UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BLVD., Suite 100
KING OF PRUSSIA, PA 19406-2713

November 15, 2017

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 - DESIGN BASES ASSURANCE INSPECTION REPORT 05000220/2017007 AND 05000410/2017007

Dear Mr. Hanson:

On October 5, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the Nine Mile Point Nuclear Station, Unit Nos. 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on October 5, 2017, with Mr. P. Orphanos, Nine Mile Point Site Vice President, and other members of your staff.

The inspection examined activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your licenses. In conducting the inspection, the team examined the adequacy of selected components and modifications to mitigate postulated transients or accidents, maintain containment integrity, and/or minimize the potential for initiating events. The inspection involved field walkdowns, examination of selected procedures, calculations and records, and interviews with station personnel.

The NRC inspectors did not identify any finding or violation of more than minor significance.

In accordance with 10 CFR Part 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 the public inspection in the NRC Public Docket Room or from the Publicly Available Records component of 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/

Mel Gray, Chief
Engineering Branch 1
Division of Reactor Safety

Docket Nos. 50-220 and 50-410
License Nos. DPR-63 and DPR-69

Enclosure:
Inspection Report 05000220/2017007 and
05000410/2017007
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

SUBJECT: NINE MILE POINT NUCLEAR STATION - DESIGN BASES ASSURANCE INSPECTION REPORT 05000220/2017007 AND 05000410/2017007

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket Nos.	50-220 and 50-410
License Nos.	DPR-63 and DPR-69
Report Nos.	05000220/2017007 and 05000410/2017007
Licensee:	Exelon Generation Company, LLC (Exelon)
Facility:	Nine Mile Point Nuclear Station, LLC (NMPNS) Units 1 and 2
Location:	Oswego, NY
Inspection Period:	September 18, 2017 – October 5, 2017
Inspectors:	J. Kulp, Senior Reactor Inspector, Team Leader, Division of Reactor Safety (DRS) J. Schoppy, Senior Reactor Inspector, DRS T. O'Hara, Reactor Inspector, DRS J. Vazquez, Reactor Engineer, Division of Reactor Projects (DRP) C. Hobbs, Reactor Inspector, DRS F. Arner, Senior Reactor Analyst, DRS S. Kobylarz, NRC Electrical Contractor M. Yeminy, NRC Mechanical Contractor
Approved By:	Mel Gray, Chief Engineering Branch 1 Division of Reactor Safety

SUMMARY

Inspection Report (IR) 05000220/2017007, 05000410/2017007; 09/18/2017 – 10/05/2017; Nine Mile Point Nuclear Station, Units 1 and 2; Engineering Team Inspection.

The report covers the Design Basis Assurance Inspection conducted by a team of five U.S. Nuclear Regulatory Commission (NRC) inspectors and two NRC contractors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6, dated July 2016.

No findings were identified.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R21 Design Basis Assurance Inspection (IP 71111.21M)

.1 Inspection Sample Selection Process

The team selected six risk significant components for review using information contained in the Nine Mile Point Probabilistic Risk Assessment (PRA) and the U.S. Nuclear Regulatory Commission's (NRC's) Standardized Plant Analysis Risk (SPAR) model for Nine Mile Point Nuclear Station (NMPNS). Additionally, the team referenced the risk-informed inspection notebook for NMPNS in the selection of potential components for review. In general, the selection process focused on components that had a risk achievement worth (RAW) factor greater than 1.3 or a risk reduction worth (RRW) factor greater than 1.005. The components selected were associated with safety-related systems and included a variety of components such as pumps, batteries, ventilation fans, electrical breakers, and safeguards equipment control sequencers.

The team also selected six modifications that potentially affected the design bases, licensing bases, and performance capability of the associated structures, systems, and components (SSCs). The team selected modifications completed in the last three years that had not been previously inspected by an NRC modification team using inspection procedure 71111.17T. The team selected modifications that were performed on risk significant components that were associated with the initiating events, mitigating systems, or containment integrity cornerstones. The complexity of the modification was also considered in selecting the modifications reviewed.

The team initially compiled a list of components based on the risk factors previously mentioned and risk significant modifications that had been completed. Additionally, the team reviewed the previous NRC *Component Design Bases Inspection* (CDBI) and *Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications* inspection reports and excluded those components and modifications previously inspected. The team then performed an assessment to narrow the focus of the inspection to six components, six modifications, and three operating experience (OE) items. The team selected one sample (Unit 2 suppression pool) based on large early release frequency (LERF) implications. The team's assessment evaluated possible low design margin including consideration of original design issues, margin reductions due to modifications, or margin reductions identified as a result of material condition/equipment reliability issues. The assessment also included items such as instances where performance test results were not met, corrective action history, repeated maintenance, Maintenance Rule (a)(1) status, operability reviews for degraded conditions, NRC resident inspector insights, and industry OE. Finally, consideration was given to the uniqueness and complexity of the design and the available defense-in-depth margins.

The team performed the inspection as outlined in NRC Inspection Procedure (IP) 71111.21M. This inspection effort included walkdowns of selected components and modifications; interviews with operators, system engineers, and design engineers; and reviews of associated design documents and calculations to assess the adequacy of the components to meet design basis, licensing basis, and risk-informed beyond design basis requirements.

Additionally, for the modification portion of the inspection, the team evaluated whether the modifications were adequately implemented; and if procedures and design and license basis documentation affected by modifications had been adequately updated to reflect any changes to the design or license basis of the facility after the change had been performed. The team also verified that changes to the design and/or licensing bases had been performed in accordance with NRC guidance. Summaries of the reviews performed for each component, modification, and OE sample are discussed in the subsequent sections of this report. Documents reviewed for this inspection are listed in the Attachment.

.2 Results of Detailed Reviews

.2.1 Results of Detailed Component Reviews (6 samples)

.2.1.1 Unit 1 Emergency Diesel Generator (EDG) 103 (EG-EDG-103)

a. Inspection Scope

The team inspected the adequacy of control power voltage at selected diesel starting and generator operating control components (generator field and field flash controls, diesel starting air solenoids, generator breaker closure circuit, and selected diesel engine control relays) to confirm the capability of the emergency diesel generators to start and provide emergency power during design basis conditions and to recover from a postulated station blackout condition. The team interviewed system and design engineers, and reviewed vendor documentation and the results of the 125VDC system voltage analysis to evaluate the adequacy of voltage at the selected components. The team reviewed the maintenance strategy, corrective maintenance history, and the preventive maintenance actions performed on the above components for adequacy, issues identified, and the effectiveness of the preventive and corrective maintenance actions. The team reviewed the corrective action program history for the selected control components to identify recurring issues affecting reliability and to evaluate whether plant staff adequately identified and corrected adverse conditions. The team inspected the EDG during a walkdown to assess material condition, verify equipment configuration, and to identify conditions that could affect the reliable operation of the generator and the diesel engine starting control components.

b. Findings

No findings were identified.

.2.1.2 Unit 2 Suppression Pool

a. Inspection Scope

The team inspected the Unit 2 suppression pool to verify that it was capable of meeting its design basis requirements. The NMPNS Unit 2 primary containment is a Mark II design that incorporates a drywell pressure suppression system and utilizes a large reservoir (pool) of water to function as a heat sink to absorb energy. The primary containment is a steel-lined, reinforced-concrete enclosure housing the reactor and the suppression pool. The suppression pool serves both as a heat sink for transients and accidents and as a reservoir of water for the core standby cooling systems. It is the primary source of water for the low-pressure core spray (LPCS) and low-pressure coolant injection (LPCI) systems, and provides a safety-related source of water for the reactor core isolation cooling (RCIC) and high-pressure core spray (HPCS) systems. Suppression pool water level, pressure, and temperature are continuously displayed in the main control room.

