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10 CFR 50.54(q)(5)  
10 CFR 50.4  
10 CFR 72.44(f)

NMP1L3161

May 30, 2017

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Nine Mile Point Nuclear Station, Units 1 and 2  
Renewed Facility Operating License Nos. DPR-63 and NPF-69  
NRC Docket Nos. 50-220, 50-410, and 72-1036

Subject: Exelon Nuclear Radiological Emergency Plan Addendum and Implementing Procedure Revisions

In accordance with 10 CFR 50.4(b)(5), "Emergency Plan and related submissions," Exelon Generation Company, LLC (Exelon) is submitting Emergency Plan Addendum and Implementing Procedure revisions as listed in the table below for the Nine Mile Point Nuclear Station (Nine Mile Point).

Document	Revision	Title
EP-AA-1013, Addendum 3	2	<i>Nine Mile Point Nuclear Station Unit 1 Emergency Classification Technical Bases</i>
EP-AA-1013, Addendum 4	1	<i>Nine Mile Point Nuclear Station Unit 2 Emergency Classification Technical Bases</i>
EPIP-EPP-01-EAL	24	<i>Emergency Action Level Matrix Unit 1</i>
EPIP-EPP-02-EAL	23	<i>Emergency Action Level Matrix Unit 2</i>

The changes to the Emergency Plan Addendums and Implementing Procedures were evaluated under the requirements of 10 CFR 50.54(q) and were determined not to result in a reduction in the effectiveness of the Emergency Plans for Nine Mile Point. This notification is being submitted within 30 days of implementation of the changes as required by 10 CFR 50.54(q)(5). The changes continue to meet the applicable planning standards established in 10 CFR 50.47(b) and 10 CFR 50, Appendix E.

In addition, as required by 10 CFR 50.54(q)(5), this submittal includes a summary analysis of the changes to the cited Emergency Plan Addendums and Implementing Procedures (Attachment 1).

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U.S. Nuclear Regulatory Commission  
Emergency Plan Addendum and  
Implementing Procedure Revisions  
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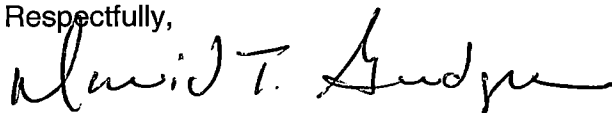
This submittal also satisfies the reporting requirements associated with 10 CFR 72.44(f), which stipulates that within six months after any change is made to the Emergency Plan, the licensee shall submit a report containing a description of the changes to the Director, Division of Spent Fuel Management.

A copy of the revised Emergency Plan Addendums and Implementing Procedures and supporting change summary analysis are included in the attachments to this letter.

There are no regulatory commitments in this submittal.

If you have any questions or require additional information, please contact Richard Gropp at (610) 765-5557.

Respectfully,



David T. Gudger  
Manager, Licensing and Regulatory Affairs  
Exelon Generation Company, LLC

- Attachments:
- 1) 10 CFR 50.54(q)(5) Procedure Change Summary Analysis
  - 2) EP-AA-1013, Addendum 3, Revision 2, *"Nine Mile Point Nuclear Station Unit 1 Emergency Classification Technical Bases"*
  - 3) EP-AA-1013, Addendum 4, Revision 1, *"Nine Mile Point Nuclear Station Unit 2 Emergency Classification Technical Bases"*
  - 4) EPIP-EPP-01-EAL, Revision 24, *"Emergency Action Level Matrix Unit 1"*
  - 5) EPIP-EPP-02-EAL, Revision 23, *"Emergency Action Level Matrix Unit 2"*

cc: w/ Attachment 1 only  
Regional Administrator - NRC Region I  
Director, NRC Division of Spent Fuel Management, ONMSS  
NRC Senior Resident Inspector - Nine Mile Point Nuclear Station  
NRC Project Manager, NRR - Nine Mile Point Nuclear Station  
A.L. Peterson, NYSERDA

