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

October 7, 2019

Mr. Bryan Hanson
Senior Vice President, Exelon Generation Company, LLC
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: NINE MILE POINT NUCLEAR STATION – BIENNIAL PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000220/2019010 AND 05000410/2019010

Dear Mr. Hanson:

On August 30, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed a problem identification and resolution inspection at your Nine Mile Point Units 1 and 2 and discussed the results of this inspection with Mr. Peter Orphanos, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspection team reviewed the station's corrective action program and the station's implementation of the program to evaluate its effectiveness in identifying, prioritizing, evaluating, and correcting problems, and to confirm that the station was complying with NRC regulations and licensee standards for corrective action programs.

The team also evaluated the station's processes for use of industry and NRC operating experience information and the effectiveness of the station's audits and self-assessments. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

Finally the team reviewed the station's programs to establish and maintain a safety-conscious work environment, and interviewed station personnel to evaluate the effectiveness of these programs. Based on the team's observations and the results of these interviews, the team found no evidence of challenges to your organization's safety-conscious work environment. Your employees appeared willing to raise nuclear safety concerns through at least one of the several means available.

One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

A licensee-identified violation, which was determined to be of very low safety significance, is documented in this report. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violation or significance of the violation documented in this inspection report, 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 Nine Mile Point.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the 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 Nine Mile Point.

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 at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Erin E. Carfang, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos. 05000220 and 05000410
License Nos. DPR-63 and NPF-69

Enclosure:
As stated

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SUBJECT: NINE MILE POINT NUCLEAR STATION – BIENNIAL PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000220/2019010 AND 05000410/2019010 DATED OCTOBER 7, 2019

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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:	05000220/2019010 and 05000410/2019010
Enterprise Identifier:	I-2019-010-0010
Licensee:	Exelon Generation Company, LLC
Facility:	Nine Mile Point Nuclear Station
Location:	Oswego, NY
Inspection Dates:	August 12, 2019 to August 30, 2019
Inspectors:	C. Highley, Resident Inspector G. Stock, Senior Resident Inspector D. Beacon, Resident Inspector J. Dolecki, Resident Inspector S. Morrow, Human Factors Engineer
Approved By:	Erin E. Carfang, Chief Reactor Projects Branch 1 Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a biennial problem identification and resolution inspection at Nine Mile Point Nuclear Station 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. A licensee-identified non-cited violation is documented in report section: 71152B.

List of Findings and Violations

Failure to promptly identify and correct deficient grease used as a lubricant for safety-related motor-operated valves (MOVs).			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Barrier Integrity	Green NCV 05000220,05000410/2019010-01 Open/Closed	[P.2] - Evaluation	71152B
A self-revealed Green Finding and associated non-cited violation (NCV) of Title 10 of the *Code of Federal Regulations* (CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified when Exelon failed to promptly identify and correct deficient material. Specifically, from October 2014 to March 2019, Exelon failed to identify and correct deficient grease, Nebula EP, which was applied as a lubricant to safety-related motor-operated valves (MOVs), after concerns were raised in October 2014 that the grease can be become hardened and lead to MOV failures. As a result, Unit 1 emergency condenser isolation valve 39-09R did not fully close due to hardened grease when attempting to isolate (safety function) in March 2019.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000220/2019-001-01	LER 2019-001-01 for Nine Mile Point, Unit 1, Automatic Reactor Scram due to High Reactor Pressure. (ADAMS accession: ML19211B169)	71152B	Closed
LER	05000220/2019-001-00	LER 2019-001-00 for Nine Mile Point, Unit 1, Automatic Reactor Scram Due to High Reactor Pressure. (ADAMS accession: ML19211B169)	71152B	Closed
LER	05000220/2019-003-00	LER 2019-003-00 for Nine Mile Point Nuclear Station, Unit 1, Manual Reactor Scram Due to Pressure and Power Oscillations. (ADAMS accession: ML19218A108)	71152B	Closed

LER	05000220/2019-003-01	LER 2019-003-01 for Nine Mile Point Nuclear Station, Unit 1, Manual Reactor Scram Due to Pressure and-Power Oscillations (ADAMS accession: ML19218A108).	71152B	Closed
LER	05000220/2019-002-00	LER 2019-002-00 for Nine Mile Point, Unit 1, Condition Prohibited by Technical Specification Due to Vacuum Breaker Not Locked Closed (ADAMS accession: ML19203A121)	71152B	Closed

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 reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

OTHER ACTIVITIES – BASELINE

71152B - Problem Identification and Resolution

Biennial Team Inspection (IP Section 02.04) (1 Sample)

(1) The inspectors performed a biennial assessment of the licensee's corrective action program, use of operating experience, self-assessments and audits, and safety conscious work environment.