The team reviewed the Updated Final Safety Analysis Report (UFSAR), calculations, drawings, associated licensing bases documents, and procedures to identify the most limiting requirements for the suppression pool SSCs. The team also reviewed suppression pool inspection (including suction strainer and T-quencher video recordings) and leak rate testing results to assess the material condition and structural integrity of the suppression pool. The team reviewed recent pressure suppression pool to drywell vacuum breaker surveillance tests to verify that the vacuum breakers remained operable and capable of performing their design function supporting primary containment integrity and suppression capability. The team conducted several walkdowns of the accessible portions of the exterior of the suppression pool structure to assess the material condition (including evidence of leakage), suction piping structural supports, potential hazards, and configuration control. The team also conducted several walkdowns of suppression pool instrumentation in the main control room and remote shutdown panel rooms to assess the material condition, functionality, operating range, and configuration control. The team also reviewed associated corrective action issue reports, operator logs, and applicable instrumentation and control test results for the suppression pool temperature, pressure, and level instruments to determine if there were adverse trends and to ensure that Exelon staff at NMPNS adequately identified and addressed adverse conditions.

b. Findings

No findings were identified.

.2.1.3 Unit 1 Battery 12 (BAT-12)

a. Inspection Scope

The team inspected the design, testing, and operation of Unit 1 Battery 12 to verify it's capability to perform the intended design basis functions to provide 125 volt direct current (VDC) power to connected loads during normal, transient, and postulated accident conditions, including station blackout and post-fire safe shutdown events.

Specifically, the team reviewed design calculations, including battery sizing and voltage drop calculations, load profile studies, and battery terminal connection resistances to evaluate whether the battery capacity was adequate for the equipment load and duration required by design and licensing basis conditions. The team reviewed battery calculations to determine whether adequate voltage was available to meet minimum voltage specifications for connected loads during worst case loading conditions. The team reviewed the battery hydrogen generation analysis and battery room ventilation design to determine whether hydrogen concentration levels would remain below acceptable levels during normal and postulated accident conditions.

The team also reviewed the recently performed cell replacement work order instructions following Unit 1 replacement of safety related batteries earlier in the year. In addition, routine surveillance tests performed since battery replacement were reviewed to assess whether the testing and maintenance were sufficient and performed in accordance with approved procedures, vendor recommendations, industry standards, as well as design and licensing basis requirements. The team interviewed design and system engineers regarding the design, operation, testing, and maintenance of the battery. The team interviewed licensed operators and conducted walkdowns to determine if operator actions could be successfully accomplished as assumed in the NMPNS Unit 1 design basis calculations for Appendix R fire, loss-of-offsite power, and station blackout events. Finally, the team reviewed corrective action documents to ensure adverse conditions were being properly evaluated and corrected.

b. Findings

No findings were identified.

.2.1.4 Normal Power Breaker From Offsite for Division-1 4.16 kV Bus (2ENS*SWG101-13)

a. Inspection Scope

The team inspected the normal offsite power supply breaker (2ENS*SWG101-13), which provides normal offsite power supply to the Division-1 4.16-kV safety-related bus via the associated reserve station service transformer, to verify that it was capable of performing its design functions. The team reviewed one-line diagrams, control schematics, and the design basis as described in the UFSAR to verify the adequacy of the breaker to provide adequate supply power to the bus and operate as required. The team reviewed the breaker closing interlocks to verify that the breaker opening and closing control circuits functioned as designed. The team reviewed a sample of preventive and corrective maintenance test results to verify that the applicable test acceptance criteria were satisfied and that maintenance activities were performed in accordance with established frequency requirements. The team reviewed applicable maintenance rule documentation and plant technical specifications to ensure that functional failures were adequately addressed by the station's maintenance rule program. The team interviewed system and design engineers to answer questions that arose during document reviews to determine the adequacy of maintenance and configuration control. The team conducted several walkdowns of the 4.16-kV breaker cubicle, inspected observable material condition, and reviewed selected drawings and calculations to assess the

installed configuration, operating environment, and potential vulnerability to hazards. The team reviewed the maintenance and operating history of the breaker and similar breakers, associated corrective action issue reports, associated engineering service requests, and applicable test results to determine if there were any adverse operating trends and to ensure that Exelon staff at NMPNS adequately identified and addressed any adverse conditions, including conditions indicative of a potential common-cause vulnerability.

b. Findings

No findings were identified.

.2.1.5 2A Emergency Diesel Generator (EDG) Room Exhaust Fan and EDG Control Room Unit Cooler

a. Inspection Scope

The team inspected the 2A EDG room exhaust fans and the associated control room area unit cooler to verify that they were capable of performing their safety related design functions. The team reviewed applicable portions of NMPNS Unit 2's technical specifications and UFSAR to identify design basis requirements for the EDG room exhaust fans and EDG control room unit cooler. The team reviewed plant drawings of the EDG ventilation system to verify that they were consistent with the as-installed configuration. The team reviewed design margin calculations to ensure that the exhaust fans and unit cooler could successfully operate under postulated limiting conditions and that the design temperature limits were satisfied. The team reviewed design specifications and vendor documents to verify that the ventilation and cooling systems would function as designed when required and support proper operation of the components located in the area. The team reviewed flow paths, design of fans and inlet power dampers as well as the exhaust power dampers and their capability to modulate based on temperature. The team reviewed the design of the recirculation dampers and their capability to modulate based on temperature as well as their capability to fail closed when the room temperature reached the set point. The team reviewed the design of the gravity tornado dampers to assure that they would not become inadvertent (no tornado) choke points which could restrict air flow. Additionally, the team reviewed the design of the supply of service water piping to the EDG control room unit cooler, the flow rate of the recirculation fan, the cooler's design fouling factor, and its performance testing results to assess the system's ability to cool and maintain proper operating temperatures in the control room. The team reviewed the maintenance history, preventive maintenance frequency, and EDG surveillance test results to assess the adequacy of maintenance activities as well as the overall capability of the ventilation and cooling systems to support the proper operation of the EDG.

The team discussed the design, operation, corrective maintenance, and preventive maintenance of the exhaust fans and the unit cooler with the engineering staff to gain an understanding of the performance history and overall component health. The team performed several walkdowns of the EDG ventilation system and its control room cooling to assess the material condition, operating environment, and configuration control and to

verify that the as-built condition was consistent with the design. The team reviewed the maintenance and operating history of the supply fans, and cooler and applicable test results to determine if there were any adverse operating trends and to ensure that Exelon staff adequately identified and addressed adverse conditions.

b. Findings

No findings were identified.

.2.1.6 Unit 1 1-2 HPCI/FW Pump and Control Valve (PMP-29-03, FCV-29-137)

a. Inspection Scope

The team inspected the 1-2 HPCI/feedwater pump (PMP-29-03) and its associated feedwater control valve (FCV-29-137) to verify that they were capable of performing their design functions. The team reviewed applicable portions of NMPNS's technical specification, the Updated Final Safety Analysis Report (UFSAR), and the condensate and feedwater/HPCI design basis document to identify design basis requirements for the pump and valve. The team performed a walkdown of the 1-2 pump and the control valve to assess material condition, operating environment, and potential hazards. The team reviewed design documentation to verify that pump flow rates and valve stroke times and capabilities were adequately evaluated and verified through surveillance and inservice testing. The team reviewed the maintenance and operating history of the 1-2 feedwater pump and control valve, associated corrective action documents, system health reports, and applicable surveillance and inservice test results to determine if there were adverse operating trends and to determine whether NMPNS staff adequately identified and addressed adverse conditions.

b. Findings

No findings were identified.

.2.2 Results of Detailed Modification Review (6 samples)

.2.2.1 Speed switch upgrade for Unit 2 Division III (High Pressure Core Spray) Emergency Diesel Generator (2EGS-EB2)

a. Inspection Scope

The team reviewed Engineering Change Package (ECP) 16-000478 for the speed transmitter and electronic sequencing switch upgrade for the Unit 2 Division III Emergency Diesel Generator (EDG). The original electronic sequencing switch installed on the High Pressure Core Spray (HPCS) EDG was obsolete and required replacement. This speed switch is part of the control circuit for startup of the Division III HPCS EDG (2EGS*EG2). The speed switch provides speed related signals to the EDG starting control logic to allow the EDG to start, to transition from starting to running mode and to allow the generator output breaker to shut when the EDG is up to operating speed. Additionally, two tachometers and a computer point output are driven by the 125 VDC

speed transmitter circuit. This speed switch does not provide overspeed protection for the diesel engine.

