



10 CFR 50.54(f)

RS-12-166

November 27, 2012

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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Clinton Power Station, Unit 1
Facility Operating License No. NPF-62
NRC Docket No. 50-461

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 Clinton Power 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.

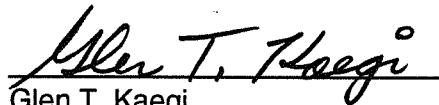
Enclosure 1 to this letter provides the requested information for Clinton Power Station.

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 Clinton Power Station
2. Summary of Regulatory Commitments

cc: Director, Office of Nuclear Reactor Regulation
Regional Administrator - NRC Region III
NRC Senior Resident Inspector – Clinton Power Station
NRC Project Manager, NRR – Clinton Power Station
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
Clinton Power Station**

(24 pages)

FLOODING WALKDOWN REPORT

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

for the
CLINTON POWER STATION
8401 Power Road, Clinton, IL 61727
Facility Operating License No. NPF-62
NRC Docket No. 50-461



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100% Report, Rev. 1
(supersedes Rev. 0 in its entirety)
November 9, 2012

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1. EXECUTIVE SUMMARY

In response to the Nuclear Regulatory Commission (NRC) Request for Information regarding Near-Term Task Force (NTTF) Recommendation 2.3, a flooding protection walkdown was conducted at Clinton Power Station (CPS) to identify and address plant-specific degraded, nonconforming, or unanalyzed conditions of the plant's flood protection features. The flooding walkdown was conducted between August 21 and August 31, 2012 and included visual inspections of flood protection features and a reasonable simulation of the applicable flood protection procedure steps.

The scope of the flooding walkdown was developed following a detailed review of all relevant current licensing documents. Since CPS is situated above the lake/river probable maximum flood (PMF) level, the station relies almost entirely on passive features incorporated in the design to keep water out of the plant, specifically site runoff from a local intense precipitation (LIP) event and groundwater. The flooding walkdown scope consisted of four main parts.

- The walls, floors and penetrations through the walls and floors in the Circulating Water Screen House Shutdown Service Water (SX) cubicles were inspected. These rooms, located above normal lake water level, are designed and credited in the current licensing basis (CLB) to remain dry during a PMF when the lake level rises above the room floors and part way up the walls.
- Two reasonable simulations were conducted. The first was an exercise to install the watertight floor hatch in the SX "B" pump room, to demonstrate that a CPS Abnormal Lake Level procedure could be implemented in the event of high lake water level, as these procedural steps have not been performed in the past. The second simulation was later performed to ensure the SX pump room roof hatches could be opened if needed to provide personnel access during a flood.
- An outdoor walkdown was conducted to ensure no topography changes, added structures or security barriers affect site drainage as described in the CLB.
- The below-grade structures (i.e., basement walls and basement slabs and penetrations through these walls and floors) in the main power block were inspected. These areas are credited in the CLB to keep groundwater and runoff from LIP out of the safety related buildings.

The methodology and acceptance criteria for the evaluation of flood protection features was developed based on NEI report 12-07 [Rev 0-A], Guidelines for Performing Verification Walkdowns of Plant Protection Features.

The visual inspections of walls, floors and penetrations through the walls and floors concluded that there are no observable structural deficiencies that may impact the structure's ability to perform its intended flood protection function. The reasonable simulations demonstrated the applicable procedure can be performed successfully.

Issue Reports (IRs) were entered into the Corrective Action Program (CAP) for all observations not immediately judged as acceptable. These issues were addressed in CAP and they were not reportable deficiencies.

Recommended enhancements to the SX "B" pump room floor hatch were documented in IRs and implemented as described in the response to Item 2(f), Findings and Corrective Actions Taken/Planned. No other changes were determined necessary as a result of the flood walkdowns at CPS.

Whether conduits from manholes or cable vaults could provide a path for ground water or rain water to enter safety related buildings was considered relevant to the walkdown scope. Conduits from manholes/cable vaults generally are not routed to safety related buildings at CPS. In a few cases, there are entering conduits that turn upwards and terminate above grade level such that no path for water is provided. The walkdown scope included inspections of the external conduit seals. Internal conduit seals could not be visually inspected; however, plant design documentation provides reasonable assurance that the internal seals are installed, and evidence of groundwater/rainwater leakage through conduits into safety related buildings at CPS was not identified during the walkdowns. It was concluded that conduits at CPS do not provide a path for ground water or rain water to enter safety related buildings.