- Corrective Action Program Effectiveness: The inspectors assessed the corrective action program's effectiveness in identifying, prioritizing, evaluating, and correcting problems.

- Operating Experience, Self-Assessments and Audits: The inspectors assessed the effectiveness of the station's processes for use of operating experience, audits and self-assessments.

- Safety Conscious Work Environment: The inspectors assessed the effectiveness of the station's programs to establish and maintain a safety-conscious work environment.

INSPECTION RESULTS

Assessment	71152B
Safety Conscious Work Environment The team conducted individual and group interviews with 44 employees from a cross-section of the organization, including operations, maintenance, engineering, security, chemistry, and radiation protection. The team also interviewed the employee concerns program manager, observed a nuclear safety culture monitoring meeting, and reviewed employee surveys and self-assessments related to safety culture since 2017. All individuals interviewed indicated that they would raise nuclear safety concerns and felt free to challenge actions or decisions that they believed were unsafe. Employees indicated that they had multiple avenues for raising concerns, felt that their management was receptive to receiving safety concerns and that concerns were generally addressed promptly. Employees also indicated they were aware of the station's Employee Concerns Program,	

stated they would use the program if necessary, and expressed confidence that their confidentiality would be maintained.

Based on the limited interviews, document reviews, and observations, the team concluded that an environment had been established and maintained where employees felt free to raise safety concerns without fear of retaliation. Further, the team determined that the processes in place to mitigate potential safety conscious work environment issues were adequately implemented.

Assessment	71152B

Corrective Action Program

Identification: The inspectors determined that generally Exelon identified issues and entered them into the corrective action program at a low threshold. During plant walkdowns, there is evidence of continued focus to improve the look and condition of the plant, although the inspectors identified a few deficiencies not previously identified and captured in Exelon's corrective action program. Exelon entered each issue into their corrective action program and took actions to evaluate and address.

Prioritization and Evaluation: Based on the samples reviewed and observations, the inspectors determined that Exelon is adequate in prioritizing and evaluating issues commensurate with the safety significance of the identified problem. Exelon screened Incident Reports (IRs) for operability and reportability, categorized IRs by significance, and assigned actions to the appropriate department for evaluation and resolution.

Correcting Problems: The inspectors determined that the overall corrective action program performance related to resolving problems was effective. In most cases, Exelon implemented corrective actions to resolve problems in a timely manner.

However, the inspectors determined one more than minor, Green, NCV for failure to take corrective actions. There were two minor performance deficiencies (PD) and one minor violation. The minor violation was for failure to have an adequate procedure and the two minor PDs were for failure to follow procedures. One observation for work orders being written confusingly, which eventually led to plant transients. These are documented below.

Assessment	71152B

Operating Experience

The team determined that Exelon appropriately evaluated industry operating experience for its relevance to the facility. Exelon appropriately incorporated both internal and external operating experience into plant procedures and processes, as well as lessons learned for training and pre-job briefs. The team reviewed a sample of self-assessments and audits to assess whether the licensee was identifying and addressing performance trends. The team concluded that Exelon had a generally effective self-assessment and audit process. Based on the team's observation that three major plant transients had occurred in which operating experience was available that could have helped avoid the transients, Exelon scheduled a self-assessment of operating experience usage.

Failure to promptly identify and correct deficient grease used as a lubricant for safety-related motor-operated valves.			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Barrier Integrity	Green NCV 05000220,05000410/2019010-01 Open/Closed	[P.2] - Evaluation	71152B

A self-revealed Green Finding and associated non-cited violation (NCV) of Title 10 of the *Code of Federal Regulations* (CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified when Exelon failed to promptly identify and correct deficient material. Specifically, from October 2014 to March 2019, Exelon failed to identify and correct deficient grease, Nebula EP, which was applied as a lubricant to safety-related motor-operated valves (MOV), after concerns were raised in October 2014 that the grease can become hardened and lead to MOV failures. As a result, Unit 1 emergency condenser isolation valve 39-09R did not fully close due to hardened grease when attempting to isolate, which is its safety function, in March 2019.