The team reviewed the modification to verify that the design bases, licensing bases and performance capability of the Division III EDG and its support systems had not been degraded by the modification. The team reviewed the associated work order instructions and documentation to verify that maintenance implemented the modification as designed. The team conducted walkdowns of the Unit 2 Division III EDG room to ensure that maintenance staff installed the modification in accordance with design instructions and to independently assess configuration control and material condition of SSCs in the area. The team also reviewed corrective action issue reports and system health reports to determine if there were reliability or performance issues that may have resulted from the modification. Additionally, the team reviewed the 10 CFR 50.59 screening and engineering evaluation associated with this modification. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.2.2 Replace 4 Horsepower (HP) motor on 2RCS-MOV18A-ACT with a 2.6 HP motor

a. Inspection Scope

The team reviewed ECP 16-000752 that replaced the 4 HP motor on reactor recirculation system valve actuator 2RCS-MOV18A-ACT with a 2.6 HP motor. Exelon staff implemented the modification in November 2016, when the existing actuator motor failed and replacement parts were not available. As a result, Exelon staff at NMPNS Unit 2 replaced the 4HP motor with an available 2.6 HP motor.

The team reviewed Exelon staff's evaluation documenting the minor reduction in valve operating speed resulting in a minor increase in stroke time, as well as the equivalency of voltage, frequency, service factor, and insulation class of the new motor. The team also reviewed the change in full load amps and locked rotor amps as well as the difference in starting torque, the difference in running torque, and the unchanged limit switch and torque switch. The team noted that the weight and the center of gravity of the replacement motor were lower than the weight of the failed motor and therefore the seismic evaluation was not affected.

The team reviewed the modification package to determine if the design basis, licensing basis, or performance capability of the valves and/or electrical system had been degraded by the modification. The team interviewed engineers to gain understanding of overall reliability of the valve, and reviewed the associated work order instructions and documentation to verify that maintenance personnel had implemented the modification as designed. The team also reviewed the 10 CFR 50.59 applicability review and screening associated with the modification.

b. Findings

No findings were identified.

.2.2.3 Speed sensing panel upgrade for Unit 1 Emergency Diesel Generators (EG-EDG102 and EG-EDG103)

a. Inspection Scope

The team reviewed the design modification that installed an upgraded emergency diesel generator speed sensing panel for EDG 102 and EDG 103. Exelon staff determined the existing speed sensing panel was obsolete and attributed a recent failure to start to a degraded speed sensing panel assembly. The team reviewed the design consideration summary and the configuration change acceptance criteria to evaluate whether key design parameters were identified and that modification testing adequately verified design requirements. The team reviewed the 10CFR50.59 screening performed to confirm that a 50.59 evaluation was not required. The team also confirmed the design modification adequately identified calibration procedures, preventive maintenance procedures, and preventive maintenance requirements to assure continued reliable operation of the equipment.

b. Findings

No findings were identified.

.2.2.4 Alternate Stuffing Box Gland Assembly for RCIC Turbine (2ICS*T1)

a. Inspection Scope

The team reviewed ECP 16-000226 and item equivalency evaluation 0001714241-1 which assessed the acceptability of changes in material and configuration of the RCIC turbine casing packing gland assemblies from that received from the original equipment manufacturer. The team assessed whether the modification was consistent with the design and licensing bases and operational requirements. The team conducted interviews with responsible engineers and walked down hardware installations. The team evaluated whether affected evaluations, calculations, maintenance and supply documents and component drawings were properly updated to reflect the post-modification configuration. Finally, the team reviewed the 10 CFR 50.59 screening determination associated with this modification.

b. Findings

No findings were identified.

.2.2.5 Install a graphite pressure seal for 2ICS*MOV120 (RCIC)

a. Inspection Scope

The team reviewed ECP 16-000260 that replaced the pressure seal for the reactor core isolation cooling (RCIC) steam admission valve (2ICS*MOV120). While performing repairs to address an internal leak on the valve in April 2016, the valve was disassembled. In accordance with standard site practice, while reassembling the valve following the repairs, the existing silver-plated soft iron pressure seal gasket was replaced with a graphite pressure seal. The team reviewed the modification to verify that the design bases, licensing bases, mechanical joint design capability, and sealing characteristics had not been degraded by the change. The team interviewed design engineers and reviewed design consideration documentation, vendor instructions and recommendations, and 10 CFR 50.59 screening requirements to ensure that Exelon staff properly categorized this modification as an equivalent change. The team reviewed the associated design specifications and work orders to verify that Exelon staff appropriately implemented the gasket material replacement. The team conducted walkdowns of the accessible portions of the RCIC system to observe the material condition of the modified valve and ensure that the system configuration was maintained in accordance with design instructions. The team also reviewed corrective action program documentation to determine if there were reliability or performance issues that may have resulted from the modification.

b. Findings

No findings were identified.

.2.2.6 Evaluate Alternate Replacement Valve for 2RHS*V214/V215

a. Inspection Scope

The team reviewed modification 16-000010 that replaced two in-series valves (2RHS*V214 and 2RHS*V215) on a residual heat removal (RHR) system discharge drain line. These valves were replaced with an alternate model because the existing model was no longer available from the vendor. The team reviewed the modification to verify that the design bases, licensing bases and structural integrity of the RHR system and supporting SSCs had not been degraded by the modification. The team interviewed system and design engineers and reviewed evaluations, post maintenance testing results, and associated maintenance work orders to verify that the valve replacement activities were appropriately implemented. The team reviewed 10 CFR 50.59 screening requirements to ensure that Exelon staff properly categorized this modification as an equivalent change. The team reviewed welding logs and NMPNS welding specifications to verify that welds were performed in accordance with applicable portions of the ASME Boiler and Pressure Vessel Code requirements and that relevant operating experience associated with socket welds was adequately accounted for. The team also reviewed corrective action program documentation to determine if there were reliability or performance issues that may have resulted from the modification.

b. Findings

No findings were identified.

.2.3 Review of Industry Operating Experience (OE) and Generic Issues (3 samples)

The team reviewed selected OE issues for applicability to the NMPNS Units. The team performed a detailed review of the OE issues listed below to verify that Exelon staff had appropriately assessed potential applicability to site equipment and initiated corrective actions when necessary.

.2.3.1 Information Notice 15-01, Degraded Ability To Mitigate Flooding Events

a. Inspection Scope

The team assessed Exelon staff's applicability review and disposition of NRC Information Notice 2015-01. The NRC issued this information notice to inform licensees of recent OE related to external flood protection where deficiencies with equipment, procedures, and analyses relied on to either prevent or mitigate the effects of external flooding at licensed facilities resulted in degraded ability to mitigate flooding events.

The team reviewed Exelon's NMPNS external flood related calculations, analyses, structural inspection results, abnormal operating procedures, operator training (including any time critical operator actions), and corrective action documents to assess Exelon staff's performance in considering the applicability of this OE to NMPNS. The team reviewed the potential impact of external flooding events to safety-related equipment and structures, the condition and readiness of flood mitigation equipment, procedure adequacy, and corrective action implementation (including problem identification and resolution). The team performed a walkdown of accessible portions of the NMPNS site flood berm, flood culvert, revetment ditch, flood protection equipment trailer, Unit 2 diesel building, Unit 1 diesel and 4kV powerboard rooms, and reactor building elevations below the maximum expected flood levels at both units to assess the observable material condition (including evidence of in-leakage), potential hazards, and Exelon's design control.

b. Findings

No findings were identified.

.2.3.2 Information Notice 16-05, Operating Experience Regarding Complications from a Loss of Instrument Air

a. Inspection Scope

The team assessed Exelon staff's applicability review and disposition of NRC Information Notice 2016-05. The NRC issued this information notice to inform licensees about several reactor events during which operator response was complicated by a loss of instrument air (IA).

