Exelon Generation®

10 CFR 50.54(f)

RS-12-164

November 27, 2012

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Subject: Exelon Generation Company, LLC's 180-day Response to NRC Request for Information Pursuant to 10 CFR 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

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
2. NRC Letter, Endorsement of Nuclear Energy Institute (NEI) 12-07, "Guidelines For Performing Verification Walkdowns of Plant Flood Protection Features," dated May 31, 2012
3. Exelon Generation Company, LLC's 90-day Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendations 2.1 and 2.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident (Flooding), dated June 11, 2012

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued Reference 1 to all power reactor licensees. Enclosure 4 of Reference 1 contains specific Requested Actions, Requested Information, and Required Responses associated with Recommendation 2.3 for Flooding. On June 11, 2012, Exelon Generation Company, LLC (EGC) submitted the 90-day response requested in Enclosure 4 of Reference 1, confirming that EGC would use the NRC-endorsed flooding walkdown procedure (Reference 3).

For flooding Recommendation 2.3 (walkdowns), Enclosure 4 of Reference 1 states that within 180 days of the NRC's endorsement of the walkdown process (Reference 2), each addressee will submit a final response, including a list of any areas that are unable to be inspected due to inaccessibility and a schedule for when the walkdown will be completed. This letter provides the LaSalle County Station, Units 1 and 2 180-day response to Reference 1 for Flooding Recommendation 2.3.

Conditions identified during the walkdowns were documented and entered into the corrective action program.

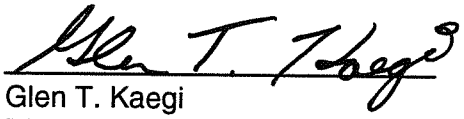
Enclosure 1 to this letter provides the requested information for LaSalle Station Units 1 and 2.

This letter contains new regulatory commitments, which are identified in Enclosure 2.

Should you have any questions concerning the content of this letter, please contact Ron Gaston at (630) 657-3359.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 27th day of November 2012.

Respectfully,



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

Enclosures:

1. Flooding Walkdown Report In Response To The 50.54(f) Information Request Regarding Near-Term Task Force Recommendation 2.3: Flooding for the LaSalle County Station, Units 1 and 2

2. Summary of Regulatory Commitments

cc: Director, Office of Nuclear Reactor Regulation
Regional Administrator - NRC Region III
NRC Senior Resident Inspector – LaSalle Units 1 and 2
NRC Project Manager, NRR – LaSalle Units 1 and 2
Illinois Emergency Management Agency - Division of Nuclear Safety

Enclosure 1

Flooding Walkdown Report In Response To The 50.54(f) Information Request Regarding Near-Term Task Force Recommendation 2.3: Flooding for the LaSalle County Station, Units 1 and 2

(47 pages)

FLOODING WALKDOWN REPORT

IN RESPONSE TO THE 50.54(f) INFORMATION REQUEST REGARDING NEAR-TERM TASK FORCE RECOMMENDATION 2.3: FLOODING

for the

LASALLE COUNTY NUCLEAR POWER STATION

2601 North 21st Road, Marseilles, IL 61341

Facility Operating License Nos. NPF-11 (Unit 1) and NPF-18 (Unit 2)
NRC Docket Nos. STN 50-373 (Unit 1) and 50-374 (Unit 2)

Exelon Generation Company, LLC
300 Exelon Way, Kennett Square, PA 19348

Prepared by:
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November 6, 2012

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1. EXECUTIVE SUMMARY

In response to the nuclear fuel damage at the Fukushima-Dai-ichi power plant due to the March 11, 2011 earthquake and subsequent tsunami, the United States Nuclear Regulatory Commission (NRC) established the Near Term Task Force (NTTF) to conduct a systematic review of NRC processes and regulations, and to make recommendations to the Commission for its policy direction. The NTTF reported a set of recommendations that were intended to clarify and strengthen the regulatory framework for protection against natural phenomena.

On March 12, 2012, the NRC issued an information request pursuant to Title 10 of the Code of Federal Regulations, Section 50.54 (f) (10 CFR 50.54(f) or 50.54(f)) (Reference 3) which included Enclosure 4 of Reference 3. The NRC requested that licensees perform flood protection walkdowns to identify and address plant-specific degraded, nonconforming, or unanalyzed conditions and cliff-edge effects (through the corrective action program) and verify the adequacy of monitoring and maintenance procedures.

This report provides the information requested in the March 12, 50.54(f) letter for LaSalle County Station (LSCS); specifically, the information listed under the 'Requested Information' section of Enclosure 4, paragraph 2 ('a' through 'h').

LSCS site is located in the southeastern part of LaSalle County in north central Illinois, 6 miles southeast of Marseilles, Illinois, 3 miles west of State Highway 170, and 0.5 mile north of the Grand Ridge-Mazon Road (LaSalle County Highway 6). The Illinois River is located approximately 5 miles north of the site. The probable maximum flood (PMF) at LaSalle is based on a 24-hour local intense precipitation (LIP) event directly on the site. The maximum flood elevations due to an LIP event at the site are 710.41 feet and 710.48 mean sea-level (MSL), based on location at the plant site.

LSCS current licensing basis reports, calculations and drawings were obtained through LSCS personnel and Exelon's Electronic Document Management System (EDMS). Those documents were compiled and reviewed to understand the flooding related current licensing basis (CLB), general plant layout and functionality, and to develop a list of flood protection features to be evaluated during the walkdown.

Flooding walkdowns were performed between August 10 and September 14, 2012, based on guidance provided in Nuclear Energy Institute (NEI) document NEI 12-07 [Rev. 0-A] (Reference 2). Observations captured during the walkdowns were documented on paper copies of the Walkdown Record Form provided in Appendix B of NEI 12-07 (Rev 0-A). Pictures were taken of each flood protection feature and associated deficiency, if applicable. Select features were surveyed to assess Available Physical Margin (APM).

One hundred eighty-five (185) features were included on the walkdown list. All of these features were considered incorporated passive. Thirty (30) features could not be immediately judged as acceptable during the flooding walkdown. Thirty-three (33) features were in areas considered to be restricted access and were deferred to outage or when the areas would be opened. Eight (8) features were considered inaccessible.

Five (5) deficiencies were identified during the walkdown. Note that three (3) of these deficiencies were for features not on the walkdown list, because they were originally surveyed for Available Physical Margin (APM) only. Two (2) penetration seals were observed to be in a condition that could not be immediately judged as acceptable and the Corrective Action Program (CAP) process determined they were deficiencies. Three (3) exterior doors had thresholds that were identified as being lower than the calculated flood elevation. These three door thresholds were considered deficient in the CAP process. No conditions were found that challenged plant safety or operability.

2. PURPOSE

a. Background

In response to the nuclear fuel damage at the Fukushima-Dai-ichi power plant due to the March 11, 2011 earthquake and subsequent tsunami, the United States Nuclear Regulatory Commission (NRC) established the Near Term Task Force (NTTF) to conduct a systematic review of NRC processes and regulations, and to make recommendations to the Commission for its policy direction. The NTTF reported a set of recommendations that were intended to clarify and strengthen the regulatory framework for protection against natural phenomena.

On March 12, 2012, the NRC issued an information request pursuant to Title 10 of the Code of Federal Regulations, Section 50.54 (f) (10 CFR 50.54(f) or 50.54(f)) (Reference 3) which included six (6) enclosures:

- [NTTF] Recommendation 2.1: Seismic
- [NTTF] Recommendation 2.1: Flooding
- [NTTF] Recommendation 2.3: Seismic
- [NTTF] Recommendation 2.3: Flooding
- [NTTF] Recommendation 9.3: EP
- Licensees and Holders of Construction Permits

In Enclosure 4 of Reference 3, the NRC requested that licensees 'perform flood protection walkdowns to identify and address plant-specific degraded, nonconforming, or unanalyzed conditions and cliff-edge effects (through the corrective action program) and verify the adequacy of monitoring and maintenance procedures'. (See note below regarding 'cliff-edge effects'.)

Structures, systems, and components (SSCs) important to safety are designed either in accordance with, or meet the intent of, Appendix A to 10 CFR Part 50, General Design Criteria (GDC) 2. GDC 2 states that SSCs important to safety at nuclear power plants must be designed to withstand the effects of natural phenomena, including floods, without loss of capability to perform their intended safety functions. For flooding walkdowns, identifying/addressing plant-specific degraded, nonconforming, or unanalyzed conditions (through the corrective action program) and verifying the adequacy of monitoring and maintenance procedures is associated with flood protection and mitigation features credited in the current design/licensing basis. New flood hazard information will be considered in response to Enclosure 2 of Reference 3.

On behalf of Exelon Generation Company, LLC (Exelon), this report provides the information requested in the March 12, 50.54(f) letter; specifically, the information listed under the 'Requested Information' section of Enclosure 4, paragraph 2 ('a' through 'h'). The 'Requested Information' section of Enclosure 4, paragraph 1 ('a' through 'j'), regarding flooding walkdown procedures, was addressed via Exelon's June 11, 2012, acceptance (Reference 1) of the industry walkdown guidance (Reference 2).

Note Regarding Cliff-Edge Effects

Cliff-edge effects were defined by the NTTF Report (Reference 5), which noted that 'the safety consequences of a flooding event may increase sharply with a small increase in the flooding level'. While

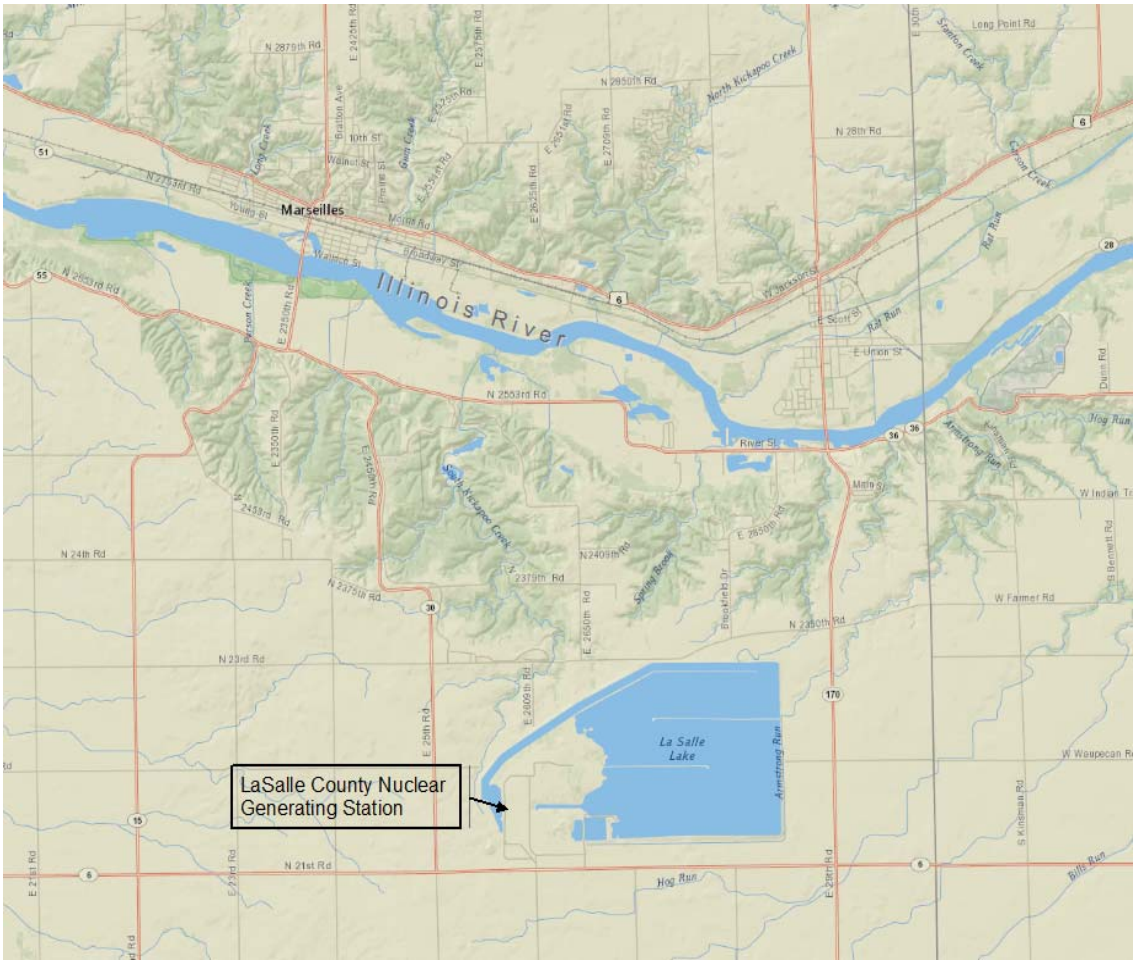
the NRC used the same term as the NTTF Report in the March 12 50.54(f) information request (Reference 3), the information the NRC expects utilities to obtain during the Recommendation 2.3: Flooding Walkdowns is different. To clarify, the NRC is now differentiating between cliff-edge effects (which are dealt with under Enclosure 2 of Reference 3) and a new term, Available Physical Margin (APM). APM information will be collected during the walkdowns, but will not be reported in the response to Enclosure 4 of Reference 3. The collected APM information will be available for use in developing the response to Enclosure 2 of Reference 3.

b. Site Description

LSCS is located in the southeastern part of LaSalle County in north central Illinois, 6 miles southeast of Marseilles, Illinois, 3 miles west of State Highway 170, and 0.5 mile north of the Grand Ridge-Mazon Road (LaSalle County Highway 6). The Illinois River is located approximately 5 miles north of the site.

