to be reported whenever a system actuates either manually or automatically, regardless of plant status. The Commission is interested both in events where a system was needed to mitigate the consequences of an event and events where a system actuated unnecessarily."

In this case, the actuation logic was satisfied by an unexpected change in an actual plant parameter. Under most circumstances these would make the actuation valid. However, in this case, it was a known fact, that the instrumentation system was inaccurate for cold plant conditions due to the fact the Yarway RVWL instruments are not temperature compensated and are calibrated to read under "hot" plant conditions. Alternate instrumentation (GEMAC) was in-service and indicated that the plant parameters for system actuation at high RVWL of 95" did not exist. Therefore the actual plant parameter was not at its setpoint and the actuation was invalid. Since the HPCI system had been properly removed from service and was not required under the plant conditions, this invalid actuation would not be reportable under 10 CFR 50.72.

The following NUREG-1022 example supports this interpretation.

#### (1) Reactor Protection System (RPS) Actuation

Exelon was placing the RHR system in its shutdown cooling mode while the plant was in hot shutdown. The BWR vessel level decreased for unknown reasons, causing RPS scram and Group III primary containment isolation signals, as designed. All control rods had been previously inserted and all Group III isolation valves had been manually isolated. Exelon isolated RHR to stop the decrease in reactor vessel level.

An event notification system (ENS) notification and LER are both required because, although the systems' safety functions had already been completed, the RPS scram and primary containment isolation signals were valid and the actuations were not part of the planned procedure.

The automatic signals were valid because they were generated from the sensor by measurement of an actual physical system parameter that was at its set point.

Corrective Action References: IR 04116336

Closure Basis: No violation of 10 CFR 50.72 exists in this case. This URI is Closed.

## **EXIT MEETINGS AND DEBRIEFS**

The inspectors confirmed that proprietary information was controlled to protect from public disclosure.

- On April 26, 2018, the inspectors presented the IP 71111.08 inspection results to Mr. Peter Orphanos, Site Vice President and other members of Exelon staff.
- On May 17 2018, the inspectors presented the inspection results for the radiation safety inspection via telephone conference call to Mr. Rob Kreider, Plant General Manager, and other members of the Nine Mile Point staff.
- On July 19, 2018, the inspectors presented the quarterly resident inspection results to Mr. Robert Kreider, Plant Manager, and other members of the Exelon staff.

**DOCUMENTS REVIEWED****71111.04**Procedures

N2-OP-11, Service Water System, Revision 01301  
 N2-OP-31, Residual Heat Removal System, Revision 03500  
 N2-OP-38, Spent Fuel Pool Cooling and Cleanup System, Revision 02500  
 N2-OP-42, Offgas System, Revision 02200  
 N2-OP-100A LINEUPS, Standby Diesel Generators – LINEUPS, Revision 00500  
 N2-OP-100A, Standby Diesel Generators, Revision 02500  
 N2-SOP-09, Loss of Condenser Vacuum, Revision 00400

Issue Reports

01999292	02678943	02103163
04130530*	02494726	02393907
04133504	02017358	02580025

\*initiated in response to inspection

Drawings

EJ-ECCS-A, Emergency Core Cooling Systems Flow Diagram, Revision 0  
 PID-11A, Piping & Instrumentation Diagram Service Water System, Revision 18  
 PID-11B, Piping & Instrumentation Diagram Service Water System, Revision 20  
 PID-11C, Piping & Instrumentation Diagram Service Water System, Revision 16  
 PID-11D, Piping & Instrumentation Diagram Service Water System, Revision 12  
 PID-11E, Piping & Instrumentation Diagram Service Water System, Revision 12  
 PID-11F, Piping & Instrumentation Diagram Service Water System, Revision 26  
 PID-11G, Piping & Instrumentation Diagram Service Water System, Revision 16  
 PID-11H, Piping & Instrumentation Diagram Service Water System, Revision 42  
 PID-11J, Piping & Instrumentation Diagram Service Water System, Revision 20  
 PID-11K, Piping & Instrumentation Diagram Service Water System, Revision 8  
 PID-11L, Piping & Instrumentation Diagram Service Water System, Revision 25  
 PID-11M, Piping & Instrumentation Diagram Service Water System, Revision 17.02  
 PID-11N, Piping & Instrumentation Diagram Service Water System, Revision 9  
 PID-38A, Piping & Instrumentation Diagram Fuel Pool Cooling and Cleanup, Revision 15  
 PID-38B, Piping & Instrumentation Diagram Fuel Pool Cooling and Cleanup, Revision 12  
 PID-38C, Piping & Instrumentation Diagram Fuel Pool Cooling and Cleanup, Revision 14  
 PID-42A, Piping & Instrumentation Diagram Offgas System, Revision 30  
 PID-42B, Piping & Instrumentation Diagram Offgas System, Revision 27  
 PID-42C, Piping & Instrumentation Diagram Offgas System, Revision 11