A small portion of the total floor and wall areas and a few of the penetrations within the walkdown scope were deemed inaccessible and were not inspected. Reasonable assurance that these portions of the walls and floors and the inaccessible penetrations are acceptable is based on the fact that visual inspection of accessible walls, floors and penetrations throughout the plant revealed no deficiencies or degradation that would prevent performance of flood protection functions. Performance of an exercise to open the SX pump room roof hatches was not completed, as demonstration of hatch removal would damage the roof. A simulation of this process was subsequently successfully performed. The condenser pit floor area in the Turbine Building was considered a restricted access area and inspection for signs of groundwater in-leakage was deferred until an outage, as dose in this area is significantly reduced when the plant is not operating. The next refueling outage at CPS is currently scheduled for October 2013.

Performance of the walkdowns and simulations provided confirmation that flood protection features are in place, are in good condition and will perform as credited in the current licensing basis. Observations not immediately judged as acceptable were addressed and dispositioned under the CAP program. A total of 17 IRs were entered into the CAP as a result of this effort. These are described in Table 2 in the Conclusions section of this report.

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”. 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, 2012 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.

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, 2012 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).

b. Site Description

Per Updated Safety Analysis Report (USAR) Section 2.4 (Reference 13) CPS is located 6 miles east of the city of Clinton, DeWitt County in central Illinois. The condenser cooling water is provided from the U-shaped cooling lake (Lake Clinton) that has been formed by construction of a dam just downstream from the confluence of the North Fork of Salt Creek with Salt Creek. The Salt Creek and North Fork fingers of the U-shaped lake extend 14 miles and 8 miles, respectively, upstream from the dam. The drainage area of the lake is 296 mi². The surface area of the lake is 4895 acres (7.65 mi² - 2.6% of the drainage area) and the storage capacity is 74,200 acre-feet at a normal pool elevation of 690 feet. (All elevations are based on mean sea level (MSL) datum, U.S.G.S., 1929 adjustment.)

The station is located between the two fingers of the lake with a station grade elevation of 736 feet and plant main floor elevation of 737 feet. The station is approximately 3-1/2 miles northeast of the dam and 1 mile south of Illinois Highway 54. The station Circulating Water Screen House is located on the North Fork finger of the lake with the circulating water discharging back into the Salt Creek finger through a discharge flume.

A concrete service spillway with an ogee type crest is provided on the west abutment of the dam to pass floods. An auxiliary spillway is provided on the east abutment to pass floods more severe than once-in-100-years recurrence including the probable maximum flood (PMF). A lake outlet structure is located near the west abutment to provide a minimum downstream release of 5 cfs. The ultimate heat sink for the emergency core cooling system is provided within the cooling lake by constructing a submerged dam across the North Fork with an approach channel leading into the Circulating Water Screen House.

The PMF runoff into the lake routed through the spillways will raise the lake water level to elevation 708.8 feet at the dam site. The backwater effect along the North Fork finger will raise the PMF water level at the station site to elevation 708.9 feet. Superimposing the wind wave effect due to a sustained 40 mph wind acting on the probable maximum water level will result in wave runup elevations of 711.9 feet and 713.8 feet for significant waves and maximum (1%) waves, respectively, at the station site. For purposes of the walkdowns performed for this report, the PMF is taken as 713.8 feet. The station's Seismic Category I structures with grade elevation of 736 feet will not be affected by the PMF design conditions. However, flood protection for the safety-related systems and components in the Circulating Water Screen House is provided to elevation 714 feet.

The following protection measures are adopted for Seismic Category I systems and components located in the Circulating Water Screen House and located below the PMF level.

- a. Water stops are provided in all construction joints up to the maximum flood level.
- b. Water seal rings are provided for all penetrations in exterior walls below the maximum flood level.
- c. Watertight doors designed to withstand the hydrostatic head of the maximum flood level are provided for all doorways located on both the entrance walls and the internal walls of the SX pump rooms which are below the maximum flood level.
- d. A hatch is provided on the roof of the essential service water pump structure (elevation 730 feet) for access during PMF.

The measures listed above are not required at the CPS main power block buildings, because grade at the station site is well above the PMF level. However, these measures are adopted for the portions of the structures at the station site located below the maximum groundwater level. Per the CPS USAR, the groundwater table at the CPS site is conservatively taken as elevation 730 feet. All substructures below elevation 730 feet at the CPS site are designed to withstand full hydrostatic head of groundwater.

The areas surrounding the plant are graded to direct surface runoff away from the plant. The station area is provided with a drainage system which will drain into Salt Creek and the North Fork; however, it is conservatively assumed in the USAR analysis that the local surface drainage system would not function during the LIP event.

The estimated maximum water surface elevation around the plant as a result of LIP is lower than the plant floor elevation of 737.0 feet, except on the northern side of the plant over the portions enclosed by the

curved tracks 5, 6, and 7 where the elevation would be about 737.2 feet. Only the southern half of the structure contains safety-related equipment. About 0.2 foot depth of water standing outside on the northern side of the structure above the plant floor elevation 737.0 feet would not affect the safety-related system functions because there is no below grade safety-related equipment in the northern half of the plant. The floor drain system would take care of the water that might enter the building. Therefore, the safety-related items would not be affected by surface water ingress into the northern side of the structure. The maximum water surface elevation due to a LIP is 736.8 feet in the immediate station area where safety-related facilities are located (southern half of the main power block structure). With the station floor elevation at 737 feet, the safety-related facilities would not be affected by the LIP.