The LSCS site is located in the Illinois River basin, which is drained by the main stem of the Illinois River and its tributaries, including the canal system in the Chicago area. The Illinois River is the largest tributary of the Mississippi River above the mouth of the Missouri River. It flows in a westerly, southwesterly, and southerly direction a distance of 273 miles to its confluence with the Mississippi River.

The natural drainage area of the Illinois River is 28,200 square miles, including 1,000 square miles in Wisconsin and 3,200 square miles in Indiana. Diversions from the Lake Michigan watershed by reversal of the flow of the Chicago and Calumet Rivers increase the natural drainage area of the Illinois River from 28,200 square miles to 29,010 square miles. The drainage area of the Illinois River near the LSCS site is 7,640 square miles.



The LSCS site geology is divided into a large southern gently rolling upland portion containing the plant buildings and cooling lake and a small portion to the north, in the Illinois River valley, containing the intake works. The maximum topographic relief between the two parts is about 250 feet.

The LSCS site occupies approximately 3,060 acres, of which 2,058 acres comprise the cooling lake. The terrain around the plant site is gently rolling, with ground surface elevations varying from 700 feet to 724 feet MSL. Natural drainage at the station site is generally toward the cooling lake.

The LSCS site is a two unit site. Construction began in 1973 for Unit 1 and in 1972 for Unit 2. Units 1 and 2 were licensed for commercial operation in 1982 and 1984, respectively. The plant grade and floor elevations are 710.00 feet and 710.50 feet MSL respectively.

Per the CLB documentation, three main flooding mechanisms were considered at LSCS: A PMF with wave run-up on the Illinois River, a probable maximum precipitation (PMP) event on the cooling lake with wave run-up, and LIP directly on the site.

The PMF elevation of the Illinois River plus 40-mph overland wind generated wave run-up is 522.5 feet MSL, 188 feet below the plant grade elevation.

The PMF elevation on the cooling pond including 40-mph overland wind generated wind wave run-up is 705.6 feet MSL, 4.9 feet below plant grade elevation.

The PMF maximum flood elevation due to LIP listed in the Updated Final Safety Analysis Report (UFSAR) is 710.41 feet MSL. A PMF flood elevation due to LIP of 710.48 feet MSL was computed in the northeast portion of Zone I in Design Calculation S-66, but that elevation has not been incorporated into the UFSAR. This issue was captured in an issue report in the Corrective Action Program as described later in this report in the Results section, subsection f. Therefore, the maximum flood elevation of 710.48 feet MSL computed in Calculation S-66 was used for three features in the northeast portion of the plant. The flooding elevation of 710.41 feet MSL documented in the UFSAR was used to evaluate the remainder of the features.

The CLB documentation states that since there are no large bodies of water in the immediate vicinity of the site, storm surges, seiches, and tsunami floods are not relevant. Failure of upstream dams on the Illinois River or its tributaries is also not relevant, since these are low dams for navigation and hydropower generation, and their failure would not exceed the severity of the PMF on the Illinois River. Failure of the cooling lake dikes would not cause flooding of the plant due to the natural topography around the site.

c. Requested Actions

Per Enclosure 4 of Reference 3, the NRC requests that each licensee confirm use of the industry-developed, NRC-endorsed, flood walkdown procedures or provide a description of plant-specific walkdown procedures. In a letter dated June 11, 2012 (Reference 1), Exelon confirmed that the flooding walkdown procedure (Reference 2), endorsed by the NRC on May 31, 2012, will be used as the basis for the flooding walkdowns.

Other NRC requested actions include:

(1) Perform flood protection walkdowns using an NRC-endorsed walkdown methodology;

(2) Identify and address plant-specific degraded, nonconforming, or unanalyzed conditions, as well as cliff-edge effects through the corrective action program, and consider these findings in the Recommendation 2.1 hazard evaluations, as appropriate;

(3) Identify any other actions taken or planned to further enhance the site flood protection;

(4) Verify the adequacy of programs, monitoring and maintenance for protection features; and

(5) Report to the NRC the results of the walkdowns and corrective actions taken or planned.

Enclosure 4 of Reference 3 also states, 'If any condition identified during the walkdown activities represents a degraded, nonconforming, or unanalyzed condition (i.e. noncompliance with the current licensing basis) for an SSC, describe actions that were taken or are planned to address the condition using the guidance in Reference 6, including entering the condition in the corrective action program. Reporting requirements pursuant to 10 CFR 50.72 should also be considered.

d. Requested Information

Per Enclosure 4 of Reference 3,

1. The NRC requests that each licensee confirm that it will use the industry-developed, NRC endorsed, flooding walkdown procedures or provide a description of plant-specific walkdown procedures. As indicated previously, Exelon's letter dated June 11, 2012 (Reference 1), confirmed that the flooding walkdown procedure (Reference 2), endorsed by the NRC on May 31, 2012, will be used as the basis for the flooding walkdowns.

2. The NRC requests that each licensee conduct the walkdown and submit a final report which includes the following:
    a. Describe the design basis flood hazard level(s) for all flood-causing mechanisms, including groundwater ingress.
    b. Describe protection and mitigation features that are considered in the licensing basis evaluation to protect against external ingress of water into SSCs important to safety.
    c. Describe any warning systems to detect the presence of water in rooms important to safety.
    d. Discuss the effectiveness of flood protection systems and exterior, incorporated, and temporary flood barriers. Discuss how these systems and barriers were evaluated using the acceptance criteria developed as part of Requested Information item 1.h.
    e. Present information related to the implementation of the walkdown process (e.g., details of selection of the walkdown team and procedures,) using the documentation template discussed in Requested Information item 1.j, including actions taken in response to the peer review.
    f. Results of the walkdown including key findings and identified degraded, nonconforming, or unanalyzed conditions. Include a detailed description of the actions taken or planned to address these conditions using the guidance in Regulatory Issues Summary 2005-20, Revision 1, Revision to NRC Inspection Manual Part 9900 Technical Guidance, "Operability Conditions Adverse to Quality or Safety," including entering the condition in the corrective action program.
    g. Document any cliff-edge effects identified and the associated basis. Indicate those that were entered into the corrective action program. Also include a detailed description of the actions taken or planned to address these effects. See note in Section 12 regarding the NRC's change in position on cliff-edge effects.
    h. Describe any other planned or newly installed flood protection systems or flood mitigation measures including flood barriers that further enhance the flood protection. Identify results and any subsequent actions taken in response to the peer review.

3. METHODOLOGY

a. Overview of NEI 12-07 (Walkdown Guidance)

In a collaborative effort with NRC staff, NEI developed and issued report 12-07 [Rev 0-A], *Guidelines for Performing Verification Walkdowns of Plant Protection Features*, dated May 2012 (Reference 2). The NRC endorsed NEI 12-07 on May 31, 2012 with amendments. NEI 12-07 was updated to incorporate the amendments and re-issued on June 18, 2012. On June 11, 2012, Exelon issued a letter to the NRC (Reference 1) stating that the endorsed flooding walkdown procedure (Reference 2) will be used as the basis for the flooding walkdowns. NEI 12-07 provides guidance on the following items:

- Definitions
    - Incorporated Barrier/Feature
    - Temporary Barrier/Feature
    - Exterior Barrier/Feature
    - Current Licensing Basis (CLB)

  - Design Bases
  - Inaccessible
  - Restricted Access
  - Deficiency
  - Flood Protection Features
  - Reasonable Simulation
  - Visual Inspection
  - Cliff-Edge Effects
  - Available Physical Margin
  - Variety Of Site Conditions
  - Flood Duration
- Scope
  - Basis for Establishing Walkdown Scope
  - Identify Flood Protection Features (Walkdown List)
- Methodology
  - Develop Walkdown Scope
  - Prepare Walkdown Packages
  - Walkdown Team Selection and Training
  - Perform Pre-Job Briefs
  - Inspection of Flood Protection And Mitigation Features
    - General
    - Incorporated or Exterior Passive Flood Protection Features
    - Incorporated or Exterior Active Flood Protection Features
    - Temporary Passive Flood Protection Features
    - Temporary Active Flood Protection Features
    - Procedure Walk-through and Reasonable Simulation
  - Review of The Maintenance and Monitoring of Flood Protection Features
  - Review of Operating Procedures
  - Documentation of Available Physical Margins
  - Documenting Possible Deficiencies
  - Restricted Access, or Inaccessible
- Acceptance Criteria
- Evaluation and Reporting Results of The Walkdown
- Related Information Sources
- Examples
- Walkdown Record Form
- Sample Training Content
- Walkdown Report

b. Application of NEI 12-07

Exelon's approach to the flooding walkdowns included three phases:

Phase 1 – Preparation, Training, Data Gathering, and Scoping

Phase 2 – Inspections

Phase 3 – Final Reporting

The purpose of Phase 1 was to obtain a clear understanding of the site's flood mitigation strategy; develop scope, methodology, and acceptance criteria for the walkdowns; and logistical planning. The following activities were performed during Phase 1:

- Data gathering (CLB documents and plant drawings);
- Site visit to preview features and plant conditions;
- Desktop review of CLB documents to identify and describe the CLB flood hazard;
- Desktop review of CLB documents to identify and describe flood protection/mitigation strategy;
- Development of Walkdown List;
- Development of Walkdown methodology and acceptance criteria;
- Logistics and strategy planning; and
- Preparation of Walkdown Packages.

The purpose of Phase 2 was to execute the Flooding Walkdown for LSCS, which included:

- Visual inspection;
- Collect APM survey data; and
- Documentation of observations.

The Flooding Walkdown activities for LSCS involved visual inspections of the following feature types:

1. Site drainage plan/flow paths
2. Exterior walls below grade
3. Exterior wall penetration seals below grade
4. Roofs
5. Basement Floor Slabs
6. Ground floor exterior access doors, openings, and removable wall panel thresholds – APM survey only

All visual inspections of features were recorded in the field to document condition assessments. For each observation, the feature location, photographs with descriptions, and general observations were recorded. The field data was uploaded to a database. The database was used to generate the Walkdown Record Form for each feature/procedure. The Walkdown Record Form provided in NEI 12-07 (Rev. 0-A), Appendix B was used to document the collected field data and results of the Flooding Walkdown for both the field data collection and the final form in support of this report.

In addition, ground floor access door thresholds, removable wall panels, and the radioactive waste loading dock were surveyed to determine their finish floor elevations. This information was also used for the APM analysis.

This Walkdown Report was developed to document the methodology and findings of the Flooding Walkdowns. The Walkdown Report was prepared in accordance with the template provided in NEI 12-07 (Rev. 0-A), Appendix D.

c. Reasonable Simulations

Flood mitigation procedures are not relied upon for flood protection at LSCS; therefore, reasonable simulations are not part of this flooding walkdown.

d. Walkdown Inspection Guidance

A 'Walkdown Inspection Guidance' was developed by Exelon to supplement NEI 12-07 (Reference 2), based largely on Appendix A of NEI 12-07 (Examples). The guidance was intended to supplement, not supersede, NEI 12-07 and provide inspection guidance for specific features, listed below.

- Incorporated or Exterior Passive Features:
  - Site Elevations and Topography
  - Earthen Features (i.e., Flood Protection Berm, Dike, Levee)
  - Concrete and Steel Structures
  - Wall, Ceiling, and Floor Seals (e.g. Penetration Seals, Cork Seals)
  - Passive Flood Barriers or Water Diversion Structures
  - Drains and Catch Basins
  - Plugs and Manhole Covers
  - Drainage Pathways (Swales, Subsurface Drainage System, etc.)
  - Piping and Cable Vaults and Tunnels, Electrical Cable Conduit
  - Floor Hatches
  - Flap Gate/Backwater Valve/Duckbill Valve
  - Flood Wall
- Incorporated or Exterior Active Features:
  - Credited Water Tight Doors
  - Credited Non-Watertight Doors
  - Pumps
  - Water Level Indication
  - Gate Valves
- Temporary Passive Features:
  - Portable Flood Barriers and Inflatable Rubber Seals
  - Flood Gate
- Temporary Active Feature
  - Pumps

4. RESULTS

The information requested in Reference 3, Enclosure 4, under paragraph 2 of the 'Requested Information' section, is provided below. The contents of each item were developed in accordance with Reference 2, Appendix D.

a. Requested Information Item 2(a) – Design Basis Flood Hazards

Describe the design basis flood hazard level(s) for all flood-causing mechanisms, including groundwater ingress.