Work Orders

C93246066

Miscellaneous

Service Water System Training Schematic, Revision 1.1  
 Specification 412M, Lubrication of Plant Equipment, Revision 10



**71111.05**Procedure

N2-FPI-PFP-0201, Unit 2 Pre-Fire Plans, Revision 05

Miscellaneous

USAR Chapter 9, Revision 22

**71111.08**Procedures

EPRI-ENC-DMW-PA-1, Procedure for the Encoded Phased Array Ultrasonic Examination of Dissimilar Metal Piping Welds, Revision 0, November 1, 2017

EPRI-ENC-DMW-PA-1, DM Weld Technique Sheet RS-TOPZ-STD-02, Revision 0, November 1, 2017

GEH-UT-542, Procedure for Phased Array Ultrasonic Examination of Core Shroud Welds H2 and H3, Version Number 2, September 30, 2016

Issue Reports

02043427

04128317

04129394

Calculation

AX-017C, Thermal Stratification Loads Exceed Allowance During RFO 5 Plant Shutdown (DER 2-96-2343), October 16, 1996, Revision 04

Miscellaneous

BWRVIP-76, BWR Vessel and Internals Project, BWR Core Shroud Inspection and Flaw Evaluation Guidelines, November 2014, Revision 2

General Electric Nuclear Energy, Service Information Letter 572, October 4, 1993, Revision 1

ISI Report ISI-VE-18-004, 2RPV-KB19(N4C); Examination Record SI-UT-218, Revision 0

TR-105696-R18 (BWRVIP-03), BWR Vessel and Internals Project: Reactor Pressure Vessel and Internals Examination Guidelines, December 2015, Revision 18

**71111.11**Procedures

N1-SOP-33A.1, Loss of 115 KV, Revision 00700

N1-ST-M4A, Emergency Diesel Generator 102 and PB 102 Operability Test, Revision 02200

N2-EOP-6.21, Containment Venting, Revision 00400

N2-OP-3, Condensate and Feedwater System, Revision 05000

N2-OP-19, Instrument and Service Air System, Revision 02700

N2-OP-101C, Plant Shutdown, Revision 03400

N2-SOP-06, Feedwater Failures, Revision 01101

N2-SOP-08, Unplanned Power Changes, Revision 01300

N2-SOP-17, Fuel Failure or High Activity in Rx Coolant and Offgas, Revision 00302

Miscellaneous

TRA-03B DMS-RL3 Simulator Training Scenario, May 29, 2018

TRA-16 DMS-PC5 Simulator Training Scenario, June 5, 2018

**71111.12**Procedures

N2-MSP-CNT-R005, Primary Containment Structural Integrity Inspection and Suppression Pool Cleaning, Revision 01101

S-MRM-REL-0102, Structural Monitoring Program, Revision 01000

Issue Report

04134561

**71111.13**Procedures

CY-NM-210-330, Unit 2 Offgas Shiftly Surveillance, Revision 0

N2-RTP-183, Offgas Online Isotopic Analysis, Revision 00001

NF-AA-430, Failed Fuel Action Plan, Revision 14

NF-AB-431, Power Suppression Testing, Revision 8

OP-AA-108-117, Protected Equipment Program, Revision 005

OP-NM-108-117, Protected Equipment Program at Nine Mile Point, Revision 05000

OU-NM-103-101, Shutdown Safety Management Program, Revision 00200

Issue Reports

04122437

04131299

04146080

**71111.15**Procedures

ER-AA-321, Administrative Requirements for Inservice Testing, Revision 12

N1-OP-13, Emergency Condenser, Revision 04100

N1-TSP-201-550, Local Leak Rate Test Summary (Type B and C Tests) for 10 CFR Part 50 Appendix J and Secondary Containment Bypass Leakage, Revision 01400

N2-ARP-601600, 2CEC\*PNL601 Series 600 Alarm Response Procedure, Revision 00100

N2-ARP-601700, 2CEC\*PNL601 Series 700 Alarm Response Procedure, Revision 00001

N2-ISP-NMS-W@008, Source Range Monitor and Rod Block Trip Channel Functional Test, Revision 00600

