Exelon Generation®

10 CFR 50.54(f)

RS-12-176
TMI-12-162

November 19, 2012

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

Three Mile Island Nuclear Station, Unit 1
Renewed Facility Operating License No. DPR-50
NRC Docket No. 50-289

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. 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
3. NRC Letter, Endorsement of Nuclear Energy Institute (NEI) 12-07, "Guidelines For Performing Verification Walkdowns of Plant Flood Protection Features," dated May 31, 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 (Reference 2) requested in Enclosure 4 of Reference 1, confirming that EGC would use the NRC-endorsed flooding walkdown procedure.

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 3), 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 Three Mile Island Nuclear Station, Unit 1 (TMI Unit 1) 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 TMI Unit 1.

This letter contains no new regulatory commitments.

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 19th day of November 2012.

Respectfully,

Michael D. Jesse
Director - Licensing & Regulatory Affairs
Exelon Generation Company, LLC

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 Three Mile Island Nuclear Station, Unit 1

cc: Director, Office of Nuclear Reactor Regulation
Regional Administrator - NRC Region I
NRC Senior Resident Inspector – TMI Unit 1
NRC Project Manager, NRR – TMI Unit 1
Chairman, Board of County Commissioners of Dauphin County, PA
Chairman, Board of Supervisors of Londonderry Township, PA
Director, Bureau of Radiation Protection – Pennsylvania Department of Environmental Resources
R. R. Janati, Chief, Division of Nuclear Safety, Pennsylvania Department of Environmental Protection, Bureau of Radiation Protection

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 Three Mile Island Nuclear Station, Unit 1

(50 pages)

FLOODING WALKDOWN REPORT

IN RESPONSE TO THE 50.54(f) INFORMATION REQUEST REGARDING NEAR-TERM TASK FORCE RECOMMENDATION 2.3: FLOODING
for the
THREE MILE ISLAND NUCLEAR STATION UNIT 1
Route 441S, Middletown, PA 17057
Renewed Facility Operating License No. DPR-50
NRC Docket No. 50-289

Exelon Generation Company, LLC

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November 1, 2012

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Contents

1. EXECUTIVE SUMMARY

This Flooding Walkdown for Three Mile Island Unit 1 (TMI1) required in response to the Recommendation 2.3 Flooding Enclosure 4 of the March 12, 2012 10CFR50.54(f) letter was performed to verify that plant features credited in the current licensing basis (CLB) for protection and mitigation from external flood events are available, functional, and properly maintained. The process was conducted in accordance with NRC endorsed guidance in NEI 12-07, Rev. 0-A, "Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features".

The flood levels and the flood protection features credited in the CLB were identified. The process at TMI-1 included a visual inspection of all features to protect the Diesel Generator Building, Intermediate Building, Control Building, Fuel Handling Building, Auxiliary Building including the Air Intake Tunnel and Heat Exchanger Vault, Intake Screen and Pump House, and the Reactor Building. A total of 494 features were identified for visual inspection. In addition, simulations and drills were performed to validate the adequacy of protective actions in flood emergency procedures.

The inspection found that the vast majority of the features were acceptable and capable of performing their flood protection function. Any potential deficiency was entered (or confirmed to have been previously entered) into the corrective action process. All issues are listed in Table 4. That list includes the resolution of each issue. The inspection identified that the design flood protection for conduits entering the air intake tunnel was not installed. This condition was reported to NRC on August 10, 2012 as an "Event or Condition that could have prevented fulfillment of a Safety Function".

All issues were resolved with the exception that the repair of concrete cracks in walls and ceilings in the Heat Exchanger Vault, Tendon Access Gallery and Air Intake Tunnel are scheduled to complete by April 30, 2013.

The design of "inaccessible" (as defined in NEI 12-07) features was reviewed. There is reasonable assurance that these features could perform their flood protection function. The emergency procedures provide adequate direction to ensure flood protection actions could be accomplished prior to the flood water level exceeding the height of the dike. The walkdown process provided additional insights which have been used to improve passive flood protection and flood emergency procedures.

Visual inspections revealed that 368 of the features met the acceptance criteria and are thus capable of performing their flood protection function. Refer to Table 3 in Section 5 of this report for a list of features judged to be acceptable. Features not immediately observed as acceptable were entered into the corrective action program. Table 4 in Section 5 of this report identifies 80 features in this category. No features were identified as restricted access. A total of 50 features were classified as inaccessible. The design of these features was reviewed and this provides reasonable assurance that these items could perform their flood protection function. Refer to Table 6 in Section 5 of this report for a list of inaccessible features. The inspection included identification of pathways and inspection of the barriers necessary to prevent flood water intrusion. Electrical manholes in the yard were inspected as needed to support a complete inspection.

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 in accordance with proposed AEC General Design Criteria, dated July 1967 (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. Flooding walkdowns will be performed to identify degraded, nonconforming, or unanalyzed conditions and to verify the adequacy of monitoring and maintenance of 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 of the industry walkdown guidance (Reference 1).

Note Regarding Cliff-Edge Effects

Cliff-edge effects were defined by the NTTF Report (Reference 2), 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

The site is located on Three Mile Island along the Susquehanna River about 10 miles downstream of Harrisburg, Pennsylvania. The nuclear steam supply system for TMI-1 is a pressurized water reactor that was designed and supplied by Babcock and Wilcox (B&W). The Three Mile Island Nuclear Station Unit 1 was initially licensed to operate at a rated power level of 2535 MWt. License Amendment No. 143, dated 7/26/1988, authorized a 1.3 percent increase in the licensed rated power level to 2568 MWt.

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.

Per 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 1a 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

At TMI, the approach to the flooding walkdowns included three phases:

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

The walkdown list was developed using the guidance provided in Section 4.2 of NEI 12-07. The existing design and licensing documents such as the UFSAR, plant drawings, and flood response procedures were reviewed to identify the plant features credited for protection and mitigation against external flooding events. Plant specific documents used to develop the walkdown list are identified in the Reference Section. The critical attributes of each feature are reported in Part A of the NEI 12-07 Walkdown Record Form. Topics and items reviewed to develop the walkdown list included the following:

- The barriers important to resisting the effects of external flooding (e.g., structures, walls, floors, doors, etc.).
- Penetrations through barriers, such as manholes, trenches and cable openings that could provide a path for flood water to enter buildings and the means to seal these penetrations. Temporary penetrations and equipment hatches that could provide a path for floodwater to enter buildings were also identified. The means and process to isolate these penetrations, if they are open, within the required time were identified.
- Features or pathways credited for flood water relief (e.g., surface drainage, subsurface drainage system, culverts, floor/yard drains, etc.).
- Plant response procedures for external floods to identify any incorporated or exterior equipment that is credited for flood protection or mitigation.
- Situations for which temporary plant equipment (e.g., portable pumps, sandbags, temporary barriers, etc.) is credited to protect or mitigate the effects of the external flooding event.
- Flood response procedures to evaluate the practicality of the associated actions performed by site personnel, i.e., Reasonable Simulation.
- Training provided to support implementation of plant flood procedures to determine if it is adequate (content, frequency, and participants) and reflects any time sensitive actions.

A walkdown package was developed for each feature. The purpose of the packages is to ensure that the teams have at their disposal the relevant information to ensure efficient and thorough walkdowns.

In preparation for the actual walkdowns preliminary walkthroughs of the different areas were conducted. This activity helped familiarize the team with the conditions as well as offering an opportunity to identify additional features that may not have been identified by review of plant documentation.

Each team member was trained to NEI 12-07 and took and passed the NANTEL Generic Verification Walkdowns of Plant Flood Protection Features test. Confined space and fall protection training was obtained to prepare for the need to enter confined spaces such as manholes, and access features via ladders and scaffolding.

Phase 2 – Inspections and Reasonable Simulations

Visual inspection of each feature was performed on the walkdowns and the results were documented on the Walkdown Record Forms. The condition of each feature as observed on the walkdowns was compared to the acceptance criteria defined in NEI 12-7 Section 6 and the Supplemental Walkdown/Inspection Guidance.

Reasonable simulations and drills were performed to determine if the flood emergency procedures were adequate to ensure compliance with licensing basis requirements for external flood protection.

Phase 3 – Final Reporting

The Walkdown Record Forms for each feature 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. 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

Reasonable simulations and drills were performed to determine if the flood emergency procedures were adequate to ensure compliance with licensing basis requirements for external flood protection. Per NEI 12-7 the simulations, drills and associated evaluations verified the following:

- Verify the task can be performed
- 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.

Simulations were used in lieu of actual performance where (1) the activity had been previously performed and documented or it is periodically demonstrated and documented and (2) those prior or periodic performances verified that the activities can be completed in the credited time.

All of the TMI temporary flood protections features have been previously installed. A representative set of features and actions were chosen for drills in order to perform a validation of the procedures and to provide basis for the resources required for all actions.

Sixteen (16) reasonable simulations and four (4) drills were performed. The simulations were walk-throughs of various actions as initiated by the flood emergency procedure, OP-TM-AOP-002. Each simulation was timed and the total time to complete was used to evaluate the integrated response capability. The flood protection design document (SDBD-T1-122 Rev. 2, Section 3.2.2) sets a performance standard which ensures compliance with license basis requirements. That is, the flood barrier system needs to be fully installed before the river water elevation exceeds elevation 303' at the Intake Screen and Pump House (ISPH), corresponding to a flow rate of 1,175,000 cfs. 303 ft elevation is below the top of the dike. In a PMF event, the river flow would rise from 200,000 cfs (284.2' at ISPH) to 1,175,000 cfs in 25 hours. Thus if procedure OP-TM-AOP-002 is initiated based the elevation of 284.2' at the ISPH, then there would be approximately 25 hours to complete the installation of the flood barrier system. The flood emergency procedure (OP-TM-AOP-002) is initiated if any of the following conditions exist, (1) Susquehanna River level at ISPH exceeds 284.2 ft (200,000 cfs), (2) Susquehanna River level at Harrisburg Gage exceeds 12.63 ft (200,000 cfs) or (3) NWS Forecast Center forecasts a Susquehanna River flow greater than 350,000 cfs within the next 36 hours. If the emergency procedure is implemented based on forecasted conditions, there would be significantly greater (an additional 30 hours) time available to complete flood protection actions. The procedures were evaluated assuming that the procedures were initiated based on river level at TMI. The simulations & drill results are described in section 4.d.

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.

The Susquehanna River is the principal source of flooding in the TMI area. The large tributaries such as the Conodoguinet, Paxton, Yellow Breeches, and Swatara overflow their banks at times; however, the major cause of flooding is the Susquehanna River.

The TMI-1 design flood discharge of 1,100,000 cfs was established based on the Probable Maximum Flood (PMF) as defined by the Army Corps of Engineers (ACOE) in 1967 (time of PSAR), which was 1,083,000 cfs at Harrisburg. The design of the dike was based upon a peak flow rate of 1,100,000 cfs.

In 1969, the ACOE issued a revised PMF which predicts a peak river flow of 1,625,000 cfs at TMI. The original license for TMI included a commitment *"the plant would be provided with component protection to the degree which will assure a safe and orderly shutdown for the level of flooding postulated by the official value of the new Probable Maximum Flood, as modified by existing upstream flood control projects (Q = 1,625,000 cfs).(ref 13)"* The predicted water level for a flow of 1,625,000 cfs as determined in 1970 was 309' elevation at the Intake Screen Pump House (ISPH). In 2011, the stage discharge relationship at TMI was re-evaluated. The current predicted water level at a flow of 1,625,000 cfs is 313.3 foot elevation at the ISPH. The elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD-29).

The PMF hydrograph in UFSAR Figure 2.6-9 provides the time line for the PMF event. Note: UFSAR Table 2.6-6 provides the relationship between river flow and water level.

- The duration from emergency procedure initiation (200,000 cfs) to the beginning of site inundation (304.5 ft elevation) is 26 hours.
- The duration from the beginning of site inundation (304.5 ft elevation) until water level recedes below site grade (304.5 ft elevation) is 52 hours.
- The duration from the time when water level recedes below site grade (304.5 ft elevation) until the time the emergency procedure is terminated (< 640,000 CFS) is 26 hours.
- The total predicted PMF event duration is approximately 104 hours.

The TMI external flooding hazard due to the failure of upstream dams was considered during the original licensing process for TMI-1 and further evaluated by ACOE in 1986. The failure of Raystown Lake Dam was determined to be the limiting event. TMI is protected from adverse consequences due to this event by the dike. No active protective measures are required.

The TMI-1 licensing basis does not describe an analysis for local intense precipitation. The licensing basis does not include a design basis groundwater level.

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.

A water tight boundary up to the 313.5' elevation is provided to protect safe shutdown equipment for the license basis flood (PMF of 1,625, 000 cfs). Flood protection deficiencies identified and resolved as a result of the walkdown process affected the UFSAR description of the required flood protection, therefore this section describes the CLB as of September 30, 2012. The following flood protection features are credited in the UFSAR:

"a. Intake Screen and Pump House (ISPH)

1) Flood Gates (TMI-FG-E1, E2A/B/C, E4)

2) Seals where pump shafts penetrate the floor slab

3) Manholes in slab at 308 feet floor elevation will be sealed. (U1-E-5 & 6)

4) Floor Drain Penetrations (8) in Pump Rooms will be plugged.