Three main flooding mechanisms were considered in the LSCS UFSAR Revision 19: A probable maximum flood (PMF) plus 40-mph overland wind generated wave run-up on the Illinois River, a probable maximum precipitation (PMP) event on the cooling lake with wave run-up, and an LIP rainfall event directly on the site.

PMF on the Illinois River

The station is "floodproof" or "dry" with regard to a postulated PMF in the Illinois River, since the plant floor (elevation 710.50 feet MSL) is 188 feet higher than the PMF plus wave run-up (elevation of 522.5 feet MSL), which includes the maximum (1%) wave characteristics of sustained 40-mph overland winds on the probable maximum water level.

The U.S. Army Corps of Engineers (USACE) extrapolated a PMF discharge of 316,000 cubic feet per second (cfs) at LSCS corresponding to a drainage area of 7,640 square miles from PMF discharges computed at gaging stations at Meredosia, Beardstown, and Peoria, Illinois along the Illinois River. Allowing for the effect of urbanization, a conservative maximum discharge of 350,000 cfs was used for the PMF analysis.

The PMF discharge was routed through cross-section geometry developed from topographic data and soundings of the lllinois River channel obtained by the USACE. Using the slope-area method, a PMF Stillwater elevation in the Illinois River in the vicinity of LSCS was estimated to be 521.8 feet MSL. Wind wave characteristics corresponding to 40 miles per hour overland winds were investigated yielding a height of maximum wave run-up of 0.7 feet. Adding this value to the PMF Stillwater level of 521.8 feet MSL yielded a probable maximum wave run-up elevation of 522.5 feet MSL, which is 188 feet below the plant floor elevation of 710.50 feet MSL. A postulated PMF on the Illinois River, therefore, does not affect any safety-related facility.

PMP Event on the Cooling Lake with Wave Run-Up

A PMF with antecedent standard project flood (SPF) was routed through the lake using the U.S. Army Hydrologic Engineering Center's computer program 22-J2-L210, "Spillway Rating and Flood Routing", 1966. Inputs to the program consist of the elevation capacity data derived from topographic maps of the area. The initial water level used for routing is the normal lake level of 700.0 feet MSL. The program calculated the outflow from the lake for the auxiliary spillway, which has a crest elevation of 702.5 feet MSL and for the service spillway, which has a crest elevation of 697.75 feet MSL. The service spillway directs lake water into the blowdown line to the Illinois River. The maximum lake level corresponding to the SPF is 701.6 feet MSL, which is lower than the auxiliary spillway crest elevation.

When the SPF is followed by the PMF, with three rainless days between the standard project storm (SPS) and the PMP, the lake level varies from a maximum of 701.6 feet MSL during SPF to 701.0 feet MSL before the rise due to PMF, and to a maximum stillwater elevation of 704.3 feet MSL during PMF.

Maximum wave run-up associated with 40-mph overland winds coincident with the PMF at the plant site is computed to be 1.3 feet. The wave run-up elevation obtained by adding the wave run-up to the probable maximum water level is 705.6 feet MSL. Since the plant grade and floor elevations are 710.00 feet and

710.50 feet MSL respectively, there is no flooding at the plant due to 40-mph overland winds coincident with the probable maximum water level in the lake.

Local Intense Precipitation (LIP) Analysis

The 24-hour PMP at the site is 32.1 inches. To route the runoff from the rainfall over the plant area, the 24-hour PMP is divided into smaller time intervals. For example, 14.8 inches of precipitation is postulated to fall in the first hour of the storm. Conservatively, infiltration losses were considered negligible, the site drainage system was assumed not functioning, and the precipitation falling on different portions of the site area was assumed to reach the peripheral roads simultaneously. The rational formula was used to estimate peak runoff.

The plant area was divided into two zones, Zone I and Zone II. The maximum runoff from each of the zones was routed over the peripheral roads and railroads to obtain the maximum water surface elevation upstream of the peripheral roads and railroads. Culverts running under these roads and railroads were assumed to be fully blocked.

The peak runoff for Zone I was calculated to be 1,065 cfs. The backwater calculations beginning from the peripheral roads and railroads yielded a water surface elevation of 710.18 feet MSL upstream of the north-south access road and a maximum water surface elevation of 710.37 feet MSL near the east side of the plant building in Zone I.

For Zone II, a step-backwater analysis was performed using the U.S. Corps of Engineers Hydrologic Engineering Centers River Analysis System (HEC-RAS) computer program. The peak discharge at Track No. 1 is 692.5 cfs. Based on the UFSAR, the backwater model results in a water surface elevation of 710.16 feet MSL at Track No. 1 and less than 710.41 feet MSL adjacent to the east side of the plant.

The UFSAR reports the PMP maximum flood elevation of 710.41 feet MSL. That flood elevation was used for all but three features. A PMF flood elevation of 710.48 feet MSL was computed in the northeast portion of Zone I in Design Calculation S-66, but that elevation has not been incorporated into the UFSAR. This issue is discussed later in this report in the Results section, subsection f. Three features (exterior access doors D-164, D-20 and D-508) are in the vicinity of where 710.48 feet MSL was computed, and are the only features that are materially affected by the discrepancy. Therefore, elevation 710.48 feet MSL was used as the flood elevation to evaluate those doors.

Other Flooding Mechanisms

The CLB documentation states that since there are no large bodies of water in the immediate vicinity of the site, storm surges, seiches, and tsunami floods are not relevant. Failure of upstream dams on the Illinois River or its tributaries is also not relevant, since these are low dams for navigation and hydropower generation, and their failure would not exceed the severity of the PMF on the Illinois River. Failure of the cooling lake dikes would not cause flooding of the plant due to the natural topography around the site.

Section 2.4.13.5 of the LSCS UFSAR states that the groundwater level assumed for calculation of hydrostatic loading on the power plant foundations is elevation 700.00 feet MSL, which is equivalent to the design cooling lake level. The design groundwater level is based on the assumption that granular fill around the plant foundations will be hydraulically connected with the cooling lake through the granular fill around the intake pipelines. The groundwater level in the granular fill around the plant foundations would reflect the cooling lake level.

The UFSAR states that the granular fill around the plant foundations is covered with 20 feet of essentially impermeable, compacted clay. In addition, the surrounding clayey till is also essentially impermeable. Due to the compacted clay cover and clayey till, it is expected that infiltration of precipitation and groundwater seepage would likely be minimal.

PMF Conclusion

For the flooding walkdowns, the critical CLB hazard considered was the LIP. The maximum flood elevation of 710.48 feet MSL computed in Calculation S-66 was used for three features in the northeast portion of the plant. The flooding elevation of 710.41 feet MSL documented in the UFSAR was used to evaluate the remainder of the features.

b. Requested Information Item 2(b) – CLB Protection and Mitigation Features

Describe protection and mitigation features that are considered in the licensing basis evaluation to protect against external ingress of water into SSCs important to safety.

The flood protection features credited in the CLB for LSCS are considered incorporated passive. The features are located in the Auxiliary, Diesel Generator, Reactor, Turbine, Off-gas, Lake Screen House and Radioactive Waste Buildings. The features include:

1. Site drainage plan/flow paths
2. Exterior walls below grade - Exterior walls to grade level are sealed with a waterproof membrane. Exterior construction joints are sealed with waterstops to grade level
3. Exterior wall penetration seals below grade
4. Roofs
5. Basement Floor Slabs
6. Ground floor exterior access doors, openings, and removable wall panel thresholds – Performed survey for APM analysis only

The PMF flood elevation is based on a 24-hour rain event; however the CLB does not identify flood duration. Therefore, the duration of the flooding was not considered for this evaluation.

Exterior walls and penetration seals are designed to protect against groundwater ingress. DBD-LS-M11 Rev B states that external walls below grade elevation are required to be covered with a waterproof membrane. In addition, all exterior construction joints are sealed with waterstops to grade level and pipe penetrations in exterior walls are required to have watertight penetration sleeves. The CLB does not specifically credit floor slabs for providing protection from groundwater ingress, although they are designed to resist full hydrostatic uplift pressures.

The Lake Screen House is affected by static and dynamic consequences of wave activity. The walls of the Lake Screen House are designed to withstand hydrodynamic forces caused by wind wave run-up superimposed on hydrostatic forces. The Lake Screen House walls were included in the walkdown list.

The flooding CLB does not specify plant configurations during certain modes of operation. Therefore, all modes of operation were considered during the walkdown.

Flood mitigation procedures are not relied upon for flood protection at LSCS, and there are no warning systems for weather conditions or flood levels present at the plant.

During an LIP, shallow flooding due to sheet flow could occur north and west of the plant buildings. Surface conditions could become soft (i.e. muddy) where ground cover is grass and soil. Both of these conditions could make moving equipment and foot traffic challenging. However, because procedures are not part of the LSCS CLB, and the flood protection strategy consists of incorporated passive features only, these adverse conditions have no impact on the performance of flood protection features.

c. Requested Information Item 2(c) – Flood Warning Systems

Describe any warning systems to detect the presence of water in rooms important to safety.

There are no systems in place credited with detecting the occurrence of or providing warning in the event of an external flood event. This is in agreement with the requirements of the current flooding licensing basis.

d. Requested Information Item 2(d) – Flood Protection System/Barrier Effectiveness

Discuss the effectiveness of flood protection systems and exterior, incorporated, and temporary flood barriers. Discuss how these systems and barriers were evaluated using the acceptance criteria developed as part of Requested Information Item 1.h [in Enclosure 4 of the March 12, 2012, 50.54(f) letter]

Section 6 of NEI 12-07 defines 'acceptance' as:

> *"Flood protection features are considered acceptable if no conditions adverse to quality were identified during walkdowns, verification activities, or program reviews as determined by the licensee's Corrective Action Program. Conditions adverse to quality are those that prevent the flood protection feature from performing its credited function during a design basis external flooding event and are 'deficiencies'. Deficiencies must be reported to the NRC in the response to the 50.54(f) letter."*

As indicated in Section 3d, inspection guidance was developed, supplementing NEI 12-07, to provide more specific criteria for judging acceptance. All observations that could not be immediately judged as acceptable were entered into the site's Corrective Action Program (CAP) where a subsequent evaluation of the observation could be made.

The purpose of the Flooding Walkdowns was to determine if the plant's credited external flood protection features conform to the LSCS CLB and meet the acceptance criteria outlined in Section 6 of NEI 12-07 and the Supplemental Walkdown Inspection Guidance. The CLB credits plant exterior walls and wall penetration seals below grade for providing protection against external flooding ingress into the plant. Site topography and above ground drainage pathways are credited for providing drainage for the site. The CLB also credits roofs of Seismic Category I structures for supporting loads that equate to a maximum depth of 16 inches of water stored on the roof surface. Finally, the CLB credits the Lake Screen House exterior walls exposed to the lake for withstanding static and dynamic loads caused by wave run-up from the cooling pond. In addition to the flood protection features discussed in the CLB, basement floor slabs were also walked down. The acceptance criteria for each of the flood protection feature types are as follows:

- Site Elevations and Topography
    - Verify the current site topography (i.e. contours, slopes, and grades) appears to be consistent with the topography assumed in the CLB flood evaluation, based on field observations.
    - Verify that the plant configuration with regard to impervious areas assumed in the CLB evaluation has not changed.
    - Verify that the site drainage system configuration appears to be consistent with CLB evaluation.
    - Verify that there are no added structures, security barriers, fences, etc., not shown on the design drawings used in the CLB flooding evaluation that could affect site drainage.
- Drainage Pathways (Swales and Channels)
    - Verify the feature is in place and configured as designed.
    - Visually inspect the material condition to determine if there is any damage that might prevent the feature from performing its flood protection function.
    - Verify that the plant drainage swales are free of obstructions that could prevent the feature from performing the flood protection function and controls are in place to assure they remain free from obstruction.
- Concrete Exterior Walls
    - Verify that the structure is in place and in accordance with its design configuration, per plant documents. The level of verification here would be to determine that there are no openings that are not shown on the drawings and the openings are of the same shape and location as shown on the design drawings. If a wall structure, perform physical measurement to confirm the required height. The minimum required height must be met with no allowance for dimensional tolerance.
    - Visually inspect all exterior exposed surfaces below the analyzed maximum flood height for significant indications of structural degradation or any openings that might permit flooding of the interior spaces.
    - Visible penetrations are sealed.
    - Required relief paths are in place and unobstructed.
    - No signs of water ingress on interior surfaces (e.g. calcification, staining, etc.).
    - If conditions will not allow close examination, use of binoculars is permitted if 100% of the surface area below the maximum flood height can be inspected in a manner sufficient to meet the intent of this review; alternatively, a “camera on a stick” can be employed for evaluation.
    - No apparent degradation in structural members that challenges their ability to withstand forces from flooding, i.e. reinforced concrete, concrete block or steel barriers, such as surface cracks greater than 0.04 inch in width.

