

RS-16-099

Order No. EA-12-049

June 30, 2016

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

> Braidwood Station, Units 1 and 2 Renewed Facility Operating License Nos. NPF-72 and NPF-77 <u>NRC Docket Nos. STN 50-456 and STN 50-457</u>

Subject: Mitigating Strategies Flood Hazard Assessment (MSFHA) Submittal

References:

- 1. NRC Letter, Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident; dated March 12, 2012
- Exelon Generation Company, LLC Letter to USNRC, Response to March 12, 2012 Request for Information Enclosure 2, Recommendation 2.1, Flooding, Required Response 2, Flooding Hazard Reevaluation Report, dated March 12, 2014 (RS-14-052)
- 3. Exelon Generation Company, LLC Letter to USNRC, Response to Request for Additional Information Regarding Fukushima Lessons Learned Flood Hazard Reevaluation Report, dated July 14, 2014 (RS-14-194)
- 4. Exelon Generation Company, LLC Letter to USNRC, Supplemental Response to Request for Additional Information Regarding Fukushima Lessons Learned Flood Hazard Reevaluation Report, dated February 17, 2015 (RS-15-050)
- 5. Exelon Generation Company, LLC Letter to USNRC, Response to Request for Additional Information Regarding Fukushima Lessons Learned Flood Hazard Reevaluation Report, dated June 24, 2015 (RS-15-112)
- NRC Letter, Supplemental Information Related to Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) regarding Flooding Hazard Reevaluations for Recommendation 2.1 of the Near Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated March 1, 2013
- 7. NRC Staff Requirements Memoranda to COMSECY-14-0037, "Integration of Mitigating Strategies for Beyond-Design-Basis External Events and the Reevaluation of Flooding Hazards", dated March 30, 2015

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- 8. NRC Letter, Coordination of Requests for Information Regarding Flooding Hazard Reevaluations and Mitigating Strategies for Beyond-Design-Basis External Events, dated September 1, 2015
- 9. Nuclear Energy Institute (NEI), Report NEI 12-06 [Rev 2], Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, dated December 2015
- 10. U.S. Nuclear Regulatory Commission, JLD-ISG-2012-01, Revision 1, Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigating Strategies for Beyond-Design-Basis External Events, dated January 22, 2016
- NRC Letter, Braidwood Station, Units 1 and 2 Interim Staff Response to Reevaluated Flood Hazards Submitted in Response to 10 CFR 50.54(f) Information Request – Flood-Causing Mechanism Reevaluation (TAC Nos. MF3895 and MF3896), dated September 3, 2015

On March 12, 2012, the NRC issued Reference 1 to request information associated with Near-Term Task Force (NTTF) Recommendation 2.1 for Flooding. One of the Required Responses in Reference 1 directed licensees to submit a Flood Hazard Reevaluation Report (FHRR). For Braidwood Station, Units 1 and 2, the FHRR was submitted on March 12, 2014 (Reference 2). Additional information was provided with References 3, 4, and 5. Per Reference 6, the NRC considers the reevaluated flood hazard to be "beyond the current design/licensing basis of operating plants".

Concurrent to the flood hazard reevaluation, Braidwood Station, Units 1 and 2, developed and implemented mitigating strategies in accordance with NRC Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events". In Reference 7, the NRC affirmed that licensees need to address the reevaluated flooding hazards within their mitigating strategies for beyond-design-basis (BDB) external events. This requirement was confirmed by the NRC in Reference 8. Guidance for performing mitigating strategies flood hazard assessments (MSFHAs) is contained in Appendix G of Reference 9, endorsed by the NRC in Reference 10. For the purpose of the MSFHAs and in Reference 8, the NRC termed the reevaluated flood hazard, summarized in Reference 11, as the "Mitigating Strategies Flood Hazard Information" (MSFHI). Reference 9, Appendix G, describes the MSFHA for flooding as containing the following elements:

- Section G.2 Characterization of the MSFHI
- Section G.3 Basis for Mitigating Strategy Assessment
- Section G.4.1 Assessment of Current FLEX Strategies (if necessary)
- Section G.4.2 Assessment for Modifying FLEX Strategies (if necessary)
- Section G.4.3 Assessment of Alternative Mitigating Strategies (if necessary)
- Section G.4.4 Assessment of Targeted Hazard Mitigating Strategies (if necessary)

In Reference 11, the NRC concluded that the "reevaluated flood hazards information, as summarized in Enclosure 1 [to Reference 11], is suitable for the assessment of mitigating strategies developed in response to Order EA-12-049" for Braidwood Station, Units 1 and 2.