Description: Licensees rely on safety-related MOVs to perform a wide range of functions in controlling fluid flow in plant systems. As such, licensees rely on the operability of MOVs to satisfy many technical specification requirements and are also used in systems credited in accident analyses. Degraded valve stem lubricant can effect the ability of safety-related MOVs to perform their safety function, as captured in industry operating experience and detailed in NRC Information Notice 2010-03, "Failures Of Motor-Operated Valves Due To Degraded Stem Lubricant." Specifically, inadequate valve stem lubricant can result in excessively high friction between the valve stem and stem nut that can cause the valve to seize. Nebula EP grease is particularly susceptible to degradation, based on operating experience, therefore its replacement with MOV Long Life grease was recommended.

In October 2014, Exelon generated IR 02399307 that stated Nebula EP grease did not meet Exelon standard and to initiate an evaluation and action plan. Actions included in the IR were steps to develop and implement a change package; however, the deadline to complete these actions was delayed 11 times for multiple reasons, including the statement that there were no issues with Nebula grease at Nine Mile Point at that time. In total, the actions associated with the IR 02399307 were delayed from an initial scheduled completion of December 2014 until November 2018. However, during these deadline extensions, as a result of a concern raised that was potentially due to a hardened grease issue in October 2018, as detailed in IR 04180154, a heightened concern with Nebula EP grease hardening was identified and an action plan to replace Nebula EP grease at Nine Mile Point was developed. Specifically, as detailed in IR 04180154, the licensee issued changes to preventative maintenance procedures to include the replacement of Nebula grease with MOV Long Life grease at the next scheduled maintenance. However, on March 18, 2019 the MOV 39-09R failed to close due to hardened Nebula EP grease prior to implementation of any corrective action plan.

Corrective Actions: Exelon generated IR 04180154 in October 2018 following a potential grease deficiency noted on the Unit 2 RHR system and to begin a prioritized plan to eliminate Nebula Grease at Nine Mile Point. Issue Report 04180154 corrective actions included revising preventive maintenance procedures to authorize the use of MOV Long Life grease instead of Nebula grease.

Following issues identified with hardened Nebula EP grease on Unit 1 emergency condenser isolation valves 39-09R and 39-10R in March 2019, the licensee generated IRs 04230591

and 04232618, respectively. Issue Report 04230591 corrective actions included an extent of condition evaluation which included the identification of safety-related MOVs susceptible to hardened grease at Unit 2 and the creation of work orders to replace the respective Nebula grease. Issue Report 04230591 corrective actions included an extent of condition evaluation which included the identification of safety-related MOVs susceptible to hardened grease at Unit 1 and the creation of work orders to replace the respective Nebula grease. These corrective actions are being pursued commensurate with their specific safety significance, and with the consideration of the accessibility of the valves. Current surveillance testing and in-service testing ensure the operability of these acceptable MOVs until the corrective actions can be performed.

Corrective Action References: IR 02399307, IR 04230591, IR 04232618, and IR 04180154

Performance Assessment:

Performance Deficiency: The inspectors determined that from October 2014 to March 2019 Exelon failed to promptly identify and correct deficient grease for safety-related MOVs which is contrary to 10 CFR Part 50 Appendix B, Criterion XVI, “Corrective Action,” that was reasonably within Exelon’s ability to foresee and correct and was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Configuration Control attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the licensee’s failure to promptly identify and correct deficient grease on the MOV isolation valve 39-09R in the 11 loop train of emergency condenser resulted in the valve not being able to fully isolate in the event of a high main steam flow condition. The performance deficiency was evaluated against IMC 0612, Appendix E, “Examples of Minor Issues,” and the inspectors determined example 4.a to be similar. Specifically, example 4.a states a performance deficiency is not minor if the “licensee routinely failed to perform engineering evaluations on similar issues, or if the later evaluation determined that safety-related equipment was adversely affected.”

Significance: The inspectors assessed the significance of the finding using Appendix A, “The Significance Determination Process (SDP) for Findings At-Power.” Specially, the inspectors utilized IMC 0609, Appendix A, Exhibit 3, “Barrier Integrity Screening Questions.” As a result, the inspectors determined the finding was of very low safety significance (Green) because the finding does not represent an actual open pathway in the physical integrity of reactor containment (valves, airlocks, etc.), containment isolation system (logic and instrumentation), and heat removal components.