**Attachment 1**

**10 CFR 50.54(q)(5) Procedure Change Summary Analysis**

## Attachment 1

### 10 CFR 50.54(q)(5) Procedure Change Summary Analysis

#### Procedures/Titles

Exelon Generation Company, LLC (Exelon) is submitting the following Emergency Plan Addendum and Implementing Procedure revisions for the Nine Mile Point Nuclear Station (NMP):

- EP-AA-1013, Addendum 3, Revision 2, "*Nine Mile Point Nuclear Station Unit 1 Emergency Classification Technical Bases*"
- EP-AA-1013, Addendum 4, Revision 1, "*Nine Mile Point Nuclear Station Unit 2 Emergency Classification Technical Bases*"
- EPIP-EPP-01-EAL, Revision 24, "*Emergency Action Level Matrix Unit 1*"
- EPIP-EPP-02-EAL, Revision 23, "*Emergency Action Level Matrix Unit 2*"

#### Description of Procedures

EP-AA-1013, Addendums 3 and 4, describe the Emergency Action Levels (EALs) implemented at NMP for entering Emergency Classification Levels (ECLs). Implementing Procedures EPIP-EPP-01-EAL and EPIP-EPP-02-EAL are wall charts used by site emergency response personnel to assist in making emergency classifications.

#### Description of Changes

Lake Ontario, the easternmost of the Great Lakes, is an international body of water forming part of the border between the United States and Canada. The lake is 193 miles long and 53 miles wide at its largest points, and has a surface area of 7,340 square miles. It has a maximum depth of 802 feet, an average depth of approximately 283 feet, and a volume of 393 cubic miles. Dams on the St. Lawrence River, under the authority of the International Lake Ontario - St. Lawrence River Board, are used to regulate the lake level. The seasonal low water level limit is set for elevation 244 feet on April 1 and is maintained at or above that elevation during the entire navigation season (April 1 to November 30).

The Boundary Waters Treaty of 1909 (BWT) established the International Joint Commission (IJC) as a cornerstone of United States - Canada relations in the boundary region. Under the BWT, the IJC licenses and regulates certain water resource projects along the border that affect water levels and flows on the other side. The IJC also alerts the governments to emerging issues that might have negative impacts on the quality or quantity of boundary waters. The BWT was established in 1909 and later amended in 1987 and again in 2012. The 2012 amendment was approved on December 8, 2016, via a Supplementary Order of Approval.

The Order requires the regulated monthly mean water level of Lake Ontario not to exceed monthly values which have occurred between 1900 and 2005. Trigger levels were established for actions to prevent lake level from getting too high or too low. The high trigger levels varied by month and were set for April (248.03 feet), May (248.46 feet), June (248.33 feet), and July (248.13 feet). The International Lake Ontario - St. Lawrence River Board ensures compliance with the provisions of the Order relating to water levels.

As a result of the changes in the trigger levels for lake water level management, planned and purposeful management of lake water level under the BWT may result in increased Emergency Classifications under EAL HU1.5, "*Hazards and Other Conditions Affecting Plant Safety.*" A subsequent review of the HU1.5 EAL basis and corresponding Updated Safety Analysis Report (USAR) identified an opportunity to adjust the EAL threshold above the managed lake level trigger levels while maintaining the EAL basis.