The team verified that Exelon staff at NMPNS maintained unit-specific air system operating procedures and abnormal operating procedures that addressed both failures of safety-related and non-safety related instrument air systems as well as restoration strategies. The team reviewed operator training lesson plans (including any time critical operator actions) and simulator scenario guides to ensure that Exelon's operator training program adequately covered loss of IA scenarios. The team performed a walkdown of the instrument air compressors, receivers, and a portion of accessible air lines at both units to assess the observable material condition, configuration control, and operating environment. The team also reviewed instrument air related corrective action issue reports to determine if there were any adverse trends and to ensure that Exelon adequately identified and addressed any adverse conditions.

b. Findings

No findings were identified.

.2.3.3 Information Notice 15-09, Mechanical Dynamic Restraint (Snubber) Lubricant Degradation Not Identified Due To Insufficient Service Life Monitoring

a. Inspection Scope

The team assessed the NMPNS staff's applicability review and disposition of IN 2015-09 associated with potential degradation of the lubricant (grease) in mechanical dynamic restraints (Snubbers) not previously identified at some nuclear power plants due to insufficient service life monitoring. Adequate snubber lubrication is essential to proper operation allowing free thermal movement of a component or piping during normal operating conditions and to restrain the component or piping during abnormal conditions. NMPNS staff had identified an issue with degraded grease during a refueling outage in Unit 2 in 2010. In response to an unexpected number of snubber testing failures, NMPNS staff instituted an accelerated preventive maintenance effort which was aimed at replacing the grease in snubbers suspected of having grease subject to potential degradation. Additionally, in response to IN 2015-09, NMPNS staff took actions to revise the Exelon shelf life standard for grease used in mechanical snubbers to reflect that described in applicable industry guidance.

b. Findings

No findings were identified

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (IP 71152)

a. Inspection Scope

The team reviewed a sample of problems that Exelon staff previously identified and entered into its corrective action program. The team reviewed these issues to determine whether an appropriate threshold was met for identifying issues and to evaluate the effectiveness of corrective actions. In addition, the team reviewed condition reports written on issues identified during the inspection to verify adequate problem identification and incorporation of the problem into the corrective action program. The specific corrective action documents that the team sampled and reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4OA6 Meetings, including Exit

On October 5, 2017, the team presented the inspection results to Mr. P. Orphanos, Nine Mile Point Site Vice President, and other members of the Nine Mile Point staff. The team verified that no proprietary information was retained by the inspectors or documented in the report.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Exelon Personnel:
P. Orphanos, Site Vice President
M. Khan, Director Site Engineering
D. Moore, Manager Regulatory Assurance
P. Bartolini, Manager, Design Engineering (Mechanical)
R. Pritchard, Regulatory Assurance Engineer
B. Dempsy, Mechanical Design Engineer
D. Morley, Electrical Design Engineer
M. Cook, System Engineer
K. Johnson, Engineering Corrective Action Program Coordinator
D. Pokon, Electrical Design Engineer
J. Raymond, Systems Engineer
F. Sgroi, Systems Engineer
J. VanGorder, Procurement Engineer
R. Staley, 125 Vdc System Engineer
B. Felicita, Unit 2 EDG System Engineer
H. Gersbach, Structural Engineer
M. Faulkner, Equipment Operator

NRC personnel:
E. Miller, Senior Resident Inspector
G. Stock, Resident Inspector
E.H. Gray, Senior Reactor Inspector
K. Mangan, Senior Reactor Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

None.

Open and Closed

None.

Closed

None.

LIST OF DOCUMENTS REVIEWED

Calculations:

125VDC-BB11-11B-23, Diesel Generator Lube Oil Modification, Revision 2
125VDCSYSTEMSBO, 125VDC System Station Blackout Battery Size, Revision 5
A10.1-AA-032-00C, Suppression Pool Water Level Following a Large Break LOCA Assessment using GOTHIC Containment Model, dated October 19, 2006
A10.1-AA-032-00D, Assess Impact of Higher Debris Loading on Emergency Core Cooling System Suction Strainers, dated March 7, 2007
Design Report 882B, Stress Analysis Calculation of Suppression Pool Strainers for Design Specification NMP2-P311A, Revision 2
ECP-12-000472-CN-01, Debris Loading for ECCS Suction Strainers (2RHS*STR1A, B, C; 2CSL*STR1 and 2CSH*STR1), dated May 23, 2012
ECP-14-000219-CN-01, Debris Loading for ECCS Suction Strainers (2RHS*STR1A, B, C; 2CSL*STR1 and 2CSH*STR1), dated April 22, 2014
ES-195, Pool Temperature Analysis w/ 82F Service Water & Resolution of SER Item 13g, Revision 3
GENE E12-00159-02, Evaluate Lack of Thread Engagement on One Bolt/Stud, Revision 0
MS-4012, Re-Evaluation of Suppression Pool Strainers 2ICS*STR1, 2CSL*STR1, 2CSH*STR1, 2RHS*STR1A, B, C due to Revised Loading Spec P311A, Revision 2
MS-4389, Outfall Flow Capacity Evaluation, Revision 0
S18.8-94-M001, Instrument Air System Loading Evaluation, Revision 0
HVP-6, Standby Diesel Generator Building Control Room, Revision 3
HVP-8, Diesel Generator Rooms Ventilation, Revision 3
HVP-012, Performance of Diesel Building Unit Coolers, Revision 0
A10.1-N-341, Plant Ventilation, Revision 0
MS-1329, Seismic Amplified Response Spectra – S. Electrical Tunnel & Diesel Generator Building, Revision 2
125VDCSC171ABES, 125VDC Battery Chargers SC171A and SC171B Equipment Sizing, Revision 1
125VDCSYSTEMAPPR, 125VDC Appendix R Battery Sizing, Revision 6
125VDC-SYSTEM-CASEB, 125 VDC System FSAR Case B Battery Sizing, Revision 4
125VDCSYSTEMSBO, 125 VDC System Station Blackout Battery Size, Revision 5
125VDC-TRAIN12-FS, 125VDC System #12 Fault Study, Revision 5
ADC-11-000819-CN-001 EC-032-13.00, Diesel Generator Loading, Revision 0
EC-032, Diesel Generator Loading, Revision 13
ECP-09-000139 EC-032-13.00, Diesel Generator Loading, Revision 0
ECP-09-000443 EC-032-13.00, Diesel Generator Loading, Revision 0
ECP-09-000540 EC-032-13.00, Diesel Generator Loading, Revision 0
ECP-10-000433-CN-001 125VDC-SYSTEM-CASEB-04.00, 125 VDC System FSAR Case B Battery Sizing, Revision 0
ECP-10-000454-CN-046 EC-032-13.00, Diesel Generator Loading, Revision 0
ECP-10-000884-CN-009 EC-032-13.00, Diesel Generator Loading, Revision 0
ECP-12-000981-CN-009 125VDCSYSTEMSBO-05.00, 125 VDC System Station Blackout Battery Size, Revision 0
ECP-12-000981-CN-010 125VDCSYSTEMAPPR-06.00, 125 VDC System Appendix R Battery Sizing, Revision 0

ECP-12-000981-CN-011 125VDC-SYSTEM-CASEB-04.00, 125 VDC System FSAR Case B Battery Sizing, Revision 0
ECP-13-000087-CN-107 EC-032-13.00, Diesel Generator Loading, Revision 0
ECP-13-000191-CN-020 125VDCTrain11/12LFVD, 125 VDC Power Systems 11 and 12 Load Flow Voltage Drop, Revision 0
ECP-15-000015-CN-013 125VDCSYSTEMSBO-05.00, 125 VDC System Station Blackout Battery Size, Revision 0
ECP-15-000015-CN-014, 125VDCSYSTEMAPPR-06.00, 125 VDC System Appendix R Battery Sizing, Revision 0
ECP-16-000477-CN-006 125VDCSYSTEMSBO-05.00, 125 VDC System Station Blackout Battery Sizing, Revision 0
ECP-16-000477-CN-007 125VDCSYSTEMCASEB-04.00, 125 VDC System Station Blackout Battery Sizing, Revision 0
ECP-16-000752-CN-005 EC-032-13.00, Diesel Generator Loading, Revision 0
ECP-16-000793-CN-007 125VDCSYSTEMAPPR-06.00, 125 VDC System Appendix R Battery Sizing, Revision 0
ECP-16-000793-CN-008 125VDC-SYSTEM-CASEB-04.00, 125 VDC System FSAR Case B Battery Sizing, Revision 0
ECP-16-000793-CN-009 125VDCSYSTEMSBO-05.00, 125 VDC System Station Blackout Battery Size, Revision 0
N1-09-043-CN-2009-000297 125VDCSYSTEMCASEB-04.00, 125 VDC System FSAR Case B Battery Sizing, Revision 0
S4-TB277-SB03, Battery Room Modification, Revision 1
S4-TB277-SB03, Battery Room Modification, Revision 2
S4-TB277-SB03, Plant Battery Modification / Structural Framing, Revision 3
S10-H2GAS-HV01, Hydrogen Gas Concentrations in Battery Rooms 11 & 12, Revision 0

