



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

June 18, 2014

Vice President, Operations  
Entergy Nuclear Operations, Inc.  
Indian Point Energy Center  
450 Broadway, GSB  
P.O. Box 249  
Buchanan, NY 10511-0249

**SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3 – STAFF ASSESSMENT OF THE FLOODING WALKDOWN REPORT SUPPORTING IMPLEMENTATION OF NEAR-TERM TASK FORCE RECOMMENDATION 2.3 RELATED TO THE FUKUSHIMA DAI-ICHI NUCLEAR POWER PLANT ACCIDENT (TAC NOS. MF0237 AND MF0238)**

Dear Sir or Madam:

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued a request for information letter per Title 10 of the Code of Federal Regulations, Section 50.54(f) (50.54(f) letter). The 50.54(f) letter was issued to power reactor licensees and holders of construction permits requesting addressees to provide further information to support the NRC staff's evaluation of regulatory actions that may be taken in response to lessons learned from Japan's March 11, 2011, Great Tōhoku Earthquake, resultant tsunami, and subsequent accident at the Fukushima Dai-ichi nuclear power plant. The request addressed the methods and procedures for nuclear power plant licensees to conduct seismic and flooding hazard walkdowns to identify and address degraded, nonconforming, or unanalyzed conditions through the corrective action program, and to verify the adequacy of the monitoring and maintenance procedures.

By letters dated November 27, 2012, Entergy Nuclear Operations, Inc. (Entergy), the licensee, submitted Flooding Walkdown Reports as requested per Enclosure 4, of the 50.54(f) letter for Indian Point Nuclear Generating Unit Nos. 2 and 3. The Flooding Walkdown Reports contained open items where restricted access temporarily prevented walkdowns of certain flood protection features. Walkdowns of the restricted access items were completed and documented by letters dated May 9, 2014, and August 12, 2013, for Unit Nos. 2 and 3, respectively. Finally, by letter dated February 12, 2014, Entergy provided a response to the NRC request for additional information for the staff to complete its assessments.

The staff has reviewed the information provided and, as documented in the enclosed staff assessment, determined that sufficient information has been provided to be responsive to Enclosure 4 of the 50.54(f) letter.

If you have any questions, please contact me at (301) 415-1364 or by e-mail at Douglas.Pickett@nrc.gov.

Sincerely,

A handwritten signature in black ink that reads "Douglas V. Pickett". The signature is written in a cursive style with a checkmark-like flourish above the "V".

Douglas V. Pickett, Sr. Project Manager  
Plant Licensing Branch 1-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-247 and 50-286

Enclosure:  
Staff Assessment of Flooding Walkdown Report  
cc w/encl: Distribution via Listserv



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

STAFF ASSESSMENT OF FLOODING WALKDOWN REPORT  
NEAR-TERM TASK FORCE RECOMMENDATION 2.3 RELATED TO  
THE FUKUSHIMA DAI-ICHI NUCLEAR POWER PLANT ACCIDENT  
ENTERGY NUCLEAR OPERATIONS, INC  
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3  
DOCKET NOS. 50-247 AND 50-286

1.0 INTRODUCTION

On March 12, 2012,<sup>1</sup> the U.S. Nuclear Regulatory Commission (NRC) issued a request for information pursuant to Title 10 of the *Code of Federal Regulations*, Section 50.54(f) (50.54(f) letter) to all power reactor licensees and holders of construction permits in active or deferred status. The request was part of the implementation of lessons learned from the accident at the Fukushima Dai-ichi nuclear power plant. Enclosure 4, "Recommendation 2.3: Flooding,"<sup>2</sup> to the 50.54(f) letter requested licensees to conduct flooding walkdowns to identify and address degraded, nonconforming, or unanalyzed conditions using the corrective action program (CAP), verify the adequacy of monitoring and maintenance procedures, and report the results to the NRC.

The 50.54(f) letter requested licensees to include the following:

- a. Describe the design basis flood hazard level(s) for all flood-causing mechanisms, including groundwater ingress.
- b. Describe protection and migration features that are considered in the licensing basis evaluation to protect against external ingress of water into structures, systems, and components (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 guidance in Regulatory Issues Summary 2005-20,

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<sup>1</sup> ADAMS Accession No. ML12053A340.