N2-MSP-GEN-206, ASME OM Code IST Program Relief Valve Inservice Testing and Calibration, Revision 00400

N2-OP-31, Residual Heat Removal System, Revision 03500

N2-OP-36A, Standby Liquid Control System, Revision 00900

N2-OP-101C, Plant Shutdown, Revision 03300

N2-OSP-CSH-R002, HPCS Valve Position Indication Operability Test, Revision 00800

N2-OSP-EGS-R004, Operating Cycle Diesel Generator Simulated Loss of Power With and Without ECCS Division 1/2, Revision 01800

N2-OSP-MSS-CS001, Main Steam Isolation Valve Operability Test, Revision 00701, performed on April 16 and May 5, 2018

OP-AA-108-115, Operability Determinations (CM-1), Revision 21

Issue Reports

04112050	04119456	04121113	04126582
04126954	04127545	04127197	04128617
04129749	04131863	04131921	04132094
04137666	04141573	04146955	

Condition Report (\*initiated in response to inspection)

4122437\*

Work Order

C93663351

Drawings

C-18017-C, Sheet 001, Emergency Cooling System Piping and Instrumentation Diagram, Revision 56

C-18017-C-002, Emergency Cooling System, Thermocouples (TE), Revision 01.01

ESK-6SLS02 Sh1 of 2, AC Elementary Diagram 600V MCC Circuits Standby Liquid Control Pump 1B, Revision 15

ESK-6SLS02 Sheet 2 of 2, AC Elementary Diagram 600V MCC Circuits Standby Liquid Control Pump 1B, Revision 11

ESK-6SLS03 Sh1 of 2, AC Elementary Diagram 600V MCC Circuits Standby Liquid Control System MOVs, Revision 8

ESK-6SLS03 Sh2 of 2, AC Elementary Diagram 600V MCC Circuits Standby Liquid Control System MOVs, Revision 7

ESK-6SLS05, AC Elementary Diagram 600 Volt MCC Circuits Standby Liquid Control System MOVs, Revision 6

EE-1AV, 600V One Line Diagram 2EHS\*MCC302 Reactor Building Auxiliary Bay South, Revision 14

EE-1AW, 600V One Line Diagram 2EHS\*MCC302 Reactor Building Auxiliary Bay South, Revision 14

EE-001Z, 600V One Line Diagram Emergency Bus 2EJS\*US1 and US3 Control Room Building Room A and B Elevation 261'-0", Revision 14

LSK-23-6C, Logic Diagram Reactor Building Floor Drains, Revision 13

PID-31C, Piping & Instrumentation Diagram Residual Heat Removal, Revision 15

PID-31G, Piping & Instrumentation Diagram Residual Heat Removal, Revision 15

PID-63C-16, Piping & Instrumentation Diagram Reactor Building Equipment and Floor Drains, Revision 14

Miscellaneous

2MSS\*AOV6B Evaluation of Preconditioning Acceptability, approved June 5, 2018

ECP-18-000228, Technical Evaluation 2RTX-XSR1B, Revision 0

**71111.18**Issue Reports

04125230*	03977366	03960649
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**7111.19**Procedures

CC-AA-20, Configuration Management, Revision 2  
 HU-AA-101-1002, Human Performance Review Board, Rev. 4  
 N2-MFT-324, Digital EHC Modification Acceptance Testing, Revision 00200  
 N2-MFT-324B, Digital EHC Power Ascension Test, Revision 00100  
 N2-OP-61A, Standby Gas Treatment System, Rev. 02400  
 N2-OP-61B, Standby Gas Treatment System, Rev. 01600  
 N2-OSP-EGS-R004, Operating Cycle Diesel Generator Simulated Loss of Offsite Power With  
 and Without ECCS Division 1/2, Revision 01800  
 N2-OSP-GTS-R001, Secondary Containment Integrity Test, Revision 014000  
 N2-OSP-ISC-R301, ATWS Recirculation Pump Trip LSFT, Revision 00800  
 N2-OSP-LRT-HCVS, HCVS Boundary and Rupture Disc Leakage Test, Revision 0  
 N2-OSP-RMC-@001, Control Rod Drive Scram Insertion Time Testing, Revision 02400  
 N2-OSP-RPV-@003, Reactor Pressure Vessel and All Class I Systems Leakage Test with the  
 RPV Solid, Revision 01000  
 N2-OSP-SWP-R001, Service Water Actuation Test, Revision 01900  
 PI-AA-120, Issue Identification and Screening Process, Rev. 8