Completed Surveillance, Performance, and Functional Tests:
N1-EPM-DGE-252, Emergency Diesel Generator Inspections, performed October 7, 2015
N1-RCPM-GEN-070, Protective/Auxiliary Relays and Timers, performed March 28, 2015
N2-ESP-ISC-R@533, Refueling Cycle Suppression Pool Vacuum Breaker Calibration, performed April 21, 2016
N2-ISP-CNT-R@008, Local Leakrate Testing of Drywell to Suppression Chamber Vacuum Breakers, performed April 25, 2016
N2-ISP-CPS-Q001, Drywell and Suppression Chamber Purge System Supply Isolation Valve Leakage Test, performed April 23, 2014
N2-OSP-RHS-Q@005, RHR System Loop B Pump and Valve Operability Test, System Integrity Test and ASME XI Pressure Test, performed October 4, 2013
N2-TSP-CNT-@001, Reactor Containment Building Integrated Leak Rate Test, performed April 25, 2014
NS-OPS-EGS-M@002, Diesel Generator and Diesel Air Start Valve Operability Test – Division III, Revision 02001, performed February 27, 2017
NS-OPS-EGS-M@002, Diesel Generator and Diesel Air Start Valve Operability Test – Division III, Revision 02001, performed March 29, 2017
NS-OPS-EGS-M@002, Diesel Generator and Diesel Air Start Valve Operability Test – Division III, Revision 02001, performed April 24, 2017

NS-OPS-EGS-M@002, Diesel Generator and Diesel Air Start Valve Operability Test – Division III, Revision 02001, performed May 24, 2017
NS-OPS-EGS-M@002, Diesel Generator and Diesel Air Start Valve Operability Test – Division III, Revision 02001, performed August 23, 2017

Completed Preventive Maintenance, Calibrations, and Inspections
C92744652-070, ASME Section XI IWE/IWL Visual Examination in Suppression Pool, performed April 27, 2016
N2-ISP-CMS-R001, Suppression Pool Water Temperature Calibration, performed July 17, 2015
N2-ISP-CMS-R002, Channel Calibration/Check of Div I Suppression Pool Water Temperature Indication Channels, performed July 17, 2015
N2-ISP-CMS-R003, Channel Calibration/Check of Div II Suppression Pool Water Temperature Indication Channels, performed June 3, 2015
N2-ISP-CMS-R104, Channel Calibration of the Accident Monitoring Suppression Pool Wide Range Water Level, performed June 1, 2015 and August 14, 2015
N2-ISP-CMS-R120, Operating Cycle Channel Calibration of Accident Monitoring Suppression Chamber Pressure, performed November 8, 2013 and March 18, 2016
N2-ISP-CSH-R101, Operating Cycle Calibration of HPCS Suction Transfer on High Suppression Pool Level Instrument Channels, performed January 19, 2015
N2-MPM-GEN-A016, Probable Maximum Precipitation (PMP) Flood Berm and 10,000 Year Culvert Inspection, performed May 1, 2014 and May 12, 2016
N2-MSP-CNT-R005, Primary Containment Structural Integrity Inspection and Suppression Pool Cleaning, performed April 10, 2010; April 30, 2012; April 2, 2014; and April 25, 2016
N2-MSP-GEN-V001, Revetment Ditch Structure Inspection, performed August 6, 2014 and July 15, 2016
NMPNS Unit 2 ECCS Suction Strainer and T-Quencher Inspection Video, performed April 20, 2016
RF14 Primary Containment Structural Steel Inspection 2014, performed March 30, 2014
RF15 Primary Containment Structural Steel Inspection 2016, performed April 15, 2016
N1-EMP-SB-260, 24/48 VDC, 250 VDC, and 125 VDC Batteries - Cell and Connector Replacement, Revision 01500, performed March 22, 2017
N1-EMP-SB-260, 24/48 VDC, 250 VDC, and 125 VDC Batteries - Cell and Connector Replacement, Revision 01500, performed March 24, 2017
N1-EPM-GEN-144, Maintenance of Type AK-2A-50 Breakers, Revision 00601, performed March 25, 2015
N1-EPM-GEN-151, Inspection of Type AK-50 and ITE K-LINE Breakers and Associated Motors, Revision 01500, performed March 24, 2015
N1-EPM-GEN-151, Inspection of Type AK-50 and ITE K-LINE Breakers and Associated Motors, Revision 09, performed April 20, 2003
N1-ESP-SB-275, 125 VDC Battery Cell Surveillance, Revision 01200, performed March 24, 2017
N1-ESP-SB-276, 125 VDC Pilot Cell Surveillance, Revision 01400, performed June 26, 2017
N1-RCPM-GEN-155, Load Testing of AK and ITE Breaker Trip Devices, Revision 00301, performed March 25, 2015
N1-RCPM-GEN-155, Load Testing of AK and ITE Breaker Trip Devices, Revision 01, performed April 20, 2003
N2-IPM-GEN-@001, Safety Related Loop Calibration, Rev. 00800, performed January 26, 2017
S-EMP-GEN-007, Wiring Verification, Revision 00600, performed January 27, 2017

LOOP Calibration Report LCR No: IL2HVP-003, Standby Diesel Generator 2EGS*EG3 Room Temperature Control 2HVP*TT11B, *MOD1B/1D, Revision 10
N1-ST-Q3, Nine Mile Point Nuclear Station Unit 1 Surveillance Test Procedure, High Pressure Coolant Injection Pump and Check Valve Operability Test, Revision 01600, dated April 6, 2017
N1-ST-C3, Nine Mile Point Nuclear Station Unit 1 Technical Procedure, High Pressure Coolant Injection (HPCI) Automatic Initiation Test, Revision 01200, dated April 5, 2017

Corrective Action Notifications (CR/IR):

2513415	2512541	2734186	2736132	2056986	2530361
2640675	1700512	1980400	1983133	1983191	1983243
1983266	1983539	1984333	1989432	1992947	2002969
2003268	2003918	2005649	2006660	2009122	2009351
2026147	2038140	2065377	2075369	2103131	2381219
2409683	2413571	2423510	2438018	2462763	2478397
2509277	2534543	2544540	2571786	2589024	2612494
2638357	2644997	2655919	2658251	2659612	2660995
2663244	2663689	2664068	2664553	2665958	2668574
2685555	2693332	2694585	2703028	2727895	3977382
3982553	4005401	4009189	4023308	4025059	4031685
4032266	4050756	4051369	4052284	4052532	4052710
4054569*	4056223*	4056415*	4057109*	4057123*	4058464
4054486*	4056196*	2422844	2431845	2534730	2578130
2585193	2600318	2651835	2667932	2676658	2734186
3951134	2494027	2419929	2460994	2583196	1998504
1997966	1983082	1991569	2002604	2043836	2011750
2043947	2043399	1993424	1993493	2051864	2053822
2059024	2561723	2731167	2628830	2561723	2731167
2731194	2736132*	4053852*	4054093*	4054957*	2467474
2473483	2474641	2525091	2536896	2542666	2600145
2600359	2612682	2715855	3988070	4054431*	4058474*
4059544	4059522*	2595749	2564479		

CR-2010-003630	CR-2010-011194	CR-2012-008748	CR-2002-001695
CR-2004-001606	CR-2009-004511	CR-2010-003597	CR-2011-006507
CR-2012-011189	CR-2013-004953	CR-2014-006866	CR-2014-007674
CR-2010-002459	CR-2010-002458	CR-2010-002457	CR-2010-004120