<sup>2</sup> ADAMS Accession No. ML12056A050.

Revision 1, Revision to the NRC Inspection Manual Part 9900 Technical Guidance, "Operability Conditions Adverse to Quality or Safety," including entering the condition in the CAP.

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

In accordance with the 50.54(f) letter, Enclosure 4, Required Response Item 2, licensees were required to submit a response within 180 days of the NRC's endorsement of the flooding walkdown guidance. By letter dated May 21, 2012<sup>3</sup>, the Nuclear Energy Institute (NEI) staff submitted NEI 12-07, Revision 0, "Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features" to the NRC staff to consider for endorsement. By letter dated May 31, 2012<sup>4</sup>, the NRC staff endorsed the walkdown guidance.

By letters dated November 27, 2012<sup>5</sup>, Entergy Nuclear Operations, Inc., the licensee, provided Flooding Walkdown Reports as requested per Enclosure 4 of the 50.54(f) letter Required Response Item 2, for Indian Point Nuclear Generating Unit Nos. 2 and 3. The Flooding Walkdown Reports contained open items where restricted access temporarily prevented walkdowns of certain flood protection features. Walkdowns of the restricted access items were completed and documented by letters dated May 9, 2014<sup>6</sup>, and August 12, 2013<sup>7</sup>, for Unit Nos. 2 and 3, respectively. The NRC staff issued a request for additional information (RAI) to the licensee regarding the available physical margin (APM) dated December 23, 2013<sup>8</sup>. The licensee responded by letter dated February 12, 2014<sup>9</sup>.

The NRC staff evaluated the licensee's submittals to determine if the information provided in the walkdown reports met the intent of the walkdown guidance and if the licensee responded appropriately to Enclosure 4 of the 50.54(f) letter.

## 2.0 REGULATORY EVALUATION

The SSCs important to safety in operating nuclear power plants are designed either in accordance with, or meet the intent of Appendix A to 10 CFR Part 50, General Design Criteria (GDC) 2, "Design Bases for Protection Against Natural Phenomena," and Appendix A, "Seismic and Geological Siting Criteria for Nuclear Plants," to 10 CFR Part 100. GDC 2 states that SSCs important to safety at nuclear power plants shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions.

For initial licensing, each licensee was required to develop and maintain design bases that, as defined by 10 CFR 50.2, identify the specific functions to be performed by an SSC of a facility, and the specific values or ranges of values chosen for controlling parameters as reference bounds for the design.

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3 ADAMS Package Accession No. ML121440522

4 ADAMS Accession No. ML12144A142

5 ADAMS Accession No. ML12354A313 and ML12354A311

6 ADAMS Accession No. ML14141A540

7 ADAMS Accession No. ML13228A004

8 ADAMS Accession No. ML13325A891

9 ADAMS Accession No. ML14055A329

The design bases for the SSCs reflect appropriate consideration of the most severe natural phenomena that have been historically reported for the site and surrounding area. The design bases also reflect sufficient margin to account for the limited accuracy, quantity, and period of time in which the historical data have been accumulated.

The current licensing basis (CLB) is the set of NRC requirements applicable to a specific plant, and a licensee's written commitments for ensuring compliance with, and operation within, applicable NRC requirements and the plant-specific design basis that are in effect.

### 3.0 TECHNICAL EVALUATION

#### 3.1 Design Basis Flooding Hazard IP 2&3

The licensee identified the most severe conditions for flooding at the Indian Point sites would result from the simultaneous occurrence of the following events: (1) a standard project flood on the Hudson River, (2) the failure of the Ashokan Dam, and (3) a hurricane-driven storm surge in the New York Harbor. These events, when combined with local wave action due to wind effects, would produce a maximum water elevation of 15 ft above mean sea level (MSL) at the Indian Point site.

The licensee calculated maximum water levels by developing backwater curves to determine the flood level that would result from simultaneous flooding conditions, including runoff generated by a Hudson River probable maximum precipitation (PMP) event, failure of the Ashokan Dam concurrent with heavy runoff generated by a Hudson River standard project flood, and water levels associated with a probable maximum hurricane for the New York harbor area concurrent with spring high tide. The maximum water elevation of 15 ft MSL was derived from these calculations.