For the Unit 2 excavation, it has been conservatively estimated that during the 48 hour PMP event, without considering the protecting effect of the surrounding earth berms and without the benefit of any drainage out of the excavation, the elevation of the impounded rainwater runoff will be 728 ft.

Access to the station is via Illinois Highway 54. The ground topography along the station access route is favorably high and the grades have been located well above the PMF level. The station access road does not cross any stream and will not be affected by any flood conditions at 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's 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 2a 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

Exelon developed a fleet-wide program and training course for walkdown team members to provide complete and consistent implementation of NEI 12-07 guidelines. In addition all walkdown team members completed the applicable NANTeL training and testing. Data gathering began with identification of station-specific licensing commitments and station design basis relative to external flooding events. This included review of the CPS USAR, identification of drawings showing flood protection features and review of station procedures and calculations relative external flooding events. A walkdown scope was developed to capture station features credited as performing a flood protection function in the current licensing basis. A walkdown list was prepared identifying the specific features to be inspected. For each feature on the walkdown list a walkdown package was prepared for use by the walkdown team in performing and documenting the walkdown.

The scope developed for the walkdowns at CPS included the following:

- The floors and exterior watertight walls (up to PMF elevation) of the shutdown service water (SX) pump rooms in the Circulating Water Screen House. Scope included inspection of all penetrations and watertight doors in the walls inspected. Interior walls between SX pump rooms were not inspected.
- The floors and exterior watertight walls (up to maximum water level due to local intense precipitation (LIP) resulting from PMP) of all main power block buildings. This included exterior walls and basement floors of the Auxiliary, Fuel, Control, Diesel Generator, Radwaste and Turbine buildings. Interior walls between the buildings were not inspected. The Containment building was not included in the inspection scope because it has no exterior walls and the floor is credited with leak tightness based on the periodic Integrated Leak Rate Testing (ILRT) and by comparison with the results of floor inspections of the surrounding buildings (no issues with floors were identified). The floor drain systems in the Turbine and Radwaste buildings were included in the inspection scope as they are credited in addressing postulated in-leakage due to the maximum LIP water level.
- Whether conduits from manholes or cable vaults could provide a path for ground water or rain water to enter safety related buildings was considered relevant to the walkdown

scope. Conduits from manholes/cable vaults generally are not routed to safety related buildings at CPS. In a few cases there are entering conduits that turn upwards and terminate above grade level such that no path for water is provided. The walkdown scope included inspections of the external conduit seals. Internal conduit seals could not be visually inspected but are provided by design. Evidence of groundwater/rainwater leakage through conduits into safety related buildings at CPS has not been identified in the past and was not identified during the walkdowns. Conduits at CPS do not provide a path for ground water or rain water to enter safety related buildings.

- An outdoor walkdown was conducted to ensure no topography changes or added structures or security barriers affect site drainage as described in the CLB.

Phase 2 – Inspections and Reasonable Simulations

Visual inspection of each feature and reasonable simulation, where applicable, was performed during the walkdowns and the results were documented on the Walkdown Record Forms. The condition of each feature as observed was compared to the acceptance criteria defined in the Supplemental Walkdown/Inspection Guidance (Reference 16). Two reasonable simulations were conducted; an exercise to install the watertight floor hatch in the SX “B” pump room to demonstrate the CPS procedure could be implemented in the event of high lake water level and a simulation of the steps required to open the SX pump room roof hatches to provide access during a flood.

Phase 3 – Final Reporting

The Walkdown Record Forms were completed and assembled into a package that included a summary and a cover page to document a management review of the entire package. Completion of the Walkdown Record Forms was performed in accordance with the guidance provided in Section 7 of NEI 12-07. A Flooding Walkdown Report (this report) was prepared to address the items outlined in the “Requested Information” section of the “Recommendation 2.3: Flooding” enclosure from the 10CFR50.54 (f) letter.

c. Reasonable Simulations

A procedure walk-through, or “Reasonable Simulation”, was conducted for temporary and/or active features that require manual/operator actions to perform their intended flood protection function. The purpose of the reasonable simulations was to verify the procedure or activity can be executed as specified/written. Per NEI 12-07, reasonable simulation included the following:

- Verify that any credited time dependent activities can be completed in the time required. Time-dependent activities include detection (some signal that the event will occur, has occurred, or is occurring), recognition (by someone who will notify the plant), communication (to the control room), and action (by plant staff).
- Verify that specified equipment/tools are properly staged and in good working condition.
- Verify that connection/installation points are accessible.