Cross-Cutting Aspect: P.2 - Evaluation: The organization thoroughly evaluates issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Exelon failed to thoroughly evaluate issues pertaining to Nebula grease identified in October 2014 and October 2018 to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, the inspectors determined that the corrective actions from IR 02399307 and IR 04180154 to replace Nebula EP grease on safety-related MOVs were not commensurate with the safety significance of the issue.

Enforcement: Violation: Title 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Actions” requires measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. Contrary to the above, Exelon failed to promptly identify and correct deficient material applied as a lubricant on safety-related MOV at Unit 1 and 2 following issues identified with Nebula grease in October 2014 and October 2018, as detailed in IR 02399307 and IR 04180154, which was later discovered in March 2019 with the failure of a Unit 1 safety-related MOV. Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

LER (Closed)	LER 2019-001-01 for Nine Mile Point, Unit 1, Automatic Reactor Scram Due to High Reactor Pressure. (ADAMS accession: ML19211B169) LER 05000220/2019-001-01	71152B
Description: The inspectors reviewed the LER submittal. The circumstances surrounding this LER are documented in Inspection Report 05000220/2019002, Inspection Results section, as FIN 05000220/2019002-01. This closes the LER.		

LER (Closed)	LER 2019-001-00 for Nine Mile Point, Unit 1, Automatic Reactor Scram Due to High Reactor Pressure. (ADAMS accession: ML 19211B169) LER 05000220/2019-001-00	71152B
Description: The inspectors reviewed the LER submittal. The circumstances surrounding this LER are documented in Inspection Report 05000220/2019002, Inspection Results section, as FIN 05000220/2019002-01. This closes the LER.		

LER (Closed)	LER 2019-003-00 for Nine Mile Point Nuclear Station, Unit 1, Manual Reactor Scram Due to Pressure and Power Oscillations. (ADAMS accession: ML19218A108) LER 05000220/2019-003-00	71152B
Description: The inspectors reviewed the LER submittal. The circumstances surrounding this LER are documented in this inspection report, Inspection Results Section, as a minor performance deficiency. This closes the LER.		

LER (Closed)	LER 2019-003-01 for Nine Mile Point Nuclear Station, Unit 1, Manual Reactor Scram Due to Pressure and-Power Oscillations (ADAMS accession: ML19218A108). LER 05000220/2019-003-01	71152B
Description: The inspectors reviewed the LER submittal. The circumstances surrounding this LER are documented in this inspection report, Inspection Results Section, as a minor performance deficiency. This closes the LER.		

LER (Closed)	LER 2019-002-00 for Nine Mile Point, Unit 1, Condition Prohibited by Technical Specification Due to Vacuum	71152B

	Breaker Not Locked Closed (ADAMS accession: ML19203A121) LER 05000220/2019-002-00	

Description: The inspectors reviewed the LER submittal. The circumstances surrounding this LER are documented in this inspection report, Inspection Results Section, including one licensee-identified violation. This closes the LER.

Licensee-Identified Non-Cited Violation	71152B

This violation of very low safety significance was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Violation: Nine Mile Point Unit 1 Technical Specification 3.3.6.f, Vacuum Relief, requires that when primary containment is required, the three pressure suppression chamber to reactor building vacuum breakers will be operable. Technical Specification 3.3.6.f(2) states that if a vacuum breaker is found to be inoperable for any reason, the vacuum breaker shall be locked closed and should be returned to operable within seven days. Contrary to the above, on April 25, 2019 the licensee identified the vacuum breaker, IV-68-08, was inoperable and unlocked during two startups, where primary containment is required, on April 12 and 14, 2019, resulting in a condition prohibited by technical specifications and LER 05000220 2019-002.

Significance/Severity: Green. The inspectors determined this issue to be Green in accordance with IMC 0609 Appendix A, Exhibit 3 because it did not represent an open pathway in the physical integrity of reactor containment.

Corrective Action References: IR 04243630

Minor Performance Deficiency	71152B

Minor Performance Deficiency: On April 15, 2019, during preparations to restore the 13 feedwater (13FW) pump to service following Unit 1 refueling outage 25, operators discovered no oil pressure in the 13FW pump clutch oil system. Exelon stopped power ascension activities to evaluate the condition and commenced a forced outage to investigate. Exelon discovered that the clutch input shaft bearings were damaged during the main turbine roll that occurred prior to placing the 13FW pump in service. Exelon determined that maintenance technicians failed to properly reverse the 13FW pump clutch assembly oil supply line spectacle flange to the flow position when the system was restored on April 8, 2019.