5) Screen wash pump seal leak off basin drains will be isolated

6) River pump seal leak-off funnels (12) will be plugged

b. Fuel Handling Building

1) Flood Gate (TMI-FG-A1)

2) Inflatable seal at railroad missile shield door (FH-208)

3) Plugs will be installed in RB Personnel Hatch Access Area floor drains AND WDL-V-531 will be closed.

c. Control Building (CB)

1) Flood Gates (TMI-FG-B1 and B2)

2) Plugs will be installed in Turbine Bldg and CB elevator machine room

3) Check valves (SD-V-144 and SD-V-151) prevent flood water flow into Control Bldg through drain lines

4) Secondary chem. lab drain will be isolated (SS-V-257) to prevent flood water flow into Control Bldg

d. Auxiliary Building (AB)

1) Inflatable seal at truck unloading missile shield door (A-116).

2) Isolate BWST Tunnel sump pump discharge (WDL-V-612).

e. Intermediate Building (IB)

1) Flood Gate (TMI-FG-C1)

2) Close Sump Pump Discharge Isolation Valve (SD-V-5A/5B/7A/7B) if a sump pump is unavailable and check valve does not prevent flood water flow from the Turbine Bldg into IB

f. Diesel Generator Building

1) Flood Gates (TMI-FG-D1 & D3) will be installed

2) Flood Gates (TMI-FG-D2A, D2B, D4A & D4B) are normally installed.

g. Air Intake Structure

1) Air Inlet is located at an elevation above PMF level

2) Check valves (SD-V-150A & SD-V-150B) prevent flood water from entering AIT from AIT sump pump area

h. Diesel Fuel Oil Storage Tank

1) The 30k underground tank design is sufficient to withstand the hydraulic forces with flood water at 313.5' elev.

i. General

All penetrations on flood barrier system boundary below PMF elevation (ducts, pipes, conduits, cable trays, seismic gaps, and so forth) are sealed. The 3 inch seismic gap between interfacing bldgs (IB, Alligator PIT, FHB, Aux Bldg) and the Reactor Building was made watertight"

The UFSAR also describes the following general requirements for the emergency procedures. (Note that the projected discharge rates for the Susquehanna river at Harrisburg are obtained from the National Weather Service (NWS) website at http://water.weather.gov/ahps2/hydrograph.php?wfo=ctp&gage=harp1)

"The actions to be taken prior to and during a flood will be initiated based on projected discharge rates or actual river stage at the plant site. Actions required for safe shutdown are performed in accordance with the flood protection procedures. The capability to successfully mitigate a PMF is based on the PMF hydrograph on Figure 2.6-9. These procedures include the following actions:

a) A 36 hour forecast of 350,000 cfs or greater will initiate the Flood Protection Procedure.

b) If a 36 hour forecast of 640,000 cfs or greater is received, flood gates which are on noncritical access doors will be installed.

c) If the 36 hour forecast exceeds 900,000 cfs, then EMERGENCY CLOSURE will be initiated. The flood barrier system (gates, covers, etc discussed above) boundary will be closed.

d) If the river level at the TMI1 Intake Structure reaches 300 feet, then the reactor will be shutdown."

Specific features for protection against groundwater ingress are not described in the license basis but are provided by design and are required by the general licensing commitment to provide a water tight boundary up to the 313.5' elevation. Thus walls, floors, seals, plugs, valves, etc. are credited with protecting against

groundwater ingress. This includes the walls and floors of the various sumps, such that sumps do not provide a groundwater ingress during an external flooding event.

The TMI Unit 1 severe flood mitigation system provides an alternative means of core cooling for floods in excess of the PMF. This system is not required by the licensing basis and TMI Flood Protection Verification Walk down effort did not review the capability of this mitigation process.

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

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

Warning systems to detect water in rooms important to safety are not credited for TMI-1 protection from external flooding. The rooms important to safety that contain equipment required for safe shutdown are protected by the structures that house these SSCs. These structures include the Diesel Generator Building, Intermediate Building, Control Building, Fuel Handling Building, Auxiliary Building including the Air Intake Tunnel and Heat Exchanger Vault, Intake Screen and Pump House, and the Reactor Building. These buildings form an external flood barrier to prevent flood waters from entering any rooms containing equipment important to safety.

Monitoring of river water level and NWS river forecasts are utilized to initiate flood protection actions.

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."*

Inspection guidance was developed, supplementing NEI 12-07, to provide more specific criteria for judging acceptance. All observations that were not judged as acceptable were entered into the site's Corrective Action Program (CAP).

Visual inspections of the external flood protection features were performed and the observed conditions were evaluated using the acceptance criteria as defined in Section 6 of NEI 12-07 and the Supplemental Walkdown Inspection Guidance (Reference 19). This approach provided the basis for assessing the feature's ability to perform its intended external flood protection function, and identifying conditions warranting entry into the corrective action program. This section describes how the features were determined to be satisfactory. Observations entered into the corrective action program are discussed in Section 4.f of this report.

With the exception of the features entered into the corrective action program (refer to Table 4 of this report), the inspections of the accessible features revealed that the features met the acceptance criteria.

Table 3 in Section 5 of this report lists the features that were immediately judged as acceptable via the visual inspections. Details of these acceptable features are as follows.

- The concrete walls and floors identified as external flood barriers were found to have no signs of material degradation or cracks. The interior surfaces did not show signs of water intrusion or leakage such as stains or calcification. The walls and floors are effectively performing their flood protection function.
- Wall and floor penetration seals did not show signs of degradation nor visible gaps or holes.. There was no evidence of water leakage from the penetration. The penetration seals are effectively performing their flood protection function.
- Internal conduit seals were found to be installed in accordance with the design drawings and meet the acceptance criteria. These features are capable of performing their flood protection function.
- Credited valves were found to be installed in accordance with the design drawings, in good condition, and meet the acceptance criteria. Operating procedures were in place for closure of the valves.
- The flood gates were found to be consistent with the design drawings, free of obstructions, and meet the acceptance criteria.

A review of electrical design drawings was used to determine conduits routing, and to determine the internal and external flood protection barrier. The credited barriers for all conduit pathways were inspected (except as noted in Table 6). To complete the inspection, entries into manholes for DF-T-1 and the AIT electrical conduit area were required.

Structures Monitoring Program ER-TM-450 (Reference 17.f) provides periodic confirmation of the ability of the passive features to perform their flood protection functions.

Sixteen (16) reasonable simulations and four/ (4) drills were performed. Each simulation was timed and the total time to complete was used to evaluate the integrated response capability. The flood protection design document (SDBD-T1-122 Rev. 2, Section 3.2.2) sets a performance standard which ensures compliance with license basis requirements. That is, the flood barrier system needs to be fully installed before the river water elevation exceeds 303' foot elevation at the ISPH (1,175,000 cfs). 303 ft elevation is below the top of the dike. In a PMF event, the river flow would rise from 200,000 cfs (284.2' at ISPH) to 1,175,000 cfs in 25 hours. Thus if the implementing procedure OP-TM-AOP-002 is initiated based the level of 284.2 ft at the ISPH, then there would be approximately 25 hours to complete the installation of the flood barrier system. The flood emergency procedure (OP-TM-AOP-002) is initiated if any of the following conditions exist, (1) Susquehanna River level at ISPH exceeds 284.2 ft (200,000 cfs), (2) Susquehanna River level at Harrisburg Gage exceeds 12.63 ft (200,000 cfs) or (3) NWS Forecast Center forecasts a Susquehanna River flow greater than 350,000 cfs within the next 36 hours. If the emergency procedure is implemented based on forecasted conditions, there would be significantly greater (an additional 30 hours) time available to complete flood protection actions. The procedures were evaluated assuming that the procedures were initiated based on river level at TMI.

The following evaluation used an acceptance criterion of 25 hours and assumed the minimum staff onsite when the emergency procedure was initiated to assess the emergency procedure actions. The key assumptions in this evaluation are:

1. Only 4 maintenance workers and 4 auxiliary operators are on staff. This is based on the minimum shift staffing requirements per OP-TM-112-101-102 Rev. 5, "Shift Staffing Requirements".

2. No credit for advance warning, i.e., OP-TM-AOP-002 is initiated based on water level of 284.2 ft at the ISPH.
3. No credit for additional persons called out to the event, even though one of the first steps of the procedure is to call out additional staff.
4. The Shift Duty Manager will properly prioritize actions. The emergency procedure includes a note prior to step 4.8 to reinforce the work prioritization objectives, "Shift management must assess predicted flood levels, the ability to stage equipment, and ease of access to areas behind flood barriers before directing maintenance to continue with installation of the individual flood gates. All flood barriers must be in place before river water elevation reaches 303' (1,175,000 CFS)."
5. Available auxiliary operators could assist the maintenance workers in installing the flood gates. This is reasonable to assume since the assistance is for basic material handling and no specific training is required for the assistance required.

The following drills and simulations were completed (The procedural steps identified in the sections that follow are referenced to the specific procedure revisions called out in this report's Reference Section 17):

Drill #1 - Close missile shield doors and inflate flood seals on FHB truck bay door (FH-208) and on Auxiliary Building roll up door (A-116) in accordance with OP-TM-122-901 (initialed by OP-TM-AOP-002 step 4.34). The drill began with the staff located in their staging area and the beginning of the pre-job brief.

Acceptance Criteria: Procedure OP-TM-122-901, Steps 1.0 through 4.2.9 were completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Drill #2 - Install plant flood gate TMI-FG-D1 in accordance with MA-TM-122-901 (initiated by OP-TM-AOP-002 step 4.8).

Acceptance Criteria: Procedure MA-TM-122-901, Steps 3.0 through 4.1.4.19 for TMI-FG-D1 were completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19) .

Drill #3 - Install ISPH Flood Gate TMI-FG-E2C in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).

Acceptance Criteria: Procedure steps 3.0 and 4.1 through 4.1.1.16 of MA-TM-122-902 as it relates to flood gate TMI-FG-E2C and steps 4.1.3 through 4.1.3.16 were completed and evaluated using Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Drill #4 – Install ISPH hatch U1-E-5 in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).

Acceptance Criteria: Procedure MA-TM-122-902, Steps 4.3 through 4.3.1.9 were completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #1- Simulate the installation of plant flood gates TMI-FG-B1 in accordance with MA-TM-122-901 (as initiated by OP-TM-AOP-002 step 4.8).

Acceptance Criteria: A walk-through of procedure MA-TM-122-901, Steps 3.0, 4.1.2, 4.1.3 and 4.1.5 was completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #2- Simulate the installation of plant flood gates TMI-FG-B2 in accordance with MA-TM-122-901 (as initiated by OP-TM-AOP-002 step 4.8).

Acceptance Criteria: A walk-through of procedure MA-TM-122-901, Steps 3.0, 4.1.2, 4.1.3 and 4.1.6 was completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #3- Simulate the installation of plant flood gates TMI-FG-C1 in accordance with MA-TM-122-901 (as initiated by OP-TM-AOP-002 step 4.8).

Acceptance Criteria: A walk-through of procedure MA-TM-122-901, Steps 3.0, 4.1.2, 4.1.3 and 4.1.7 was completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #4- Simulate the installation of plant flood gates TMI-FG-A1 in accordance with MA-TM-122-901 (as initiated by OP-TM-AOP-002 step 4.33)

Acceptance Criteria: A walk-through of procedure MA-TM-122-901, Steps 3.0, 4.1.2, 4.1.3 and 4.1.10 was completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #5- Simulate the installation of plant flood gate TMI-FG-D3 in accordance with MA-TM-122-901 (as initiated by OP-TM-AOP-002 step 4.8)

Acceptance Criteria: A walk-through of procedure MA-TM-122-901, Steps 3.0, 4.1.2, 4.1.3 and 4.1.8 was completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #6- Simulate the installation of plant flood gates TMI-FG-E2A in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).

Acceptance Criteria: A walk-through of Procedure MA-TM-122-902 steps 3.0, 4.1.1 and 4.1.3 was completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #7- Simulate the installation of plant flood gates TMI-FG-E2B in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).

Acceptance Criteria: A walk-through of Procedure MA-TM-122-902 steps 3.0, 4.1.1 and 4.1.4 was completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #8- Simulate the installation of plant flood gates TMI-FG-E1 in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9)..

Acceptance Criteria: A walk-through of Procedure MA-TM-122-902 steps 3.0, 4.1.1 and 4.1.2 was completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #9- Simulate the installation of plant flood gates TMI-FG-E4 in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).

Acceptance Criteria: A walk-through of Procedure MA-TM-122-902 steps 3.0, 4.1.1 and 4.1.6 was completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #10 - Simulate installation of Floor Drain Plugs #1, #6, #7, #9 and #10 in Turbine Building and Reactor Building Personnel Hatch area in accordance with OP-TM-AOP-002 (Step 3.13).

Acceptance Criteria: A walk-through of Procedure OP-TM-AOP-002, steps 3.13.1 through Step 3.13.5 was completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #11 – Simulate closing valves SS-V-257 (OP-TM-AOP-002 Step 5.6.2), SD-V-5A&B (OP-TM-AOP-002 Step 4.12 and Attachment 4A), SD-V7A&B (OP-TM-AOP-002 Step 4.12 and Attachment 4A), SW-V-64A&B and WDL-V-612(OP-TM-AOP-002 Step 5.10.4).

Acceptance Criteria: A walk-thorough of Procedure OP-TM-AOP-002 Steps, 5.6.2, 4.14 and Attachment 4A, Step 5 and Attachment 4b and Step 5.10.4 was completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #12 - Simulate installation of plugs in river water pump seal leakoff funnels (12) and ISPH floor drains (8) in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).

Acceptance Criteria: Procedure MA-TM-122-902, Steps 4.2.4 and 4.2.5 were completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #13 - Simulate the installation of ISPH hatch U1-E-6 in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).