- Verify that the execution of the activity will not be impeded by the event it is intended to mitigate or prevent. For example, movement of equipment across unpaved areas on the site could be impeded by soft soil conditions created by excessive water.
- Review the reliance on the station staff to execute required flood protection features. If during the review several activities are identified to rely on station staff, then perform and document an evaluation of the aggregate effect on the station staff to demonstrate all actions can be completed as required.
- Verify that all resources needed to complete the actions will be available. (Note that staffing assumptions must be consistent with site access assumptions in emergency planning procedures.)
- Show that the execution of the activity will not be impeded by other adverse conditions that could reasonably be expected to simultaneously occur (for example, winds, lightning, and extreme air temperatures).
- Personnel/departments that have responsibility for supporting or implementing the procedure should participate in the simulation effort.
- The simulation should demonstrate that the personnel assigned to the procedure do not have other duties that could keep them from completing their flood protection activities during an actual event. Actions that would be performed in parallel during an event should be simulated in parallel; not checked individually and the results combined.
- Reasonable simulation need not require the actual performance of the necessary activities if they have been previously performed and documented or it is periodically demonstrated and documented that the activities can be completed in the credited time.

A review of CPS procedures identified one procedure requiring operator action to protect safety related equipment in response to flooding concerns. CPS 4303.02 (Reference 17) requires monitoring the screen house tunnel for in-leakage in the event of high lake water level. The open access hatch in the SX "B" pump room floor is to be closed in the event of in-leakage to re-establish SX pump room watertight integrity. As installation of the hatch had not been previously performed and documented, CPS demonstrated that hatch installation can be implemented if required. In addition, a simulation was performed to provide assurance the SX pump room roof hatches can be opened during a PMF.

d. Walkdown Inspection Guidance

A "Walkdown Inspection Guidance" was developed by Exelon to supplement NEI 12-07, 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.

The CPS design basis for external flooding is described in CPS USAR Sections 2.4 and 3.4. CPS is designed to be protected from the effects of lake flooding and LIP event. In addition CPS is designed to be protected against groundwater ingress.

The cooling lake is designed to withstand the effects of a probable maximum storm occurring over the entire drainage basin above the dam site. In the Salt Creek basin, there are no existing or proposed dams upstream from CPS; therefore flood waves induced from dam failures that affect the safety-related structures were considered irrelevant in the design basis flooding evaluation. Massive landslide from the valley walls into the cooling lake caused by a seismic disturbance was not considered because of lack of susceptible topographic and geological features. Given its proximity away from coastal areas, flooding due to tsunami was not considered at CPS. Therefore, the governing design basis PMF condition is high water in the lake. All the safety-related structures are protected against this event. (USAR Section 2.4.2.2)

The design basis PMF lake stillwater level for CPS is elevation 708.9 feet. Superimposing the wind wave effect due to a sustained 40 mph wind acting on the probable maximum water level will result in wave runup elevations of 711.9 feet and 713.8 feet for significant waves and maximum (1%) waves, respectively, at the station site. For purposes of the station walkdowns performed for this report, the PMF is taken as 713.8 feet. This elevation is applicable to the Circulating Water Screen House SX pump rooms. These rooms are designed to be flood protected to elevation 714 feet. (USAR Sections 2.4.2.2 and 2.4.10)

CPS main power block buildings are situated at grade elevation 736 feet, well above the PMF level. The portions of the building substructures located below the maximum groundwater level are designed to prevent groundwater ingress. Per the licensing basis, the groundwater table at the CPS site is conservatively taken as elevation 730 feet. All substructures below elevation 730 feet at the CPS site are designed to withstand full hydrostatic head of groundwater. (USAR Section 2.4.2.3)

LIP has been determined to result in a maximum water surface elevation of 736.8 feet in the immediate station area where safety-related facilities are located (southern half of the main power block structure). The analysis assumes that local surface drainage systems do not function during the LIP event. The areas surrounding the plant are graded to direct surface runoff away from the plant. The station floor elevation is at elevation 737 feet and exterior power block walls are designed to be flood barriers to 737 feet. The design basis water elevation at the exterior power block walls is 736.8 feet, except where the walls are adjacent to the Unit 2 excavation, as described below. The northern half of the main power block structure contains no below grade safety-related equipment. Ponding on the northern side of the plant over portions enclosed by curved railroad tracks is estimated to be at elevation 737.2 feet. The building floor drain system would take care of any water that might enter the building. (USAR Section 2.4.2.3)

For the Unit 2 excavation it has been conservatively estimated in the licensing basis that during the 48 hour PMP event, without considering the protecting effect of the surrounding earth berms and without the benefit of any drainage out of the excavation, the elevation of the impounded rainwater runoff will be 728 feet. For purposes of the station walkdown and this report the water level in the Unit 2 excavation is taken as 728 feet. (USAR Section 2.4.2.3)

USAR Section 2.4 addresses additional flooding mechanisms that are either not critical or not bounding for CPS. Probable maximum surge and seiche flooding is not bounding for CPS because there is no large body of water near the site where significant storm surges and seiche formations can occur. The size of the cooling lake is not large enough to develop a surge or seiche flooding condition. The station will not be subjected to the effects of tsunami flooding because the site is not adjacent to a coastal area. The effects of the PMF on the lake water level resulting from ice formation are less than that of the probable maximum summer flood.