  - Concrete structures should not show water stains/stalactites emanating from their surfaces.
  - Surfaces of the structure/building that are buried are considered inaccessible and not subject to inspection. A visual inspection of interior surface is acceptable, if the exterior surface is inaccessible. In addition, the base of structures should be inspected for evidence of scouring or undermining that may have occurred during previous high water events.
  - If a PM/surveillance exists that inspects the structure, then it is not necessary to specifically inspect individual barriers for this review (although the surface (e.g., wall), in accessible areas, must still be visually inspected for any unexpected conditions). If credit is being taken for a PM, then identify the PM number in the walkdown records. The PM should be reviewed for adequacy per NEI 12-07.

- Wall Penetration Seals
  - Perform a visual inspection of credited wall, ceiling, and floor penetration seals for indications of degradation that would allow external water ingress into the flood protected area. Conditions that should be recorded include (but are not limited to) damage, undocumented openings or holes (such as those due to abandoned equipment), etc.
  - The credited side(s) (surface) of a seal must be inspected. For example, if the side of a wall penetration seal that is credited for flood protection is examined and found to be acceptable, the other side of the seal does not require examination.
  - Visible penetrations are sealed and there are no visible gaps through wall holes.
  - Penetration sleeves, link seals, piping, and conduit should have an absence of corrosion on the exposed steel surface.
  - Conduit seal material should have an absence of water stains below the penetrations.
  - Material should appear to be as indicated in plant documents and in generally good condition.

- Piping and Cable Vaults and Tunnels, Electrical Cable Conduit
  - Water ingress into tunnels, vaults, and cable conduit is not a concern in the short term unless there are components in these structures with an active flood protection function that might be damaged by submergence.
  - Provide reasonable assurance that these features will not become pathways for water (surface or groundwater) into SSCs protected from flooding. See NEI 12-07 regarding the evaluation of features designated as ‘inaccessible’. ‘Reasonable assurance’ that these features are not receiving and conveying water to protected SSCs can be demonstrated by reviewing plant/construction drawings and specifications. If visible, internal seals should also be inspected; see previous discussion on seal inspection guidance. The following factors can be considered in making a ‘reasonable assurance’ determination:
    - Conduit/pipe material type;
    - Construction methods;
    - Type of joints;

- Elapsed time since installation;
- Conditions surrounding conduit/pipe (saturated soil, acidity, etc.);
- Information regarding durability of conduit/pipe material and associated joints; and
- Signs of leakage inside the plant building, particularly at the terminus point.

  - Signs of leakage and inspection results for internal seals should be captured on the Walkdown Record Form for the associated penetration or wall feature. The Walkdown Record Form should also include an attachment that contains the basis for the 'reasonable assurance' determination, discussed above.
  - Visually inspect all seals or other devices that are credited to prevent water intrusion into a space that contains safety related equipment or equipment credited for flood protection during a flooding event.
  - Determine if there is any damage that would prevent the seals or other devices from performing their flood protection function. See previously-listed supplemental guidance for "Wall, Ceiling, and Floor Seals" for additional guidance on seal inspection.

- Roofs
  - Confirm that parapet heights do not exceed 1 foot, 4 inches on Seismic Category I structures.
  - Confirm that roof feature openings have lip heights higher than the parapets or the opening can accommodate water without water entering the plant, or roof drains are capable of keeping the rain from entering the opening.
  - Visually inspect all exterior exposed surfaces of the roof for significant indications of structural degradation or any openings that might permit flooding of the interior spaces.
  - Confirm that visible penetrations are sealed.
  - Built up surfaces of the roof that are covered with aggregate ballast, such as slag or gravel, are considered inaccessible and not subject to inspection.
- Basement Floor Slabs
  - No signs of degradation.
  - No spalling, scaling, or cracking of concrete surfaces.
- Lake Screen House Walls
  - Verify that the structure is in place and in accordance with its design configuration, per plant documents.
  - The walls should be inspected for evidence of structural damage that would prevent the walls from performing their design function of resisting the lake PMF with wave run-up.
- Ground Floor Door Thresholds, Removable Wall Panels and Radioactive Waste Loading Dock Walls
  - These features are evaluated for APM.

The visual inspections revealed that the flood protection features met the acceptance criteria and were considered acceptable with the exception of the items entered into the CAP and are listed in Tables 3 and 4 of Section 5 of this report. Table 2 of Section 5 lists the flood protection features determined to be acceptable during the visual inspections.

A summary of the flood protection features that were determined to be acceptable are as follows:

- Basement floor slabs did not have significant surface cracking, material degradation or show signs of water intrusion. Basement floor slabs were considered to be acceptable and capable of performing their design flood protection function.
- Exterior walls credited for providing flood protection did not show signs of material degradation, spalling or significant cracking. Exterior walls did not show signs of water intrusion such as staining, calcification or stalactites. Exterior walls were considered to be acceptable and capable of performing their design flood protection function.
- Penetration seals did not show signs of material degradation that would allow external water ingress. Penetration sleeves, piping and conduit material did not show corrosion. Conduit seals did not have water stains below the penetrations. Material and penetration locations were consistent with plant design drawings. Based on those observations, the penetration seals were considered to be acceptable and capable of performing their design flood protection function.
- Safety-related roof parapet walls were observed to be less than 16 inches above the roof surface. It was determined water had no ingress paths to the plant through penetrations or deteriorated roofing. Roofs were determined to be capable of performing their design flood protection function.
- Lake Screen House walls exposed to the lake were placed in accordance with design configuration and did not show signs of structural damage. Based on observations, the Lake Screen House walls were determined to be capable of performing their design flood protection function.
- Site elevations, topography, and drainage pathways were found to be in accordance to site analyses and assumptions. No major modifications were found that would affect the analyses.

The LSCS flood protection strategy consists of incorporated passive features only and no operator procedures. Therefore, additional adverse site and weather conditions do not impact the performance of the flood protection features and the site's flood protection plan.

Since penetrations in basement floor slabs are not specifically credited in the CLB, they were not walked down individually. Observations on penetrations in basement floor slabs were made during the floor slab walkdowns. Only two locations of the floor slab were not immediately judged as acceptable during the walkdown due to observed cracking in the slab and minor apparent groundwater in-leakage. Neither of the in-leakage locations was due to degraded conditions of or around penetrations.

LaSalle has four electrical conduit runs (Conduit 1, Conduit 2, Conduit 3 and Conduit 4) that enter the plant below the PMF flood elevation of 710.41 feet MSL. None of the four conduit runs tie into manholes. The conduits are at the following locations:

- Conduit 1 – Unit 2 Heater Bay on Y-line between 18 and 19 from elevations 682.25 feet MSL to 680.75 feet MSL
- Conduit 2 – Unit 1 Heater Bay on Y-line between 12 and 13 from elevations 682.25 feet MSL to 680.75 feet MSL

- Conduit 3 – Off-Gas Filter Building on 14-line between Ab and Ac from elevations 705.40 feet MSL to 703.90 feet MSL
- Conduit 4 – Off-Gas Filter Building on 11-line between A and Ab from elevations 705.50 feet MSL to 707.50 feet MSL.

Conduits 1, 2 and 4 are continuous and not open to ground water from the plant exterior walls to their end point which is above the flood elevation based on review of electrical design drawings. Conduit 3 (penetrating below the flood elevation at 14-line of the Off-Gas Building) connects to a drain point for duct runs outside of the off-gas building before extending back into the reactor building. Inside the drain point, the conduits have drainage slots cut into them creating a potential flow path for water into the off gas building. A walkdown of the Conduit 3 penetration at the Off-Gas 14-line exterior wall confirmed that the conduits had recently been resealed, preventing flood water from entering the plant.

All other electrical conduit runs enter inside the plant above 710.50 feet MSL, so if a manhole flooded, water would not get into the plant from those conduit runs. These conduits are also designed to have seals at the openings of the conduits either at the end on the exterior side of the plant or at the end on the inside of the plant.

Additional Protection Measures

The basement floor slabs of the main power block buildings include a network of floor drains and sump pumps (primary and backup), which could route flood water away from safety-related equipment in the event of a beyond-design basis flood. The primary function of these drains and pumps is to provide protection from internal flooding, but would also be available to route water from an external source. As these features are not credited for providing flood protection, a general observation was made and they appeared to be in good working order.

e. Requested Information Item 2(e) – Implementation of Walkdown Process

Present information related to the implementation of the walkdown process (e.g., details of selection of the walkdown team and procedures) using the documentation template discussed in Requested Information Item 1.j [in Enclosure 4 of the March 12, 2012, 50.54(f) letter], including actions taken in response to the peer review.

Flooding walkdowns were performed using guidance provided in NEI 12-07 (Rev. 0-A) “Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features”.

The members of the Walkdown team were selected to ensure that the team included individuals who are experienced in conducting visual inspections of plant structures, systems and components and flood protection features. The AMEC team for the LSCS Flooding Walkdown included a Senior Water Resources Engineer, A Junior Water Resources Engineer, a Senior Electrical Engineer, and a Junior Structural Engineer. Both water resources engineers are flooding specialists and have significant experience with inspections and evaluations of flood protection features. The remaining two engineers are experienced in conducting visual inspection of plant SSCs. The Exelon personnel involved with the walkdowns were two Civil/Structural Engineers and Project Management professionals with plant knowledge and plant Maintenance Personnel that provided logistical support to the Walkdown teams.

Each AMEC team member completed Exelon's Walkdown Training, Nuclear Generation Employee Training (NGET), and NANTeL's generic verification walkdowns of plant flood protection features course, including the NANTeL exam. The two Exelon Civil/Structural engineers also completed the NANTeL generic verification walkdown of plant flood protection features course and the NANTeL exam. In preparation for the walkdown, the team members reviewed and became familiar with the materials and content of NEI 12-07 (Rev. 0-A); and they also became knowledgeable of the site's current flooding licensing basis and operating procedures by thoroughly reviewing them during the walkdown planning phase of the project.

Generally, two teams of three persons were utilized to perform the walkdowns. Two persons in each group were familiar with the plant's flooding design basis; were specialists in either water, civil, structural or electrical engineering; were prepared for flooding walkdowns through training developed by the NEI Fukushima Flooding Task Force; and passed the NANTeL training and examination. The third member of the walkdown team was a plant specialist familiar with operations, configurations and the location of safety related plant structures, systems and components. Maintenance personnel accompanied the walkdown teams when necessary to provide additional logistical support. Where specific knowledge was necessary to inspect a flood protection feature, at least one member of the walkdown team had the ability to evaluate the acceptability of the feature credited with providing flood protecton.

The exception to having a group of three personnel perform the walkdown was when a feature was in a locked high radiation area. To limit dose and potential contamination, generally one NANTeL trained specialist, with one other individual with plant knowledge, entered the locked high radiation area and performed the walkdown.

A pre-job brief was performed at the beginning of each workday. The subjects discussed in the pre-job briefs included but were not limited to: positive component verification, inspection methodology, acceptance criteria, field documentation requirements, reporting degraded conditions and previous walkdown lessons learned. A high-radiation pre-job brief was performed with the walkdown team and radiation protection personnel when entering high-radiation areas. Subjects discussed in high-radiation pre-job briefs included, but were not limited to, tasks required to complete the job, time required to complete the tasks, dose rate surveys, maximum dose rates and total allowable dose.

A combination of ladder, "camera on a stick", and scaffolding were used to perform visual inspection on flood protection features that were not accessible from the plant floor. When a camera on a stick was used, the plant specialist extended the camera on a stick to a position where the condition of the feature could be fully inspected by the NANTeL trained personnel through a view finder screen. Pictures were captured from the camera on a stick.

Concrete walls were inspected using binoculars where appropriate. Wall crack widths were measured using crack width gauge cards.

Observations captured during the walkdowns were documented on paper copies of the Walkdown Record Form provided in Appendix B of NEI 12-07 (Rev 0-A). Pictures were taken of each penetration and of deficiencies on floor slabs and walls.