Acceptance Criteria: A walk-through of Procedure MA-TM-122-902 Steps 4.3.2 through 4.3.2.9 was completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #14 - Simulate the installation of plugs in all control building sewage lines inputs below 313.5' elevation in accordance with MA-TM-122-901 (as initiated by OP-TM-AOP-002 step 4.8).

Acceptance Criteria: A walk-through of Procedure MA-TM-122-901, Steps 4.3.1 to 4.3.6 was completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #15 - Simulate the installation of the ISPH sump pumps in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).

Acceptance Criteria: Procedure MA-TM-122-902, Steps 4.4 through 4.4.9 were completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

Simulation #16 - Simulate the control room activities leading to the dispatch of an operator or maintenance individual to perform a task.

> Acceptance Criteria: A walk-through of the activities associated with the decisions made by staff supervisor in accordance with procedures that allows for operator or maintenance to start implement actions was completed and evaluated using the Exelon Supplemental Walkdown/Inspection guidance for reasonable simulations (Reference 19).

The times to complete each of the simulations and drills and the number of operators, maintenance/utility workers and supervisors that participated in the exercise were recorded in the walkdown record forms. The actions to initiate installation of the ISPH flood barriers and Unit 1 flood barrier procedures are worked in parallel. Each at times would require 2 to 4 of the available personnel, so while these barriers are being installed all of the assumed available personnel would be engaged in these activities. Some of the smaller features would require only 1 or 2 people, but some of the larger flood gates may require four people. If four people were assigned to implement the ISPH features and the Unit 1 Features, the total time to complete all the tasks would be less than used in the evaluation, since the total times recorded represent a series sum of the recorded installation times. In reality, some of the smaller features that require only one or two people would be worked in parallel. The total man-hours were computed to assess the adequacy of resources. The total to complete all the Unit 1 flood protection tasks is 63 man-hours for the maintenance and operations personnel. For the minimum staff of 8 of these people, that is the equivalent of 7.9 hours of the 25 hour window available to install the Unit 1 flood barrier features.

The observations and this evaluation indicate that the flood protection features can be installed in 25 hours with a minimum staff, and there would still be enough time to perform other actions in OP-TM-AOP-002, such as staging the oil for the EDG and SBO diesels.

This assessment was conservative. The OP-TM-AOP-002 would be entered much sooner based on a forecast of Susquehanna River flow greater than 350,000 cfs within 36 hours. This would provide more time to perform the actions and additional resources would be applied.

Operating Logs & USGS River Flow Records shows that during tropical storm Lee in September 2011, the TMI flood emergency procedure was initiated (11:25AM on 9-7-11) approximately 36 hours before river level peaked at 293' elevation (3AM on 9-9-11). This demonstrates that there is significant additional margin beyond that used for the evaluation above. The logs for that event also reflect that the TMI flood emergency procedure is initiated based on a high river flow forecast entry condition approximately three (3) hours before the level reached the 284.2' elevation procedure entry condition at the ISPH.

The Licensed Operators receive training on procedure OP-TM-AOP-002 during their initial qualification process and every 2 years thereafter. Operators also receive training when there are significant procedure changes. The Non-Licensed Operators are trained to procedure OP-TM-AOP-002 during their initial training and when there are significant procedure changes.

TMI-1 has flood protection features in addition to those described in the CLB. These SSC are not the primary method of protection or mitigation but they add defense in depth and reduce the risk associated with external floods.

These features include:

- Station Blackout Diesel (EG-Y-4) and all required support for 7 days of operation. The SBO diesel is protected by Unit 2 flood barriers.

- Sump pumps in Intermediate Building (SD-P-3A/B & SD-P-4A/B) are vital powered and can discharge up to 200 GPM to outside of the flood protected area.
- Sump pumps in the Auxiliary Building (WDL-P-5A/B) are vital powered and can transfer up to 300 GPM to available storage of ~ 190,000 gallons;
- Sump Pump in the Air Intake Tunnel (SD-P-7) is placed on emergency power by emergency procedures and can discharge up to 2000 GPM to outside of the flood protected area.

In the event of a significant flood barrier failure or a beyond design basis event, TMI severe flood mitigation system (SFMS) provides a method to maintain core cooling. The SMFS functions to:

- Provide sufficient Reactor Coolant System (RCS) makeup from the Spent Fuel Pool to maintain RCS conditions which support natural circulation with the Once Through Steam Generators (OTSG);
- Provide capability for RCS heat removal by pumping flood water into each OTSG at a rate sufficient to match decay heat generation 24 hours after reactor shutdown and steaming to atmosphere using the Atmospheric Dump Valve (ADV)
- Provide an independent electrical power source for the motive force as well the instruments to control each function above.

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.

The selection of the walkdown team considered site familiarity and diversity of disciplines. The walkdown team consisted of a member from the mechanical, electrical and civil disciplines and one member with nuclear safety analysis background. There were a total of four individuals on the TMI 1 walk down team.

All team members participated in eight hours of training conducted by Exelon that reviewed the content of the Reference 2, NEI 12-07 guidelines. Team members were required to perform a review of the NEI 12-07 document prior to attending the training in an effort to have increased engagement during the training sessions.

All team members completed the NANTEL Generic Flood Protection Awareness and Generic Radiation Worker Training courses. All team members also passed the NANTEL Generic Verification Walkdowns of Plant Flood Protection Features test. Documentation was obtained from INPO and provided to the site to demonstrate that the walkdown team members had completed the required training.

Familiarization with the basis for walkdown scope and items to be inspected was established by having each member of the walkdown team involved in some aspect of evaluation of the Current Licensing Basis and defining the walk down flood protection features to be inspected.

Prior to performing walkdown inspections, the walkdown team completed Parts A, B1, B2 and B3 of the walkdown record forms and developed the necessary walkdown packages. In order to complete these four pages of the walkdown record form, acceptance criteria, preventive maintenance and functional testing records and evaluation of operating procedures were reviewed to answer the questions.

Pre-walk bys of the site were conducted to facilitate scope definition prior to any inspections being performed. During the initial walk bys, team members practiced performing visual inspections to the

acceptance criteria for various types of features. These exercises lead to discussions and approaches to be prepared for effective walkdown inspections when they were scheduled to be performed.

The walkdowns were conducted by teams of two. During the visual inspection each flood protection feature was identified by each member of the team to ensure that data being collected was associated with the same plant feature.

Members of the team established the list of features that required reasonable simulations or drills, and outlined the criteria and scope for the simulations and drills. At least two members of the team were present to observe the simulations and drills

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.

Observations Not Immediately Judged as Acceptable

Observations made during the visual inspections and not immediately judged as acceptable were entered into the Corrective Action Program (CAP). The issue reports initiated are listed in Table 4 in Section 5 of this report. Table 4 references the operability determination described in the TMI corrective action process. The table also identifies the action taken to resolve the identified conditions. There are two items where resolution is not yet complete. Concrete cracks on the Heat Exchanger Vault Ceiling and on the ceiling of the air intake tunnel in the North Section behind the Filters are scheduled to be repaired by April 30, 2013.

Restricted Access Features

None.

Inaccessible Features

Portions of flood protection features as listed in Table 6 could not be inspected and were classified as "inaccessible" in accordance with NEI 12-07.

The following discussions provide the basis for the reasonable assurance argument that the features are available and will perform their credited external flood protection function.

The pipe seal on the 8" (TMI-176) fire service pipe through the west wall of the north deluge valve room in the Air Intake Tunnel serves as a barrier against ingress of external water. The external seal is embedded in the wall thus is inaccessible. Per Ref. 15.m, the 6 inch pipe is seal welded with a 3/8" plate inside the penetration sleeve and the penetration sleeve has a 3/8" steel skirt embedded in the wall. This design, plus the fact no signs of leakage were observed on the inside wall provides reasonable assurance this feature will function to prevent the ingress of external water.

AR982 and RV642 are 4 inch conduits from the Auxiliary Building north wall at 288.5 elevation that runs through the BWST Tunnel to the Reactor Building equipment hatch area at the 306' elevation. The underground section of the conduits from the North wall of the BWST tunnel to the back of J107 in the RB hatch area is inaccessible. These conduits are made of galvanized steel (Reference 15.n). Based on the design of these conduits, and the fact that portion of the conduits that was accessible inside the BWST tunnel appeared to be in good condition with no signs of leakage, there is reasonable assurance that these conduits will meet their intended function as a barrier against the ingress of external water.

Features TMI-091, TMI-149; TMI-150; TMI-151 are the floor and walls of the Auxiliary Building Sump. These features serve to provide a barrier against the ingress of external water. These features were inaccessible due to water in the sump. The auxiliary building sump is always under water. Review of design drawings 422-002 and 422-008 (References 15.o and 15.p) indicates that the floor slab for auxiliary building sump at EL 254' and the walls are 2' thick. The walls and floors of the sump are integral structural features without joints between the slabs. The thickness of the concrete and integral structural design provides reasonable assurance that the floor slab and walls will perform its flood protection function.

The floor slab of Spent Resin & Used Precoat Tank Rooms (TMI-172) could not be inspected due to high radiation dose rate. Review of design drawings, 1E-154-02-001, 007, 008, 422-002, and 422-008 (Reference 15.o through 15.s) indicates that the floor slab at EL 281' is 3' thick. The floor in this area is part of the larger floor slab for the auxiliary building. There are no joints between this area and other sections of the floor slab. The thickness of the concrete and integral structural design provides reasonable assurance that the floor slab will perform its flood protection function.

The 4" conduits in the Control Building (TMI-135-W1, TMI-135-W2, TMI-135-W3, TMI-135-W4, TMI-135-W5, TMI-135-W6, TMI-135-W7 and TMI-135-W8) provide a barrier against the ingress of external water. These conduits are underground and thus inaccessible. A review of the design drawings (Reference 15.u) indicates these conduits are totally encased in concrete. The thickness and specification of the concrete provides reasonable assurance that the conduit and the encasement are performing their intended flood protection function (i.e., serving as a barrier to exterior water).

The pipe chase from the east wall of the chiller room to the nuclear sample room (TMI-180) is inaccessible Access to inspect the interior is not possible without major equipment disassembly because it is sealed at the wall and floor faces for fire protection. The sides of the chase serve as a barrier to exterior water. Both ends of the chase are in flood protected areas and thus are not boundaries. Per References 15.v and 15.w, the pipe chase is constructed with 8" thick reinforced concrete. The thickness and specification of the concrete provides reasonable assurance that the pipe chase walls are performing their intended flood protection function.

The concrete encased conduits which form a duct bank network connecting the Diesel Generator Bldg, Control Building, Intermediate Building, and the Fuel Handling Buildings are underground and thus, inaccessible (TMI-136, TMI-121A/B,, TMI-080-EVN1, TMI-080-NWCA1, TMI-087-IB-PEN-1/2/3/4, TMI-185-DGB-B1/B2/C1/C2 and TMI-187-FHB-IB). A review of the design drawing (Reference 15.x) indicates these conduits are totally encased in concrete. There are no openings in this configuration except where the conduits penetrate into a flood protected area. The thickness and specification of the concrete provides reasonable assurance that the conduit and encasement are performing their intended flood protection function (i.e. serving as a barrier to exterior water).

AR1074 and RU172 are 2" conduits from the Diesel Generator Building to diesel fuel storage tank manhole DF-T-1. These conduits serve as a barrier to exterior water. These conduits are underground and thus

inaccessible. These conduits are made of galvanized steel (Reference 15.y). The specification of the galvanized steel provides reasonable assurance that the conduits are performing their flood protection function.

Table 6 lists numerous floor drains, including those associated with the Diesel Generator Building (TMI-062), Air Intake Tunnel (TMI-085-A and TMI-085-B), Intermediate Building (TMI-061), Tendon Access Gallery (TMI-159), Heat Exchanger Vault, Auxiliary Building (TMI-084, TMI-137, TMI-143, TMI-146, TMI-148, TMI-152, TMI-172 and TMI-174) and Control Building (TMI-058, TMI-059-F and TMI-092). The potential for drain system flow paths from unprotected area cannot be visually confirmed (i.e. inaccessible) because they are encased in the concrete in the floor. The following sections address how those inaccessible flow paths were reviewed to provide reasonable assurance for flood protection.

- The drain system in the Diesel Generator Building forms a network in the floor slab, which exits the building through a single line at the west side of the foundation at the 298' elevation (Reference 15.aa). A 6 inch Zurn Combination Backwater Valve and Manual Gate Valve (SD-V-125) prevents floodwater backup through the floor drain system and is maintained closed and locked. Thus, there is reasonable assurance that the drains in the Diesel Generator Building do not provide a path of ingress of external flood water.
- The drain system in the Air Intake Tunnel form a network in the floor slab, which exits the protected portion of the building through a single line in the west wall (Reference 15.bb). The six inch drain penetration through the west wall of the AIT was isolated to eliminate a breach of the flood boundary, thus there is reasonable assurance that this drain will not provide a path of ingress of external water.
- The floor drains in the Intermediate Building and the Tendon Access Gallery are completely contained within flood protected areas (References 15.cc and 15.dd), and thus there is reasonable assurance that the drains do not provide a path of ingress from external flood water.
- In the case of the Auxiliary Building a review of the design drawings (Reference 15.t) these drains all flow to the Auxiliary Building sump (or intermediaries which then drain to the sump). There are no points where the Auxiliary Building floor drains penetrate the boundary of a flood protected area. The Auxiliary Building floor drains are completely contained within flood protected areas, and thus there is reasonable assurance that the drains do not provide a path of ingress from external flood water.
- The secondary chemistry lab floor drains in the southeast rooms at the 306' elevation in the Control Building combine into a four inch drain line that is routed through the east wall into the Turbine Building into the corrosive waste sump near the caustic tank at the south end of the Turbine Building (References 15.ee and 15.ff). This line has a backwater valve (SD –V-144) to prevent back flooding into the Control Building. Before draining into the sump, the four inch line ties into a header with drains from a three inch drain at the sampling sink and 3 floor drains located next to the vacuum degassifier pumps WT-P-8A/B. To prevent water intrusion into the Control Building during a flood these three drains are normally plugged and one is plugged by the emergency procedure. Based on design drawing reviews, all paths into unprotected areas are addressed, and therefore there is reasonable assurance of adequate flood protection.
- There are two floor drains from the Turbine Building elevator shaft and access area (290' elevation) which join with the Control Building stairwell area and chiller room floor drains and drain through WDL-V-538 into the Spent Fuel Sump in the north end of the Fuel Handling Bldg. In the case of a flood the two drains north of the flood barrier in the Turbine Building elevator shaft and access area (290' elevation)

are plugged. Based on design drawing reviews, all paths into unprotected areas are addressed, and therefore there is reasonable assurance of adequate flood protection.