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The enclosure to this letter provides the Mitigating Strategies Assessments for Flooding Report for the Braidwood Station, Units 1 and 2. The assessment concluded that the current FLEX strategy can be deployed as designed. FLEX was designed for the current design basis Local Intense Precipitation (LIP) flood, which bounds the MSFHI for LIP. Site topography, cooling pond dike, and other features protect the plant and FLEX strategy from being impacted by nonbounding flood hazards associated with the Mazon River and cooling pond. Therefore, the current FLEX strategies can be successfully deployed as designed for all applicable floodcausing mechanisms and no further actions, including modifications to FLEX, are required.

This letter contains no new regulatory commitments. If you have any questions regarding this report, please contact David P. Helker at (610) 765-5525.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 30th day of June 2016.

Respectfully submitted,

1, Taen

Glen T. Kaegi Director - Licensing & Regulatory Affairs Exelon Generation Company, LLC

Enclosure: Braidwood Nuclear Power Station, Mitigating Strategies Assessments for Flooding Report, dated June 30, 2016

cc: Director, Office of Nuclear Reactor Regulation NRC Regional Administrator - Region III NRC Senior Resident Inspector – Braidwood Station NRC Project Manager, NRR – Braidwood Station Ms. Tekia Govan, NRR/JLD/JHMB, NRC Mr. John D. Hughey, NRR/JLD/JOMB, NRC Illinois Emergency Management Agency - Division of Nuclear Safety

Enclosure

Braidwood Nuclear Power Station

Mitigating Strategies Assessments for Flooding Report

dated June 30, 2016

(9 Pages)

Mitigating Strategies Assessments for Flooding

Braidwood Nuclear Power Station



June 30, 2016

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1 Executive Summary

The Braidwood Nuclear Power Station (BNPS) FLEX design basis (DB) flood includes only the current design basis (CDB) Local Intense Precipitation (LIP) event (localized Probable maximum precipitation event). The Mitigating Strategies Flood Hazard Information (MSFHI), submitted with the Flood Hazard Reevaluation Report (FHRR), showed that the CDB and, by relationship, the FLEX DB completely bounds the MSFHI for LIP. Therefore, a Mitigating Strategies Assessment (MSA) for LIP is not required. Although the MSFHI for the Probable Maximum Flood (PMF) on the Cooling Pond and Mazon River were not bounded by the CDB and FLEX DB, the MSA showed that all aspects of the FLEX strategy, as designed, are protected (by plant grade for the Mazon River PMF and dike for the Cooling Pond PMF) from these non-bounded flood-causing mechanisms. No changes to the FLEX strategy were required to address the MSFHI for all flood-causing mechanisms.

2 List of Acronyms

- BDBEE Beyond Design Basis External Events
- BNPS Braidwood Nuclear Power Station
- CDB Current Design Basis
- CNMT Containment
- DB Design Basis
- ELAP Extended Loss of A/C Power
- FHRR Flood Hazard Reevaluation Report
- FLEX DB FLEX Design Basis (flood hazard); the controlling flood parameters used to develop the FLEX flood strategies
- LIP Local Intense Precipitation
- LUHS Loss of Ultimate Heat Sink
- MSA Mitigation Strategy Assessment
- MSFHA Mitigating Strategies Flood Hazard Assessment
- MSFHI Mitigating Strategies Flood Hazard Information
- MSL Mean Sea Level
- NTTF Near-Term Task Force
- PMF Probable Maximum Flood
- SAFER Strategic Alliance for FLEX Emergency Response
- SG Steam Generator
- RCS Reactor Coolant System
- SI Safety Injection