The failure to properly follow written work instructions to remove and reverse the spectacle flange in the 13FW pump clutch oil supply line was a performance deficiency reasonably within Exelon's ability to foresee and prevent. Specifically, responsible maintenance personnel failed to implement the standards contained in Exelon procedure HU-AA-104-101, "Procedure Use and Adherence," and allowed a preconceived misconception to take precedence over following the work instructions exactly as written. This caused maintenance personnel to install the spectacle flange incorrectly, which prevented oil flow to the 13FW pump clutch and resulted in a forced outage for repairs.

Screening: The inspectors determined the performance deficiency was minor. This performance deficiency was evaluated using IMC 0612, Appendix B, "Issue Screening" and was determined to be minor based on answering "no" to each of the more-than-minor

screening questions. Specifically regarding the final question, this performance deficiency did not upset plant stability or challenge any critical safety functions and therefore did not impact the initiating events cornerstone objective.

Minor Performance Deficiency	71152B
Minor Performance Deficiency: The inspectors determined that when Exelon performed the Operational Decision Making process following the failure of the mechanical pressure regulator on April 27, 2019, Exelon did not record background information and relevant operating experience (OPEX), which is contrary to the Exelon's OP-AA-106-101-1006, "Operational Decision Making Process," Step 4.3.4, that was reasonably within Exelon's ability to foresee and correct and was a performance deficiency. Specifically, during the Operational Decision Making document development following the loss of one out of two pressure regulators, Exelon did not consider the internal operating experience associated with pressure oscillations in the region of approximately 75-90 percent power without a back-up pressure regulator in service. The disposition of this minor performance deficiency closes LERs 05000220/2019-003-00 and 05000220/2019-003-01. Screening: The inspectors determined the performance deficiency was minor. The performance deficiency was determined to be minor because it was not a precursor to a significant event, did not lead to a more significant safety concern, and did not challenge any of the cornerstones. Specifically, the failure to follow the Operational Decision Making procedure did not cause the subsequent transient.	

Minor Violation	71152B
Minor Violation: The inspectors determined that Exelon's failure to prescribe documented instructions of a type appropriate to the circumstances for an activity affecting quality is contrary to 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings" that was reasonably within Exelon's ability to foresee and correct and was a performance deficiency. Specifically, instructions for sampling the lube oil following performance of the Unit 2 Division III diesel generator, an activity affecting quality, did not specify a tracking method to ensure an analysis is received following the sample being shipped. Screening: The inspectors determined the performance deficiency was minor. The failure to adequately specify the tracking of the lube oil sample in the procedure is minor, because it did not adversely affect any cornerstones objectives, did not lead to a more significant safety concern, and was not a precursor to a more significant event. Specifically, a missed Unit 2 Division III diesel generator lube oil sample analysis in January 2019 did not impact the operability of the emergency diesel generator. Enforcement: Exelon has taken action to correct the procedure. This failure to comply with 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.	

Observation: Substandard clarity in written work order instructions contributed to multiple plant events	71152B

The NRC inspectors identified a trend of substandard clarity in written work order instructions that contributed to several transients at Nine Mile Point. While human performance issues were identified as the root of a number of conditions adverse to quality and resultant transients, the inspectors noticed that many of these human performance issues were exacerbated or enabled by substandard clarity in work order instructions.

For example, a foreman incorrectly directed the installation of a blank spectacle flange in the 13 feed water pump clutch oil supply line based on an incorrect understanding of the work. This incorrect understanding was significantly contributed to by work order instructions that were substandard in clarity. Specifically, the work order used on April 8, C93621570, Task 320, "Restore feed pump clutch – remove blank/jumper," provided steps that were not understood by the maintenance foreman responsible for the work. The foreman obtained a picture of the spectacle flange in order to gain further understanding, however the picture was meant for reference only, and showed the flange installed in the no-flow condition. The foreman misconstrued this picture to represent the desired final state of the flange. To address the error, the unit was shut down to repair the clutch.

A second example was related to the failure of maintenance technicians to remove shorting screws from a main generator relay, resulting in reduced margin to a main generator trip function and ultimately a trip and reactor SCRAM following a minor grid perturbation. In this case, the work instructions were misleading due to the formatting and use of shorthand. This issue resulted in a Green Finding and associated NCV that was issued in inspection report 2019001 (ML19128A291).