- The general area floor drains and bathroom facilities in the control tower drain through a four inch line to a sewer manhole in the yard west of the Heat Exchanger Vault. Based on review of design drawings, all flow paths outside of the protected area are addressed. The condition of SD-V-151 is addressed in Table 4. All paths into unprotected areas are addressed, and therefore there is reasonable assurance of adequate flood protection.

There are several conduits below the floor of the Diesel Generator Building that penetrate the floor. These conduits are embedded in the floor and therefore are inaccessible. Based on Reference 15.y, there are no places where these conduits connect to areas that are not flood protected (except for the conduits to DF-T-1 which are listed separately), and thus there is reasonable assurance that the conduits do not provide a path of ingress of external flood water.

The walls and floor of the Station Air Exhaust Tunnel (TMI-060-A) in the horizontal section outside the RB retaining wall provide a boundary to the intrusion of external flood water. A portion of this barrier is below grade and the exterior is inaccessible. Interior access is not possible without major equipment disassembly. Per drawing 422-033 (Reference 15.z), the walls are 1.5 foot thick reinforced concrete and the floors are 1.0 foot thick. The walls above grade were inspected and appeared to be in acceptable condition (no cracking, scaling, spalling, or other signs of degradation). The design and observed condition of the accessible portions of the walls provides reasonable assurance that the inaccessible portion of the walls will perform their intended flood protection function as a barrier to external flood water.

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 proved 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.

In addition to the corrective actions listed in Table 4 of Section 5. In the last two years, the following flood protection design improvements have been implemented:

- Rerouted and provided isolation for air intake tunnel drains
- Pre-installed several flood gates to optimize emergency resources
- Improved range of river water level instrument
- Installed new internal conduit seals for flood protection
- Installed valves to allow isolation drain system flow paths
- Raised flood protection barriers from 311' to 313.5 ' elevation
- Installed a qualified seal on RB seismic gap

Significant improvements have been made in flood emergency procedures, surveillance procedures and programmatic controls for work affecting flood barriers.

The walkdowns and the performance of the drills and reasonable simulations identified opportunities for improvement. A revision to the MA-TM-122-901 procedure was completed based on experiences during the reasonable simulations and drills. Several improvements were made to the process for providing defense in depth protection on the control building sewage line as identified in IR 1401842. A revision to the MA-TM-122-902 procedure was competed based on experiences during the reasonable simulations and drills. Several improvements were made to the process for installing the hatch covers and the supplemental flood gates as identified in IR 1406609.

During the flood protection walkdown, there were several flood boundary drawing and flood protection system design basis document (SDBD) corrections and enhancements identified. Actions were issued (AR 01403814) to revise SDBD-T1-122, the drawings in the 1E-122-01-1000 series, and 216-022.

During the walkdown of the Unit 1 Flood protection features, a Unit 2 flood protection deficiency was identified and placed in the correction action system (IR1396910).

5. CONCLUSIONS

Table 1 provides a summary of the number and type of features included in the walkdown scope. A total of 494 features were included in the scope of this effort.

The reasonable simulations and drills (as listed in section 4.d and Table 2) demonstrated that the actions in flooding procedure OP-TM-AOP-002 to protect equipment required for safe shutdown can be performed with minimum staffing before the flood level exceeds the top of the dike. The flood response procedures are designed to protect the plant under all plant configurations and modes of operation, including full power operation, startup, shutdown, and refueling. The actions to establish the flood protection boundary will not be adversely affected by weather conditions associated with the flood. The significant actions can be performed indoors or out of the direct exposure to the elements (wind, rain, extreme temperatures). The features are designed to be installed before the water level exceeds the dike. Large equipment such as the flood gates are staged near their required locations so they are not required to be transported across the site. The flood barrier system can be installed with minimum site staffing before the water level exceeds the dike.

The visual inspections showed that 368 features meet the NEI 12-07 acceptance criteria and are thus capable of performing their flood protection function. Table 3 provides this list of features that were immediately judged to be acceptable.

Table 4 provides the list of features that were not immediately judged to be acceptable during the walkdowns. There were 80 features or observations that fall into this category. The table references the operability determination and describes the resolution of the identified conditions.

There were no features classified as restricted access.

Table 6 lists 50 features that were partially or wholly inaccessible. The reason for this classification is provided along with a reference for the reasonable assurance discussion provided to ensure the flood protection feature can perform its function. Detailed discussions of reasonable assurance are provided in Section 4.f of this report.

Table # 1: Summary - Features Included in the Walkdown Scope	
Feature Type	**Total Number**
Passive – Incorporated	458
Passive - Temporary	0
Active – Incorporated	23
Active - Temporary	13

Table # 2: Reasonable Simulations		
#	**Description**	**Purpose**
Drill #1	Close missile shield doors and inflate flood seals on FHB truck bay door (FH-208) and on Auxiliary Building roll up door (A-116) in accordance with OP-TM-122-901 (initiated by OP-TM-AOP-002 step 4.34)..	Maintains the external flood boundary.
Drill #2	Install plant flood gate TMI-FG-D1 in accordance with MA-TM-122-901 (initiated by OP-TM-AOP-002 step 4.8).	Maintains the external flood boundary.
Drill #3	Install ISPH Flood Gate TMI-FG-E2C in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).	Maintains the external flood boundary.
Drill #4	Install ISPH hatch U1-E-5 in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).	Maintains the external flood boundary.
Simulation #1	Simulate the installation of plant flood gate TMI-FG-B1 in accordance with MA-TM-122-901 (as initiated by OP-TM-AOP-002 step 4.8)	Maintains the external flood boundary.

Table # 2: Reasonable Simulations		
#	Description	Purpose
Simulation #2	Simulate the installation of plant flood gate TMI-FG-B2 in accordance with MA-TM-122-901 (as initiated by OP-TM-AOP-002 step 4.8)	Maintains the external flood boundary.
Simulation #3	Simulate the installation of plant flood gate TMI-FG-C1 in accordance with MA-TM-122-901 (as initiated by OP-TM-AOP-002 step 4.8)	Maintains the external flood boundary.
Simulation #4	Simulate the installation of plant flood gate TMI-FG-A1 in accordance with MA-TM-122-901 (as initiated by OP-TM-AOP-002 step 4.33)	Maintains the external flood boundary.
Simulation #5	Simulate the installation of plant flood gate TMI-FG-D3 in accordance with MA-TM-122-901 (as initiated by OP-TM-AOP-002 step 4.8)	Maintains the external flood boundary.
Simulation #6	Simulate the installation of plant flood gates TMI-FG-E2A in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).	Maintains the external flood boundary.
Simulation #7	Simulate the installation of plant flood gates TMI-FG-E2B in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).	Maintains the external flood boundary.
Simulation #8	Simulate the installation of plant flood gates TMI-FG-E1 in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).	Maintains the external flood boundary.
Simulation #9	Simulate the installation of plant flood gates TMI-FG-E4 in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).	Maintains the external flood boundary.
Simulation #10	Simulate installation of Floor Drain Plugs #1, #6, #7, #9 and #10 in Turbine Building and Reactor Building Personnel Hatch area in accordance with OP-TM-AOP-002 (Step 3.13).	Prevent flood water in unprotected areas (Turbine Building and Reactor Building Hatch Area) from entering flood protected areas in Control Tower and Fuel Handling Building through the drains.

Table # 2: Reasonable Simulations		
#	Description	Purpose
Simulation #11	Simulate closing valves SS-V-257 (OP-TM-AOP-002 Step 5.6.2), SD-V-5A&B (OP-TM-AOP-002 Step 4.12 and Attachment 4A), SD-V7A&B (OP-TM-AOP-002 Step 4.12 and Attachment 4A) , SW-V-64A&B and WDL-V-612(OP-TM-AOP-002 Step 5.10.4).	Prevents flood water from entering protected areas though piping that runs through unprotected areas.
Simulation #12	Simulate installation of plugs in river water pump seal leakoff funnels (12) and ISPH floor drains (8) in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).	Prevents backflow of flood water through drains into protected area of ISPH.
Simulation #13	Simulate the installation of ISPH hatch U1-E-6 in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).	Maintains the external flood boundary.
Simulation #14	Simulate the installation of plugs in all control building sewage lines inputs below 313.5' elevation in accordance with MA-TM-122-901 (as initiated by OP-TM-AOP-002 step 4.8)	Prevents backflow of flood water into the Control Building through the sewer line.
Simulation #15	Simulate the installation of the ISPH sump pumps in accordance with MA-TM-122-902 (as initiated by OP-TM-AOP-002 step 4.9).	Removes and flood water that leaks past the external flood boundary in the ISPH.
Simulation #16	Simulate the control room activities leading to the dispatch of an operator or maintenance individual to perform a task.	Provides input to the evaluation of the timing for the procedural steps.

Table #3: Inspected Flooding Features Meeting Acceptance Criteria			
#	Feature ID #	Description	Passive/Active Incorporated/Temporary
1	AR1031 conduit	1/2" Conduit Penetration	Incorporated or Exterior Passive
2	AR1074- conduit	2-in Conduit Penetration	Incorporated or Exterior Passive
3	AR1076 conduit	Electrical Conduit	Incorporated or Exterior Passive
4	CP 37 Conduit	2"Conduit Penetration	Incorporated or Exterior Passive
5	CP711 Conduit	0.5" Conduit wall Penetration	Incorporated or Exterior Passive
6	CQ-101 Conduit	1.5" ceiling penetrations	Incorporated or Exterior Passive
7	CQ-106 Conduit	1.5" ceiling penetrations	Incorporated or Exterior Passive
8	CQ-107 Conduit	1.5" ceiling penetrations	Incorporated or Exterior Passive
9	CR 41 Conduit	2" Conduit Penetration	Incorporated or Exterior Passive
10	CS 141 Conduit	3" conduits Penetration	Incorporated or Exterior Passive
11	CS 5 Conduit	3" conduits Penetration	Incorporated or Exterior Passive
12	DC34 conduit	Conduit Floor penetration-1.5"	Incorporated or Exterior Passive
13	DC44A Conduit	Conduit Floor penetration-1.5"	Incorporated or Exterior Passive
14	DR-P-1A 4" LUBRICATING PIPE(Capped)	Pipe Floor penetration	Incorporated or Exterior Passive
15	DR-P-1A 4" LUBRICATING PIPE(Spared Capped #1)	Pipe Floor penetration	Incorporated or Exterior Passive
16	DR-P-1A 4" LUBRICATING PIPE(Spared Capped #2)	Pipe Floor penetration	Incorporated or Exterior Passive
17	DR-P-1A Pump Shaft	Floor penetration	Incorporated or Exterior Passive
18	DR-P-1B 4" LUBRICATING PIPE(Capped)	Pipe Floor penetration	Incorporated or Exterior Passive
19	DR-P-1B 4" LUBRICATING PIPE(Spared Capped #1)	Pipe Floor penetration	Incorporated or Exterior Passive
20	DR-P-1B 4" LUBRICATING PIPE(Spared Capped #2)	Pipe Floor penetration	Incorporated or Exterior Passive
21	DR-S-1A 2" strainer backwash pipe	Pipe Floor penetration	Incorporated or Exterior Passive
22	DR-S-1B 2" strainer backwash pipe	Pipe Floor penetration	Incorporated or Exterior Passive
23	DR-V-1A 20" Discharge	Pipe Floor penetration	Incorporated or Exterior Passive
24	DR-V-1B 20" Discharge	Pipe Floor penetration	Incorporated or Exterior Passive
25	FS-P-2 4" LUBRICATING PIPE(Capped)	Pipe Floor penetration	Incorporated or Exterior Passive
26	FS-P-2 Pump Shaft	Floor penetration	Incorporated or Exterior Passive
27	FS-V-15 12" Discharge	Pipe Floor penetration	Incorporated or Exterior Passive
28	FS-V-248 8" tail pipe	Pipe Floor penetration	Incorporated or Exterior Passive
29	NR-P-1A 2" LUBRICATING PIPE (Capped)	Pipe Floor penetration	Incorporated or Exterior Passive
30	NR-P-1A 2" LUBRICATING PIPE (Spared Capped)	Pipe Floor penetration	Incorporated or Exterior Passive
31	NR-P-1A Pump Shaft	Floor penetration	Incorporated or Exterior Passive
32	NR-P-1B 4" LUBRICATING PIPE(Spared Capped #1])	Pipe Floor penetration	Incorporated or Exterior Passive
33	NR-P-1B 4" LUBRICATING PIPE(Capped)	Pipe Floor penetration	Incorporated or Exterior Passive
34	NR-P-1B Pump Shaft	Floor penetration	Incorporated or Exterior Passive

