



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 25, 2019

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

SUBJECT: NINE MILE POINT NUCLEAR STATION UNIT 2 REGULATORY AUDIT
SUMMARY RE: CONFIRMATION OF A PLANTS IMPLEMENTATION OF
NUCLEAR ENERGY INSTITUTE 19-02, "GUIDANCE FOR ASSESSING OPEN
PHASE CONDITION IMPLEMENTATION USING RISK INSIGHTS"

Dear Mr. Hansen:

This letter is being sent to document the results of an audit conducted by the U.S. Nuclear Regulatory Commission (NRC) at Nine Mile Point Nuclear Station, Unit 2. The NRC conducted the audit according to the audit plan, "Regulatory Audit in Support of Confirmation of a Plant's Implementation of Nuclear Energy Institute (NEI) 19-02, 'Guidance for Assessing Open Phase Condition Implementation Using Risk Insights,'" (Agencywide Documents Access and Management System Accession No. ML19281D386). Nine Mile Point (NMP) 2 has decided to use NEI 19-02 to risk-inform the decision of whether to implement the Open Phase Isolation System to provide alarm and indication to the control room operators as opposed to automatic actuation mode in response to an Open Phase Condition (OPC). One of the purposes of the audit was to identify key areas to address in a revision to the Temporary Inspection (TI) on OPC response to accommodate a plant that chose to use NEI 19-02 to stay in alarm only mode to address an OPC. This was done by investigating whether NMP 2 appropriately implemented the guidance in NEI 19-02. The audit also helped to determine whether the implementation of NEI 19-02 could be an appropriate alternate approach consistent with the revised Voluntary Industry Initiative on OPC response. The audit took place from October 21st-October 24th, 2019. The audit team was comprised of a Reliability and Risk Analyst and an Electrical Engineer from NRC Headquarters.

The audit began on October 21st, 2019, with an entrance meeting between the NRC and the licensee's staff and contractors. During the audit, the NRC participated in a technical review according to the audit plan. This technical review focused on how the methodology described in NEI 19-02 was implemented and the application (or temporary changes) of the plant specific PRA model of record within the context of applying the 19-02 methodology. It also included reviewing the training conducted and procedures required to address OPC to help verify the Human Reliability Analysis (HRA) documented in the licensee's assessment, as well as reviewing the supporting documentation behind other key assumptions described in the licensee's assessment and PRA model.

On October 23rd, 2019, at the conclusion of the audit, the NRC participated in an exit meeting with the licensee's staff. During the exit, the NRC discussed recommendations that it would be incorporating into the revision of the TI. These recommendations included: inspectors reviewing the training, procedures, and operator actions, and ensuring the

HRA described in NEI 19-02 matches the inspectors observations. Most importantly, inspectors should investigate the human action execution time described in the HRA. It was also identified that the revised TI would instruct the inspectors to verify assumptions listed in NEI 19-02, e.g. that the pump motors subjected to an OPC will be protected by their protective devices (especially if analysis indicates that failure will place them over the NEI 19-02 risk threshold). The team also identified that the NMP 2 HRA analysis was confusing (e.g., certain aspects of the HRA could have used more explanation, and there were incorrect graphs in one section due to a software error) and that moving forward, the HRA analysis in NEI 19-02 evaluations should be more clear. The team concluded that the audit did not identify any issues that would preclude NEI 19-02 from being an appropriate alternate approach consistent with the revised OPC Voluntary Industry Initiative.

Enclosure 2 contains a list of documents reviewed by the team during the audit.

If you have any questions, please contact me at 301-415-8539 or via e-mail at Alexander.Schwab@nrc.gov.

Sincerely,

/RA/

Alexander H. Schwab, Reliability and Risk
Analst
PRA Oversight Branch
Division of Risk Assessment
Office of Nuclear Reactor Regulation

Enclosures:

1. List of Participants
2. List of Documents Reviewed cc: Listserv

LIST OF PARTICIPANTS

U.S. Nuclear Regulatory Commission (NRC) Audit Team

Alexander Schwab	NRC/Audit Lead
Hari Kodali	NRC/Observer

LIST OF DOCUMENTS REVIEWED DURING THE AUDIT

The following documents were reviewed by the U.S. Nuclear Regulatory Commission (NRC) audit team during the audit. The documents generally included procedures that implement the actions described in response to an Open Phase Condition with the alarm in manual, the training on these procedures, the plants NEI 19-02 analysis, and other documentation verifying the assumptions used in the NEI 19-02 analysis.

- NEI 19-02, Guidance for Assessing Open Phase Condition Implementation Using Risk Insights
- N2-MISC-015, Nine Mile Point Nuclear Station
- N2-ARP-852600, 2CEC*PNL852 Series 600 Alarm Response Procedures
- N-NM-OPS-2102-QS-04, Unit 2 Open Phase ARP Quick Set
- Analysis No. EC-205, Rev No. 000
- EC-154, Rev. 5 – Starting Voltage Verification or Class 1E MOVs
- EC-154, Rev. 5, Disposition No. 05A
- EC-154, Rev. 5, CCN No. ECP-09-000139 EC-154-05.000
- EC-154, Rev. 5, CCN No. 008521, Rev.0
- EC-166, Rev.0 - 4160 VAC Safety Related Breakers Coordination
- EC-166, Rev.0, Disposition No. 00B

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*via email

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DATE	11/25/2019	11/21/2019