Issue Reports

03997205	04126851	04133018	04139862
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Work Orders

C93492783	C93587933	C93617307	C93633087
C93665070	C93667689		

Drawings

PID-61B, Piping & Instrumentation Diagram Primary Containment Purge and Standby Gas  
 Treatment, Revision 23  
 Niagara Mohawk Power Corporation Drawing G-1292-2, Hand Level Assembly for Butterfly  
 Valve, Revision B  
 Niagara Mohawk Power Corporation Drawing G-1292-A, Hand Level Parts List, Revision A

Miscellaneous

NMPNS Unit 2 Control Room Logs  
 NMPNS Unit 2 Technical Specifications 3.6.4.3  
 Safety Class Determination 92-149  
 USAR Section 6.5.1, Engineering Safety Feature Filter Systems

**7111.20**Procedures

N2-OP-31, Residual Heat Removal System, Revision 03500  
 N2-OP-101A, Plant Start-up, Revision 04600  
 N2-OP-101C, Plant Shutdown, Revision 03400  
 N2-PM-082, RPV Flood Up/Draindown, Revision 01500

Miscellaneous

Reactivity Maneuver Plan NM2C17-SU-1, Startup Sequence, approved May 9, 2018

**71111.22**Procedures

HU-AA-1211, Pre-Job Briefings, Revision 11

N1-ST-Q6B, CS 122 Pump, Valve and SDC Water Seal Check Valve Operability Test, Revision 02000

N2-ISP-MSS-R@003, Main Steam Isolation Valve Leak Rate Test (Inboard Static Head of Water), Revision 00300

N2-ISP-SVV-R102, Operating Cycle Channel Calibration of Safety Relief Valve Acoustic Monitor Position Indication Channels, Revision 00800

N2-MSP-ADS-2Y003, ADS Safety Relief Valve Operability Test, Revision 00200

N2-OSP-EGS-R004, Operating Cycle Diesel Generator Simulated Loss of Offsite Power with and without ECCS Division 1/2, Revision 01800

N2-OSP-ICS-Q@002, RCIC Pump and Valve Operability Test and System Integrity Test and ASME XI Functional Test and Analysis, Revision 01400

N2-OSP-MSS-003, Main Steam Isolation Valve Leak Rate Test (Inboard Static Head of Water), Revision 0

N2-OSP-MSS-CS001, Main Steam Isolation Valve Operability Test, Revision 00701

N2-OSP-SLS-R001, Standby Liquid Control Manual Initiate Actuation and ASME XI Pressure Test, Revision 00701

N2-PM-R@003, Turbine Overspeed Testing, Revision 00700

Issue Reports

02705170	02523672	04114129	04127197
04127385	04127389	04127469	

**71124.01**Procedures

NISP-RP-002, Radiation and Contamination Surveys, Revision 0

NISP-RP-004, Radiological Posting and Labeling, Revision 00

RP-AA-300, Radiological Survey Program, Revision 16

RP-AA-376, Radiological Postings, Labeling, and Markings, Revision 9

RP-AA-460, Controls for High and Locked High Radiation Areas, Revision 32

RP-AA-460-001, Controls for Very High Radiation Areas, Revision 6

RP-AA-460-002, Additional High Radiation Exposure Control, Revision 4

RP-AA-460-003, Access to HRAs and Contaminated Areas in Response to a Potential or Actual Emergency, Revision 9

RP-AA-503, Unconditional Release Survey Method, Revision 14

RP-AA-503-F-01, Unconditional Release Instructions Using the Small Articles Monitor (SAM) for Personal Items Used in the Radiologically Controlled Area (RCA) and in Contaminated Area, Revision 4

RP-AA-800, Control, Inventory, and Leak Testing of Radioactive Sources, Revision 8

Radiation Work Permits

NM-2-18-00506

NM-2-18-00541

NM-2-18-00642

NM-2-18-00901

Surveys

2DW2343	DW 249'	4/16/18 @ 0700
2RB-26215	RB 306' WCS Hx Rm	4/18/18 @ 0036
2RB-26215	RB 198' 'B' RHR Hx Rm	4/16/18
2018-010684	DW 306'	4/20/18 @ 1230
2018-011252	DW 261'	4/25/18 @ 1702
2018-010195	RB Refuel Floor	4/16/18 @ 1830
2018-010416	RB Refuel Floor	4/18/18 @ 2330
2018-010768	RB Refuel Floor	4/21/18 @ 2357
2018-010913	RB Refuel Floor	4/23/18 @ 2350
2018-011430	RB Refuel Floor	4/27/18 @ 2359