Table #3: Inspected Flooding Features Meeting Acceptance Criteria			
#	Feature ID #	Description	Passive/Active Incorporated/Temporary
35	NR-P-1C 4" LUBRICATING PIPE(Capped)	Pipe Floor penetration	Incorporated or Exterior Passive
36	NR-P-1C 4" LUBRICATING PIPE(Spared Capped #1)	Pipe Floor penetration	Incorporated or Exterior Passive
37	NR-P-1C 4" LUBRICATING PIPE(Spared Capped #2)	Pipe Floor penetration	Incorporated or Exterior Passive
38	NR-P-1C Pump Shaft	Floor penetration	Incorporated or Exterior Passive
39	NR-S-1A 2" strainer backwash pipe	Pipe Floor penetration	Incorporated or Exterior Passive
40	NR-S-1B 2" strainer backwash pipe	Pipe Floor penetration	Incorporated or Exterior Passive
41	NR-S-1C 2" strainer backwash pipe	Pipe Floor penetration	Incorporated or Exterior Passive
42	NR-V-1A 16" Discharge	Pipe Floor penetration	Incorporated or Exterior Passive
43	NR-V-1B 16" Discharge	Pipe Floor penetration	Incorporated or Exterior Passive
44	NR-V-1C 16" Discharge	Pipe Floor penetration	Incorporated or Exterior Passive
45	NR-V-2 30" Pipe	Pipe Floor penetration	Incorporated or Exterior Passive
46	NR-V-3 30" Pipe	Pipe Floor penetration	Incorporated or Exterior Passive
47	NR-V-7 30" Pipe	Pipe Floor penetration	Incorporated or Exterior Passive
48	Plug #1	3" Drain at Sampling sink Drain Plug	Temporary Active
49	Plug #10 (4" Floor Drain)	Elevator shaft Drain	Temporary Active
50	Plug #2	Floor drain plugs	Incorporated or Exterior Passive
51	Plug #3	Floor drain plugs	Incorporated or Exterior Passive
52	Plug #4	Floor drain plugs	Incorporated or Exterior Passive
53	Plug #6 (4" Floor Drain)	plug	Temporary Active
54	Plug #7 (4" Floor Drain)	plug	Temporary Active
55	Plug #9 (4" Floor Drain)	Elevator shaft Drain	Temporary Active
56	RE 383 Conduit	3" conduits wall Penetration	Incorporated or Exterior Passive
57	RE 384 Conduit	3" wall conduits Penetration	Incorporated or Exterior Passive
58	RH1574 Conduit	3/4" wall Conduit Penetration	Incorporated or Exterior Passive
S9	RR-P-1A 4" LUBRICATING PIPE(Capped)	Pipe Floor penetration	Incorporated or Exterior Passive
60	RR-P-1A 4" LUBRICATING PIPE(Spared Capped #1)	Pipe Floor penetration	Incorporated or Exterior Passive
61	RR-P-1A 4" LUBRICATING PIPE(Spared Capped #2)	Pipe Floor penetration	Incorporated or Exterior Passive
62	RR-P-1B 4" LUBRICATING PIPE(Capped)	Pipe Floor penetration	Incorporated or Exterior Passive
63	RR-P-1B 4" LUBRICATING PIPE(Spared Capped #1)	Pipe Floor penetration	Incorporated or Exterior Passive
64	RR-P-1B 4" LUBRICATING PIPE(Spared Capped #2)	Pipe Floor penetration	Incorporated or Exterior Passive
65	RR-S-1A 2" strainer backwash pipe	Pipe Floor penetration	Incorporated or Exterior Passive
66	RR-S-1B 2" strainer backwash pipe	Pipe Floor penetration	Incorporated or Exterior Passive
67	RR-V-1A 16" Discharge	Pipe Floor penetration	Incorporated or Exterior Passive
68	RR-V-1B 16" Discharge	Pipe Floor penetration	Incorporated or Exterior Passive
69	RR-V-2A 12" Discharge	Pipe Floor penetration	Incorporated or Exterior Passive

Table #3: Inspected Flooding Features Meeting Acceptance Criteria			
#	Feature ID #	Description	Passive/Active Incorporated/Temporary
70	RR-V-2C 12" Discharge	Pipe Floor penetration	Incorporated or Exterior Passive
71	RU172- Conduit	2" wall conduit Penetration	Incorporated or Exterior Passive
72	RU173 Conduit	Electrical Conduit	Incorporated or Exterior Passive
73	RU174 Conduit	Electrical Conduit	Incorporated or Exterior Passive
74	RU520 Conduit	1.5" Conduit wall Penetration	Incorporated or Exterior Passive
75	SD-V-125 (Locked Closed)	Backwater Manual Gate Valve	Incorporated or Exterior Passive
76	SD-V-144	4" Model Z Zurn Back Water Valve	Incorporated or Exterior Passive
77	SD-V-150A- 8" Backwater valve Zurn Z-1091	Check valve for AIT deluge drain	Incorporated or Exterior Passive
78	SD-V-150B- 8" Backwater valve Zurn Z-1091	Check valve for AIT deluge drain	Incorporated or Exterior Passive
79	SD-V-5A	Discharge Isolation Valve for SD-P-3A	Incorporated or Exterior Active
80	SD-V-5B	Discharge Isolation Valve for SD-P-3B	Incorporated or Exterior Active
81	SD-V-7A	Discharge Isolation Valve for SD-P-4A	Incorporated or Exterior Active
82	SD-V-7B	Discharge Isolation Valve for SD-P-4B	Incorporated or Exterior Active
83	SR-P-1A 4" LUBRICATING PIPE(Capped)	Pipe Floor penetration	Incorporated or Exterior Passive
84	SR-P-1A 4" LUBRICATING PIPE(Spared Capped #1)	Pipe Floor penetration	Incorporated or Exterior Passive
85	SR-P-1A 43" LUBRICATING PIPE(Spared Capped #2)	Pipe Floor penetration	Incorporated or Exterior Passive
86	SR-P-1A Pump Shaft	Floor penetration	Incorporated or Exterior Passive
87	SR-P-1B 4" LUBRICATING PIPE(Capped)	Pipe Floor penetration	Incorporated or Exterior Passive
88	SR-P-1B 4" LUBRICATING PIPE(Spared Capped #1)	Pipe Floor penetration	Incorporated or Exterior Passive
89	SR-P-1B 4" LUBRICATING PIPE(Spared Capped #2)	Pipe Floor penetration	Incorporated or Exterior Passive
90	SR-P-1B Pump Shaft	Floor penetration	Incorporated or Exterior Passive
91	SR-P-1C 4" LUBRICATING PIPE(Capped)	Pipe Floor penetration	Incorporated or Exterior Passive
92	SR-P-1C 4" LUBRICATING PIPE(Spared Capped #1)	Pipe Floor penetration	Incorporated or Exterior Passive
93	SR-P-1C 4" LUBRICATING PIPE(Spared Capped #2)	Pipe Floor penetration	Incorporated or Exterior Passive
94	SR-S-1A 2" strainer backwash pipe	Pipe Floor penetration	Incorporated or Exterior Passive
95	SR-S-1B 2" strainer backwash pipe	Pipe Floor penetration	Incorporated or Exterior Passive
96	SR-S-1C 2" strainer backwash pipe	Pipe Floor penetration	Incorporated or Exterior Passive
97	SR-V-1A 16" Discharge	Pipe Floor penetration	Incorporated or Exterior Passive
98	SR-V-1B 16" Discharge	Pipe Floor penetration	Incorporated or Exterior Passive
99	SR-V-1C 16" Discharge	Pipe Floor penetration	Incorporated or Exterior Passive
100	SS-V-257	Isolation Valve	Incorporated or Exterior Active
101	SW-P-1A 4" LUBRICATING PIPE(Capped)	Pipe Floor penetration	Incorporated or Exterior Passive
102	SW-P-1A 4" LUBRICATING PIPE(Spared Capped #1)	Pipe Floor penetration	Incorporated or Exterior Passive
103	SW-P-1A 4" LUBRICATING PIPE(Spared Capped #2)	Pipe Floor penetration	Incorporated or Exterior Passive
104	SW-P-1A Pump Shaft	Floor penetration	Incorporated or Exterior Passive

Table #3: Inspected Flooding Features Meeting Acceptance Criteria			
#	Feature ID #	Description	Passive/Active Incorporated/Temporary
105	SW-P-1B 4" LUBRICATING PIPE(Capped)	Pipe Floor penetration	Incorporated or Exterior Passive
106	SW-P-1B 4" LUBRICATING PIPE(Spared Capped #1)	Pipe Floor penetration	Incorporated or Exterior Passive
107	SW-P-1B 4" LUBRICATING PIPE(Spared Capped #2)	Pipe Floor penetration	Incorporated or Exterior Passive
108	SW-P-2B 2" Strainer Backwash	Pipe Floor penetration	Incorporated or Exterior Passive
109	SW-S-1A 2" strainer backwash pipe	Pipe Floor penetration	Incorporated or Exterior Passive
110	SW-S-1B 2" strainer backwash pipe	Pipe Floor penetration	Incorporated or Exterior Passive
111	SW-S-2A 4" Strainer Backwash	Pipe Floor penetration	Incorporated or Exterior Passive
112	SW-V-1A 8" Discharge	Pipe Floor penetration	Incorporated or Exterior Passive
113	SW-V-1B 8" Discharge	Pipe Floor penetration	Incorporated or Exterior Passive
114	SW-V-64A	Pump Seal Leak-off Basin Drain Isolation Valve for SW-P-2A	Incorporated or Exterior Active
115	SW-V-64B	Pump Seal Leak-off Basin Drain Isolation Valve for SW-P-2B	Incorporated or Exterior Active
116	TMI-002 1" conduit-spare capped	conduit wall penetration-Flush Coupling	Incorporated or Exterior Passive
117	TMI-003 1" electrical Conduit	Conduit wall penetration	Incorporated or Exterior Passive
118	TMI-004 1" Instrument Air Pipe	Pipe floor Penetration	Incorporated or Exterior Passive
119	TMI-005 1" Nitrogen Line	Pipe wall Penetration	Incorporated or Exterior Passive
120	TMI-006 1" PP Air Supply pipe	Pipe Ceiling penetration	Incorporated or Exterior Passive
121	TMI-007 1" Reclaimed Water Pipe	4" pipe wall penetration	Incorporated or Exterior Passive
122	TMI-008 1" Service Air Pipe	4" Pipe wall Penetration	Incorporated or Exterior Passive
123	TMI-009 1" Waste Oil Pipe	4" Pipe wall Penetration	Incorporated or Exterior Passive
124	TMI-010 1/2" N2 Supply pipe	1/2" Pipe wall Penetration	Incorporated or Exterior Passive
125	TMI-011 10" pipe from Condensate headers B	Pipe wall penetration	Incorporated or Exterior Passive
126	TMI-012 10" pipe from Condensate header A	Pipe wall Penetrations	Incorporated or Exterior Passive
127	TMI-014 12" ventilation duct to Decon Building	duct wall penetration	Incorporated or Exterior Passive
128	TMI-015 12" EFW Suction Header from CO-T-1A	12" wall penetration EFW Suction Header from CO-T-1A	Incorporated or Exterior Passive
129	TMI-016 12" EFW Supply from CO-T-1B	Pipe Wall penetration	Incorporated or Exterior Passive
130	TMI-017 12" Fire Service Line	Pipe wall Penetration	Incorporated or Exterior Passive
131	TMI-018-A 2.5" Fuel Oil Line	Pipe floor Penetration	Incorporated or Exterior Passive
132	TMI-018-B 2.5" Fuel Oil Line	Pipe floor Penetration	Incorporated or Exterior Passive
133	TMI-019 2" BWST Tunnel sump pump discharge	pipe wall penetration	Incorporated or Exterior Passive
134	TMI-020 2" drain-capped	drain ceiling penetration	Incorporated or Exterior Passive
135	TMI-021 2" Reclaimed Water	Pipe Penetration	Incorporated or Exterior Passive
136	TMI-022 2" secondary chem. Lab Drain Pipe	Pipe wall Penetration	Incorporated or Exterior Passive
137	TMI-023-A 2" spared capped Pipe #1	Pipe wall Penetration	Incorporated or Exterior Passive