A third example consisted of an incorrect work order instruction that allowed maintenance personnel to adjust a sensitive mechanical hydraulic control system component that should not have been adjusted. This caused a turbine stop valve to close faster than expected during subsequent testing and ultimately resulted in a pressure transient and reactor SCRAM. This resulted in a Green Finding that was issued in inspection report 2019002 (ML 19225B640).

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On August 30, 2019, the inspectors presented the biennial problem identification and resolution inspection results to Mr. Peter Orphanos, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71152B	Calculations		Nine Mile Point Extended Power Uprate	05/01/2008
71152B	Corrective Action Documents		2005594 2176410 2399307 2473511 2474317 2479535 2485219 2595299 2617888 2638807 2657645 2682152 2703363 2733515 3959900 3960649 3962443 3968602 3971732 3972204 3977366 3986728 3987066 3988865 4006745 4031685 4039435 4048494 4049445 4050347 4052027 4052065 4055812 4057558 4063644 4069163 4072310 4081698 4082257 4082686 4084681 4090200 4091216 4099196 4099913 4099955 4099976 4101954 4103613 4103707 4103708 4110040 4110091 4111775 4112080 4112308 4114514 4116759 4116771 4122437 4122493 4126851 4132680 4133018 4133504 4136339 4141573 4147082 4148579 4154771 4158622 4160054 4163803 4163804 4163804 4166151 4167387 4167928 4173919 4177597 4179968 4180154 4181855 4187330 4187330 4190672 4193009 4194532 4194859 4194903 4196376 4196387 4196655 4197198 4198328 4199519 4199769 4200146 4202716 4208609 4209792 4211553 4212545 4218421 4220406 4220406 4222675 4225207 4226514 4229798 4231419 4232357 4232564 4232618 4233075 4235724 4239350 4239884 4243630 4243996 4244521 4246123 4246926 4246997 4248857 4249265 4249373 4249676 4249680 4256712 4258273 4258330 4259033 4259207 4263226 4263653 4265442 4265834 4266305 4268637 4272245 4272533 4272579 4273954 4157970	
71152B	Corrective Action Documents Resulting from Inspection		4244980 4245508 4251105 4271440 4271469 4271475 4271479 4271491 4271523 4271595 4271600 4271612 4271620 4271624 4271629 4271677 4271694 4271872 4271910 4271985 4271990 4271992 4271993 4271994 4272253 4272272 4272276 4272387 4272457 4272594 4273084 4273092 4275069 4275090 4276637	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71152B	Drawings	013600054	Layout & Parts List (Pump Drive)	
71152B	Drawings	B-18023-C	Shaft Driven Reactor Feedwater Pump #13 Gear & Clutch Oil P&I Diagram	Revision 17
71152B	Drawings	B-26975-C	R.F.W. Pump Clutch Replacement Changes to Oil Piping	Revision 4
71152B	Drawings	C-18017-C	Emergency Cooling System SH 1	Revision 56
71152B	Drawings	PID-11H	Service Water System Piping and Instrumentation	Revision 43
71152B	Engineering Changes	ECP-19-000138		
71152B	Miscellaneous		Nuclear Safety Culture Monitoring Meeting Minutes 1T19	06/18/2019
71152B	Miscellaneous		Nuclear Safety Culture Monitoring Meeting Minutes 3T18	01/30/2019
71152B	Miscellaneous	NRC Information Notice 2010-03	FAILURES OF MOTOR-OPERATED VALVES DUE TO DEGRADED STEM LUBRICANT	02/03/2010
71152B	Miscellaneous	ODM NMP-1-2019-0163	MPR Pressure Oscillations	04/29/2019
71152B	Miscellaneous	ODM NMP-1-2019-0172	EPR Pressure Oscillations	05/05/2019
71152B	Procedures	AD-AA-3000	Nuclear Risk Management Process	Revision 2
71152B	Procedures	EI-AA-101	Employee Concerns Program	Revision 11
71152B	Procedures	EI-AA-101-1001	Employee Concerns Program Process	Revision 15
71152B	Procedures	ER-AA-2002	System and Equipment Health Monitoring	Revision 021
71152B	Procedures	ER-AA-2003	System Performance Monitoring and Analysis	Revision 15
71152B	Procedures	ER-AA-2004	System & Component Vulnerability Identification and Mitigation	Revision 12
71152B	Procedures	ER-AA-2030	Conduct of Equipment Reliability Manual	Revision 022
71152B	Procedures	ER-AA-320	Implementation of Maintenance Rule Using NEI 18-10	Revision 000
71152B	Procedures	HU-AA-104-101	Procedure Use and Adherence	Revision 7
71152B	Procedures	MA-AA-1000	Conduct of Maintenance Manual	Revision 21
71152B	Procedures	MA-AA-716-004	Conduct of Troubleshooting	Revision 16
71152B	Procedures	MA-CE-716-010	Maintenance Planning	Revision 5
71152B	Procedures	MA-CE-716-010-1011	Work Order Writer's Guide	Revision 0
71152B	Procedures	N1-IPM-302-001	Electronic Pressure Regulator (EPR)	Revision 01900