Based on the NRC staff's review, the licensee appears to have sufficiently described the design basis flood hazard level(s) as requested in the 50.54(f) letter and consistent with the walkdown guidance.

#### 3.2 Flood Protection and Mitigation

##### 3.2.1 Flood Protection and Mitigation Description

The CLB flood protection and mitigation provide protection to an elevation of 15.25 ft MSL. The licensee indicated that the flood protection and mitigation features were designed using the following assumptions and inputs:

At Indian Point Unit 2, the PMP event was derived from six historical storm events with durations from 5 minutes to 24 hours. The benchmark analysis and the 24-hour PMP analysis used the U.S. Department of Agriculture (USDA) Soil Conservation Service TR-20 methodology, while the shorter duration events were analyzed by using the Rational Method.

At Indian Point 3, storm drainage and roofs were originally designed on the basis of rainfall intensities between 5 and 5.5 in/hr, with roofs designed to withstand loadings up to 40 lb/ft<sup>2</sup>. The analysis conducted for the walkdowns, which included rainfall data available from the National Weather Service, indicated that the PMP rainfall intensity would be several times that used in the original design. The licensee selected a 1-hour rainfall event with a 17.5-in/hr intensity consistent with National Weather Service data. The calculations performed with these higher PMP amounts showed the 40 lb/ft<sup>2</sup> load capacity of the roofs would not be exceeded.

### 3.2.2 Incorporated and Exterior Barriers

Indian Point has incorporated flood protection features that protect against the maximum flood level that include both incorporated/exterior and temporary features. The incorporated exterior features include permanent exterior barriers and require no operator manual actions. These barriers include exterior walls and floors of structures containing SSCs, backflow prevention valves, penetration seals, and conduit seals.

For Indian Point Unit No. 2, the licensee stated that a 1-ft dike exists around Motor Control Center (MCC) 24A in the Turbine Building to protect this MCC during a flooding event. The licensee also stated that Indian Point Unit No. 3 is protected by features providing protection for Indian Point Unit 2.

In regard to the PMP event, the licensee indicated that roof drains would ensure that the loads resulting from the accumulation of rainwater would not exceed the design load of those buildings that house safety-related equipment.

### 3.2.3 Temporary Barriers and Other Manual Actions

In addition to permanent barriers, the units have temporary barriers and other manual actions that require operator actions. The temporary flood protection features include portable gas-powered pumps, submersible electric pumps and sandbags, among other actions. Manual actions would be implemented to protect the Service Water Strainer Pit at the Intake Structure to assist the strainer pit sump pump. The manual actions associated with these procedural activities include the placement of sandbags around the strainer pit and the movement and staging of a temporary portable pump.

### 3.2.4 Reasonable Simulation and Results

At Indian Point Unit 2, the licensee conducted a simulation to evaluate the procedures and actions to protect the Service Water Strainer Pit. The simulation was executed as written, and the licensee stated that the time needed to complete the procedural actions was judged to be sufficient.

At Indian Point Unit 3, the licensee conducted simulations to evaluate the flood procedure that includes actions to protect the Service Water Strainer Pit and the Service Water Valve Pit at the Intake Structure. The simulations involved either actual drills or simulated actions (such as de-energizing power to the sump pumps and closing the pump discharge valve) and included the following activities: install temporary pumps in the Strainer Pit and verify pump operability; place sandbags around the Strainer Pit; install temporary pumps in the Valve Pit and verify pump operability; and install sandbags around the Service Water Pump Area. The results of the simulations indicated that the flood procedure could be executed as written, and the licensee stated that the time needed to complete the procedural actions was judged to be sufficient.

The transportation of the portable pump from its storage location to the intake structure, for both units, was included in the simulation and would involve the use of paved surfaces. Therefore, it would not be impeded by soft soil conditions created by excessive water.

The licensee stated that the procedure could be implemented by non-licensed operators who receive initial training on the procedure and then are re-qualified every three years. All simulations met the intent of the walkdown guidance.

### 3.2.5 Conclusion

Based on the NRC staff's review, the licensee appears to have described protection and mitigation features as requested in the 50.54(f) letter and consistent with the walkdown guidance.