Miscellaneous

3968222 – 2017 Respiratory Protection, December 30, 2017  
 3968227 – 2017 Contamination Control, January 31, 2018  
 4014236 – Radiation Protection Audit Report, June 23, 2017  
 Self Assessments

**71124.03**Procedures

NISP-RP-003, Radiological Air Sampling, Revision 0  
 RP-AA-301, Radiological Air Sampling Program, Revision 11

Air Samples

U2 RB 261' 2018-009700 4/12/18  
 U2 RB 218' "A" WCS 4/14/18 @ 1300  
 U2 RB 218' "A" WCS 4/14/18 @ 1700  
 U2 RB 218' "A" WCS 4/18/18 @ 0630  
 U2 RB 218' "A" WCS 4/18/18 @ 1300  
 U2 RB 218' "A" WCS 4/19/18 @ 1736  
 U2 RB 218' "A" WCS 4/23/18 @ 1425  
 U2 RB 306' WCS Heat Exchanger Room 4/26/18 @ 0440  
 U2 RB 306' WCS Heat Exchanger Room 4/26/18 @ 2345  
 U2 RB 306' WCS Heat Exchanger Room 4/27/18 @ 0410  
 U2 RB 306' WCS Heat Exchanger Room 4/28/18 @ 0100 Recount

**71124.04**Procedure

RP-AA-270, Prenatal Radiation Exposure, Revision 8

Miscellaneous

Generic Radiation Worker Training Lesson Plan, Revision 11

**71152**Procedures

307, Isolation Condenser System, Revision 127  
 DOP-1300-01, Standby Operation of the Isolation Condenser System, Revision 55  
 ER-AA-470, Fatigue and Transient Monitoring Program, Revision 7  
 OP-AA-108-115, Operability Determinations (CM1), Revision 21  
 PI-AA-120, Issue Identification and Screening Process, Revision 8  
 PI-AA-125, Corrective Action Program (CAP) Procedure, Revision 6  
 N1-OP-13, Emergency Cooling System, Revision 04100  
 N1-TTP-EC-SA001, Emergency Cooling System Temperature Trending, Revision 3

Issue Reports

04157970*	04157973*	04129409	04130077
04130373	04130848	04134195	04138090
04138842	04138851	04139238	04139862
04141862	04142107	04143434	04144148
04144790	04146254	04146314	04149881

Condition Reports

3990683	4122437	4144096*	4147082*
4154771*			

Calculations

S0.0-FATIGUEPRO01-017, Cycle Counting and Cycle-Based Fatigue Report for the Transient and Fatigue Monitoring System for NMPNS Unit 1, Revision 1  
 S14-39HX02, Design Report for Emergency Condenser Replacement Tube Bundles, Revision 1  
 S14-39MO23, EC Steam Line Loading Upon System Inadvertent Initiation While Rx Water Flooding the EC Nozzle, Revision 0

Engineering Evaluations

ECP-18-000421, Technical Evaluation for NMPNS EC 12 Water Hammer Transient Event, Revision 1

Drawings

C-18017-C, Sheet 2, Emergency Cooling System Thermocouples (TE), Revision 1  
 C-18017-C, Sheet 1, Emergency Cooling System Thermocouples (TE), Revision 56  
 C-26843-C, Sheet 1, Emergency Condenser System #39 Piping Isometric for Steam Supply From Reactor to Emergency Condenser's West Bank, Revision 10  
 C-26843-C, Sheet 2, Emergency Condenser System #39 Piping Isometric for Condenser Return From Emergency Condenser To Reactor Recirculation East Bank, Revision 10  
 C-26843-C, Sheet 4, Emergency Condenser System #39 Piping Isometric for Condenser Return From Emergency Condenser To Reactor Recirculation West Bank, Revision 9  
 F-45650-C, Sheet 1, 10" Emergency Cooling Isolation Valve (Prior to Modification of N1-89- 79), Revision 0  
 F-45650-C, Sheet 1, 10" Emergency Cooling Isolation Valve (After the Modification of N1- 89- 79), Revision 1  
 F-45650-C, Sheet 3, 10" Emergency Cooling Isolation Valve (Poppet/Cover Machining Per Modification N1-89-079), Revision 0