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71152B	Procedures	N1-OP-16	Feedwater Booster Pump to Reactor	Revision 06700
71152B	Procedures	N1-OP-31	Tandem Compound Reheat Turbine	Revision 05100
71152B	Procedures	N1-OP-43A	Plant Startup	Revision 04800
71152B	Procedures	N1-SOP-31.2	Pressure Regulator Malfunction	Revision 00500
71152B	Procedures	N1-SOP-31.2	Pressure Regulator Malfunction	Revision 00600
71152B	Procedures	N2-EPM-GMS-R693	Main Generator P.M.	Revision 00800
71152B	Procedures	N2-EPM-GMS-R693	Main Generator P.M.	Revision 00900
71152B	Procedures	N2-MPM-EGS-508	General Motors Diesel (DIV III) Lube Oil Preventative Maintenance Sampling	Revision 00000
71152B	Procedures	N2-MSP-EGS-R002	Diesel Generator Inspection Division 3 (2EGS*EG2)	Revision 02000
71152B	Procedures	OP-AA-106-101-1006	Operational Decision Making Process	Revision 21
71152B	Procedures	PI-AA-1012	Safety Culture Monitoring	Revision 2
71152B	Procedures	PI-AA-115	Operating Experience Program	Revision 4
71152B	Procedures	PI-AA-120	Issue Identification and Screening Process	Revision 8
71152B	Procedures	PI-AA-125	Corrective Action Program (CAP) Procedure	Revision 6
71152B	Procedures	S-EMP-GEN-068	Limitorque Actuator Rebuild	Revision 00600
71152B	Procedures	S-EPM-GEN-063	MOV Diagnostic Testing	Revision 01100
71152B	Procedures	S-EPM-GEN-066	MOV Gear Case Lube Inspection and Stem Lubrication	Revision 00800
71152B	Procedures	S-EPM-GEN-067	Limitorque MOV Actuator P.M.	Revision 00800
71152B	Procedures	SY-AA-101-112	Exelon Security Search Processes	Revision 036
71152B	Procedures	SY-AA-101-112-	Protected Area Search Processes	Revision 002

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		1004		
71152B	Procedures	WC-AA-2000	Emergent Issue Response	Revision 10
71152B	Self-Assessments	04101954	Preparation for NRC Problem Identification and Resolution (PI&R) Inspection	07/22/2019
71152B	Self-Assessments	AR 04026601	Delivering the Nuclear Promise CAP-001	11/27/2017
71152B	Self-Assessments	03983461	2017 Control of Radioactive Material	Revision 2
71152B	Self-Assessments	04035096	Chemistry Increased-Frequency Audit Report	09/06/2017
71152B	Self-Assessments	04035103	Operations Functional Area Audit Report	09/21/2017
71152B	Self-Assessments	04101583	Use of Adverse Condition Monitoring Plans	04/19/2019
71152B	Self-Assessments	NOSA-NMP-18-01	Maintenance Functional Area Audit Report	03/08/2018
71152B	Self-Assessments	NOSA-NMP-18-02	Security Programs Audit Report	02/07/2018
71152B	Self-Assessments	NOSA-NMP-19-04 (AR 4224173)	Corrective Action Program Audit Report	05/23/2019
71152B	Self-Assessments	PI-AA-126-1001-F-01	2018 Mid Cycle Org Effectiveness Survey Assessment	2/01/2019
71152B	Work Orders		C92641383, C93040397, C93591831, C93591831, C93596688, C93607683, C93620634, C93621570, C93626528, C93640488, C93640488, C93686403, C93706867	
71152B	Work Orders	C93706420	Replace EPR Filters	04/23/2019