A daily project report was generated at the end of each workday documenting the following:

- Industrial Safety/First Aid
- Radiological Information
- ALARA Information

- Production Performance
- Deficiencies Identified
- Operability Issues Identified
- General Problems
- Issue Reports (in CAP)
- Items Requiring Further Review
- Lessons Learned

Observations not immediately judged as acceptable were reported to Exelon personnel immediately and Issue Reports were entered in the CAP, as necessary.

f. Requested Information Item 2(f) – Findings and Corrective Actions Taken/Planned

Results of the walkdown including key findings and identified degraded, non-conforming, or unanalyzed conditions. Include a detailed description of the actions taken or planned to address these conditions using the guidance in Regulatory Issues Summary 2005-20, Rev 1, Revision to NRC Inspection Manual Part 9900 Technical Guidance, "Operability Conditions Adverse to Quality or Safety," including entering the condition in the corrective action program.

One hundred eighty-five (185) flood protection features were on the walkdown list. Accessible features were inspected to determine their compliance with acceptance criteria provided in NEI 12-07 (Rev. 0-A). One hundred twelve (112) flood protection features were immediately determined as acceptable and capable of performing the designed flood protection function. Those features are listed in Table 2 of Section 5.

Thirty (30) features were observed to be in a condition that could not be immediately judged as acceptable but through the CAP were determined not to be deficiencies. A summary of those features by feature type are as follows:

- Five (5) exterior walls
- Twenty-one (21) penetration seals
- Two (2) floor slabs
- Two (2) roofs

A complete list of those features, observations, issue report numbers and resolutions are provided in Table 3 of Section 5.

Observations Designated through CAP as Deficient and Corrective Actions Planned

Two (2) penetration seals and four (4) exterior doors were observed to be in a condition that could not be immediately judged as acceptable and during the CAP process were determined to be deficiencies. Note that for the exterior doors, the deficiencies are reported as three, because two doors are considered to be the same deficiency and were written in the same Issue Report in CAP. Additionally, note that these three (3) deficiencies (four (4) door thresholds) were not on the walkdown list, because they were originally

surveyed for Available Physical Margin (APM) only. The doors are D-20 (Reactor Building secondary containment missile door – rail #2) and D-164 (U2 TB trackway door, rail #3) in Zone I, D-479 (Unit 1 Diesel Generator Corridor door) in Zone II, and D-508 (Unit 2 Diesel Generator Corridor door) in Zone I. The penetrations were 1TB-1144 in the Unit 1 Turbine Building Make-up De-mineralizer (MUDS) room and Generic Cast Iron 2 in the Unit 1 Turbine Building Tube Pull Area.

Penetration 1TB-1144 is located in the Unit 1 Turbine Building MUDS room at elevation 705.83 feet MSL on column 1 between rows V and W. The pipe through penetration 1TB-1144 appeared to have shifted, separating the seal cover from the sleeve creating a gap approximately 2 to 3 inches wide. Water stains were observed on the wall below the penetration and a small amount of puddling water was observed on the floor. The sleeve could provide a pathway for water to enter the plant. The volume of water that could enter the site would be limited by the soil outside of the penetration. In addition, any water entering the building would be removed by the sump pumps in the MUDS room. The MUDS room does not contain any safety related equipment. This condition was entered into the site's CAP through Issue Report (IR) 1401068, and the corrective action is to repair the seal.

Generic Cast Iron 2 is located in the Unit 1 Turbine Building Tube Pull Pit. The cast iron pipe transports water for an eye wash. The penetration did not have a penetration seal and therefore could potentially provide a pathway for water in-flow. The volume of water that could enter the site would be limited by the soil outside of the penetration. In addition, any water entering the building would be routed to sumps by floor drains upon entering the plant. This condition was entered into the site's CAP through IR 1401463, and the corrective action is to repair/provide a seal.

The door D-479 threshold elevation was surveyed to be 710.35 feet MSL. The threshold elevation of door D-479 is 0.06 feet below the CLB flood elevation of 710.41 feet MSL and 0.02 feet below the calculated flood elevation for Zone II of 710.37 feet MSL. A PMP flood event could be postulated to enter the buildings through D-479. However, there is an 18 inch tall flood barrier just inside the door made of sheet metal and steel angles that is anchored to the floor and caulked. This condition was entered into the site's CAP through IR 1416084. The calculation was reviewed, and it is apparent there is additional margin. Therefore, the corrective action is to revise the Zone II calculation to show the additional margin of flooding to the plant floor.

The door D-20 threshold elevation was surveyed to be 710.39 feet (MSL), and the door D-164 threshold elevation was surveyed to be 710.40 feet (MSL). The threshold elevation of door D-20 is 0.09 feet below the current calculated flood elevation for Zone I at D-20 of 710.48 feet MSL, and the threshold elevation of door D-164 is 0.08 feet below the current calculated flood elevation for Zone I at D-164 of 710.48 feet MSL. During a PMP flood event, water could be postulated to enter the buildings through door D-20 or door D-164. This condition was entered into the site's CAP through IR 1413252. The existing analysis uses a hand calculation. A preliminary analysis was performed by Site Engineering using HEC-RAS (the same hydraulic modeling program used to analyze Zone II), which shows there is sufficient margin to plant flooding due to PMP. The corrective action is to formalize the preliminary hydraulic analysis on Zone I using HEC-RAS by issuing a revision to the calculation.

The door D-508 threshold elevation was surveyed to be 710.29 feet MSL. The threshold elevation of door D-508 is 0.19 feet below the Zone I calculated flood elevation of 710.48 feet MSL. A PMP flood event could be postulated to enter the buildings through D-508. This condition was entered into the site's CAP through IR 1415966. The existing analysis uses a hand calculation. A preliminary analysis was performed by Site Engineering using HEC-RAS (the same hydraulic modeling program used to analyze Zone II), which shows

there is sufficient margin to plant flooding due to PMP. The corrective action is to formalize the preliminary hydraulic analysis on Zone I using HEC-RAS by issuing a revision to the calculation.

Other Items Awaiting Final Disposition in CAP

During the review of CLB documents, a discrepancy was identified between the PMF flood elevation reported in the UFSAR and the hydraulic calculations (Calculations S-66 and L-002536). The highest calculated flood elevation for Zone I (north area of the plant) is 710.48 feet MSL based on Calculation S-66. The highest calculated flood elevation for Zone II (south area of the plant) is 710.37 feet MSL based on Calculation L-002536. However, the UFSAR states that the maximum water surface elevation due to local intense PMP would not exceed 710.41 feet MSL. It appears that the UFSAR was not updated the last time S-66 was revised. This discrepancy was documented in IR 1413252, and is being tracked in the CAP.

Restricted Access Areas

Four (4) penetrations in the Unit 1 Turbine Building, three (3) penetrations in the Unit 2 Turbine Building, eight (8) penetrations in the Off-Gas Filter Building, and portions of basement floor slabs and exterior walls in the Turbine, Heater Bay, Auxiliary and Off-Gas Filter buildings that are within scope were not walked down due to high radiation dose rates, and therefore were considered restricted access. These areas will be walked down during the next refueling outage. The next Unit 2 refueling outage (L2R14) is currently scheduled for February 11, 2013 to March 6, 2013, and the next Unit 1 refueling outage (L1R15) is currently scheduled for February 10, 2014 to March 1, 2014. In addition, Units 1 and 2 Reactor Building tendon tunnels were considered restricted areas because floor plugs have to be pulled and radiation protection support for confined space is required. Access to the tendon tunnels requires disassembly of floor plugs to gain access, so it will be performed during the planned access currently scheduled to be completed by August 26, 2013. The features considered to be in restricted access areas are provided in Table 5 in Section 5.

Inaccessible Areas

Portions of basement floor slabs and exterior walls in the Units 1 and 2 Turbine Building were considered inaccessible because these areas cannot reasonably be inspected due to a significant personnel safety hazard. A complete list of slab and wall locations is provided in Table 6 of Section 5. These features are in high radiation rooms that remain high radiation rooms during outages, and therefore are considered inaccessible. The inaccessible rooms contain tanks that hold highly-radioactive fluids and sludge. An additional area that is considered inaccessible is the FC (Fuel Pool Cooling) filter rooms, due to very high radiation levels. Assuming a 10 minute inspection per room, it was estimated by Radiation Protection that the total dose received by the inspection team (only using two people) would be 2.494 REM. This does not include the extra dose that would be received while inspecting the FC filter rooms, or extra dose received from support activities for entering the tank rooms and FC filter rooms, including floor cleaning/decontamination. There is no planned or foreseen time when these rooms would become non-high radiation rooms. Therefore, because the rooms are high radiation areas, the estimated dose to the team is very high, and the rooms are not planned to become non-high radiation areas, the rooms are considered inaccessible. This also applies to the FC filter rooms. Since these areas were not able to be walked down, alternate methods were used to evaluate them, which are described below.

Basement floor slabs and exterior walls immediately adjacent to the inaccessible areas were walked down and determined acceptable. The slabs in these rooms and the surrounding slabs that were inspected are part of the common basemat for the building complex, which is a minimum of 6’-8” thick concrete,

including the mud mat below and the finish floor above. Additionally, there is undisturbed low permeability clay beneath the mud mat, so there is reasonable assurance that the floors in these rooms are capable of performing their design function during a design basis flooding event. The exterior walls of the FC filter rooms (there are no exterior walls for the tank rooms), which includes the walls from elevation 677.00 feet MSL to elevation 710.50 MSL feet, are 4 feet thick. No other walls in the entire complex were declared Deficiencies. Given the thickness of the wall and because no other walls were declared Deficient, it was judged that this section of wall is acceptable and would be able to perform its design function in the event of a design basis flood. The features considered to be in inaccessible areas due to high radiation dose rates that will not decrease during outage are listed in Table 6 in Section 5.

Observations on penetrations in basement floor slabs in accessible areas were made during the floor slab walkdowns. Only two locations of the floor slab were not immediately judged as acceptable during the walkdown due to observed cracking in the slab and minor apparent groundwater in-leakage. Neither of the in-leakage locations was due to degraded conditions of or around penetrations. Based on those observations, there is reasonable assurance that floor slab penetrations in inaccessible areas are capable of performing their flood protection function.

Sump pits were considered inaccessible due to significant disassembly of equipment to gain access. However, no signs of potential groundwater in-leakage were observed around sump pits during the basement floor slab walkdowns. In addition, the following items provide reasonable assurance that groundwater or floodwater will not challenge safety related plant equipment:

- In the Reactor Building, concrete slabs are generally a minimum of 5 feet thick around the sumps. In the Diesel Basement and Turbine Building, concrete slabs are generally a minimum of 3 feet thick around the sumps. This is comparable to slabs that were inspected and found to not be deficient.
- LaSalle has a nearly impervious clay layer (undisturbed) surrounding the sumps, which would minimize flow in the event a crack in the slab is present.
- Sump pumps are located throughout the buildings, which could potentially accommodate any small amount of leakage if it were to penetrate through any potential cracks in the sump pits. Sump pumps generally have backups and hi-level alarms.
- Preventative Maintenance is performed on multiple sump pumps in all buildings.
- The Turbine Building (where a majority of sumps are located) is designed to retain a substantial amount of water before allowing water to enter the Auxiliary, Diesel, or Reactor Buildings.

Failure of these features to perform their flood protection function would mean that water would enter the plant through a crack in the slab, sump pit or wall. If failure of these features were to occur, the failures would be independent of each other due to the feature locations and the nature of the failure. Depending on the location of multiple failures occurring, the in-leakage could potentially cause greater water accumulation than if only one failure occurred. However, it is reasonable to conclude that the amount of water seeping through the crack would be relatively small considering the nearly impermeable clay below the slab and mud mat, and surrounding the open-graded stone outside of the walls. Also, there are multiple sump pumps in all buildings that could remove any of this seepage, many of which have preventive maintenance performed on them. Water-tight doors separate rooms that contain redundant safety-related equipment in the Diesel Generator Building and Reactor Building. Additionally, the safety related buildings are protected to an elevation of 673'-4" from the Turbine Building, so water would first have to fill the entire Turbine Building Basement (which is at elevation 663') more than 10 feet deep before safety related

equipment would be affected, if the sump pumps in the Turbine Building were to fail. This is a significant volume that is not postulated to be reached during a short-term PMP event with water entering the plant via postulated cracks.

Unanalyzed Conditions

There were not any unanalyzed conditions identified during the flooding walkdowns.

g. Requested Information Item 2(g) – Cliff –Edge Effects and Available Physical Margin

Document any cliff-edge effects identified and the associated basis. Indicate those that were entered into the corrective action program. Also include a detailed description of the actions taken or planned to address these effects.