Table #3: Inspected Flooding Features Meeting Acceptance Criteria			
#	Feature ID #	Description	Passive/Active Incorporated/Temporary
138	TMI-023-B 2" spared capped Pipe #2	pipe wall penetration	Incorporated or Exterior Passive
139	TMI-023-C 2" spared capped Pipe #3	Pipe wall Penetration	Incorporated or Exterior Passive
140	TMI-024 24" Nuclear River DE-ICE	pipe wall penetration	Incorporated or Exterior Passive
141	TMI-025 2" Pressurized filtered water supply to WT-P-33A&B	Pipe Floor penetration	Incorporated or Exterior Passive
142	TMI-026 20" Penetration Cooling System	Pipe wall penetration	Incorporated or Exterior Passive
143	TMI-028 24" BWST Outlet Pipe	Pipe wall Penetration	Incorporated or Exterior Passive
144	TMI-029 24" Decay Heat River A Return	pipe wall penetration	Incorporated or Exterior Passive
145	TMI-030 24" Nuclear Service RW Return	Pipe wall penetration	Incorporated or Exterior Passive
146	TMI-031 24" x 30" Conduit Penetration	Floor Penetration	Incorporated or Exterior Passive
147	TMI-032 3" spared capped pipe	Pipe wall Penetration	Incorporated or Exterior Passive
148	TMI-033 3" WDL Radwaste Discharge	Pipe wall Penetration	Incorporated or Exterior Passive
149	TMI-034 30" CW de-ice makeup Pipe	Pipe wall penetration	Incorporated or Exterior Passive
150	TMI-035 30" Nuclear Service River Supply	pipe wall penetration	Incorporated or Exterior Passive
151	TMI-036 30" Secondary Service River to Turbine bldg	pipe wall penetration	Incorporated or Exterior Passive
152	TMI-037 30" Secondary River Supply from ISPH	Pipe wall penetration	Incorporated or Exterior Passive
153	TMI-039 4" BS-T-1 Outlet	Pipe wall Penetration	Incorporated or Exterior Passive
154	TMI-040 4" BS-T-2 Outlet	Pipe wall Penetration	Incorporated or Exterior Passive
155	TMI-041 4" BWST Clean Up Pipe	Pipe wall Penetration	Incorporated or Exterior Passive
156	TMI-042 4" EFW Recirculation Pipe	Pipe wall Penetration to CO-T-1B	Incorporated or Exterior Passive
157	TMI-043 4" Floor drain	Pipe wall Penetration	Incorporated or Exterior Passive
158	TMI-044 4" inch penetration (1/2" and 3/4" pipe pass thru)	pipe ceiling penetration	Incorporated or Exterior Passive
159	TMI-045 4" Sump Pump Discharge to TB	Pipe wall Penetration	Incorporated or Exterior Passive
160	TMI-046 24" Decay River B Supply	Pipe wall penetration	Incorporated or Exterior Passive
161	TMI-047-A 2" leak-off funnel pipe for NR-P-1A	Pipe Floor penetration	Incorporated or Exterior Passive
162	TMI-047-B 2" leak-off funnel pipe for SR-P-1C	Pipe Floor penetration	Incorporated or Exterior Passive
163	TMI-047-C 2" leak-off funnel pipe for RR-P-1B	Pipe Floor penetration	Incorporated or Exterior Passive
164	TMI-047-D 2" leak-off funnel pipe for DR-P-1A	Pipe Floor penetration	Incorporated or Exterior Passive
165	TMI-047-E 2" leak-off funnel pipe for SW-P-1B	Pipe Floor penetration	Incorporated or Exterior Passive
166	TMI-047-F 2" leak-off funnel pipe for SR-P-1B	Pipe Floor penetration	Incorporated or Exterior Passive
167	TMI-047-G 2" leak-off funnel pipe for NR-P-1B	Pipe Floor penetration	Incorporated or Exterior Passive
168	TMI-047-H 2" leak-off funnel pipe for SW-P-1A	Pipe Floor penetration	Incorporated or Exterior Passive
169	TMI-047-I 2" leak-off funnel pipe for DR-P-1B	Pipe Floor penetration	Incorporated or Exterior Passive
170	TMI-047-J 2" leak-off funnel pipe for SR-P-1A	Pipe Floor penetration	Incorporated or Exterior Passive

Table #3: Inspected Flooding Features Meeting Acceptance Criteria			
#	Feature ID #	Description	Passive/Active Incorporated/Temporary
171	TMI-047-K 2" leak-off funnel pipe for RR-P-1A	Pipe Floor penetration	Incorporated or Exterior Passive
172	TMI-047-L 2" leak-off funnel pipe for NR-P-1C	Pipe Floor penetration	Incorporated or Exterior Passive
173	TMI-048 West Wall	Exterior flood barrier	Incorporated or Exterior Passive
174	TMI-049 6" drain pipe-isolated with valve SD-V-152	pipe wall penetration	Incorporated or Exterior Passive
175	TMI-050 6" penetration(2 pipes pass thru this penetration)	pipe ceiling penetration	Incorporated or Exterior Passive
176	TMI-051 Floor Slab and Drain System	Floor Barrier	Incorporated or Exterior Passive
177	TMI-052 8" BWST Recirc Pipe	Pipe wall Penetration	Incorporated or Exterior Passive
178	TMI-053 8" Penetration Cooling System	Pipe ceiling Penetration	Incorporated or Exterior Passive
179	TMI-054 West Wall	Exterior wall barrier	Incorporated or Exterior Passive
180	TMI-055 8-floor drain plugs	mechanical plugs	Temporary Active
181	TMI-056 Tendon Access Gallery Access Hatch		Incorporated or Exterior Passive
182	TMI-059-A Chiller Room East Wall-South of CB Stairway	Wall Barrier	Incorporated or Exterior Passive
183	TMI-059-B Chiller Room North Wall	Wall Barrier	Incorporated or Exterior Passive
184	TMI-059-C Chiller Room South Wall	Wall Barrier	Incorporated or Exterior Passive
185	TMI-059-D Stairway North wall	Wall Barrier	Incorporated or Exterior Passive
186	TMI-059-E Stairway East Wall	Wall Barrier	Incorporated or Exterior Passive
187	TMI-059-G North Wall (Column line F-9 to G-9)	Wall Barrier	Incorporated or Exterior Passive
188	TMI-059-G East Wall	Wall Barrier	Incorporated or Exterior Passive
189	TMI-059-H North Wall (10' west of Column line G-8b to H3-8b)	Wall Barrier	Incorporated or Exterior Passive
190	TMI-059-I South Wall	Wall Barrier	Incorporated or Exterior Passive
191	TMI-059-J Stairway South Wall	Wall Barrier	Incorporated or Exterior Passive
192	TMI-060-B Ceiling of Concrete Station Exhaust Ducts	Ducts for station exhaust	Incorporated or Exterior Passive
193	TMI-066-A 12"x12" Cable way (covered and sealed with Steel Plate)	Floor Penetration with three 0.5" lines for RM-A-8	Incorporated or Exterior Passive
194	TMI-066-B 12"x12" Cable way (covered and sealed with Steel Plate)	Floor Penetration with three 0.5" lines for RM-A-9	Incorporated or Exterior Passive
195	TMI-066-C 1.5" outlet line for RB Purge Exhaust Rad. Mon.	Pipe Floor penetration	Incorporated or Exterior Passive
196	TMI-066-D 1.5" outlet line for AUX & FHB Exhaust Rad. Mon.	Pipe Floor penetration	Incorporated or Exterior Passive
197	TMI-066-E 1" line for RM-A-8 Panel	Pipe Floor penetration	Incorporated or Exterior Passive
198	TMI-066-F 1" line for RM-A-9 Panel	Pipe Floor penetration	Incorporated or Exterior Passive
199	TMI-066-G 8"x8" RM-G-24 penetration for RM-A-9 Gas HI-HI Radiation Monitor.	Pipe Floor penetration	Incorporated or Exterior Passive
200	TMI-069 North Wall	Exterior flood barrier	Incorporated or Exterior Passive

Table #3: Inspected Flooding Features Meeting Acceptance Criteria			
#	Feature ID #	Description	Passive/Active Incorporated/Temporary
201	TMI-070 South Wall	Exterior flood barrier	Incorporated or Exterior Passive
202	TMI-071 1.5" Conduit floor penetrations	1.5" ceiling penetrations	Incorporated or Exterior Passive
203	TMI-073-A east wall, south of chiller room	Exterior wall flood boundary	Incorporated or Exterior Passive
204	TMI-073-B east wall Column 7d to North wall of Chiller room	Exterior wall barrier-South of Alligator Pit	Incorporated or Exterior Passive
205	TMI-073-C East wall 305'-00 to 313'-06"	Exterior wall flood boundary	Incorporated or Exterior Passive
206	TMI-073-D East wall 305'-00 to 313'-06"	Exterior wall flood boundary	Incorporated or Exterior Passive
207	TMI-074 East wall below 275'-00	Exterior wall barrier	Incorporated or Exterior Passive
208	TMI-075-A East wall	Exterior Wall Barrier	Incorporated or Exterior Passive
209	TMI-075-B East wall	Exterior Wall Barrier	Incorporated or Exterior Passive
210	TMI-076 East wall below El. 313'-06"	Exterior wall barrier	Incorporated or Exterior Passive
211	TMI-077 East wall/	exterior wall barrier	Incorporated or Exterior Passive
212	TMI-078-A 4" capped abandoned River Water Supply to Lube Water Header (SW-V-18A)	Pipe Floor penetration	Incorporated or Exterior Passive
213	TMI-078-B 4" capped abandoned River Water Supply to Lube Water Header (SW-V-18B)	Pipe Floor penetration	Incorporated or Exterior Passive
214	TMI-088-A 4" pipe sleeve-PP pipe pass thru	Pipe Ceiling penetrations	Incorporated or Exterior Passive
215	TMI-088-B 4" pipe sleeve-PP pipe pass thru	Pipe Ceiling penetrations	Incorporated or Exterior Passive
216	TMI-088-C 4" pipe sleeve-PP pipe pass thru	Pipe Ceiling penetrations	Incorporated or Exterior Passive
217	TMI-088-D 4" pipe sleeve-PP pipe pass thru	Pipe Ceiling penetrations	Incorporated or Exterior Passive
218	TMI-089 East Wall	Exterior flood barrier	Incorporated or Exterior Passive
219	TMI-090 HEV Pipe Tunnel North Wall	Exterior wall barrier	Incorporated or Exterior Passive
220	TMI-093 Missile Shield Door A-116 and the inflatable seal	Flood Barrier for A-116 Roll-up Door	Incorporated or Exterior Active
221	TMI-094 North Wall- east of DGB	Exterior wall Barrier	Incorporated or Exterior Passive
222	TMI-095 North wall	Exterior wall barrier	Incorporated or Exterior Passive
223	TMI-096-A North wall 281'-0 to 305'-00	Exterior wall barrier	Incorporated or Exterior Passive
224	TMI-067 DF-T-2A Vents and 1.5" pipe wall penetration	Vent opening	Incorporated or Exterior Passive
225	TMI-068 DF-T-2B Vent 2" pipe wall penetration	Vent Opening	Incorporated or Exterior Passive
226	TMI-096-B North wall 310'-00 to 313'-06"	Exterior wall barrier	Incorporated or Exterior Passive
227	TMI-097 north wall below El. 313'-06"	Exterior wall barrier	Incorporated or Exterior Passive
228	TMI-098 North wall of the AIT, west of North Deluge Valve Vault to the pagoda's west wall	Exterior wall barrier	Incorporated or Exterior Passive
229	TMI-099-A West Wall of North Deluge Valve Vault Room	Exterior Wall Boundary	Incorporated or Exterior Passive
230	TMI-099-B Ceiling of North Deluge Valve Vault Room	Exterior Wall Boundary	Incorporated or Exterior Passive

Table #3: Inspected Flooding Features Meeting Acceptance Criteria			
#	Feature ID #	Description	Passive/Active Incorporated/Temporary
231	TMI-100 West Wall of the Lower elevation section Elev (261' to 281')	Exterior Wall boundary	Incorporated or Exterior Passive
232	TMI-101 Cable Penetrations inside P62 Pull Box	Pull Box Flood Barrier	Incorporated or Exterior Passive
233	TMI-102-A RB Seismic Gap Seal-East (Southern Section)	3" gap b/w RB and interfacing bldg's	Incorporated or Exterior Passive
234	TMI-102-B RB Seismic Gap Seal-East (Northern section)	3" gap b/w RB and interfacing bldg's	Incorporated or Exterior Passive
235	TMI-102-C RB Vertical Seismic Gap Seal-FHB East Wall	3" gap b/w RB and interfacing bldg's	Incorporated or Exterior Passive
236	TMI-102-D RB Vertical Seismic Gap Seal- IB East Wall	3" gap b/w RB and interfacing bldg's	Incorporated or Exterior Passive
237	TMI-102-E RB Vertical Seismic Gap Seal-IB West Wall	3" gap b/w RB and interfacing bldg's	Incorporated or Exterior Passive
238	TMI-102-F RB Vertical Seismic Gap Seal-AB North Wall	3" gap b/w RB and interfacing bldg's	Incorporated or Exterior Passive
239	TMI-103-A RB Seismic Gap Seal-West (Yard Area)	3" gap b/w RB and interfacing bldg's	Incorporated or Exterior Passive
240	TMI-103-B RB Seismic Gap Seal-West (Inside the Hatch) & RR Track seals	3" gap b/w RB and interfacing bldg's	Incorporated or Exterior Passive
241	TMI-104 FH-208 Door and inflatable seal for FH-208 Door	Inflatable rubber Seal	Temporary Active
242	TMI-106-A south wall	Exterior wall barrier	Incorporated or Exterior Passive
243	TMI-106-B south wall	Exterior wall barrier	Incorporated or Exterior Passive
244	TMI-107 South wall	Exterior wall barrier	Incorporated or Exterior Passive
245	TMI-108-A South Wall El. 305'-0 to 313'-06"-00" Col. Line J to N	Exterior wall flood Barrier	Incorporated or Exterior Passive
246	TMI-108-B South Wall El. 293' to 305'-00"	Exterior wall flood Barrier	Incorporated or Exterior Passive
247	TMI-109-A South wall of AIT,west of the CB to the South Deluge Valve Vault	Exterior Wall Barrier	Incorporated or Exterior Passive
248	TMI-109-B South wall of AIT,west South Deluge valve Vault to west wall of the tunnel	Exterior Wall Barrier	Incorporated or Exterior Passive
249	TMI-109-C West wall of the Tunnel under pagoda to Elev. 301'	Exterior Wall Barrier	Incorporated or Exterior Passive
250	TMI-109-D East wall of the Tunnel	Exterior Wall Barrier	Incorporated or Exterior Passive
251	TMI-110-A 4"flush coupling (capped)	Spared conduit wall penetration	Incorporated or Exterior Passive
252	TMI-110-H 4"flush coupling (capped)	Spared conduit wall penetration	Incorporated or Exterior Passive
253	TMI-110-J 4"flush coupling (capped)	Spared conduit wall penetration	Incorporated or Exterior Passive
254	TMI-111-A 3" WDL pipes	Pipe wall penetration	Incorporated or Exterior Passive
255	TMI-111-B 3" WDL pipes	Pipe wall penetration	Incorporated or Exterior Passive
256	TMI-111-C 3" WDL pipes	Pipe wall penetration	Incorporated or Exterior Passive
257	TMI-112-A 2.5" Fuel Oil Line	Pipe floor Penetration	Incorporated or Exterior Passive