The proposed change to the NMP, Units 1 and 2, EALs is to revise the Notice of Unusual Event (UE) EAL threshold for high lake water level from 248.2 feet to 249.3 feet, as provided in *Recognition Category H - Hazards and Other Conditions Affecting Plant Safety, EAL HU1.5.*

### **Description of How the Changes Still Comply with Regulations**

Currently, the EAL schemes used at NMP, Units 1 and 2, are based on the guidance provided in NEI 99-01, Revision 5, "*Methodology for Development of Emergency Action Levels.*" NEI 99-01, Revision 5, EAL HU1, "*Natural or destructive phenomena affecting the Protected Area,*" contains guidance for establishing an EAL threshold based on "*(Site specific occurrences affecting the Protected Area).*" The NEI 99-01, Revision 5 basis for EAL #5 under HU1 (HU1.5) states:

*This EAL addresses other site specific phenomena (such as hurricane, flood, or seiche) that can also be precursors of more serious events.*

This is consistent with the definition of a UE found in NEI 99-01, Revision 5, which states:

*Events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated...*

***Discussion:*** *...Precursors of more serious events should also be included because precursors do represent a potential degradation in the level of safety of the plant.*

In response to the NEI 99-01, Revision 5 guidance, the NMP, Units 1 and 2, EALs had established EAL HU1.5 to provide both a minimum intake bay water level and a maximum lake water level to serve as a precursor to a more serious event. Specifically, with respect to the high lake water level, both the current NMP Unit 1 and NMP Unit 2 EALs indicate that the UE maximum lake water level of 248.2 feet in HU1.5 is based on:

*"...the maximum attainable uncontrolled lake water level as specified in the NMP 2 USAR."*

### **USAR Basis**

The HU1.5 EAL discusses the high lake water level is based on the maximum attainable uncontrolled lake water level. The EAL basis states:

*The high lake level is based upon the maximum attainable uncontrolled lake water level as specified in the USAR.*

The NMP Unit 2 USAR has been revised to more clearly describe the "maximum attainable uncontrolled lake level." Section 2.4.1.2 of the Unit 2 USAR provides a discussion of the "regulated" lake water level controlled by the International Lake Ontario - St. Lawrence River Board.

*The Boundary Waters Treaty of 1909 (BWT) established the International Joint Commission (IJC) as a cornerstone of United States - Canada relations in the boundary region. Under the BWT, the IJC licenses and regulates certain water resource projects along the border that affect levels and flows on the other side. The IJC also alerts the governments to emerging issues that might have negative impacts on the quality or quantity of boundary waters. The BWT was later amended in 1987 and 2012. The 2012 amendment was implemented on December 8, 2016, via a Supplementary Order of Approval. The Order required the regulated monthly mean level of Lake Ontario not to exceed monthly values which have occurred between 1900 and 2005. Trigger levels were established for actions to prevent lake level from getting too high or too low. The high trigger levels were set above 248 feet during the spring and summer months of 2017, with a high trigger level of 248.46 feet. These levels are based on the International Great Lakes Datum of 1985 (IGLD85). See section 2.4.5.5, Protective Structures, for the maximum attainable uncontrolled lake level assumed for affecting the functional capability of the revetment ditch.*

USAR Section 2.4.5.5 discusses lake water levels resulting from severe storms and states:

*A severe storm that could affect the functional capability of the revetment ditch is determined by three variable parameters:*

- 1. Still water elevation greater than 250 ft (this uncontrolled lake level will be the parameter monitored once a month to determine a severe storm)*
- 2. A wind out of the northerly direction (240 deg to 90 deg).*
- 3. A wind speed/duration shown on Figure 2.4-18.*

Further review of the NMP Unit 2 USAR finds additional discussions of Lake Ontario water level in Section 2.4 of the USAR with respect to a maximum uncontrolled lake water level. On Page 2.4-3, under Flood History, there is a discussion regarding the period of time when Lake Ontario water level was unregulated:

*The maximum instantaneous monthly levels of Lake Ontario at Oswego, NY, for the historical period of record, 1900 to 1978, are presented in Table 2.4-2. The historical maximum level was 76.25 m (250.19 ft) USLS measured in June 1952.*

An Issue Report (IR) was created to address the USAR documentation with relation to the EAL HU1.5 threshold and the maximum uncontrolled lake water level. As a result, additional clarifying language has been added to the Unit 2 USAR to more clearly identify the maximum uncontrolled lake water level as 250 feet based on U.S. Lake Survey Datum of 1935 (USLS 1935).