3 Background

3.1 Purpose

On March 12, 2012, the NRC issued Reference 1 to request information associated with Near-Term Task Force Recommendation 2.1 for Flooding. One of the Required Responses in Reference 1 directed licensees to submit a Flood Hazard Reevaluation Report. The BNPS FHRR was submitted on March 12, 2014 (Reference 2). Additional information was provided in References 3, 4 and 5. Per Reference 6, the NRC considers the reevaluated flood hazard to be "beyond the current design/licensing basis of operating plants".

Concurrent to the flood hazard reevaluation, BNPS developed and implemented mitigating strategies in accordance with NRC Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events". In Reference 7, the Commission recommended that licensees need to address the reevaluated flooding hazards within their mitigating strategies for BDBEEs. This requirement was confirmed by the NRC in Reference 8. Guidance for performing MSFHAs is contained in Appendix G of Reference 9, endorsed by the NRC in Reference 10. For the purpose of the MSFHAs and in Reference 8, the NRC termed the reevaluated flood hazard, summarized in References 11, as the "Mitigating Strategies Flood Hazard Information". Reference 9, Appendix G, describes the MSFHA for flooding as containing the following elements:

- Section G.2 Characterization of the MSFHI
- Section G.3 Basis for Mitigating Strategy Assessment
- Section G.4.1 Assessment of Current FLEX Strategies (if necessary)
- Section G.4.2 Assessment for Modifying FLEX Strategies (if necessary)
- Section G.4.3 Assessment of Alternative Mitigating Strategies (if necessary)
- Section G.4.4 Assessment of Targeted Hazard Mitigating Strategies (if necessary)

If a Section G.3 assessment shows that the FLEX DB flood completely bounds the reevaluated flood (MSFHI), only documentation for Sections G.2 and G.3 are required; assessments and documentation for the remaining sections (G.4.1 through G.4.4) are not necessary.

3.2 Site Description

BNPS is located in the southwestern portion of Will County, 1.5 miles southwest of the City of Braidwood, Illinois. The Kankakee River is approximately 4.5 miles Northeast of BNPS while the Mazon River is approximately one mile Southwest of the site.

Condenser water is cooled by water supplied by a cooling pond. The surface area of the cooling pond at its normal pool elevation of 595 ft MSL is 2,475 acres (USFAR Subsection 2.4.1.1). The pond is impounded by constructed exterior dikes with the top of the dike elevation varying from 600.0 to 602.5 ft MSL (USFAR Subsection 2.4.1.1). Makeup water for the cooling pond is pumped from the Kankakee River. Blowdown water is discharged from the plant by pipeline to the outfall structure and then to the discharge flume into the Kankakee River.

The nominal plant grade and floor elevations are 600.0 ft MSL and 601.0 ft MSL, respectively (USFAR Subsection 2.4.2.3).

The plant grade elevation (600.0 ft MSL) is 5 ft above the normal pool elevation in the cooling pond, equal to 595.0 ft MSL (USFAR Subsection 2.4.1.1). The site plant grade elevation is 20 ft above the mean water level in Lake Michigan, equal to approximately 580 ft MSL (Reference 13).

3.3 Overview of FLEX Strategy

The FLEX strategy was developed to mitigate an ELAP and LUHS concurrent with an external event (i.e. flood, earthquake, tornado, etc.).

Redundant 350kW diesel generators can provide the power required for vital instrumentation and all FLEX equipment. The FLEX diesel fuel supply is two 25,000 gallon tanks (Unit 1) or one 50,000 gallon tank (Unit 2) which would not be adversely affected by a flooding event.

Control room indications of vital instruments (including core temperature, RCS pressure, Pressurizer level, SG water level and SG pressure, Post-Accident Neutron Monitor, Reactor Vessel Level, and CNMT Pressure) are initially powered by the station batteries and eventually by the FLEX diesel generators.