*CR written as a result of this inspection

Design & Licensing Bases:
SDBD-804, System Design Basis Document, Revision 11
Commitment 503966-04, Develop a Program for Periodic Cleaning and Inspection of the Suppression Pool Based on RF05 and BWROG Guidance, dated January 26, 1998
Letter from NRC to Nine Mile Point Nuclear Station, Completion of Review Regarding Bulletin 96-03, “Potential Plugging of Emergency Core Cooling Suction Strainers by Debris in Boiling-Water Reactors,” Nine Mile Point Nuclear Station, Unit 2, dated January 5, 1999

Letter from NRC to Nine Mile Point Nuclear Station, Nine Mile Point Nuclear Station Units 1 and 2 - Flood Hazard Mitigation Strategies Assessment (CAC NOS. MF7946 AND MF7947), dated September 11, 2017
Letter from NRC to Nine Mile Point Nuclear Station, Response to NRC Bulletin 95-02, "Unexpected Clogging of a Residual Heat Removal (RHR) Pump Strainer While Operating in Suppression Pool Cooling Mode," Nine Mile Point Nuclear Station, Unit 2, dated February 18, 1999
NEDO-32686-A, Utility Resolution Guide for ECCS Suction Strainer Blockage Volume 1, dated October 1998
NRC Regulatory Guide 1.82, Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident, Revision 4
SAS-TR-95-001, Nine Mile Point Nuclear Station - Unit 2 Individual Plant Examination for External Events (IPEEE), dated June 1995
SAS-TR-96-001, Nine Mile Point Nuclear Station - Unit 1 Individual Plant Examination for External Events (IPEEE), dated August 1996
SDBD-506, Service, Instrument, and Breathing Air System, Revision 6
EC# 0000051576, Revise M117BC5 Series Drawings to Reflect the Current Configuration of SSW Check Valves, dated June 20, 2014
Nine Mile Point Unit 1 Updated Final Safety Analysis Report, Revision 24
Nine Mile Point Unit 2 Updated Final Safety Analysis Report, Revision 22
Nine Mile Point Unit 1 Technical Specifications, Amendment 225
Nine Mile Point Unit 2 Technical Specifications, Revision 50
SDBD-806, 125VDC Electrical Distribution System, Revision 6
SDBD-402, Unit 1 Condensate and Feedwater/HPCI System Design Basis Document, Revision 17

Drawings:
C-19410-C, Sheet 10, Elementary Wiring Diagram 4.16KV Emergency Power Boards & Diesel Generators (#102 & #103 Control Circuits), Revision 47
C-19410-C, Sheet 10A, Elementary Wiring Diagram 4.16KV Emergency Power Boards & Diesel Generators (#102 & #103 Control Circuits), Revision 9
C-19410-C, Sheet 5, Elementary Wiring Diagram 4.16KV Emergency Power Boards & Diesel Generators (#103 Control Circuits), Revision 33
C-19409-C, Sheet 3, One Line Diagram 4160 Volt Emergency System Power Boards 102 & 103, Revision 28
C-19409-C, Sheet 1B, AC Station Power Distribution One-Line Diagram, Revision 18
12177-EM-2K, Machine Location Section 2-2 Reactor Building, Revision 19
12177-EV-IU, Primary Containment Liner Stretchout Suppression Chamber DEV, Revision 5
PID-57A-8, P&ID Diesel Generator Building Ventilation, Revision 8
2HVP*6, Loop Diagram - Diesel Generator Building Ventilation, Revision 3
2HVP*11, Loop Diagram, Diesel Generator Building Ventilation, Revision 5
P&ID-11L, P&ID Service Water System, Revision 25
12177-BZ-409E, Double Valve Straight Config Welded Bonnet Diaphragm Valve ¾" size, Revision 1
12177-ESK-5ENS05, DC Elem Diag – 4.16kV Swgr Ckt ACB 101-10 Control, Revision 20
12177-ESK-5ENS08, DC Elem Diag – 4.16kV SWG CONT Bus 2ENS*SWG Morm Supply ACB 101-13, Revision 19

DP-371BZ, Vent, Drain, Test & Sample Connections, Residual Heat Removal Reactor Building, Revision 14
EE-001D, Main One Line Diagram, Emergency 4.16kV & 600V System, Revision 19
EE-1Q, 4160V One Line Diagram 2ENS*SWG101 Emergency Bus, Revision 16
EE-67M, Lighting Plan, Lighting Fixture Typical Seismic Support Details, Revision 10
EE-67R, Lighting Fixture Seismic Support Details, Revision 6
ER-AA-310, Implementation of the Maintenance Rule, Revision 10
PID-31A, Piping & Instrumentation Diagram, Residual Heat Removal System, Revision 24
PID-34-4-SH1, Piping & Instrumentation Diagram, Reactor Core Isolation Cooling Fundamental, Revision 5
PID-35B, Piping & Instrumentation Diagram, Reactor Core isolation Cooling, Revision 15
PID-35C, Piping & Instrumentation Diagram, Reactor Core Isolation Cooling, Revision 29
C-15069-C, Sheet 3, Arrangement of Electrical Equipment Turbine Building (Battery Rooms 11 and 12), Plan at EL. 277'-0", Revision 5
C-19839-C, Sheet 1, One Line Diagram 125 VDC Control Bus, Revision 17
C-19839-C, Sheet 2, One Line Diagram 125 VDC Control Bus (Battery Board #12), Revision 23
C-19839-C, Sheet 3, One Line Diagram 125 VDC Control Bus (Battery Board #11), Revision 25
C-19839-C, Sheet 4, One Line Diagram 125 VDC Control Bus (Power Board #101), Revision 2
C-19839-C, Sheet 5, One Line Diagram 125 VDC Control Bus (Power Board #11), Revision 3
C-19839-C, Sheet 6, One Line Diagram 125 VDC Control Bus (Power Board #12), Revision 2
M-9743, Sheet 1, Rack Assembly, 2 Step EP Cat. 3, Revision 1
E-227189, SWNC-141 Reactor Feed Pump, dated July 21, 1986
C-18005-C, Sheet 1, P&I Diagram: Feed Water Flow High Pressure, dated October 14, 1977
1714241-1, Item Equivalency Evaluation for Alternate RCIC Pump Gland Assembly, dated February, 2016

Engineering Evaluations:
5059-2016-383, Unit 1 Emergency Diesel Generator Speed Sensing Panel ECP-16-000477 Revision 0
50.59 Review Checklist Form, Unit 1 Emergency Diesel Generator Speed Sensing Panel Upgrade, Revision 0
Configuration Change Acceptance Criteria ECP-16-000477, dated August 2, 2016
ECP-16-000477-103-01, Design Consideration Summary ECP-16-000477, Revision 0
02438018-010, NRC IN 2015-01 Formal OPEX Review, dated March 11, 2015
02664553-010, NRC IN 2016-05 Formal OPEX Review, dated June 28, 2016
04031685-008, Instrument Air Line Break Resulted in Rapid Power Reduction ECAP Evaluation, dated July 25, 2017
04031685-013, Instrument Air Line Break MRFF Evaluation, dated September 22, 2017
DISP ES-195-03D, Long Term Containment Pressure and Temperature Profile for Large Break Accident – Reconciliation with 84ºF Ultimate Heat Sink Temperature, dated September 21, 2004
EK-414A, Instrument Piping Reactor Building Drywell Temperature Monitoring, Revision 0
NIP-DSE-01 Attachment 1, N2-MSP-CNT-R005 Revision 9 50.59 Applicability Determination, dated March 22, 2006
S208G, Mechanical Equipment Environmental Qualification, Revision 5

ECP-16-000478, Design Consideration Summary for Replacement of Speed Transmitter / Electronic Sequencing Switch 2EGS*ST75, Document No. ECP-16-000478-103-01, Revision 0
ECP-16-000478, Configuration Change Acceptance Criteria Attachment 1, Revision 0
ECP-16-000478, 50.59 Review Cover Sheet Form, Unit 2 Division III (High Pressure Core Spray) Emergency Diesel Generator Speed Switch Upgrade, Revision 0
ECP-16-000478, 50.59 Screening Form, Unit 2 Division III (High Pressure Core Spray) Emergency Diesel Generator Speed Switch Upgrade, Screening No. 5059-2016-384, Revision 0
ECP-16-000260, Design Consideration Summary, Revision 0000
ECP-16-000010, Item Equivalency Evaluation for the replacement valve for 2RHS*V214/V215, Revision 4