Cliff-edge effects were defined in the NTTF Report (Reference 5) as "the safety consequences of a flooding event may increase sharply with a small increase in the flooding level". As indicated in Sections 3.12 of NEI 12-07 (Reference 2), the NRC is no longer expecting the Recommendation 2.3: Flooding Walkdowns to include an evaluation of cliff-edge effects. The NRC is now differentiating between cliff-edge effects, which are addressed in Enclosure 2 of Reference 3, and Available Physical Margin (APM).

As indicated in Sections 3.13 of NEI 12-07 (Reference 2), APM describes the flood margin available for applicable flood protection features at a site (not all flood protection features have APMs). The APM for each applicable flood protection feature is the difference between licensing basis flood height and the flood height at which water could affect an SSC important to safety.

APM information was collected during the walkdowns in accordance with guidance provided in NEI 12-07 and the final resolution to FAQ-006. APM was collected to primarily support the response to Enclosure 2 of Reference 3 and, as such, is not included in this report. APM determinations did not involve calculating cliff-edge effects (i.e. the safety consequences). During the Integrated Assessment (see Enclosure 2 of Reference 3), the cliff-edge effects and the associated safety risks will be evaluated using the APMs and other information, such as the specific SSCs that are subjected to flooding and the potential availability of other systems to mitigate the risk.

Since the walkdowns were completed prior to the final resolution of FAQ-006 (September 13, 2012), APM information was collected and documented on the Walkdown Record Form using the "old approach"; that is, where applicable, a simple measurement of the difference between the licensing basis flood height and the flood height at which water could affect an SSC important to safety.

h. Requested Information Item 2(h) – Planned/Newly-Installed Flood Protection Enhancements

Describe any other planned or newly installed flood protection systems or flood mitigation measures including flood barriers that further enhance the flood protection. Identify results and any subsequent actions taken in response to the peer review.

The site has requested a preventative maintenance plan to periodically inspect and maintain roof drains to assure they remain open and functional during rain events. Service Request 00079453 was created.

5. CONCLUSIONS

The Flooding Walkdown at LaSalle County Station was conducted between August 10 and September 14, 2012 and included a visual inspection of below-grade walls, penetrations, basement floor slabs, roofs and the site drainage plan; also, available physical margin surveys of above grade exterior doors, removable wall panels and the radioactive waste loading docks were performed. A list of flood protection features considered to be acceptable and capable of performing their flood protection function is provided in Table 2.

Thirty (30) flood protection features were observed to be in a condition that could not be immediately judged as acceptable during the walkdown but were not considered deficiencies after the observation was reviewed in the CAP. A summary of those features is provided in Table 3.

Five (5) flood protection features were observed to be in a condition that could not be immediately judged as acceptable during the walkdown and were considered deficiencies after the observation was reviewed in the CAP. Note that three (3) of these deficiencies were for features not on the walkdown list, because they were originally surveyed for Available Physical Margin (APM) only. A summary of those features is provided in Table 4.

Thirty-three (33) features were in areas considered to be restricted access and are deferred to outage due to high radiation dose rates or significant equipment disassembly. These areas will be walked down during outage. The features considered to be in restricted areas are listed in Table 5.

Seven (7) features were considered inaccessible because they are in rooms that cannot reasonably be inspected due to significant personnel safety hazard. These inaccessible rooms have high dose rates that do not decrease during outages. One (1) feature, sump pits, was considered inaccessible because it would take significant equipment disassembly to inspect. The features considered to be in inaccessible areas are listed in Table 6.

The site has requested a preventative maintenance plan to periodically inspect and maintain roof drains to assure they remain open and functional during rain events. Service Request 00079453 was created.

Table # 1: Summary – Features Included in the Walkdown Scope

Feature Type	Total Number
Passive – Incorporated	185
Passive – Temporary	0
Active – Incorporated	0
Active – Temporary	0

Table #2: Inspected Flooding Features Meeting Acceptance Criteria Features Immediately Judged as Acceptable			
#	**Feature ID #**	**Description**	**Passive/Active Incorporated/Temporary**
1	1AB-70	Penetration	Passive – Incorporated
2	1DR-19	Penetration	Passive – Incorporated
3	1DR-22	Penetration	Passive – Incorporated
4	1DR-29	Penetration	Passive – Incorporated
5	1DR-30	Penetration	Passive – Incorporated
6	1DR-35	Penetration	Passive – Incorporated
7	1DR-36	Penetration	Passive – Incorporated
8	1DR-37	Penetration	Passive – Incorporated
9	1DR-38	Penetration	Passive – Incorporated
10	1DR-39	Penetration	Passive – Incorporated
11	1DR-40	Penetration	Passive – Incorporated
12	1DR-6	Penetration	Passive – Incorporated
13	1RB-256	Penetration	Passive – Incorporated
14	1RB-258	Penetration	Passive – Incorporated
15	1RB-33	Penetration	Passive – Incorporated
16	1RB-50	Penetration	Passive – Incorporated
17	1RB-503	Penetration	Passive – Incorporated
18	1RB-504	Penetration	Passive – Incorporated
19	1RB-51	Penetration	Passive – Incorporated
20	1RB-61	Penetration	Passive – Incorporated
21	1RB-64	Penetration	Passive – Incorporated
22	1RB-67	Penetration	Passive – Incorporated
23	1RB-7	Penetration	Passive – Incorporated
24	1RB-83	Penetration	Passive – Incorporated
25	1RB-84	Penetration	Passive – Incorporated
26	1TB-525	Penetration	Passive – Incorporated
27	1TB-1108	Penetration	Passive – Incorporated
28	1TB-1272	Penetration	Passive – Incorporated
29	1TB-1273	Penetration	Passive – Incorporated
30	1TB-1310	Penetration	Passive – Incorporated

Table #2: Inspected Flooding Features Meeting Acceptance Criteria Features Immediately Judged as Acceptable			
#	**Feature ID #**	**Description**	**Passive/Active Incorporated/Temporary**
31	1TB-264	Penetration	Passive – Incorporated
32	1TB-266	Penetration	Passive – Incorporated
33	1TB-267	Penetration	Passive – Incorporated
34	1TB-270	Penetration	Passive – Incorporated
35	1TB-274	Penetration	Passive – Incorporated
36	1TB-275	Penetration	Passive – Incorporated
37	1TB-517	Penetration	Passive – Incorporated
38	1TB-58	Penetration	Passive – Incorporated
39	1TB-591	Penetration	Passive – Incorporated
40	1TB-592	Penetration	Passive – Incorporated
41	1TB-593	Penetration	Passive – Incorporated
42	1TB-595	Penetration	Passive – Incorporated
43	1TB-673	Penetration	Passive – Incorporated
44	1TB-721	Penetration	Passive – Incorporated
45	1TB-75	Penetration	Passive – Incorporated
46	1TB-94	Penetration	Passive – Incorporated
47	1WS03D - 20in Pipe	Penetration	Passive – Incorporated
48	2DR-1	Penetration	Passive – Incorporated
49	2DR-10	Penetration	Passive – Incorporated
50	2DR-13	Penetration	Passive – Incorporated
51	2DR-2	Penetration	Passive – Incorporated
52	2DR-3	Penetration	Passive – Incorporated
53	2DR-4	Penetration	Passive – Incorporated
54	2DR-6	Penetration	Passive – Incorporated
55	2DR-7	Penetration	Passive – Incorporated
56	2DR-8	Penetration	Passive – Incorporated
57	2RB-1	Penetration	Passive – Incorporated
58	2RB-120	Penetration	Passive – Incorporated
59	2RB-147	Penetration	Passive – Incorporated
60	2RB-163	Penetration	Passive – Incorporated

Table #2: Inspected Flooding Features Meeting Acceptance Criteria Features Immediately Judged as Acceptable			
#	**Feature ID #**	**Description**	**Passive/Active Incorporated/Temporary**
61	2RB-2	Penetration	Passive – Incorporated
62	2RB-26	Penetration	Passive – Incorporated
63	2RB-27	Penetration	Passive – Incorporated
64	2RB-3	Penetration	Passive – Incorporated
65	2RB-6	Penetration	Passive – Incorporated
66	2RB-70	Penetration	Passive – Incorporated
67	2RB-74	Penetration	Passive – Incorporated
68	2RB-75	Penetration	Passive – Incorporated
69	2RB-76	Penetration	Passive – Incorporated
70	2WS03D - 20in Pipe	Penetration	Passive – Incorporated
71	4" pipe	Penetration	Passive – Incorporated
72	Electrical Conduit Group 4	Penetration	Passive – Incorporated
73	Four (4) Pipes Encased in Concrete	Penetration	Passive – Incorporated
74	GENERIC CAST IRON	Penetration	Passive – Incorporated
75	Lake Screen House Walls	Concrete Wall	Passive – Incorporated
76	OB-170	Penetration	Passive – Incorporated
77	OB-171	Penetration	Passive – Incorporated
78	OB-173	Penetration	Passive – Incorporated
79	OB-66	Penetration	Passive – Incorporated
80	OB-67	Penetration	Passive – Incorporated
81	OB-69	Penetration	Passive – Incorporated
82	OB-70	Penetration	Passive – Incorporated
83	OB-75	Penetration	Passive – Incorporated
84	OB-76	Penetration	Passive – Incorporated
85	OB-77	Penetration	Passive – Incorporated
86	OB-78	Penetration	Passive – Incorporated
87	OB-79	Penetration	Passive – Incorporated
88	OB-80	Penetration	Passive – Incorporated

Table #2: Inspected Flooding Features Meeting Acceptance Criteria Features Immediately Judged as Acceptable			
#	**Feature ID #**	**Description**	**Passive/Active Incorporated/Temporary**
89	Off-Gas Filter Building Basement Floor Slab	Slab	Passive – Incorporated
90	Off-Gas Filter Building Exterior Wall (Basement)	Concrete Wall	Passive – Incorporated
91	Off-Gas Filter Building Exterior Wall (Upper Basement)	Concrete Wall	Passive – Incorporated
92	Pipe encased in concrete	Penetration	Passive – Incorporated
93	Reactor Building Roof	Roof	Passive – Incorporated
94	Sch. 40	Penetration	Passive – Incorporated
95	U2 DG Building Roof	Roof	Passive – Incorporated
96	Unit 1 Diesel Generator Building Basement Floor Slab	Slab	Passive – Incorporated
97	Unit 1 Diesel Generator Building Exterior Wall (Upper Basement)	Concrete Wall	Passive – Incorporated
98	Unit 1 Reactor Building Basement Floor Slab	Slab	Passive – Incorporated
99	Unit 1 Reactor Building Exterior Wall (Basement)	Concrete Wall	Passive – Incorporated
100	Unit 1 Reactor Building Exterior Wall (Upper Basement)	Concrete Wall	Passive – Incorporated
101	Unit 1 Turbine Building Exterior Wall (Basement)	Concrete Wall	Passive – Incorporated
102	Unit 1 Turbine Building Exterior Wall (Upper Basement)	Concrete Wall	Passive – Incorporated
103	Unit 2 Diesel Generator Building Exterior Wall (Upper Basement)	Concrete Wall	Passive – Incorporated
104	Unit 2 Reactor Building Basement Floor Slab	Slab	Passive – Incorporated
105	Unit 2 Reactor Building Exterior Wall (Basement)	Concrete Wall	Passive – Incorporated

Table #2: Inspected Flooding Features Meeting Acceptance Criteria Features Immediately Judged as Acceptable			
#	**Feature ID #**	**Description**	**Passive/Active Incorporated/Temporary**
106	Unit 2 Reactor Building Exterior Wall (Upper Basement)	Concrete Wall	Passive – Incorporated
107	Unit 2 Turbine Building Basement Floor Slab	Slab	Passive – Incorporated
108	Unit 2 Turbine Building Exterior Wall (Upper Basement)	Concrete Wall	Passive – Incorporated
109	10-inch Sleeve	Penetration	Passive – Incorporated
110	1AB-69	Penetration	Passive – Incorporated
111	Generic Cast Iron 3	Penetration	Passive – Incorporated
112	Site Drainage Plan – Plant Configuration	Site Drainage	Passive – Incorporated

Table #3: Inspected Features Not Immediately Judged as Acceptable Flood Features <u>Not</u> Meeting Acceptance Criteria, Not Designated as Deficient Through CAP					
#	**Feature ID #**	**Description**	**Observation**	**Component Operability**	**Resolution**
1	1DR-20	Penetration	Corrosion on bottom of penetration sleeve.	Yes, documented in IR 1399525	**Recommended Actions:** Clean surface corrosion, paint and seal the penetration.
2	1DR-27	Penetration	Corrosion on the bottom of the pipe penetration sleeve, and flame-cutting of seal plate not associated with water degradation.	Yes, documented in IR 1399598	**Immediate actions taken:** Confirmed the ability of the penetration sleeve to perform its design function. **Recommended Actions:** Initiate a Document Change Request or other actions as appropriate (for example, weld overlay to restore to original design condition).