### NMP Unit 2 USAR Reference Level

Lake water level determination at NMP is performed by accessing data maintained by the National Oceanic and Atmospheric Administration (NOAA). This value is based on the USLS 1985 standard. It should be noted that elevations within the USAR are referenced to the USLS 1935 datum. Lake water levels identified in the USAR must be adjusted to correspond to the current lake water levels referenced by NOAA or other offsite sources. The USAR discusses this adjustment as follows:

#### *2.4.3.0 Site and Facilities*

*All elevations in this report refer to the USLS 1935 Data.*

- 1. To convert elevations from USLS 1935 to 1955 International Great Lakes Data, subtract 0.375 m (1.23 ft).*
- 2. To convert elevations from USLS 1935 to 1985 International Great Lakes Data, subtract 0.217 m (0.71 ft).*

### EAL Threshold Value

A revised EAL threshold for HU1.5 high lake water level was adjusted consistent with the methodology of the EAL basis. The value utilizes 250 feet as the maximum attainable uncontrolled lake water level adjusted by the 0.71 foot correction factor which is based on International Great Lakes Datum of 1985 (IGLD85). This correlates to an EAL threshold of 249.3 feet (rounded). The EAL methodology to use the maximum uncontrolled lake water level as identified in the USAR, as the underlying basis for the EAL value, has not changed in that the level is based on the maximum attainable uncontrolled lake water level.

### Regulatory Guidance (Regulatory Guide 1.219)

Regulatory Guide (RG) 1.219, "*Guidance on Making Changes to Emergency Plans for Nuclear Power Reactors*," describes methods that the NRC considers acceptable to change Emergency Plans. RG 1.219, Section 4.4.e.3, provides the guidance related to changes to the Emergency Plan, and more specifically the EALs. The guidance states:

*A change could require prior NRC approval if it would result in an EAL that is inconsistent with the meaning or intent of the approved EAL bases such that the classification of the event would be different from that approved by the NRC in a site-specific application or from an endorsed industry EAL scheme that had been approved for licensee use.*

The change to the high lake water level threshold continues to be consistent with the meaning and intent of the EAL basis, which has been approved by the NRC through a Safety Evaluation. The use of the USAR maximum attainable uncontrolled lake water level continues to be the basis of the HU1.5 EAL threshold.

RG 1.219, Section 4.4.f, includes examples (excerpt below) of EAL changes which could be performed without prior NRC approval.

*The following examples would generally not require prior NRC approval:*

- (1) A change to an EAL numeric threshold to reflect an approved change in a technical specification, provided that the basis of the approved EAL is unchanged (e.g., an EAL basis refers to a particular technical specification but not a limiting condition for operation value), and*
- (2) A change to an EAL numeric threshold to reflect a change in a plant design parameter, instrument response characteristics, or design calculation, provided that the meaning or intent of the basis of the approved EAL is unchanged.*

The changes to the HU1.5 threshold align more closely with these examples cited above in that the change is made in conjunction with an approved change to the USAR. The threshold value is revised consistent with corrections made to the NMP Unit 2 USAR.

Regulatory Issue Summary (RIS) 2005-02, Revision 1, "*Clarifying the Process for Making Emergency Plan Changes*," provides further guidance regarding changes which do not involve complete scheme changes. RIS 2005-02, Revision 1 includes the following guidance under the "Definitions" section - 1) Decrease in Effectiveness, Item a), sub-item (4)(c)(i):

- ...(i) The actual numerical setpoint of a given EAL may be revised without prior NRC approval under the following conditions via the 10 CFR 50.54(q) emergency plan change process:...*
  - 2. The regulatory basis for the EAL setpoint has not been changed but the method for detection of the setpoint has been changed. For example, a given EAL setpoint is based upon exceeding 1 Rem total effective dose equivalent (TEDE). The radiation monitor reading setpoint is based upon a reading that would give the equivalent of exceeding 1 Rem TEDE. The radiation monitor is replaced and operates differently. The actual numerical value of the EAL needs to be revised to that which is equivalent to 1 Rem TEDE. The regulatory basis for the setpoint has not been changed, thus this change can be processed via the emergency plan change process as the effectiveness of the emergency plan has not been decreased.*

This example is consistent with the proposed change to the high lake water level threshold where the regulatory basis for the EAL setpoint has not been changed.