Core cooling is maintained by ensuring adequate RCS inventory for RCS natural circulation with SG heat removal. SG Feedwater is provided by either the Diesel Driven Auxiliary Feedwater pump or the Medium Pressure FLEX pump. RCS inventory is maintained initially by the SI accumulator then by the High Head FLEX pump. SG Steam relief is through the Atmospheric Dump Valves.

Condensate for SG feedwater is obtained from the Condensate Storage Tanks, or the Ultimate Heat Sink.

Sufficient diesel oil fuel reserves are on site to support more than 30 days of isolated operation. SAFER can air lift fuel and effectively maintain a diesel fuel supply indefinitely.

The Refueling Water Storage Tank provides the source for RCS makeup and will not be affected by a site flood event. A boration skid from the National SAFER Response Center will provide a long term boration and makeup source.

The FLEX strategy is fully integrated within the emergency procedure architecture. The Emergency Operating Procedures provides the primary direction for mitigation of the ELAP. The Emergency Support Procedures provide specific guidance for task needed to implement the mitigation strategy. The Abnormal Event Operating Procedures provide event specific guidance for floods, earthquake, tornado, etc.

4 Characterization of MSFHI (NEI 12-06, Rev 2, Section G.2)

NRC has completed the "Interim Staff Response to Reevaluated Flood Hazards" submitted in the BNPS FHRR (Reference 2). In Reference 11, the NRC concluded that "the licensee's reevaluated flood hazards information, as summarized in Enclosure 1 [of Reference 11], is suitable for the assessment of mitigating strategies." Enclosure 1 of Reference 11 includes Table 1 and Table 2 that summarize the current design basis and reevaluated flood hazard parameters, respectively. In Table 1 of Reference 11, Enclosure 1, the NRC lists the following flood-causing mechanisms for the current design basis flood:

- Local Intense Precipitation;
- Streams and Rivers (PMF on the Cooling Pond and Mazon River);
- Failure of Dams and Onsite Water Control/Storage Structures;
- Storm Surge;
- Seiche;
- Tsunami;
- Ice Induced Flooding; and

• Channel Migrations/Diversions.

In Table 2 of Reference 11, Enclosure 1, the NRC lists "Streams and Rivers (PMF on the Cooling Pond and Mazon River)" as the only reevaluated flood-causing mechanism that should be addressed in the MSA. The PMF for this mechanism is based on NUREG/CR-7046, Section H.1 precipitation event combinations with hydrologic dam failure. Per Note 2 of Table 2, Enclosure 1, Reference 11, "reevaluated hazard mechanisms bounded by the current design basis are not included in this table". A more detailed description of this reevaluated flood-causing mechanism, along with the basis for inputs, assumptions, methodologies, and models, is provided in Section 3.2 and 3.3 of Reference 2, Enclosure 1. Also, Combined-Effect floods and a summary of resulting flood parameters related to the "Streams and Rivers" flood-causing mechanism are provided in Sections 3.6 and 4.0, respectively, of Reference 2, Enclosure 1. Additional information is provided in References 3, 4, and 5 (responses to requests for additional information). Specifically, Enclosure 2 of Reference 5 contains updated flood hazard reevaluation information, specifically for the LIP, Storm Surge, Seiche, Tsunami, and Combined-Effects flood-causing mechanisms. As indicated in Reference 5, the updated flood hazard parameters are bounded by the original FHRR submittal (Reference 2). Enclosure 1, Table 2 of the NRC's interim response letter (Reference 11) contains results from the updated submittal in Reference 5.

5 Basis for Mitigating Strategy Assessment (NEI 12-06, Rev 2, Section G.3)

For BNPS, Units 1 & 2, the FLEX DB flood, described in Reference 12, is equivalent to the plant's CDB flood for a LIP event of 601.91 ft MSL. As indicated in Section 4 of Reference 5, Enclosure 2, the MSFHI is completely bounded by the CDB and, by relationship, FLEX DB for LIP. This is affirmed by the NRC in Reference 11. Therefore, no further assessment of FLEX for LIP flooding are required or included in the MSA.