Miscellaneous

CC-AA-5001, Structures, System and Components Post Transient Walkdown, dated April 3, 2018  
 DCD-101, Piping Support Design Requirements, Revision 0  
 DCD-208, Piping Design Requirements, Revision 2  
 N1-89-079L: S007, Appendix J – Emergency Condenser Modification, dated March 14, 1995  
 N1F17500HTEXCH001, Instructions for the Care and Operation of the Emergency Condenser, Revision 1  
 N1-SD-024, Main Steam System, Revision 4  
 NMPNS Unit 1, Final Safety Analysis Report (Updated), Revision 22  
 NO-AA-10, Quality Assurance Topical Report (QATR), Revision 92  
 NUREG/CR-5220, Volume 1, Diagnosis of Condensation-Induced Water Hammer, dated October 1988  
 NUREG-1022, Event Reporting Guidelines 10CFR 50.72 and 50.73, Revision 3  
 PCR-18-01219, Emergency Cooling System  
 SDBD-204, Emergency Cooling System Design Basis Document, Revision 8  
 Unit 1 Control Room Logs for Night Shift, dated April 2, 2018  
 Unit 1 Control Room Logs for Day Shift, dated April 3, 2018  
 Unit 1 Control Room Logs for Night Shift, dated April 3, 2018  
 USFAR, Figure V-1, Reactor Emergency Coolant System, Revision 19

**71153**Procedures

HU-AA-104-101, Procedure Use and Adherence, Revision 5  
 MA-NM1-763-415, Disassembly, Inspection and Assembly of High Pressure Turbine, Revision 0  
 N1-ARP-A2, Alarm Response Procedure, Revision 01100  
 N1-EPM-GEN-150, 4.16kV Breaker Inspection P.M., Revision 01600  
 N1-OP-31, Tandem Compound Reheat Turbine, Revision 04700  
 N1-ST-Q29, Quarterly Turbine Valve Log, Revision 00900  
 N2-OP-29, Reactor Recirculation System, Revision 02900  
 N2-OP-52, Reactor Building Ventilation, Revision 01700  
 N2-PM-S014, Building Rounds, Revisions 02100 and 02200  
 N2-RCPM-GEN-201, Line 23/R230/R925 345KV Protective Relay Calibration and Testing, Revision 00300  
 N2-SOP-3, Loss of AC Power, Revision 01800  
 N2-SOP-8, Unplanned Power Changes, Revision 01300  
 N2-SOP-29, Sudden Reduction in Core Flow, Revision 01700  
 N2-SOP-31, Loss of Shutdown Cooling, Revision 00601  
 N2-SOP-38, Loss of Spent Fuel Pool Cooling, Revision 01100  
 OP-AA-108-114, Post Transient Review – BWR, Revision 12  
 OP-AB-300-1003, BWR Reactivity Maneuver Guidance, Revision 15  
 PI-AA-125-1001, Evaluation Guide for Equipment Issues, Revision 2  
 PI-AA-125-1001, Root Cause Investigation Template for Event, Revision 2

Issue Reports

02740735	03951525	03951631	03951811
03953432	4057558	04136339	04148579
04139862			



Work Orders

C92387942

C93593544

Drawing

0007.213-001-026G, Reactor Recirculation System, Revision 27

0007.213-001-035, Elementary Diagram Reactor Recirculation System, Revision 7

TL2ISC-089, Sheet 1, Test Loop Diagram Reactor Vessel Steam Dome Pressure 2ISC\*PT109,  
Revision 3TL2ISC-089, Sheet 2, Test Loop Diagram Reactor Vessel Steam Dome Pressure 2ISC\*PT109,  
Revision 2TL2RCS-003, Sheet 1, Test Loop Diagram P1A Suction Temperature 2RCS-TE-12A,  
Revision 2

TL2RCS-003, Sheet 2, Test Loop Diagram P1A Suction Temperature 2RCS-TE12A, Revision 3

Miscellaneous

Commitment # NCTS 003601-01, Inspect Stationary Aux Contacts

Control Rod 10-19 Scram Time Data for May 10, 2018 at 2:19 PM

Event Notification #53395

Failure Mode Tree for Unit 1 Turbine Manually Tripped Due to High Bearing Vibrations

GEI 29017C, Lubrication of Shell Ledges prior to Lifting Outer Shells in Disassembling Steam

Turbine Inspection Report for NMPNS Unit 1, Dated March 17, 2017

LER 05000220/2017-001-00, Manual Reactor SCRAM Due to High Turbine Vibration

Nine Mile Point Unit 2, Cycle 17, Core Parameters Case for May 22, 2018 at 2:39 AM

Unit 1 UFSAR Section IX, Electrical Systems, Revision 25