Table #3: Inspected Flooding Features Meeting Acceptance Criteria			
#	Feature ID #	Description	Passive/Active Incorporated/Temporary
258	TMI-112-B 2.5" Fuel Oil Line	Pipe floor Penetration	Incorporated or Exterior Passive
259	TMI-112-C 2.5" Fuel Oil Line	Pipe floor Penetration	Incorporated or Exterior Passive
260	TMI-114-A 12" Fire Service Water Sleeves	Pipe wall penetration	Incorporated or Exterior Passive
261	TMI-114-B 12" Fire Service Water Sleeves	Pipe wall penetration	Incorporated or Exterior Passive
262	TMI-115-A 24" Decay River A Supply	Pipe wall Penetration	Incorporated or Exterior Passive
263	TMI-115-B 24" Decay River B Return	Pipe wall Penetration	Incorporated or Exterior Passive
264	TMI-118-A 4" Conduit-Plugged	Conduit wall Penetrations	Incorporated or Exterior Passive
265	TMI-118-B 4" Conduit-Plugged	Conduit wall Penetrations	Incorporated or Exterior Passive
266	TMI-120-A Wiring Cable way (12"x8")	Floor Cable Penetration to Electrical Vault	Incorporated or Exterior Passive
267	TMI-120-B Wiring Cable way (32"x12")	Floor Cable Penetration to Electrical Vault	Incorporated or Exterior Passive
268	TMI-120-C Wiring Cable way (15"x7")	Floor Cable Penetration to Electrical Vault	Incorporated or Exterior Passive
269	TMI-122-A West wall of South Deluge Valve Vault	Exterior wall barrier	Incorporated or Exterior Passive
270	TMI-122-B South wall of South Deluge Valve Vault	Exterior wall barrier	Incorporated or Exterior Passive
271	TMI-122-C East wall of South Deluge Valve Vault	Exterior wall barrier	Incorporated or Exterior Passive
272	TMI-123 West Alligator Pit Wall (Outer)	alligator Pit	Incorporated or Exterior Passive
273	TMI-124 West wall	Exterior Wall Barrier	Incorporated or Exterior Passive
274	TMI-125 West wall below El. 313'-06"	Exterior wall barrier	Incorporated or Exterior Passive
275	TMI-126-A North Wall of Pagoda and flood barrier installed behind air intake grating	exterior wall barrier	Incorporated or Exterior Passive
276	TMI-126-B East Wall of Pagoda and flood barrier installed behind air intake grating	exterior wall barrier	Incorporated or Exterior Passive
277	TMI-126-C South Wall of Pagoda and flood barrier installed behind air intake grating	exterior wall barrier	Incorporated or Exterior Passive
278	TMI-126-D West Wall of Pagoda and flood barrier installed behind air intake grating	exterior wall barrier	Incorporated or Exterior Passive
279	TMI-127-A West wall(south of Auxiliary building)	Exterior wall Flood Barrier	Incorporated or Exterior Passive
280	TMI-127-B West wall(south of Auxiliary building)	Exterior wall Flood Barrier	Incorporated or Exterior Passive
281	TMI-128 West wall	exterior wall barrier	Incorporated or Exterior Passive
282	TMI-129 West Wall-Above HEV	Exterior wall barrier	Incorporated or Exterior Passive
283	TMI-130 West Wall-South of HEV	Exterior wall barrier	Incorporated or Exterior Passive
284	TMI-133 2.5" WDL Pipe	pipe wall penetration	Incorporated or Exterior Passive
285	TMI-134 CB 4" Sewage Drain Pipe	pipe wall penetration	Incorporated or Exterior Passive
286	TMI-138-A North Wall- RCBT Room	Exterior flood barrier	Incorporated or Exterior Passive
287	TMI-138-B South Wall - RCBT Room 275' to 281' and 293' to 305'	Exterior flood barrier	Incorporated or Exterior Passive
288	TMI-138-C East Wall- RCBT Room	Exterior flood barrier	Incorporated or Exterior Passive
289	TMI-139-A 10" Fire Pump Test Line (FS-V-31)	Pipe Floor penetration	Incorporated or Exterior Passive

Table #3: Inspected Flooding Features Meeting Acceptance Criteria			
#	Feature ID #	Description	Passive/Active Incorporated/Temporary
290	TMI-139-B 8" Fire Pump Test Line Return (To Ring Header)	Pipe Floor penetration	Incorporated or Exterior Passive
291	TMI-140 8" Discharge to screens from SW-P-1A&B	Pipe Floor penetration	Incorporated or Exterior Passive
292	TMI-141 Floor Slab	Floor barrier	Incorporated or Exterior Passive
293	TMI-142 North Wall-Alpha Building Spray	Exterior flood barrier	Incorporated or Exterior Passive
294	TMI-142 South Wall- Below 313'06"	Exterior flood barrier	Incorporated or Exterior Passive
295	TMI-144 North wall-Alpha Decay Heat Vault	Exterior flood barrier	Incorporated or Exterior Passive
296	TMI-145 West Wall-Alpha Decay Heat Vault	Exterior flood barrier	Incorporated or Exterior Passive
297	TMI-147-A West Wall-Bravo Decay Heat Vault	Exterior flood barrier	Incorporated or Exterior Passive
298	TMI-147-B East Wall-Bravo Decay Heat Vault	Exterior flood barrier	Incorporated or Exterior Passive
299	TMI-147-C South Wall (Eastern section)-Bravo Decay Heat Vault	Exterior flood barrier	Incorporated or Exterior Passive
300	TMI-153 Tendon Access Gallery exterior wall (360 Degree)	Exterior wall barrier	Incorporated or Exterior Passive
301	TMI-154 IB-PEN-5	12" sleeve wall penetration-flanged	Incorporated or Exterior Passive
302	TMI-154 IB-PEN-6	12" sleeve wall penetration-flanged	Incorporated or Exterior Passive
303	TMI-154 IB-PEN-7	12" sleeve wall penetration-flanged	Incorporated or Exterior Passive
304	TMI-157-A Wiring Cable Way (10"x 16")	Cable Floor Penetrations to Electrical Vault	Incorporated or Exterior Passive
305	TMI-157-B Wiring Cable Way (27"x 8")	Cable Floor Penetrations to Electrical Vault	Incorporated or Exterior Passive
306	TMI-157-C Wiring Cable Way (10"x 12")	Cable Floor Penetrations to Electrical Vault	Incorporated or Exterior Passive
307	TMI-157-D Wiring Cable Way (8"x 32")	Cable Floor Penetrations to Electrical Vault	Incorporated or Exterior Passive
308	TMI-157-E Wiring Cable Way (8"x 18")	Cable Floor Penetrations to Electrical Vault	Incorporated or Exterior Passive
309	TMI-157-F Wiring Cable Way (8"x 18")	Cable Floor Penetrations to Electrical Vault	Incorporated or Exterior Passive
310	TMI-158-B 8" Fire Service Feed to Sprinkler Syst (FS-V-7)	Pipe Floor penetration	Incorporated or Exterior Passive
311	TMI-158-G 8" Fire Service Feed to Sprinkler Syst(FS-V-8)	Pipe Floor penetration	Incorporated or Exterior Passive
312	TMI-160-A West Alligator Ceiling Under Yard	Ceiling flood barrier	Incorporated or Exterior Passive
313	TMI-160-B West Alligator Pit Ceiling Under Eqpt Hatch	Ceiling flood barrier	Incorporated or Exterior Passive
314	TMI-161-A East Alligator Pit Ceiling Under Turbine Building	Ceiling flood barrier	Incorporated or Exterior Passive
315	TMI-161-B East Alligator Pit Ceiling Under Personnel Hatch	Ceiling flood barrier	Incorporated or Exterior Passive
316	TMI-162 East Alligator Pit Wall (Outer)	Floor flood barrier	Incorporated or Exterior Passive

Table #3: Inspected Flooding Features Meeting Acceptance Criteria			
#	Feature ID #	Description	Passive/Active Incorporated/Temporary
317	TMI-164-A 4" sleeve -2" Sample chiller line	pipe wall Penetration	Incorporated or Exterior Passive
318	TMI-164-B 4" sleeve-2" Sample chiller line	pipe wall Penetration	Incorporated or Exterior Passive
319	TMI-165-A 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
320	TMI-165-B 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
321	TMI-165-C 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
322	TMI-165-D 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
323	TMI-165-E 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
324	TMI-165-F 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
325	TMI-165-G 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
326	TMI-165-H 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
327	TMI-165-I 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
328	TMI-165-J 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
329	TMI-165-K 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
330	TMI-165-L 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
331	TMI-165-M 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
332	TMI-165-N 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
333	TMI-165-O 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
334	TMI-165-P 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
335	TMI-165-Q 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
336	TMI-165-R 1/2" chiller sample lines (2" Core bore sealed)	pipe wall Penetration	Incorporated or Exterior Passive
337	TMI-166 2" Conduit-Spared Capped	Conduit floor penetration	Incorporated or Exterior Passive
338	TMI-167 2.5" Drain Line	Pipe Wall Penetration	Incorporated or Exterior Passive
339	TMI-168 South Wall, west of IB	Exterior Wall barrier	Incorporated or Exterior Passive
340	TMI-169-A 6 Pipe sleeve (1" copper line to FWP Instr Rack)	Pipes wall Penetration	Incorporated or Exterior Passive

Table #3: Inspected Flooding Features Meeting Acceptance Criteria			
#	Feature ID #	Description	Passive/Active Incorporated/Temporary
341	TMI-169-B 6 Pipe sleeve (one 4" service air and two 5/8" PP lines fo thru)	Pipes wall Penetration	Incorporated or Exterior Passive
342	TMI-171 1" conduit for south pump room roll-up door(MIS-DR-SH-2-EXS)	Conduit Wall Penetration	Incorporated or Exterior Passive
343	TMI-175 2" capped flush coupling	Conduit wall penetration	Incorporated or Exterior Passive
344	TMI-177 13 drain plugs	drain plugs	Temporary Active
345	TMI-178 10" Fire Pump Test Line (FS-P-3)	Pipe Wall Penetration	Incorporated or Exterior Passive
346	TMI-179 8" Fire Pump Test Line Return (To Ring Header)	Pipe Wall Penetration	Incorporated or Exterior Passive
347	TMI-181 1" conduit next to U1-E-6	Conduit Floor Penetration	Incorporated or Exterior Passive
348	TMI-182 4" capped pipe (next to RR-S-1A)	Pipe Floor penetration	Incorporated or Exterior Passive
349	TMI-169-C 6 Pipe sleeve (4" Instrument air line goes thru IA-V-74)	Pipes wall Penetration	Incorporated or Exterior Passive
350	TMI-184 Passage way from FG-B2	Passage Way from TB to CB	Incorporated or Exterior Passive
351	TMI-63 1" Construction Joint inside tunnel	1" gap	Incorporated or Exterior Passive
352	TMI-64 1" Construction Joint inside tunnel	1" gap	Incorporated or Exterior Passive
353	TMI-FG-A1	Flood Gate	Incorporated or Exterior Active
354	TMI-FG-B1	North Flood Gate	Incorporated or Exterior Active
355	TMI-FG-C1	Flood Gate	Incorporated or Exterior Active
356	TMI-FG-D1	Flood gate	Temporary Active
357	TMI-FG-D2A	Permanently Installed Flood Gate	Incorporated or Exterior Passive
358	TMI-FG-D2B	Permanently Installed Flood Gate	Incorporated or Exterior Passive
359	TMI-FG-D3	Flood Gate	Temporary Active
360	TMI-FG-D4A	Permanently Installed Flood Gate	Incorporated or Exterior Passive
361	TMI-FG-D4B	Permanently Installed Flood Gate	Incorporated or Exterior Passive
362	TMI-FG-E1	Flood Gate	Incorporated or Exterior Active
363	TMI-FG-E2A	Flood Gate	Incorporated or Exterior Active
364	TMI-FG-E2B	Flood Gate	Incorporated or Exterior Active
365	TMI-FG-E2C	Flood Gate	Incorporated or Exterior Active
366	U1-E-5	Manway Cover	Incorporated or Exterior Active
367	U1-E-6	Manway Cover	Incorporated or Exterior Active
368	WDL-V-612	Isolation valve	Incorporated or Exterior Active

Table #4: Inspected Features Not Immediately Judged as Acceptable
Flood Features Not Meeting Acceptance Criteria