### 3.3 Warning Systems

The licensee indicated that no room water level warning systems or alarms are credited for flood protection in the Indian Point CLB.

### 3.4 Effectiveness of Flood Protection Features

The licensee performed visual inspections of the external flood protection features, including exterior walls and floors, temporary sump pumps, penetration seals, and door closures. The licensee concluded that these features would provide sufficient flood protection at the Indian Point site to ensure the safe operation of the plant in the event of an external flood. The licensee also examined site topography to verify that the site drainage would not direct floodwaters toward the protected features. The examination confirmed that site drainage was consistent with the flooding and PMP analyses. The licensee concluded that the procedural actions to protect the Service Water Strainer Pit could be executed as written and that these actions could be completed in a sufficient time frame.

Based on the NRC staff's review, the licensee appears to have discussed the effectiveness of flood protection features as requested in the 50.54(f) letter and consistent with the walkdown guidance.

### 3.5 Walkdown Methodology

By letter dated June 8, 2012,<sup>10</sup> the licensee responded to the 50.54(f) letter that they intended to utilize the NRC endorsed walkdown guidelines contained in NEI 12-07, Revision 0-A dated May 31, 2012, "Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features."<sup>11</sup> The licensee's walkdown submittal dated November 27, 2012, as supplemented by letters dated August 12, 2013, and May 9, 2014, indicated that the licensee implemented the walkdowns in accordance with the guidance provided in NEI 12-07. The licensee did not identify any exceptions from NEI 12-07.

Based on the NRC staff's review, the licensee appears to have presented information related to the implementation of the walkdown process as requested in the 50.54(f) letter and consistent with the walkdown guidance.

### 3.6 Walkdown Results

#### 3.6.1 Walkdown Scope

At Indian Point Unit 2, the licensee performed walkdowns of 32 packages of features credited for flood protection, including 29 passive incorporated features and 2 active incorporated features. At Indian Point Unit 3, the licensee performed walkdowns of 65 packages of features credited for flood protection, including 59 passive incorporated features, 2 active incorporated features, 2 passive temporary features, and 2 active temporary features.

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<sup>10</sup> ADAMS Accession No. ML12172A259.

<sup>11</sup> ADAMS Accession No. ML12173A215.

The licensee indicated that some of the packages contained multiple items and attributes. The following physical features were included in the walkdowns: exterior walls and floors, penetration seals, doors, and temporary sump pumps. In addition, the licensee performed a reasonable simulation of procedural and manual actions needed to protect the Service Water Strainer Pit (see Section 3.2.4, above).

The licensee used/developed acceptance criteria consistent with the intent of NEI 12-07.

### 3.6.2 Licensee Evaluation of Flood Protection Effectiveness, Key Findings, and Identified Deficiencies

The licensee performed an evaluation of the overall effectiveness of the Indian Point flood protection features.

NEI 12-07 defines a deficiency as follows: “a deficiency exists when a flood protection feature is unable to perform its intended function when subject to a design basis flooding hazard.” At Indian Point Unit 2, the licensee identified two deficiencies: degraded seal door in the Control Building (CB) and water intrusion into the 480V switchgear room in the CB. At Indian Point 3, the licensee identified four deficiencies: debris in a manhole flapper-type backflow prevention valve, several issues with the flood procedure that would be used to protect the Service Water Strainer Pit and the Service Water Valve Pit, water damage of an electrical connection box in the 480V switchgear room in the CB, and missing internal conduit seals.

NEI 12-07 requires licensees to identify observations in the CAP that were not yet dispositioned at the time the walkdown report was submitted. Entergy identified reported observations awaiting disposition. The licensee identified, for both units, several conduits whose internal seals were not part of a preventive maintenance program. The licensee stated that a Preventive Maintenance Change Request (PMCR) will be created to conduct periodic inspections of these internal seals.

The licensee concluded that all these deficiencies did not pose a threat to operability of the respective flood protection features and that Indian Point Unit Nos. 2 and 3 have sufficient protection available at the site to ensure the safe operation of the plant in the event of an external flood.

### 3.6.3 Flood Protection and Mitigation Enhancements

The licensee determined that no flood protection enhancements or mitigation measures were necessary as a result of the flood walkdowns.