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 only safety related equipment at Clinton Power Station that could be directly impacted by flooding of the Salt Creek and Clinton Lake are the SX pumps and associated equipment. These pumps are

installed in water tight compartments in the Circulating Water Screen House. The walls of these rooms are designed to be flood protected to elevation 714 feet. PMF level is 708.9 feet. Superimposing the wind wave effect will result in a maximum wave runup elevation of 713.8 feet. Hatches are provided on the roof of the essential service water pump structure (elevation 730 feet) for access to each of the SX pump rooms during PMF. (USAR Sections 2.4.2.2 and 2.4.10)

Within the main power block structures, there is safety-related equipment located below grade in the Auxiliary, Containment, Fuel, Control and Diesel Generator buildings. No safety-related equipment is located below grade in the Turbine or Radwaste buildings. The portion of the Containment Building located at and below grade is enclosed by the Auxiliary and Fuel buildings. Consequently, the Containment Building has no exterior walls below grade. All of the buildings with exterior walls below grade, including the Turbine and Radwaste buildings, are designed to be water tight up to plant floor elevation 737 feet, which is above the grade elevation 736 feet. Potential sources of external flooding of the main power block buildings are LIP and groundwater ingress. For design purposes and per the licensing bases, the groundwater table at the CPS site is conservatively taken as elevation 730 feet. All substructures below elevation 730 feet at the CPS site are designed to withstand full hydrostatic head of groundwater. LIP has been determined to result in a maximum water surface elevation of 736.8 feet in the immediate station area where safety-related facilities are located (Auxiliary, Fuel, Control and Diesel Generator buildings). Local surface drainage systems are assumed not to function during the LIP event. The areas surrounding the plant are graded to direct surface runoff away from the plant. The station floor is at elevation 737 feet and exterior power block walls are designed to be flood barriers to 737 feet. Ponding on the northern side the Turbine and Radwaste buildings is estimated to be at elevation 737.2 feet. The building floor drain system would take care of any water that might enter the building. (USAR Section 2.4.2.3)

In general, all flood protection features at CPS that are designed to protect safety-related equipment are passive incorporated features. The only active features are the sump pumps in the SX pump rooms and the roof hatches for access to these rooms during a flood. The sump pumps are not explicitly credited in the licensing basis, but would serve to protect the SX pumps should a small amount of water leak into the SX pump rooms. One passive temporary flood protection feature was identified; the floor hatch in the SX "B" pump room. Procedure CPS 4303.02 requires installation of this hatch in the event of high lake water level (elevation 694 ft.) and leakage into the SX pipe tunnel. The CPS procedure also requires sandbagging at the Circulating Water Screen House in the event of flooding, however, this action is designed to provide protection for the non-safety related circulating water pump motors and other non-safety related plant assets. Reasonable simulation of this action was therefore considered outside the scope of this effort.

The flood protection features at CPS are designed such that their effectiveness is not dependent on concurrent weather conditions or on flooding duration. In addition, CPS flood protection features are designed to function during any plant mode of operation.

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

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

CPS has no warning systems in rooms important to safety credited to detect flooding from external sources. While not credited for detection of external flooding, each of the SX pump rooms in the Circulating Water Screen House is equipped with a level switch in the room sump which will alarm if high water level is detected. Similarly, sumps in each of the main power block buildings will alarm if high water level is detected.

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 CAP where an evaluation of the observation can be made.

The purpose of the walkdowns, performed in response to the NRC Request for Information regarding NTTF Recommendation 2.3, is to verify conformance with the CPS current licensing basis. The adequacy of the current licensing basis will be addressed in response to Recommendation 2.1.

Acceptance criteria for visual inspections performed during the walkdowns were developed to ensure that any conditions adverse to quality were identified. Considerations taken into account when flood protection features were reviewed included the following:

- Flood protection configuration is in accordance with design drawings and the station current licensing basis.
- Visual inspection did not identify any material degradation. A detailed listing of acceptance criteria for visual inspections was utilized by the walkdown team during performance of the walkdowns.
- When applicable, PMs or periodic inspections are in place, within their required periodicity, and of adequate scope.

- No topography changes, including security barrier installations, adversely affect the site drainage.