Maintenance Work Orders:

C92653166	C92391888	C10816200	C93201848	C92328471	C92653178
C93201851	06-14962-00	C90637636	C90963945	C90965255	C91216547
C91816048	C91994039	C92261602	C92741767	C92743115	C92743328
C92744652	C91173459	C93592152	06-18236-00	95-07058-00	98-12088-00
C90936011	C90944620	C90966216	C91989967	C92691325	C92724083
C92741651	C93034943	C93200495	C93549937	C93588364	02-03245-01
C92390478	C93028092	C93293856	C93348565	C93374005	C93454272
C93401646	C93437253	C93454272	C93478427	C93486383	C93542996
C93586355	C93586356	C93586357	C93586358	C93586359	C93586361
C93592591	C93614259	C90840926	C92691325		

Miscellaneous:
2016 Refuel Outage (N2R15) Appendix J Type B & C LLRT Summary, dated April 24, 2016
Gates and Doors PM Schedule, dated September 18, 2017
N2-OSP-LOG-D001, Daily Check Logs, dated August 13, 2017 through August 27, 2017
N2-OSP-LOG-S001, Shift Checks – Mode 1, dated August 11, 2017 through August 25, 2017
N2-OSP-LOG-S@ALL, Comprehensive Shift Checks, dated August 6, 2017 through August 9, 2017
N2R11, Nine Mile Point Nuclear Station Cleaning Disposal and Dry Sludge Measurement Project Plan, Revision 0
N2R12, Nine Mile Point Nuclear Station Suppression Pool Cleaning and Inspections Hazard and Risk Mitigation Plan, Revision 0
Letter SWEC to Pacific Air Products, Tornado dampers Operational Test, dated February 2, 1983
X3003527, Certificate of Conformance for High Voltage Electrical Panels, dated February 8, 1984
Engineering Service Request ESR-16-000017 NMPNS-ESR, Support the inclusion of spare breakers in the “cubicle only” locations of Normal 13.8kV Switchgears and Emergency 4.16kV Switchgears, Revision 0000
Engineering Specification No. 367M, Standard Welding Specification – Nine Mile Point – Unit 2, Revision 04.00
Exelon Fleet Template – Breakers, dated August 29, 2017
Flowserve – Edward Valves, Cast-Steel Pressure-Seal Valves: Research and Development, dated 2010

IOM-FPSM-03-12, Velan Pressure Seal Valves Installation and Operation Manual, Revision NPS 2-30
Item Equivalency Evaluation for the Replacement Valve for 2RHS*V214/V215 {0001678820-1}, Revision 4
Nine Mile Point 2 Maintenance Rule System Basis Document for 4160V Standby and Emergency AC Distribution, dated October 3, 2017
Nine Mile Point 2 System Notebook for Residual Heat Removal System
NMP2 Control Room Log for October 21, 2016, October 22, 2016 and March 29, 2016
Preventative Maintenance Template for 2ENS*SWG101-13, dated January 23, 2017
Battery 12 Room Temperature Log, January 3, 2017 through September 11, 2017
Maintenance Rule System Basis Document, 125 VDC Distribution Nine Mile Point Unit 1, dated October 2, 2017
Nine Mile Point Maintenance Rule Status Report, dated August 10, 2017
Maintenance Strategy for FCV-29-137, dated August 29, 2017
Maintenance Strategy for PMP-29-03, dated August 29, 2017

Normal and Special (Abnormal) Operations Procedures:
N1-ST-M4B, Emergency Diesel Generator 103 and PB103 Operability Test, Revision 18
N1-ARP-A5, Control Room Panel, Revision 14
N1-OP-45, Emergency Diesel Generators, Revision 41
N1-IPM-079-004, Diesel Generator Speed Sensing Instrumentation Calibration, Revision 0
EPIP-EPP-01-EAL, EAL Matrix Unit 1, Revision 25
EPIP-EPP-02-EAL, EAL Matrix Unit 2, Revision 24
N1-OP-20, Service, Instrument and Breathing Air Systems, Revision 40
N1-OP-64, Meteorological Monitoring, Revision 16
N1-SOP-20.1, Instrument Air Failure, Revision 5
N1-SOP-33A.1, Loss of 115 KV, Revision 7
N1-SOP-64, High Winds, Revision 2
N2-ARP-01, Control Room Alarm Response Procedures, Revision 0
N2-EOP-6.23, Containment Level Determination, Revision 0
N2-EOP-6.29, Determining HCTL/NPSH/Vortex Limits, Revision 1
N2-EOP-PC, Primary Containment Control, Revision 14
N2-OP-10A, Circulating Water System, Revision 17
N2-OP-11, Service Water System, Revision 13
N2-OP-19, Instrument and Service Air System, Revision 26
N2-OP-31, Residual Heat Removal System, Revision 33
N2-OP-33, High Pressure Core Spray System, Revision 15
N2-OP-102, Meteorological Monitoring, Revision 22
N2-SOP-19, Loss of Instrument Air, Revision 6
N2-SOP-90, Natural Events, Revision 6
N2-ARP-870300, 2CEC*PNL870 Series 300 Alarm Response procedures, Revision 00100
N2-ARP-871300, 2CEC*PNL871 Series 300 Alarm Response Procedures, Revision 00100
N2-ARP-871400, 2CEC*PNL871 Series 400 Alarm Response Procedures, Revision 00000
N2-OP-57, Diesel Generator Building Ventilation System, Revision 01000
N2-OSP-SWP-M001, Service Water Valve Position Verification, Revision 00501
N2-OP-31, Residual Heat Removal System – Lineups, Revision 00001

N2-OP-70, Station Electrical Feed an 115kV Switchyard, Revision 02300
N2-OP-72, Standby and Emergency AC Distribution System, Revision 01700
N1-SOP-21.1, Fire in Plant, Revision 01401
N1-SOP-47A.1, Loss of DC Power, Revision 00300
OP-NM-102-106, Operator Response Time Program at Nine Mile Point, Revision 007

Operating Experience:
IN 2010-23, Malfunctions of Emergency Diesel Generator Speed Switch Circuits, dated November 1, 2010
AR 02080310, NMPNS Response to NRC Information Notice 97-10, dated May 12, 1997
NRC Bulletin 95-02, Unexpected Clogging of a Residual Heat Removal (RHR) Pump Strainer While Operating in Suppression Pool Cooling Mode, dated October 17, 1995
NRC Bulletin 96-03, Potential Plugging of Emergency Core Cooling Suction Strainers by Debris in Boiling-Water Reactors, dated May 5, 1996
NRC Information Notice 97-10, Liner Plate Corrosion in Concrete Containments, dated March 13, 1997
NRC Information Notice 2011-15, Steel Containment Degradation and Associated License Renewal Aging Management Issues, dated August 1, 2011
NRC Information Notice 2015-01, Degraded Ability to Mitigate Flooding Events, dated January 9, 2015
NRC Information Notice 2016-05, Operating Experience Regarding Complications from a Loss of Instrument Air, dated April 27, 2016
OE-2011-001980, NMPNS Response to NRC Information Notice 2011-15, dated September 16, 2011
NMP2L 1265, Letter to the NRC, Revised Response to GL 89-13, December 10, 1990

Operator Training:
1100-SIMTRAS07, TRA-07 DMS-RL7 Simulator Training Scenario, dated September 20, 2017
1100-SIMTRAS10, TRA-10 DMS-RP2 Simulator Training Scenario, dated September 20, 2017
1101-278001C01, Instrument, Service & Breathing Air System (Comprehensive) Lesson Plan, dated September 20, 2017
2100-SIMTRAS07, TRA-07 DMS-RL7 Simulator Training Scenario, dated September 15, 2017
2101-278001C01, Service, Instrument & Breathing Air (Comprehensive) Lesson Plan, dated September 15, 2017
2101-SOP19S01, N2-SOP-19, Loss of Instrument Air Simulator Training Scenario, dated September 15, 2017
S101-EDMG00C01, NRC B.5.b & Extreme Damage Mitigation Guidelines (EDMG) Lesson Plan, dated September 20, 2017