Table #3: Inspected Features Not Immediately Judged as Acceptable Flood Features Not Meeting Acceptance Criteria, Not Designated as Deficient Through CAP					
#	**Feature ID #**	**Description**	**Observation**	**Component Operability**	**Resolution**
3	1DR-28	Penetration	Corrosion observed at the bottom of the sleeve. Signs of past leakage (i.e. water stains) found below the penetration.	Yes, documented in IR 1399536	**Recommended Actions:** Clean surface corrosion, paint and seal the penetration.
4	1RB-13	Penetration	Surface rusting on bottom	Yes, documented in IR 1426637	**Recommended Actions:** Clean surface corrosion, paint/seal the penetration/piping.
5	1TB-1270	Penetration	Rust, corrosion and staining below the feature.	Yes, documented in IR 1401010	**Recommended Actions:** Remove rust, inspect pipe and penetration. Seal the penetration.
6	1TB-1271	Penetration	Rust/corrosion of sleeve and pipe. Staining from apparent water leaks below the feature.	Yes, documented in IR 1401001	**Recommended Actions:** The rubber penetration seal must be repaired or replaced. When repairing or replacing the seal, the condition of the WD piping should be evaluated for potential replacement due to the amount of corrosion on the piping. The missing insulation should be replaced.
7	1TB-265	Penetration	Stalactites on bottom of feature. Signs of corrosion.	Yes, documented in IR 1400652	**Recommended Actions:** Remove rust and calcified material, paint and reseal the penetration.
8	1TB-269	Penetration	Rust and flaking on the right side of the feature.	Yes, documented in IR 1400673	**Recommended Actions:** Remove rust, paint and reseal.

Table #3: Inspected Features Not Immediately Judged as Acceptable Flood Features Not Meeting Acceptance Criteria, Not Designated as Deficient Through CAP					
#	**Feature ID #**	**Description**	**Observation**	**Component Operability**	**Resolution**
9	1TB-96	Penetration	Rust and flakes on bottom of feature. Feature material is degrading, staining below penetration.	Yes, documented in IR 1426636	**Recommended Actions:** Clean surface corrosion, paint/seal the penetration.
10	2DR-9	Penetration	Rust and surface corrosion present on bottom of sleeve with slight flaking. Signs of slight apparent ground water in-leakage.	Yes, documented in IR 1400278	**Recommended Actions:** Clean surface corrosion, paint and seal the penetration.
11	2TB-1	Penetration	Rust and flaking observed on the pipe and sleeve. Water stains on wall below penetration	Yes, documented in IR 1400662	**Recommended Actions:** Remove rust, paint and reseal the penetration.
12	30-inch pipe	Penetration	Rust and flaking were observed, along with signs of leakage on the wall below the pipe.	Yes, documented in IR 1400252	**Recommended Actions:** Clean surface corrosion, paint and seal the penetration.
13	Electrical Conduit Group	Penetration	Evidence of water staining, but no signs of active leakage. Small amount of corrosion present at bottom of the penetrations, but does not affect structural integrity.	Yes, documented in IR 1412024	Conduits are continuous to above 710'6" and do not have a point where water can enter.
14	Electrical Conduit Group 2	Penetration	Evidence of water staining, but no signs of active leakage. Small amount of corrosion present at bottom of the penetrations, but does not affect structural integrity.	Yes, documented in IR 1412028	Conduits are continuous to above 710'6" and do not have a point where water can enter.

Table #3: Inspected Features Not Immediately Judged as Acceptable Flood Features Not Meeting Acceptance Criteria, Not Designated as Deficient Through CAP					
#	**Feature ID #**	**Description**	**Observation**	**Component Operability**	**Resolution**
15	Generic Cast Iron 4	Penetration	Corrosion on bottom of pipe. Signs of leakage.	Yes, documented in IR 1400635	**Recommended Actions:** Remove rust, paint and reseal the penetration.
16	Unit 1 Auxiliary Building Exterior Wall (Basement)	Wall	Leaching at various locations from J:9_15. Water stains on wall and floor at J:11_12.	Yes, documented in IR 1401610	**Recommended Actions:** Engineering to monitor wall for emergent ground water in-leakage (seepage) per the Structural Monitoring Program and initiate an appropriate IR as required if leakage is observed.
17	Unit 1 Diesel Generator Building Exterior Wall (Basement)	Wall	Rust colored calcium leaching showing from 3-foot long crack in DIV I CSCS.	Yes, documented in IR 1400272	**Immediate actions taken:** Evaluated the condition per American Concrete Institute ACI 349.3R-02 (Re-approved 2010), "Evaluation of Existing Nuclear Safety-Related Concrete Structures", Chapter 5 "Evaluation Criteria". **Recommended Actions:** Continue monitoring for spalling of the concrete at this location in the Structures Monitoring Program.
18	Unit 1 Ice Melt Penetration A	Penetration	Entire pit area is considered part of this penetration (ie walls and slab). Condition not acceptable due to leaching; evidence of water leakage/accumulation.	Yes, documented in IR 1401110	**Recommended Actions:** Clean the calcium buildup on the U-1 Deicing Pit "A" and "B" penetrations and seal the penetrations as necessary.

Table #3: Inspected Features Not Immediately Judged as Acceptable Flood Features Not Meeting Acceptance Criteria, Not Designated as Deficient Through CAP					
#	**Feature ID #**	**Description**	**Observation**	**Component Operability**	**Resolution**
19	Unit 1 Ice Melt Penetration B	Penetration	Entire pit area is considered part of this penetration (ie walls and slab). Condition not acceptable due to leaching; evidence of water leakage/accumulation.	Yes, documented in IR 1401110	**Recommended Actions:** Clean the calcium buildup on the U-1 Deicing Pit "A" and "B" penetrations and seal the penetrations as necessary.
20	Unit 1 Turbine Building Basement Floor Slab	Slab	Crack between concrete floor slab and concrete containment curb in Muds Room. Water stains and debris observed around the crack.	Yes, documented in IR 1400720 and IR 1401884	**Immediate actions taken:** Notified the Work Execution Center of the water on the floor (possible fall hazard). The area will be roped off and posted. **Recommended Actions:** (MUDS Room): Clean floor and seal the leaks in the floor. ("D" HTR DRN PMP Room): Engineering to monitor the floor for emergent ground water in-leakage (seepage) per the Structural Monitoring Program and initiate an appropriate IR as required if leakage is observed.
21	Unit 2 Auxiliary Building Exterior Wall (Basement)	Wall	Leaching and calcification on walls in places on J-line from 15 to 21.	Yes, documented in IR 1401610	**Recommended Actions:** Engineering to monitor wall for emergent ground water in-leakage (seepage) per the Structural Monitoring Program and initiate an appropriate IR as required if leakage is observed.

Table #3: Inspected Features Not Immediately Judged as Acceptable Flood Features Not Meeting Acceptance Criteria, Not Designated as Deficient Through CAP					
#	**Feature ID #**	**Description**	**Observation**	**Component Operability**	**Resolution**
22	Electrical Conduit Group 3	Penetration	Slight water staining of the wall below the conduits due to past leakage.	Yes, documented in IR 1412039	The conduits had recently been sealed to stop the in-leakage. No recommended or immediate action.
23	U1 DG Building Roof	Roof	Clogged roof drains	Yes, documented in IR 1402098	**Recommended Actions:** Clean the roof drains.
24	1-inch conduit	Penetration	Conduit is not documented in plant drawings	Yes, documented in IR 1419529	**Immediate Actions:** Searched drawings to find the conduit – nothing was found. Used a borescope to identify a seal. **Recommended Actions:** As an enhancement to the current seal, a work request was initiated to put duct seal into the conduit.
25	Auxiliary & Turbine Building Roof	Roof	Open bathroom vents could potentially provide flow path for water	Yes, documented in IR 1424707	**Immediate Action:** Performed preliminary evaluation, which showed that water would not enter the vents in the case of a design basis rain event. **Recommended Action:** Formalize the evaluation.

Table #3: Inspected Features Not Immediately Judged as Acceptable Flood Features Not Meeting Acceptance Criteria, Not Designated as Deficient Through CAP					
#	**Feature ID #**	**Description**	**Observation**	**Component Operability**	**Resolution**
26	Unit 2 Diesel Generator Building Basement Floor Slab	Slab	Possible groundwater infiltrating from crack in slab in the Division 1 CSCS room.	Yes, documented in IR 1400268	**Recommended Actions:** Grout floor to stop ground water in-leakage. Replace stanchion baseplate associated with Full Flow Test instrumentation 2FE038 and add 1.5 inches of grout. Clean/paint the stanchion baseplate associated with instrument 2FI-FC035.
27	Unit 2 Diesel Generator Building Exterior Wall (Basement)	Wall	Leaking, leaching and calcification observed on walls in DIV III DGST and DIV I CSCS.	Yes, documented in IR 1400223	**Recommended Actions:** Clean and grout any visible openings.
28	Unit 2 Ice Melt Penetration A	Penetration	Entire pit area is considered part of this penetration (ie walls and slab). Condition not acceptable due to leaching; evidence of water leakage/accumulation.	Yes, documented in IR 1401119	**Recommended Actions:** Clean the calcium buildup on the U-2 Deicing Pit "A" and "B" penetrations and seal the penetrations as necessary.
29	Unit 2 Ice Melt Penetration B	Penetration	Entire pit area is considered part of this penetration (ie walls and slab). Condition not acceptable due to leaching; evidence of water leakage/accumulation.	Yes, documented in IR 1401119	**Recommended Actions:** Clean the calcium buildup on the U-2 Deicing Pit "A" and "B" penetrations and seal the penetrations as necessary.

Table #3: Inspected Features Not Immediately Judged as Acceptable Flood Features Not Meeting Acceptance Criteria, Not Designated as Deficient Through CAP					
#	**Feature ID #**	**Description**	**Observation**	**Component Operability**	**Resolution**
30	Unit 2 Turbine Building Exterior Wall (Basement)	Wall	Crack in wall in Amertap Room. Leaching and water stains on the wall and floor below the crack. Also, calcification and staining on 21-line from L to R.	Yes, documented in IR 1401906 & IR 1402075	**Recommended Actions (Amertap):** Engineering to monitor the north Amertap Room Wall for emergent ground water in-leakage (seepage) per the Structural Monitoring Program and initiate an appropriate IR as required if leakage is observed. **Recommended Actions (21-line from L to R):** Engineering to monitor the 2WF03TA/B Room North Wall for emergent ground water in-leakage (seepage) per the Structural Monitoring Program and initiate an appropriate IR as required if leakage is observed.

Table #4: Inspected Features Not Immediately Judged as Acceptable Flood Features Not Meeting Acceptance Criteria, Designated as Deficient through CAP					
#	**Feature ID #**	**Description**	**Observation**	**Component Deficiency**	**Resolution**
1	1TB-1144	Penetration	Significant rust and corrosion, plate is separated from sleeve.	Yes, documented in IR 1401068	**Immediate Actions:** It was determined safety related equipment would not be jeopardized in the event of a design basis flood event. **Recommended Actions:** The seal must be repaired and the associated piping inspected and repaired as required.
2	Generic Cast Iron 2	Penetration	No seal between pipe and sleeve. Pipe and sleeve material shows heavy rust and apparent deterioration. Staining below penetration shows signs of possible ground water intrusion.	Yes, documented in IR 1401463	**Immediate Actions:** It was determined safety related equipment would not be jeopardized in the event of a design basis flood event. **Recommended Actions:** The penetration seal must be replaced.
3	Door D-20 and Door D-164	Exterior Door Threshold	The threshold elevations were below the calculated flood elevation	Yes, documented in IR 1413252	**Immediate Actions:** Performed a preliminary analysis, which shows there is sufficient margin to plant flooding due to PMP. **Recommended Actions:** Formalize the analysis by revising the applicable calculation(s), which is being tracked through CAP.

Table #4: Inspected Features Not Immediately Judged as Acceptable Flood Features Not Meeting Acceptance Criteria, Designated as Deficient through CAP					
#	**Feature ID #**	**Description**	**Observation**	**Component Deficiency**	**Resolution**
4	Door D-479	Exterior Door Threshold	The threshold elevation was below the CLB flood elevation	Yes, documented in IR 1416084	**Immediate Action:** Verified the existing flood barrier was intact. **Recommended Action:** Revise the analysis to show the additional margin of flooding to the plant floor. This is being tracked through CAP.
5	Door D-508	Exterior Door Threshold	The threshold elevation was below the CLB flood elevation	Yes, documented in IR 1415966	**Immediate Actions:** Performed a preliminary analysis, which shows there is sufficient margin to plant flooding due to PMP. **Recommended Actions:** Formalize the analysis by revising the applicable calculation(s), which is being tracked through CAP.