Walkdowns were conducted to verify the exterior walls and floors credited for keeping water out of safety-related areas are capable of performing their intended function based on visual observations. In addition, penetrations through these walls and floors were inspected to verify their condition. Flood protection features inspected at CPS also included flood doors to the SX pump rooms, the sump pumps in the SX pump rooms and the roof hatches for access to the SX pump rooms during a flood. An outdoor walkdown was conducted to ensure no topography changes or added structures or security barriers affect site drainage as described in the CLB. Whether conduits from manholes or cable vaults could provide a path for ground water or rain water to enter safety related buildings was considered relative to the walkdown scope. Conduits from manholes/cable vaults generally are not routed to safety related buildings at CPS. In a few cases there are entering conduits that turn upwards and terminate above grade level such that no path for water is provided. The walkdown scope included inspections of the external conduit seals. Internal conduit seals could not be visually inspected but are provided by design. Evidence of groundwater/rainwater leakage through conduits into safety related buildings at CPS was not identified during the walkdowns. Conduits at CPS do not provide a path for ground water or rain water to enter safety related buildings.

The walkdowns, simulations, and document reviews verify that flood protection features incorporated in the CPS design provide effective barriers for keeping external flooding from reaching safety-related systems and equipment. The SX pump rooms in the Circulating Water Screen House will provide flood protection from PMF level flooding of the lake. The exterior walls of the main power block buildings prevent ingress of groundwater. The floor elevation at the main power block buildings is elevated above grade to prevent water from local intense precipitation from entering safety related buildings. No topography changes or new security barriers will prevent drainage following a LIP event. The walkdowns, simulations, and document reviews did, however, result in some observations that could not be immediately judged as acceptable. These were entered into CAP for disposition.

In addition to these walkdowns, the station structural monitoring program (References 14 and 15) and preventative maintenance activities as referenced in the individual walkdown package records provide for ongoing verification of flood barrier effectiveness.

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.

Station walkdowns were implemented in accordance with the guidelines provided in NEI 12-07. The CPS walkdown team included three Sargent & Lundy employees as well as the CPS Lead Responsible Engineer for flooding issues. All team members were familiar with the station licensing basis relative to external flooding and have completed both NANTeL based training and Exelon specific training on implementation of the NEI 12-07 guidelines. The Sargent & Lundy team consisted of two mechanical

engineers familiar with Clinton Power Station and one civil engineer with experience in site drainage issues. At least two Sargent & Lundy team members performed all visual inspections. Walkdown results were documented using the NEI 12-07 recommended form. Walkdown packages, one for each feature, were prepared in advance and included the NEI 12-07 walkdown form, with Parts A and B already completed, as well as reference drawings and documentation. The remaining parts of the walkdown forms were finalized after the feature walkdown was completed, and the identified observations were entered in CAP.

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.

The walkdown scope was developed to confirm that flood protection features credited in the current licensing basis are acceptable and capable of performing their credited flood protection functions. For CPS the scope primarily consisted of visual inspections of floors and exterior watertight walls both in the SX pump rooms and in the main power block. The scope included visual inspection of all applicable penetrations and watertight doors. In addition, an outdoor walkdown was conducted to confirm surface drainage provisions have not been impacted by changes to topography, such as might result from installation of new security barriers. Inspections of credited walkdown features were performed by the walkdown team following the guidance provided in NEI 12-07 and were documented in walkdown packages using the NEI 12-07 walkdown forms. Walkdown record forms are retained on site as discussed in Section 7 of Reference 2. Where degraded, non-conforming or unanalyzed conditions were identified, these findings were documented and entered into CAP.

The inspections of walls, floors and penetrations/seals verified that credited flood barriers are in place and appear capable of performing their intended flood protection function, however, some IRs were generated and entered into the CAP. These have been addressed and are not reportable deficiencies.

Two reasonable simulations were conducted. The first was an exercise to install the watertight floor hatch in the SX “B” pump room, to demonstrate the CPS procedure could be implemented in the event of high lake water level. Installation of the hatch was demonstrated successfully. Issues relative to the hatch were identified during the visual inspection walkdown and were addressed as described below. Corresponding IRs were entered into CAP and addressed. These issues are not reportable deficiencies. The second simulation demonstrated that the process of opening the SX pump room roof hatches can be performed during a PMF if required.

A total of 17 IRs were generated in the process of performing the walkdowns. These are summarized below and are listed, along with the resolution status, in Table 2 in the Conclusions section of this report.