### 3.6.4 Planned or Newly Installed Features

The licensee determined that no changes were necessary as a result of the flood walkdowns.

### 3.6.5 Deficiencies Noted and Actions Taken or Planned to Address

The licensee noted two deficiencies at Indian Point Unit 2 and described the actions taken or planned to address those deficiencies:

- A work order was created to repair the seal beneath the double doors on the north side of the Control Building into the 480V switchgear room. As of the date of the Walkdown Report, no action had been taken to repair the door seal.
- An existing item in the CAP indicated that an incident of water intrusion into the 480V switchgear room was identified in the Walkdown Report as an observation not yet

dispositioned. The Walkdown Report also states that a corrective action was issued to address this condition.

At Indian Point Unit 3, the licensee noted four deficiencies and described the actions taken or planned to address those deficiencies:

- A work order was created to pump out Manhole D1 and clean/inspect the area around the flapper valve, as well as to check for proper operation of the valve.
- The flood procedure is being re-evaluated in light of the sandbagging requirements and the acceptability of placing and operating gasoline-powered pumps in the Intake Structure Enclosure.
- Work requests have been written to seal the conduits that penetrate the walls in the Strainer Pit in the Intake Structure.
- A PMCR is being created to perform periodic inspections of the internal seals of conduits that run from Manhole 34 into the 480V Switchgear Room, as well as the seals of the conduits that run from Manhole 31 to the Zurn Strainer Pit.

### 3.6.6 Staff Analysis of Walkdowns

The NRC staff reviewed the licensee's walkdown reports for the Indian Point site dated November 27, 2012, as supplemented by letters dated May 9, 2014 (Unit 2) and August 12, 2013,<sup>12</sup> (Unit 3). The staff reviewed this additional information in conjunction with the licensee submitted walkdown reports.

As part of the walkdown effort, the licensee evaluated the capability of flood protection features by conducting a set of visual inspections. The walkdowns and a simulation were conducted by team members with the necessary qualifications and training. The licensee evaluated 32 and 65 packages of features credited for flood protection at Indian Point Unit 2 and Indian Point Unit 3, respectively; including: exterior walls and floors, penetration seals, doors, and temporary sump pump and sandbags. The licensee's walkdown inspections yielded several issues, as documented in Section 3.6.2 above, and corrective actions were identified for each item. Nevertheless, the licensee concluded that sufficient flood protection appears to be available at the Indian Point site to ensure the safe operation of the plant in the event of an external flood.

Based on the NRC staff's review, the licensee appears to have provided results of the walkdown and described any other planned or newly installed flood protection systems or flood mitigation measures as requested in the 50.54(f) letter and consistent with the walkdown guidance. Based on the information provided in the licensee's submittals, the staff concludes that the licensee's implementation of the walkdown process meets the intent of the walkdown guidance.

### 3.6.7 Available Physical Margin

The NRC staff submitted a RAI to the licensee regarding the APM dated December 23, 2013<sup>13</sup>. The licensee responded by letter dated February 12, 2014<sup>14</sup>, and stated that it has reviewed their APM determination process, and entered any unknown APMs into their CAP. The staff reviewed the response, and concluded that the licensee met the intent of the APM determination per NEI 12-07.

Based on the NRC staff's review, the licensee appears to have documented the information requested for any cliff-edge effects, as requested in the 50.54(f) letter and consistent with the

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12 ADAMS Accession No. ML13228A004

13 ADAMS Accession No. ML13325A891

14 ADAMS Accession No. ML14055A329

walkdown guidance. Furthermore, the staff concludes that the licensee met the intent of the APM determination per NEI 12-07.

### 3.7 NRC Oversight

#### 3.7.1 Independent Verification by Resident Inspectors

On June 27, 2012, the NRC issued Temporary Instruction (TI) 2515/187, "Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns."<sup>15</sup> In accordance with the TI, NRC inspectors independently verified that the licensee implemented the flooding walkdowns consistent with the intent of the walkdown guidance. Additionally, the inspectors independently performed walkdowns of a sample of flood protection features. The inspection reports dated February 11, 2013,<sup>16</sup> and February 8, 2013,<sup>17</sup> document the results of these inspections. No findings of significance were identified.