#	Feature ID #	Description	Observation	Component Operability	Resolution
1	TMI-FG-E4	Flood Gate	One bolt anchorage was damaged.	1155214 Dec 2010	Bolt anchorage repaired. AR 2267539
2	SW-V-64A SW-V-64B	Pump Seal Leak-Off Basin Drain Isolation Valve For SW-P-2A & B	The SW-P-2A & B seal leak off basin drain lines had no flood protection for internal flow path	1276879 Oct 2011	Valves (SW-V-64A & B) were installed in SW-P-2A & B seal leak-off drains. (ECR 11-00487)
3	FP-P-4B	Temporary Sump Pump	FP-P-4B Equipment was missing from AOP Box #7	1392569	Spare pump was obtained from warehouse and placed in AOP Box #7.
4	TMI-013	Plug	4 of 12 required plugs were missing from the AOP Box	1392569	Spare plugs were obtained from warehouse and placed in the AOP Box #7
5	DR-P-1B Pump Shaft RR-P-1A Pump Shaft RR-P-1B Pump Shaft SR-P-1C Pump Shaft SW-P-1B Pump Shaft SW-P-2APump Shaft SW-P-2B Pump Shaft	Floor Penetration	Holes < 0.5" diameter were identified in base plates for the following pumps: DR-P-1B RR-P-1A & RR-P-1B SR-P-1C SW-P-1A & SW-P-1B SW-P-2A & SW-P-2B	1392609	¼" plugs were installed to eliminate these holes. WO M2308868
6	SW-V-65A SW-V-65B	Pump Seal Leak-Off Basin Drain Isolation Valve For SW-P-1A & B	The SW-P-1A & B seal leak off basin drain lines had no flood protection for internal flow path	1392609	Valves (SW-V-65A & B) were installed in SW-P-1A & B seal leak-off drains. (ECR 11-00487)
7	TMI-057	Ceiling Slab	Stains were observed on the Heat Exchanger Vault Ceiling indicating possible leakage	1394932	Cracks are scheduled to be repaired by April 30, 2013
8	N/A	DF-T-1 (EDG fuel oil tank)	Potential leakage path through DF-T-1 (EDG fuel oil tank) sample pipe cap was found installed but not tight.	1399136	OP-TM-AOP-002 "Flood" revised to tighten the pipe cap in advance of any flood event.
9	H206 Conduit; H256 Conduit;	2" Conduit Wall Penetration	Two heat trace temperature sensors in the BWST tunnel are not sealed and could allow water intrusion into the auxiliary building.	1399143	Conduits leading to the sensors sealed IAW ECR 11-00487 Rev 1
10	TMI-081-A through P; TMI-079-A through/ H; TMI-110-B through G; TMI-110-I TMI-105-A through H; TMI-086-A thru D (43 conduits total)	Conduit Wall Penetration	Flood protection fitting (EYS) was installed for Air Intake Tunnel Conduits but sealant material (Chico A) was not installed.	1399510	Flood boundary modified. New seals installed in E-6, E-10 & E-11 IAW design change ECR 12-00402

Table #4: Inspected Features Not Immediately Judged as Acceptable Flood Features Not Meeting Acceptance Criteria					
#	Feature ID #	Description	Observation	Component Operability	Resolution
11	TMI-173	Construction Joint (East wall of Tunnel and CB)	Wall joint was identified with missing cork material.	1399630	Observed condition does not challenge flood protection function. Condition evaluation in IR.
15	TMI-65A through H	Pipe Sleeve	No seals observed on eight pipe sleeves on coming through south wall of FHB. Inspection into a restricted area required.	1400966	Inspection in U2 completed. Adequate protection is provided on the exterior side of the sleeves. Inspection notes documented in A2310812.
16	SD-V-151	Backflow Prevention Valve-4" Zurn Z-1091	Control Building sewage line check valve was missing (i.e. not installed as shown on drawings).	1401487	New valve installed IAW ECR 12-00402
17	TMI-027; TMI-117 (2 conduits)	Conduit wall penetration	An internal leakage path thru abandoned Chlorine detector conduits into the air intake tunnel was identified	1403154	The south wall conduit is no longer a boundary and the north wall conduit was sealed IAW ECR 12-00402
18	TMI 001	Conduit Wall Penetration-Flush Coupling	A broken light fixture in the AIT electrical conduit would allow leakage into the air intake tunnel.	1403172	Resolved by ECR 12-00402. Extending flood boundary eliminates any flood impact from broken fixture.
21	TMI-072	Pagoda Entrance Door and the seal	The gasket intended to provide a water tight seal between the air intake pagoda door and door jamb is missing	1403177	Door gasket was replaced. A2311108
22	FP-P-4A /B	Sump pump	The discharge hose for FP-P-4A/B would not fit on the discharge nipple	1406603	The correct hoses were placed in the AOP box after they were confirmed to fit. Issue was closed out in IR.
23	TMI-FG-B2	East Flood Gate	The simulation exercise team was unable to determine how to complete the attachment for thee bolts for the installation of flood gate TMI-FG-B2. The procedure direction for installation did not identify the unique attachment configuration for these three bolts.	1407060	Design change in ECR 12-00402 elimnated the aspects of the attachment which were unique at this gate. The installation procedure (MA-TM-122-901) was revised.

Table #4: Inspected Features Not Immediately Judged as Acceptable Flood Features Not Meeting Acceptance Criteria					
#	Feature ID #	Description	Observation	Component Operability	Resolution
24	TMI-155	Conduit Wall Penetration	For conduit on pagoda east wall, there is no design detail to confirm that conduit seal is adequate.	1413215	A new seal was installed to ensure adequate flood protection. ECR 12-00402.
25	TMI-170	Exterior Wall Barrier	Cracks in ceiling of air intake tunnel (North Section behind the Filters)	1400309	Cracks are scheduled to be repaired by April 30, 2013

Table #5: Features Classified as Restricted Access				
#	Feature ID#	Description	Reason	Resolution
1	None			

Table #6: Features Classified as Inaccessible				
#	Feature ID Number	Description	Reason	Resolution
1	TMI-085-A TMI-085-B	Floor Drains at 281 and 269 ft elevations in Air Intake Tunnel.	Flow paths are embedded in concrete and cannot be visually confirmed.	311-819 Air Intake Tunnel
2	TMI-176	8 inch fire service pipe through west wall of north deluge valve room in Air Intake Tunnel	External pipe seal is embedded in the wall.	6 inch pipe seal welded with 3/8" plate inside a 12 penetration sleeve. The penetration sleeve has 3/8" thick steel skirt embedded in wall [303-122 DETAIL 'A']
3	TMI-159;	Floor Drains at 262 ft elevations in Tendon Access Gallery	Flow paths are embedded in concrete and cannot be visually confirmed.	311-813 Tendon Access Gallery
4	AR982	4 inch conduit from Aux Bldg north wall at 288.5' elev. thru BWST Tunnel to RB equipment hatch area (306' elev.) in Auxiliary Building.	Underground section of conduit from North wall of BWST tunnel to back of J107 in RB Hatch Area	4 inch underground conduit [216-023 – PLAN R]
5	RV642	4 inch conduit from Aux Bldg north wall at 288.5' elev. thru BWST Tunnel to RB equipment hatch area (306' elev.) in Auxiliary Building.	Underground section of conduit from North wall of BWST tunnel to back of J107 in RB Hatch Area	4 inch underground conduit [216-023 – PLAN R]
6	TMI-060-A	Station Exhaust Duct (Aux & FHB Vent and RB Purge) in Auxiliary Building.	Portion of wall and floor of the duct below grade (~ 304' elevation), and cannot be accessed from interior without major equipment disassembly.	The walls are 1.5 foot thick reinforced concrete and the floors are 1.0 foot thick [422-033]. The walls above grade were inspected and appeared to be in acceptable condition.
7	TMI-084; TMI-137; TMI-143; TMI-146; TMI-148: TMI-152; TMI-172; TMI-174	Floor Drains at 281, 275 and 261 ft elevations in Auxiliary Building.	Flow paths are embedded in concrete and cannot be visually confirmed.	311-815, 816 Auxiliary building
8	TMI-091; TMI-149; TMI-150; TMI-151	Aux Building Sump Floor @254'-0" & Walls in Auxiliary Building.	Sump floor & walls below water level	The floor of the sump is 2' thick reinforced concrete. [422-002, and 422-008]

Table #6: Features Classified as Inaccessible				
#	Feature ID Number	Description	Reason	Resolution
9	TMI-172	Floor slab at elev. 281' in Auxiliary Building.	Floors in Spent Resin Storage Tank (WDL-T-4) and Used Filter Precoat Tank (WDL-T-5) are inaccessible due to high radiation.	The floor slab is 3' thick reinforced concrete. [422-002, and 422-008]
10	TMI-135-W6	Eight-4" conduits through floor (306' elev.) near CB south wall to FHB east wall (297.5')	Entire feature is embedded in concrete below grade.	Conduits are fully encased in concrete [215-043 section G-G]
11	TMI-135-W7	Eight-4" conduits from FHB 297' elev. to CB 306' elev.	Entire feature is embedded in concrete below grade.	Conduits are fully encased in concrete [215-043 section G-G]
12	TMI-135-W8	Eight-4" conduits from FHB 297' elev. to CB 306' elev.	Entire feature is embedded in concrete below grade.	Conduits are fully encased in concrete [215-043 section G-G]
13	TMI-058 TMI-059-F TMI-092	Chiller Room, Stairwell and 306' elevation Floor Drains	Flow paths are embedded in concrete and cannot be visually confirmed.	311-818 Control Building 306 & RB Personnel Hatch Area 305 & 290 311-102 Turbine Bldg 305 south (for CB drains)
14	TMI-135-W1	Eighteen 4" conduits in an underground duct bank at 296'-08"from NE vault to chiller room	Entire feature is embedded in concrete below grade.	Conduits are fully encased in concrete [215-043 section E-E]
15	TMI-135-W2	Fourteen-4" & One-5" Conduit in an underground duct bank @297'-09" from NE vault to chiller room	Entire feature is embedded in concrete below grade.	Conduits are fully encased in concrete [215-043 section E-E]
16	TMI-135-W3	Eighteen 4" Conduits in an underground duct bank @297'-09" from NE vault to chiller room	Entire feature is embedded in concrete below grade.	Conduits are fully encased in concrete [215-043 section E-E]
17	TMI-135-W4	Six 4" Conduits in an underground duct bank @297'-09" from NE vault to chiller room	Entire feature is embedded in concrete below grade.	Conduits are fully encased in concrete [215-043 section E-E]
18	TMI-135-W5	Eight-4" conduits through floor (306' elev.) near CB south wall to chiller room east wall (297.5')	Entire feature is embedded in concrete below grade.	Conduits are fully encased in concrete [215-043 section G-G]
19	TMI-180	Pipe chase from east wall of chiller room (< 300 elev.) to nuclear sample room (306 elev.)	Entire feature is embedded in concrete below grade. Inspection from inside cannot be performed due to fire protection seal of face of opening.	The pipe chase is constructed with 8 inch thick reinforced concrete wall & floor sections. [421-203; 421-204 section N-N]

Table #6: Features Classified as Inaccessible				
#	Feature ID Number	Description	Reason	Resolution
20	TMI-080-EVN1 TMI-080-NWCA1 TMI-087-IB-PEN-1 TMI-131-IB-PEN-3 TMI-132-IB-PEN-2 TMI-156-IB-PEN-4 TMI-185-DGB-B1 TMI-185-DGB-B2 TMI-185-DGB-C1 TMI-185-DGB-C2 TMI-187-FHB-IB	Underground conduit bank network on east side of protected areas. Interfaces with CB North wall (2 banks), FHB east wall, Intermediate Bldg East Wall (3 banks), Intermediate Bldg North Wall, and DGB east wall (4 banks).	Entire feature is embedded in concrete below grade.	These conduits are totally encased in concrete. This conduit network only interfaces between flood protected areas. There are no interconnections to areas not protected for external flood. [215-161]
21	TMI-062	Floor Drains in and Conduit Under Floor Diesel Generator Building	Flow paths are embedded in concrete and cannot be visually confirmed.	311-823 Diesel Generator Bldg 215-160
22	AR1074	2" conduit from DGB to DF-T-1 manhole	Underground conduit @ 302'9" from DGB to DF-T-1 manhole	215-160
23	RU172	2" conduit from DGB to DF-T-1 manhole	Underground conduit @ 302'9" from DGB to DF-T-1 manhole	215-160
24	TMI-136	281' elevation Floor Drains in Fuel Handling Building	Flow paths are embedded in concrete and cannot be visually confirmed.	311-815; 311-816
25	TMI-121-A TMI-121-B	Truck Bay Floor Drains at 310.5 ft elevation in Fuel Handling Building	Flow paths are embedded in concrete and cannot be visually confirmed.	311-816 ; 302-719
26	TMI-061	295 ft elevation floor drains in Intermediate Building	Flow paths are embedded in concrete and cannot be visually confirmed.	311-817 Intermediate Bldg

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b. 1E-122-01-1001, Rev. 1 - TMI Flood Barrier System Diesel Generator Building Details
c. 1E-122-01-1002, Rev. 1 - TMI Flood Barrier System Control Building Details
d. 1E-122-01-1003, Rev. 1 - TMI Flood Barrier System Intermediate Building Details
e. 1E-122-01-1004, Rev. 1 - TMI Flood Barrier System Fuel Handling Building Details
f. 1E-122-01-1005, Rev. 2 - TMI Flood Barrier System Auxiliary Building Details
g. 1E-122-01-1006, Rev. 0 - TMI Flood Barrier System Heat Exchanger Vault Details
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