Observations Not Immediately Judged as Acceptable

The SX “B” pump room at the Circulating Water Screen House is equipped with a floor hatch at elevation 699 ft. to provide access to the SX tunnel underneath. The hatch cover is not installed and has been stored in another room in the building. The watertight hatch must be installed prior to lake level

reaching 699 ft. to prevent flooding of the SX "B" pump room. Procedure CPS 4303.02 requires monitoring of the SX tunnel for leakage when the lake water level reaches 694 ft. and requires installation of the hatch cover when leakage is noted. The walkdown team inspected the hatch opening, inspected the hatch cover and witnessed a simulation during which the hatch cover was installed. A number of issues were identified as a result. An existing IR 01197998 addressed the storage location of the hatch cover. IR 01404215 recommended protecting the bolt holes in the floor from corrosion and debris and other improvements to facilitate future installation, and IR 01405906 initiated replacement of the hatch cover gasket, as its condition was degraded. The hatch cover has now been relocated and is stored in the SX "B" pump room near the opening (EC 390374, Reference 18). Handles have been attached to the hatch to facilitate safe installation and removal (EC 390417, Reference 19). Improvements made include fabrication of a new gasket for the hatch cover, staging this gasket with the hatch cover, cleaning out of the bolt holes, and verifying proper thread engagement of the bolts/bolt holes. Other minor enhancements to be completed include working the hatch cover bolt holes to improve alignment with the floor bolt holes, install the gasket at the floor opening, and provide a protective cover over the gasket and bolt holes.

IR 01404339 documents a minor gouge in the sealant material in one of the SX "A" pump room penetration seals. This condition was determined not to impact the flood protection function of the seal.

IR 01403121 documents the need to update the USAR description of drainage in the vicinity of the rail road tracks on the north side of the plant. Some of the tracks have been removed. The as-built condition improves drainage in the vicinity and thus does not adversely impact calculated flooding due to local intense precipitation.

Each of the SX pump rooms at the Circulating Water Screen House is equipped with a personnel access hatch in the roof to provide access during a flood. These hatches are located well above the PMF level. Their flood function is to be opened in the event access is required and normal access doors are flooded. These hatches are built into the building roof. Demonstration of hatch removal to provide access would damage the roof. IRs 01404493 and 01423001 were generated concluding that a simulation would be conducted to verify the roof hatches could be opened if required. This simulation was successfully performed under WO 1553183. The results document that the roof hatches could be opened in an acceptable period of time (less than 2 hours) with available station resources before water reaches PMF level.

Performance of the walkdowns and simulations provided confirmation that flood protection features at CPS are in place, are in good condition (except as noted above) and will perform as credited in the current licensing basis. Observations not immediately judged as acceptable were addressed and dispositioned under the CAP program.

Observations Designated through CAP as Deficient

None.

Observations Awaiting Final Disposition in CAP

None.

Restricted Access Areas

Inspection of the condenser pit floor area in the Turbine Building was deferred until an outage as dose in this area is significantly reduced when the plant is not operating. This is documented in IR 01407573. The next refueling outage at CPS is currently scheduled for October 2013. Reasonable assurance that this portion of the floor is acceptable during the interim is based on the fact that visual inspection of the floor in the remainder of the turbine building revealed no deficiencies or degradation that would prevent performance of its flood protection function.

Inaccessible Areas

A small portion of the total floor and wall areas and a small portion of the penetrations within the walkdown scope were deemed inaccessible and were not inspected. These features are in locked high radiation areas or were physically inaccessible (buried or blocked from visual inspection by an electrical junction box or other obstruction). The inaccessible features are documented in IRs 01405838, 01405843, 01407623, 01405862, 01405858, 01405864, 01405866, 01405880, 01405872 and 01407747. Reasonable assurance that the inaccessible portions of the walls and floors are acceptable is based on the fact that visual inspection of the walls and floors in these buildings and throughout the plant revealed no deficiencies or degradation that would prevent performance of flood protection function. Reasonable assurance that these penetrations are acceptable is based on the fact that visual inspection revealed no signs of current or past groundwater leakage through these penetrations and inspections of similar penetrations in these buildings that are sealed from the inside did not show signs of seal degradation that would prevent performance of flood protection functions.

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, 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, 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.

Where applicable, 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, 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.

Enhancements to the SX pump room floor hatch were implemented as described in the response to Item 2(f). No other planned or newly-installed flood protection enhancements were determined to be necessary as a result of the flood walkdowns at CPS.

5. CONCLUSIONS

Visual inspections of walls, floors and penetrations provided reasonable assurance that credited flood barriers are capable of performing their intended function. All IRs entered into the CAP have been addressed and are not reportable deficiencies. A reasonable simulation was conducted and demonstrated that the installation of the SX pump room floor hatch can be performed successfully. Enhancements to the SX pump room floor hatch were implemented as described in the response to Item 2(f). No other changes were determined necessary as a result of the flood walkdowns at CPS. Performance of an exercise to open the SX pump room roof hatches was not completed, as demonstration of hatch removal would damage the roof; a simulation of this process was subsequently successfully performed.