The FLEX DB did not consider flood-causing mechanisms other than LIP and, as a result, do not bound the MSFHI. As indicated in Section 4, only the "Streams and Rivers (PMF on the Cooling Pond and Mazon River)", and related Combined-Effects, flood-causing mechanism should be addressed in the MSA. Therefore, since this mechanism ("Streams and Rivers" (PMF on the Cooling Pond and Mazon River)) is not bounded by the FLEX DB, further assessment of FLEX for this mechanism is included in Section 6.

6 Assessment of Current Flex Strategy (NEI 12-06, Rev 2, Section G.4.1)

6.1 Assessment Methodology, Process, and Results

For the Mazon River PMF (based on the NUREG/CR-7046, Section H.1, event combinations with hydrologic dam failure), both the reevaluated maximum stillwater elevation (594.25-ft MSL) and wind-wave runup elevation (595.83-ft MSL), per Table 4.3 of Reference 5 (Enclosure 2), are not bounded by the CDB and, because of its exclusion, the FLEX DB. Site topography provides a reliable permanent and passive flood protection barrier for this flood-causing mechanism, a minimum of 4.17 feet of available margin above the wind-wave runup flood elevation of 595.83-ft MSL. A "Limited Integrated Assessment for External Flooding" report, included with the FHRR submittal (Enclosure 2, Reference 2), determined that site topography is reliable and has adequate margin in providing flood protection to

plant grade elevation 600-ft MSL for the Mazon River PMF. (See Section 5.1 of Reference 2, Enclosure 2.)

For the Cooling Pond PMF (based on the NUREG/CR-7046, Section H.1, event combinations with hydrologic dam failure), only the reevaluated maximum stillwater elevation (599.36-ft MSL), per Table 4.4 of Reference 5, is not bounded by the CDB and, because of its exclusion, the FLEX DB. The reevaluated maximum wind-wave runup elevation (601.88-ft MSL), per Table 4.5 of Reference 5 (Enclosure 2), is bounded by the CDB wind-wave runup elevation (602.34-ft MSL). The Cooling Pond is impounded by an exterior dike with the top elevation varying from 600.0-ft MSL to 602.5-ft MSL. The northern section of the dike at elevation 602.5-ft MSL was designed to protect the plant from wind-wave runup.

The "Limited Integrated Assessment for External Flooding" report, included with the FHRR submittal (Enclosure 2, Reference 2), identified three flood protection features for the Cooling Pond; site topography (plant grade) and slurry trench (stillwater), northern dike system (wind-wave runup), and protection against ingress through Essential Service Water Discharge and Circulating Water Discharge pipe pathways (stillwater) and showed that these features are reliable and have adequate margin in providing flood protection for the Cooling Pond flood-causing mechanisms. (See Section 5.2 of Reference 2, Enclosure 2.)

The only portion of the FLEX strategy not protected by the dike is the deployment location of the low pressure pumps at the lake screen house. The location of the pump will be at elevation 602.83-ft MSL (Reference 14). This exceeds the CDB and MSFHI for wind-wave runup so no further evaluation is required. Otherwise, the FLEX strategy, as designed, can be successfully executed since:

- All FLEX equipment is stored, and therefore protected, at above elevation 602-ft MSL (Reference 12);
- All equipment relied on for the FLEX Strategy below elevation 600-ft MSL is located within Safety-Related Buildings passively protected from flooding by reinforced concrete curbs or steel barriers (UFSAR 2.4.2.3);
- All manual actions and haul routes are located at and above grade elevation 600-ft MSL (UFSAR 2.4.2.3); and
- All FLEX connection points at or below elevation 600-ft MSL are within a Safety-Related Buildings passively protected from flooding by reinforced concrete curbs or steel barriers (UFSAR 2.4.2.3).

Reference 2, Enclosure 2 also satisfies the performance criteria for flood protection in Section G.5 of NEI 12-06, Rev 2, Appendix G (Reference 9), including below-grade walls and seals, for FLEX equipment, connection points, etc. located below elevation of 600-ft MSL. As indicated in Reference 2, Enclosure 2, the CDB for BNPS assumes a groundwater level at plant grade. Adequacy of below-grade CDB plugs and penetration seals were addressed with the NTTF Recommendation 2.3 Flooding Walkdowns (Reference 15 & 16).