Table #5: Features Classified as Restricted Access				
#	**Feature ID #**	**Description**	**Reason**	**Resolution**
1	Off Gas Pipe 1	Penetration	High radiation dose rates that decrease during outage	Unit 2 refueling outage (L2R14) scheduled for 2/11/13-3/6/13
2	Off Gas Pipe 2	Penetration	High radiation dose rates that decrease during outage	Unit 2 refueling outage (L2R14) scheduled for 2/11/13-3/6/13
3	Off Gas Pipe 3	Penetration	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14

Table #5: Features Classified as Restricted Access				
#	**Feature ID #**	**Description**	**Reason**	**Resolution**
4	Off Gas Pipe 4	Penetration	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14
5	Off-Gas Filter Building Basement Floor Slab_1	row AA.5 to AD and column 11 to 12.5	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14
6	Off-Gas Filter Building Basement Floor Slab_2	row AA.5 to AD and column 12.5 to 14	High radiation dose rates that decrease during outage	Unit 2 refueling outage (L2R14) scheduled for 2/11/13-3/6/13
7	Off-Gas Filter Building Basement Wall 2_1	row AA.5 to AD and column 11 to 12.5	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14
8	Off-Gas Filter Building Basement Wall 2_2	row AA.5 to AD and column 12.5 to 14	High radiation dose rates that decrease during outage	Unit 2 refueling outage (L2R14) scheduled for 2/11/13-3/6/13
9	Off-Gas Filter Building Upper Basement Wall 2_1	11-line from AB to AD and AD-line from 11 to 12.5	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14
10	Off-Gas Filter Building Upper Basement Wall 2_2	AD-line from 12.5 to 14 and 14-line from AB to AD	High radiation dose rates that decrease during outage	Unit 2 refueling outage (L2R14) scheduled for 2/11/13-3/6/13
11	Unit 1 Auxiliary Building Upper Basement Wall – Steam Tunnel	8.9-line from N to S (El. 687')	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14
12	Unit 1 Heater Bay Upper Basement Exterior Wall (HDT Room)	Y-line from 7 to 11	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14
13	Unit 1 Turbine Building Basement Floor Slab 2 – Condenser Pit	column 5 to 11 and S to V	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14
14	Unit 1 Turbine Building Basement Wall 2 – Condenser Pit	column 5 to 11 and S to V	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14

Table #5: Features Classified as Restricted Access				
#	**Feature ID #**	**Description**	**Reason**	**Resolution**
15	Unit 1 Turbine Building Upper Basement Wall 2 (Upper Condenser Pit) and HP Heater room	5-line from S.5 to U.5 and S-line from 5 to 8.9 and 8-line from R to S (El. 704.5')	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14
16	Unit 2 Auxiliary Building Upper Basement Wall – Steam Tunnel	21.1-line from R to S (El. 687')	High radiation dose rates that decrease during outage	Unit 2 refueling outage (L2R14) scheduled for 2/11/13-3/6/13
17	Unit 2 Heater Bay Upper Basement Exterior Wall (HDT Room)	Y-line from 19 to 23 and 23-line from X.5 to Y	High radiation dose rates that decrease during outage	Unit 2 refueling outage (L2R14) scheduled for 2/11/13-3/6/13
18	Unit 2 Turbine Building Basement Floor Slab 2 – Condenser Pit	column 19 to 24 and S to V.	High radiation dose rates that decrease during outage	Unit 2 refueling outage (L2R14) scheduled for 2/11/13-3/6/13
19	Unit 2 Turbine Building Basement Wall 2 – Condenser Pit	column 19 to 24 and S to V.	High radiation dose rates that decrease during outage	Unit 2 refueling outage (L2R14) scheduled for 2/11/13-3/6/13
20	Unit 2 Turbine Building Upper Basement Wall 2 (Upper Condenser Pit) and HP Heater room	V-line from 23 to 25, 25-line from S.5 to U.5, and S-line from 21 to 25 and 22-line from R to S (El. 704.5')	High radiation dose rates that decrease during outage	Unit 2 refueling outage (L2R14) scheduled for 2/11/13-3/6/13
21	1TB-271	Penetration	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14
22	1TB-516	Penetration	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14
23	2TB-114	Penetration	High radiation dose rates that decrease during outage	Unit 2 refueling outage (L2R14) scheduled for 2/11/13-3/6/13
24	OB-156	Penetration	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14

Table #5: Features Classified as Restricted Access				
#	**Feature ID #**	**Description**	**Reason**	**Resolution**
25	OB-168	Penetration	High radiation dose rates that decrease during outage	Unit 2 refueling outage (L2R14) scheduled for 2/11/13-3/6/13
26	OB-169	Penetration	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14
27	OB-71	Penetration	High radiation dose rates that decrease during outage	Unit 2 refueling outage (L2R14) scheduled for 2/11/13-3/6/13
28	OB-72	Penetration	High radiation dose rates that decrease during outage	Unit 2 refueling outage (L2R14) scheduled for 2/11/13-3/6/13
29	OB-73	Penetration	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14
30	OB-74	Penetration	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14
31	OB-81	Penetration	High radiation dose rates that decrease during outage	Unit 1 refueling outage (L1R15) scheduled for 2/10/14-3/1/14
32	Unit 1 Reactor Building Tendon Tunnel Floor Slab	Entire Tendon Tunnel Slab	Disassembly and radiation support for confined space	Floor plug disassembly and tendon tunnel access scheduled complete by 8/26/13
33	Unit 2 Reactor Building Tendon Tunnel Floor Slab	Entire Tendon Tunnel Slab	Disassembly and radiation support for confined space	Floor plug disassembly and tendon tunnel access scheduled complete by 8/26/13

Table #6: Features Classified as Inaccessible				
#	**Feature ID #**	**Description**	**Reason**	**Resolution**
1	Unit 1 Turbine Building Basement Floor Slab 3	Basement tank room floor slabs within this perimeter: 13.4-line from X to Y, Y-line from 13.4 to 15, 15-line from W.6 to Y, W.6-line from 14 to 15, 14-line from W.6 to X, X-line from 13.4 to 14,	Feature is in high radiation rooms that remain high radiation rooms during outages	Reasonable assurance based on similar features analysis
2	Unit 1 Turbine Building Basement Floor Slab 4	Basement tank room floor slabs from column 13 to 15 and row L to V	Feature is in high radiation rooms that remain high radiation rooms during outages	Reasonable assurance based on similar features analysis
3	Unit 1 Turbine Building Basement Walls 3	FC filter walls from column 13 to 15 and row Y to Ya, Elevation 677’ to 710.5’	Feature is in high radiation rooms that remain high radiation rooms during outages	Reasonable assurance based on similar features analysis
4	Unit 2 Turbine Building Basement Floor Slab 3	Basement tank room floor slabs within this perimeter: 15-line from W.6 to Y, Y-line from 15 to 16, 16-line from X to Y, X-line from 16 to 17.5, 17.5-line from W.6 to X, W.6-line from 17.5 to 18, 18-line from W.6 to W, W-line from 16 to 18, 16-line from W to W.6, W.6-line from 15 to 16	Feature is in high radiation rooms that remain high radiation rooms during outages	Reasonable assurance based on similar features analysis
5	Unit 2 Turbine Building Basement Floor Slab 4	Basement tank room floor slabs from column 15 to 17 and row L to V	Feature is in high radiation rooms that remain high radiation rooms during outages	Reasonable assurance based on similar features analysis
6	Unit 2 Turbine Building Basement Floor Slab 5	Basement tank room floor slabs from column 18 to 19 and row L to R	Feature is in high radiation rooms that remain high radiation rooms during outages	Reasonable assurance based on similar features analysis

Table #6: Features Classified as Inaccessible				
#	**Feature ID #**	**Description**	**Reason**	**Resolution**
7	Unit 2 Turbine Building Basement Walls 3	FC filter walls from column 15 to 18 and row Y to Ya, Elevation 677' to 710.5'	Feature is in high radiation rooms that remain high radiation rooms during outages	Reasonable assurance based on similar features analysis
8	Sump Pits	Sump pits in the Reactor, Auxiliary, Diesel Generator, and Turbine Buildings	Feature is inaccessible due to significant disassembly of sump pump assemblies	Reasonable assurance based on basement floor slab walkdown observations, floor slab design and sump pumps

6. REFERENCES

1. Exelon Letter to U.S. Nuclear Regulatory Commission. *Exelon Generation Company, LLC's 90-Day Response to March 12, 2012 Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1 and 2.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident (Flooding).* June 11, 2012.
2. Nuclear Energy Institute (NEI), Report 12-07 [Rev 0-A]. *Guidelines for Performing Verification Walkdowns of Plant Protection Features*. May 2012 [NRC endorsed May 31, 2012; updated and re-issued June 18, 2012].
3. U.S. Nuclear Regulatory Commission. Letter to Licensees. *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*. March 12, 2012.
4. U.S. Nuclear Regulatory Commission. *Demonstrating the Feasibility and Reliability of Operator Manual Actions in Response to Fire.* NUREG-1852. October 2007.
5. U.S. Nuclear Regulatory Commission. *Recommendations for Enhancing Reactor Safety in the 21st Century, The Near Term Task Force Review of Insights from the Fukushima Dai-ichi Accident*. July 12, 2011.
6. U.S. Nuclear Regulatory Commission. *Operability Determinations & Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety*. NRC Inspection Manual. Part 9900: Technical Guidance. Regulatory Issues Summary 2005-20, Revisions 1. September 26, 2005.
7. Institute of Nuclear Power Operations. *Fukushima Dai-ichi Nuclear Station Fuel Damage Caused by Earthquake and Tsunami.* INPO Event Report 11-1. March 15, 2011.
8. U.S. Nuclear Regulatory Commission. *Follow-up to the Fukushima Dai-ichi Nuclear Station Fuel Damage Event.* Inspection Manual. Temporary Instruction 2515/183. ML113220407. November 2011.

9. U.S. Nuclear Regulatory Commission. *Inspection of Structures, Passive Components, and Civil Engineering Features at Nuclear Power Plants*. Inspection Manual. Inspection Procedure 62002. Section 03.01(h), Dams, Embankments and Canals.
10. U.S. Nuclear Regulatory Commission. *Evaluate Readiness to Cope with External Flooding*. Inspection Procedures. Attachment 71111.01. *Adverse Weather Protection*. Section 02.04.
11. U.S. Nuclear Regulatory Commission. *NRC Inspector Field Observation Best Practices*. NUREG/BR-0326, Rev. 1. August 2009.
12. U.S. Nuclear Regulatory Commission. *Flood Protection for Nuclear Power Plants*. Regulatory Guide 1.102.
13. LaSalle County Station, Updated Final Safety Analysis Report (UFSAR), Rev. 19.
14. LaSalle County Station, Topical Design Basis Document Flood Protection (DBD-LS-M11), Rev. B.
15. NUREG/CR-4832, SAND92-0537, VOL. 7, “Analysis of the LaSalle Unit 2 Nuclear Power Plant: Risk Methods Integration and Evaluation Program (RMIEP), External Event Scoping Quantification,” M.K. Ravindra and H. Bacon.

Enclosure 2

SUMMARY OF REGULATORY COMMITMENTS

The following table identifies commitments made in this document. (Any other actions discussed in the submittal represent intended or planned actions. They are described to the NRC for the NRC's information and are not regulatory commitments.)

COMMITMENT	COMMITTED DATE OR "OUTAGE"	COMMITMENT TYPE	
		ONE-TIME ACTION (Yes/No)	PROGRAMMATIC (Yes/No)
1. Exelon Generation Company, LLC (EGC) will complete the inspection of the 17 LaSalle Unit 1 features classified as restricted access and deferred due to inaccessibility. These items are listed in Table 5 of Enclosure 1.	L1R15 Spring 2014	Yes	No
2. Exelon Generation Company, LLC (EGC) will complete the inspection of the 14 LaSalle Unit 2 features classified as restricted access and deferred due to inaccessibility. These items are listed in Table 5 of Enclosure 1.	L2R14 Spring 2013	Yes	No
3. Exelon Generation Company, LLC (EGC) will complete the inspection of the LaSalle Unit 1 and 2 Reactor Building Tendon Tunnel Floor Slabs. These features are classified as restricted access and deferred due to inaccessibility. These items are listed in Table 5 of Enclosure 1.	August 30, 2013	Yes	No