#### Station Impact of the Increased Lake Level EAL Threshold

All safety-related facilities except the intake structure are protected from flooding by a revetment ditch system. The system is constructed along the lakeshore in front of NMP Unit 2. The top of the revetment is at an elevation of 263 feet, and prevents possible plant flooding due to lake level wave action. All safety-related facilities, systems, and equipment are protected against flood damage resulting from the probable maximum storm and historical maximum lake level, historical maximum precipitation and probable maximum lake level and surge with wind-wave action from Probable Maximum Wind Surge (PMWS).



The offshore intake structures are designed for the critical wave forces under different combinations of lake levels and wave heights. For example, the maximum horizontal wave force of 350 kips (350,000 pounds) is calculated for the PMWS water level of elevation 254 feet, and a maximum sustainable nonbreaking wave of 10.1 feet.

All personnel entrances to Category I structures are at elevation 261 feet, or higher. The revetment ditch system was approved by the NRC in a December 1977 letter.

### **Description of Why the Changes are Not a Reduction in Effectiveness (RIE)**

10 CFR 50.47(b)(4) states: *"A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee."* 10CFR Part 50, Appendix E further states: *"The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring."*

Exelon revised the NMP Unit 1 and U2 EAL HU1.5, *"Natural or destructive phenomena affecting the Protected Area."* Specifically, the high lake water level threshold is being revised from 248.2 feet to 249.3 feet (i.e., 250 feet - 0.71 foot datum adjustment factor) due to clarification to the NMP Unit 2 USAR and changes in how Lake Ontario water level is managed by Boundary Waters Treaty.

The revised EAL HU1.5 remains in place with a value that continues to establish a precursor to more serious events as discussed in NEI 99-01, Revision 5. In this case, the EAL escalation path remains unchanged. Specifically, the "Alert" Emergency Classification EAL, HA1.6, *"Natural or destructive phenomena affecting Vital Areas,"* maintains a threshold high lake water level threshold at 254 feet. While the UE for HU1.5 high lake water level threshold is increased to 249.3 feet, the underlying guidance and basis for the EAL (i.e., *high lake level is based upon the maximum attainable uncontrolled lake water level as specified in the NMP U2 USAR*) remains unchanged.

The setpoint derived for EAL HU1.5 is consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard NEI 99-01, Revision 5 EAL scheme as required by 10 CFR 50.47(b)(4). Therefore, the incorporation of revised EAL high lake water level threshold does not alter the intent, implementation method, or progression through the EAL scheme.

As stated above, the increase in the threshold provides no operational impact to the plant, nor is their impact to the Emergency Preparedness (EP) functions associated with the EP Planning Standards established in 10 CFR 50.47. The allowed increase in Lake Ontario water level EAL threshold has no effect on safety systems utilized to respond to an emergency condition. Additionally, access and mobility within the station is not impacted by raising the HU1.5 EAL threshold level. The revision to the HU1.5 EAL threshold continues to provide radiological protection and will maintain adequate protection of public health and safety under the EAL scheme.

Based on the above, the proposed changes provide an EAL scheme that continues to meet the applicable EP requirements established in 10 CFR 50.47 and 10 CFR 50, Appendix E. Therefore, based on the above analysis, the EAL revisions for NMP, Units 1 and 2, do not result in a reduction in effectiveness of the Emergency Plan for NMP.