Procedures:
IP-ENG-001, Standard Design Process, Revision 0
N1-FST-FPP-D002, Daily Fire Door Inspection, Revision 5
N1-EPM-DGE-252, Emergency Diesel Generator Inspections, Revision 11
N1-RCPM-GEN-070, Protective/Auxiliary Relays and Timers, Revision 4
N1-EPMGEN-150, 4.16KV Breaker Inspection PM, Revision 10
N2-FSP-FPP-D002, Daily Fire Door Inspection, Revision 4

N2-MPM-GEN-A016, Probable Maximum Precipitation (PMP) Flood Berm and 10,000 Year Culvert Inspection, Revision 3
N2-MSP-CNT-R005, Primary Containment Structural Integrity Inspection and Suppression Pool Cleaning, Revision 11
N2-OSP-LOG-D001, Daily Check Logs, Revision 22
N2-OSP-LOG-S001, Shift Checks – Mode 1, Revision 29
N2-OSP-LOG-S@ALL, Comprehensive Shift Checks, Revision 28
N2-PM-S014, Building Rounds, Revision 21
N2-TSP-CNT-@003, ILRT Calculations, Revision 3
OP-AA-108-111-1001, Severe Weather and Natural Disaster Guidelines, Revision 16
OP-AA-108-115, Operability Determinations (CM-1), Revision 19
OP-NM-102-106, Operator Response Time Program at Nine Mile Point, Revision 7
PI-AA-120, Issue Identification and Screening Process, Revision 7
PI-AA-125, Corrective Action Program (CAP) Procedure, Revision 5
S-EMP-GEN-007, Wiring Verification, Revision 0
S-MMP-SDM-001, Site Doors Maintenance, Revision 7
S-MRM-REL-0102, Structural Monitoring Program, Revision 10
S-EMP-GEN-063, MOV Diagnostic Testing, Revision 0
S-TDP-REL-0103, GL 89-13 Service Water System Problems Affecting Safety Related Equipment Program Plan, Revision 0
CC-AA-103, Configuration Change Control for Permanent Physical Plant Changes, Revision 27
ER-AA-210-1004, Maintenance Rule – Performance Monitoring, Revision 13
HU-AA-104-101, Procedure Use and Adherence, Revision 5
IP-ENG-001, Standard Design Process, Revision 0
LS-AA-104, Exelon 50.59 Review process, Revision 10
LS-AA-104-1002, 50.59 Applicability Review Form, Revision 5
LS-AA-104-1003, 50.59 Screening Form, Revision 4
MA-AA-716-004, Conduct of Troubleshooting, Revision 15
MA-AA-716-234, FIN Team Process, Revision 12
N2-EPM-GEN-550, GE 4.16kV Magne-Blast Breaker P.M, Revision 00600
N2-ISP-LRT-R@074, Type ‘C’ Containment Isolation Valve leak Rate Test 2RHS*V16B 2RHS*MOV24B, Revision 00802
N2-MMP-GEN-217, Overhaul of Pressure Seal Bonnet – Gate, Globe, and Stop Check Carbon and Stainless Steel Velan Valves 2-½” and Larger, Revision 01100
N2-OSP-RHS-R@002, RHS Loop B Pressure Isolation Valve Leakage Test, Revision 01000
OP-AA-101-113, Operator Fundamentals, Revision 10
OP-AA-113-1004, Guidelines for the Morning Plant Status Call, Revision 39
PI-AA-120, Issue identification and Screening Process, Revision 7
PI-AA-125, Corrective Action Program (CAP) Procedure, Revision 5
SM-AA-300, Procurement Engineering Support Activities, Revision 7
SM-AA-300-1001, Procurement Engineering Process and Responsibilities, Revision 22
CC-AA-204, Control of Vendor Equipment Manuals, Revision 11
N1-EPM-SB-266, Battery Intercell Connector Inspection, Revision 00900
N1-EPM-SB-272, Battery Capacity Discharge Test, Revision 00900
N1-EPM-SB-A264, 24/48 VDC, 250 VDC and 125 VDC Battery Cell Visual Inspection and Rack Integrity Check, Revision 00401
N1-ESP-SB-276, 125 VDC Pilot Cell Surveillance, Revision 01400

N2-IPM-GEN-@001, Safety Related Loop Calibration, Revision 00800
N2-EPM-GEN-V786, MOD Actuator and Damper P.M., Revision 00700

Risk and Margin Management:
N1-PRA-005.05, 125VDC Power System Notebook, Revision 2
N1-PRA-013, Summary Document Notebook, Revision 0

System Health Reports, System Walkdowns, & Trending:
System Health Report, EDG-Diesel Generators, dated October, 27 2016
Maintenance Strategy, EG-EDG103, dated August 29, 2017
ALION-REP-NMP-7833-001, Nine Mile Point Unit 2 Debris Source Walkdown Report, Revision 0
Nine Mile Point Nuclear Station Unit 2 Structural Monitoring Program 2014 Biennial Report, Revision 0
Unit 1 AC and DC Distribution System Health Report dated May 22, 2017
Unit 2 AC and DC Distribution System Health Report dated May 22, 2017
Unit 1 EDG System Health Report dated July 13, 2017
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System Health Report for NMPNS Unit 1 and 2, CSH/HPCI/ICS (HPI- High Pressure Injection), dated July 31, 2017

Vendor Technical Manuals, Specifications, & Standards:
N1E1400GENERA004, Stationary Power Operating Manual UG8 & EGB Governor, Revision 2
ESI-SR-16-118, Seismic Qualification of Speed Sensing Panel Assembly, Revision 0
ESI-STP-16-118, Seismic Test Procedure of Speed Sensing Panel Assembly, Revision 0
TP-ESI50267C, Dedication Functional Test, Revision 2
NMP2-E031A, Specification for Standby Diesel Generator Systems, Revision 1
E031A, Specification for Emergency Diesel Generators, Revision 1
GEI-88761J, AM-4.16-6, 7, 8 and Instructions and Recommended Parts for Maintenance Magne-Blast Circuit Breaker, Revision 2.00
C&D Report No. QR4-62065, Seismic Certificate of Compliance, Niagara Mohawk Power Corp. Nine Mile Point Nuclear Plant, 125 Volt Battery and Rack Battery Nos. 11 and 12, dated February 26, 1990
ESI-SR-16-118, Seismic Qualification of Speed Sensing Panel Assembly for Exelon Generating Company Nine Mile Point Nuclear Plant, dated September 22, 2016
N1C17320BATTRY004, Standby Battery Flooded Cell Installation & Operating Instruction, Revision 4
N1C17320BATTRY004, Standby Battery Flooded Cell Installation & Operating Instruction, Revision 5
N22747, Installation, Operation and Maintenance Manual Drag Velocity Control Element (203497), Revision 0
N1W31500PUMP013, High Pressure Barrel Pumps, Revision 4

LIST OF ACRONYMS

ADAMS	Agency-Wide Documents Access and Management System
ASME	American Society of Mechanical Engineers
CDBI	Component Design Bases Inspection
CFR	Code of Federal Regulations
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
ECP	Engineering Change Package
EDG	Emergency Diesel Generator
Exelon	Exelon Generation Company, LLC
HP	Horsepower
HPCI	High Pressure Core Injection
HPCS	High-Pressure Core Spray
IA	Instrument Air
kV	Kilovolts
LERF	Large Early Release Frequency
LPCI	Low-Pressure Coolant Injection
LPCS	Low-Pressure Core Spray
NMPNS	Nine Mile Point Nuclear Station, LLC
NRC	Nuclear Regulatory Commission
OE	Operating Experience
PRA	Probabilistic Risk Assessment
RAW	Risk Achievement Worth
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RRW	Risk Reduction Worth
SSC	Structure, System, and Component
UFSAR	Updated Final Safety Analysis Report
VDC	Volts, Direct Current