#### 4.0 SSCS Not Walked Down

The licensee identified inaccessible and restricted access features. The licensee provided justification for the delay in walkdowns of restricted access features. Sections 4.1 and 4.2 discuss the features located in restricted access areas and inaccessible features that were not inspected during the flood walkdown due to industrial safety concerns or the existing plant configuration and/or operating mode.

#### 4.1 Restricted Access

The licensee identified several items that were located in restricted access areas; hence, these items were not inspected during the flood walkdown due to industrial safety concerns or the existing plant configuration and/or operating mode.

At Indian Point Unit 2, the licensee identified seven restricted access items. These items included: an electrical manhole cover in the transformer yard, a cabinet in the switchgear room of the control building, roofs and associated drains (four separate buildings) and service water pump conduits that penetrate the floor of the switchgear room.

By letter dated May 9, 2014, the licensee submitted a supplemental response to the NRC request for information reporting the results of the completed walkdowns for Indian Point Unit 2 restricted access items. The licensee attached a table listing the restricted access items inspected, their respective dispositions and any actions planned or taken. The licensee indicated that no temporary measures were required as a result of the completed inspections and that all items inspected were within the plant maintenance and monitoring program, with the exception of two deficiencies found. The licensee entered the deficiencies into the CAP and reclassified one restricted access item as inaccessible.

At Indian Point Unit 3, the licensee identified ten restricted access items. These items included: an electrical manhole cover in the transformer yard, an electrical manhole cover in the Turbine Building, roofs and associated drains (five separate buildings), seals around the service water piping that penetrates the floor of the Strainer Pit, and service water pump conduits that penetrate the floor of the switchgear room.

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15 ADAMS Accession No. ML12129A108

16 ADAMS Accession No. ML13042A133

17 ADAMS Accession No. ML13039A047

By letter dated August 12, 2013, the licensee submitted a supplemental response to the NRC request for information, reporting the results of the completed walkdowns for Indian Point Unit 3 restricted access items. The licensee attached a table listing the restricted access items inspected, their respective dispositions and any actions planned or taken. The licensee indicated that no temporary measures were required as a result of the completed inspections and that all items inspected were within the plant maintenance and monitoring program, with the exception of two deficiencies found. The licensee entered the deficiencies into the CAP and reclassified one restricted access item as inaccessible.

#### 4.2 Inaccessible Features

At Indian Point Unit 2, no flood-protection features were identified by the licensee as being located in inaccessible areas. However at Indian Point Unit 3, the licensee identified three items that were located in inaccessible areas due to high radiation; hence, these items were not inspected during the flooding walkdown. These items are part of the Primary Auxiliary Building and include: the south wall (partial), the floor (partial), and the west wall (partial). The licensee stated that reasonable assurance can be provided to ensure these features will perform their flooding mitigative function because of (1) no visible signs of water intrusion or water damage in the visibly inspected parts of the inaccessible areas, (2) no penetrations that appear to be unsatisfactory, and (3) the thickness of the concrete walls and floors exceeds 2 ft in each case, thereby providing such reasonable assurance.

#### 5.0 CONCLUSION

The NRC staff concludes that the licensee's implementation of flooding walkdown methodology meets the intent of the walkdown guidance. The staff concludes that the licensee, through the implementation of the walkdown guidance activities and, in accordance with plant processes and procedures, verified the plant configuration with the current flooding licensing basis; addressed degraded, nonconforming, or unanalyzed flooding conditions; and verified the adequacy of monitoring and maintenance programs for protective features. Furthermore, the licensee's walkdown results, which were verified by the NRC staff's inspections, identified no immediate safety concerns. The staff reviewed the information provided and determined that sufficient information was provided to be responsive to Enclosure 4 of the 50.54(f) letter.

If you have any questions, please contact me at (301) 415-1364 or by e-mail at Douglas.Pickett@nrc.gov.

Sincerely,

**/RA/**

Douglas V. Pickett, Sr. Project Manager  
Plant Licensing Branch 1-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-247 and 50-286

Enclosure:  
Staff Assessment of Flooding Walkdown Report  
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**ADAMS Accession Number: ML14119A073**

\* concurrence by e-mail

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