A small portion of the total floor and wall areas within the walkdown scope were deemed inaccessible and were not inspected. Reasonable assurance that these portions of the walls and floors are acceptable is based on the fact that visual inspection of the walls, floors and penetrations in these buildings and throughout the plant revealed no deficiencies or degradation that would prevent performance of flood protection functions. Inspection of the condenser pit floor area in the Turbine Building was deferred until the October 2013 outage as dose in this area is significantly reduced when the plant is not operating.

No operability issues were identified and no degraded, non-conforming or unanalyzed conditions require performance of additional actions.

Table 1 provides a summary of the number and type of features included in the walkdown scope.

Table 2 provides the list of the IRs generated and entered into the station corrective action program (CAP) as a result of the walkdown. The status of each IR at the time of this report is indicated. None of these IRs resulted in an operability concern and none are reportable deficiencies.

Table 1: Features Included in the Walkdown Scope

Type	# of Visual Inspections	# of Simulations, Drills or Exercises
Incorporated/Exterior Passive	39	0
Incorporated/Exterior Active	9	3*
Temporary Passive	1	1
Temporary Active	0	0
Totals	49	1

*One (1) simulation was performed to address these 3 features.

Table 2: IRs Generated in CAP

IR Number	Description	Proposed Resolution	Status/Resolution
01405838	RHR "B" room floor inaccessible	Access was subsequently granted and room inspection completed	Close as is.
01405843	Inaccessible penetrations in Aux Building west wall	Evaluate and provide justification for acceptance	Reasonable assurance provided that feature will perform as designed.
01407623	Inaccessible penetrations in Diesel Building south wall	Evaluate and provide justification for acceptance	Reasonable assurance provided that feature will perform as designed.
01405862	Inaccessible floor areas in Fuel Building	Evaluate and provide justification for acceptance	Reasonable assurance provided that feature will perform as designed.
01405858	Inaccessible penetrations in Fuel Building east wall	Evaluate and provide justification for acceptance	Reasonable assurance provided that feature will perform as designed.
01405864	Inaccessible penetrations in Fuel Building south wall	Evaluate and provide justification for acceptance	Reasonable assurance provided that feature will perform as designed.
01405866	Inaccessible penetrations in Fuel Building west wall	Evaluate and provide justification for acceptance	Reasonable assurance provided that feature will perform as designed.
01403121	USAR Section 2.4.2.3 description requires update regarding curved railroad tracks north of plant. Tracks have been removed.	Initiate USAR change package	Statement in USAR will be updated.
01405880	Inaccessible room floors in Radwaste Building	Evaluate and provide justification for acceptance	Reasonable assurance provided that feature will perform as designed.
01405872	Inaccessible penetrations in Radwaste Building north wall	Evaluate and provide justification for acceptance	Reasonable assurance provided that feature will perform as designed.

IR Number	Description	Proposed Resolution	Status/Resolution
01404493	Deferred SX pump room simulation as opening hatch damages roof	Schedule opening of roof hatches to correspond with planned roof replacement or evaluated and provide justification for acceptance	Close to IR 01423001
01423001	Opening of SX pump room roof hatches not to be performed. Reclassify as "inaccessible"	Perform simulation to open Div. 3 SX pump room hatch	Simulation was performed under WO 01553183 task 14.
01404339	Small loss of Bisco material in SX room penetration seal	Evaluate and provide justification for acceptance	Reasonable assurance provided that feature will perform as designed.
01405906	Gasket in SX room floor hatch is degraded.	Replace gasket in SX room floor hatch	Work Order 01431449 replaced gasket.
01404215	Issues with SX room floor hatch installation	Protect bolt holes with FME cover, improve hatch storage, enhance hatch installation procedure	Work Order 01431449 will implement enhancements
01407747	Condensate polisher room G, H & J inaccessible	Evaluate and provide justification for acceptance	Reasonable assurance provided that feature will perform as designed.
01407573	Deferred condenser pit floor inspection	Inspect during station outage when area dose rates are low	Reasonable assurance provided that feature will perform as designed. SCRF # 5802 tracks deferral.

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. CPS USAR, Rev. 14
 14. Procedure ER-AA-450, Rev. 1, Structures Monitoring
 15. Procedure ER-CL-450-1006, Rev. 1, Clinton Structures Monitoring Instructions
 16. Supplemental Walkdown/Inspection Guidance, Rev. 1, August 17, 2012
 17. Procedure CPS 4303.02, Rev. 10a, Abnormal Lake Level
 18. EC 390374, Staging Location for the Div 2 Pump Room Hatch Cover at 699'
 19. EC 390417, Fabrication Installation of Handles on the Division II SX Pump Room Access Hatch Cover

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)
Exelon Generation Company, LLC (EGC) will complete the inspection of Clinton Power Station condenser pit floor area in the Turbine Building, classified as restricted access and deferred due to inaccessibility.	C1R14 Winter 2013	Yes	No