6.2 Conclusions

FLEX was designed for BNPS's CDB LIP flood, which bounds the MSFHI for LIP. Site topography, cooling pond dike, and other features (discussed above) protect the plant and FLEX strategy from being impacted by non-bounding flood hazards associated with the Mazon River and Cooling Pond. Therefore, the current FLEX strategies can be successfully deployed as designed for all applicable flood-causing mechanisms and no further actions, including modifications to FLEX, are required.

7 References

- NRC Letter, Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident; dated March 12, 2012.
- Exelon Generation Company, LLC Letter to USNRC, Response to March 12, 2012 Request for Information Enclosure 2, Recommendation 2.1, Flooding, Required Response 2, Flooding Hazard Reevaluation Report, dated March 12, 2014 (RS-14-052)
- 3. Exelon Generation Company, LLC Letter to USNRC, Response to Request for Additional Information Regarding Fukushima Lessons Learned Flood Hazard Reevaluation Report, dated July 14, 2014 (RS-14-194).
- 4. Exelon Generation Company, LLC Letter to USNRC, Supplemental Response to Request for Additional Information Regarding Fukushima Lessons Learned Flood Hazard Reevaluation Report, dated February 17, 2015 (RS-15-050).
- 5. Exelon Generation Company, LLC Letter to USNRC, Response to Request for Additional Information Regarding Fukushima Lessons Learned Flood Hazard Reevaluation Report, dated June 24, 2015 (RS-15-112).
- 6. NRC Letter, Supplemental Information Related to Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) regarding Flooding Hazard Reevaluations for Recommendation 2.1 of the Near Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated March 1, 2013.
- 7. NRC Staff Requirements Memoranda to COMSECY-14-0037, "Integration of Mitigating Strategies for Beyond-Design-Basis External Events and the Reevaluation of Flooding Hazards", dated March 30, 2015.
- 8. NRC Letter, Coordination of Requests for Information Regarding Flooding Hazard Reevaluations and Mitigating Strategies for Beyond-Design-Basis External Events, dated September 1, 2015.
- 9. Nuclear Energy Institute (NEI), Report NEI 12-06 [Rev 2], Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, dated December 2015.
- U.S. Nuclear Regulatory Commission, JLD-ISG-2012-01, Revision 1, Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigating Strategies for Beyond-Design-Basis External Events, dated January 22, 2016 [Effective February 29, 2016 per Federal Register / Vol. 81, No. 39].
- 11. NRC Letter to Exelon, "Braidwood Station, Unit 1 and 2 Interim Staff Response to Reevaluated Flood Hazards Submitted in Response to 10 CFR 50.54(f) Information Request - Flood-Causing Mechanisms Reevaluation (TAC NOS. MF3895 and MF3896), dated September 3, 2015 (ADAMS ML16091A091).

- 12. CC-BR-118-1001, REV. 01 "Site Implementation of Diverse and Flexible Coping Strategies (FLEX) and Spent Fuel Pool Instrumentation Program".
- 13. U.S Army Corps of Engineers, Detroit District, Great Lakes Water Levels website, available at <u>http://w3.lre.usace.army.mil/hh/GreatLakesWaterLevels/GLWL-CurrentMonth-Feet.pdf</u>, accessed June 2016.
- 14. Drawing A-512, Rev. AM "Lake Screen House Floor Plan EL. 602-10 Area 1."
- 15. Exelon Generation Company, LLC Letter to USNRC, Response to NRC Request for Information Pursuant to 10CFR 50.54(f) Regarding the Flooding Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated November 27, 2012 (RS-12-160).
- 16. Exelon Generation Company, LLC Letter to USNRC, Supplemental Response to NRC Request for Information Pursuant to 10CFR 50.54(f) Regarding the Flooding Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated January 13, 2014 (RS-14-005).