



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

June 23, 2014

Mr. Dennis L. Koehl  
President and CEO/CNO  
STP Nuclear Operating Company  
South Texas Project  
P.O. Box 289  
Wadsworth, TX 77483

**SUBJECT:** SOUTH TEXAS PROJECT, UNITS 1 AND 2 – 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. MF0283 AND MF0284)

Dear Mr. Koehl:

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 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 letter dated November 26, 2012, STP Nuclear Operation Company (STPNOC, the licensee) submitted a Flooding Walkdown Report as requested in Enclosure 4 of the 50.54(f) letter for the South Texas Project, Units 1 and 2 sites. By letter dated January 30, 2014, STPNOC provided a response to the NRC staff's request for additional information for the staff to complete its assessments.

The NRC staff acknowledges that the licensee was to complete the delayed walkdown items no later than November 15, 2013, consistent with the regulatory commitment. The NRC staff reviewed the information provided and, as documented in the enclosed staff assessment, determined sufficient information was provided to be responsive to Enclosure 4 of the 50.54(f) letter.

D. Koehl

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If you have any questions, please contact me at 301-415-3016 or via e-mail at  
Balwant.Singal@nrc.gov.

Sincerely,



Balwant K. Singal, Senior Project Manager  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-498 and 50-499

Enclosure:  
Staff Assessment of Flooding  
Walkdown Report

cc w/encl: Distribution via Listserv

STAFF ASSESSMENT OF FLOODING WALKDOWN REPORT  
NEAR-TERM TASK FORCE RECOMMENDATION 2.3 RELATED TO  
THE FUKUSHIMA DAI-ICHI NUCLEAR POWER PLANT ACCIDENT  
STP NUCLEAR OPERATING COMPANY  
SOUTH TEXAS PROJECT, UNITS 1 AND 2  
DOCKET NOS. 50-498 AND 50-499

## 1.0 INTRODUCTION

On March 12, 2012,<sup>1</sup> the U.S. Nuclear Regulatory Commission (NRC) issued a request for information per 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.

Enclosure 4 of 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 SSCs [structures, systems, and components] 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.

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<sup>1</sup> Agencywide Documents Access and Management System (ADAMS) Accession No. ML12053A340.

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

- 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, 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 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.
- 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 letter dated November 26, 2012,<sup>5</sup> STP Nuclear Operating Company (STPNOC, or the licensee), provided a response to Enclosure 4 of the 50.54(f) letter Required Response Item 2, for the South Texas Project (STP), Units 1 and 2. The NRC staff issued a request for additional information (RAI) to the licensee regarding the available physical margin (APM) dated December 23, 2013.<sup>6</sup> The licensee responded by letter dated January 30, 2014.<sup>7</sup>

The NRC staff evaluated the licensee's submittals to determine if the information provided in the walkdown report 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 for Nuclear Power Plants," Criterion 2, "Design bases for protection against natural phenomena," and Appendix A "Seismic and Geological Criteria for Nuclear Plants," to 10 CFR Part 100." Criterion 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,

<sup>3</sup> ADAMS Package Accession No. ML121440522.

<sup>4</sup> ADAMS Accession No. ML12144A142.

<sup>5</sup> ADAMS Accession No. ML12340A156.

<sup>6</sup> ADAMS Accession No. ML13325A891.

<sup>7</sup> ADAMS Accession No. ML14043A116.

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, and the specific values or ranges of values chosen for controlling parameters as reference bounds for the design.

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 for STP, Units 1 and 2**

The licensee reported that the design basis flood hazard for the site is the instantaneous breach of the main cooling reservoir (MCR) embankment producing the highest water level and the shortest warning times. The postulated failure of the MCR is estimated by the licensee to result in a flood level elevation of 50.8 feet (ft) mean sea level (MSL), while plant grade is at 28.0 ft MSL. The licensee stated that an instantaneous water level of 50.2 ft National Geodetic Vertical Datum (NGVD) is reached 38 seconds after the breach as determined in the STP Updated Final Safety Analysis Report (UFSAR), and a maximum flood height of 50.8 MSL is used as the design basis flood.

As discussed in the licensee's walkdown report, several other mechanisms of hydro-meteorologically and seismically induced flooding events were considered in the UFSAR. These events resulted in STP site flood levels between 28.0 ft and 34.1 ft MSL.

Based on the NRC staff's review, the licensee appears to have described the design basis flood hazard level 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 licensee stated that the CLB for the STP site provides flood protection and mitigation to the maximum flood level (50.8 ft MSL). The licensee also stated that the flood protection and mitigation features are designed for safety-related SSCs to withstand the maximum flood level and associated effects and remain functional or the SSCs are housed within seismic Category I structures, which are designed to withstand the maximum flood level, and associated effects and remain functional.

The licensee stated that the buildings that house SSCs at STP are equipped with watertight panels, watertight access covers/doors, waterstops on construction joints and slabs, and other features to prevent flooding in safety-related areas. In addition, the seismic Category I buildings have walls and surface slabs that are waterproofed below grade to protect against potential flooding from subsurface groundwater. The Fuel Handling Building has sumps equipped with pumps to remove groundwater infiltrating the building.

Flooding events at STP are postulated to occur in any plant operational mode, and thus no specific modes are identified for protection and mitigation from flooding. The licensee stated that an instantaneous water level of 50.8 MSL occurs 38 seconds after the MCR embankment breach and that the non-mechanistic instantaneous embankment breach is not considered credible and applies only to the determination of maximum flood height. Based on a recent study that is not part of the CLB and is currently under review by NRC, the licensee stated that STP actions to close two normally open watertight doors within 30 minutes on each STP unit before floodwaters reached the level of the lowest normally open watertight door has been termed reasonable by the licensee given that indication of potential MCR breach would be available in advance.

### **3.2.2 Incorporated and Exterior Barriers**

The licensee reported that the STP site has incorporated and/or exterior barriers that are permanently in-place, requiring no operator manual actions. The seismic Category I structures have walls and slabs designed to resist hydrodynamic forces and buoyancy forces. The seismic Category I building openings at STP are either located at an elevation above the maximum flood level or have watertight doors or panels. The licensee noted two exceptions to this: the Mechanical-Electrical Auxiliaries Building has a truck bay opening and the Fuel Handling Building has an opening for railcar access. The licensee stated that the two exceptions do not require protection from flooding because they don't contain any safety-related SSCs required to perform any essential function near or below the maximum flood level.

The licensee stated that the buildings that house SSCs at STP are equipped with watertight panels, watertight access covers/doors, waterstops on construction joints and slabs, and other features to prevent flooding in safety-related areas. Flood doors credited in the licensing basis that normally remain closed have remote electronic indication of their status.

In addition, the licensee reported that the seismic Category I buildings have walls and surface slabs that are waterproofed below grade to protect against potential flooding from infiltrating groundwater. The Fuel Handling Building has sumps equipped with pumps to remove infiltrated groundwater. The walkdown report states that for STP Unit 1, some groundwater leaks into "the 64 degree tendon buttress area" in the Reactor Containment Building and is collected in a sump.

### **3.2.3 Temporary Barriers and Other Manual Actions**

The licensee stated that the site has no temporary flood barriers that need to be installed due to flooding conditions. Active barriers that require operator action include two doors per unit that are normally open and do not have status indicators. Station security personnel are assigned the duty to close these doors in the event of a flooding event.

The licensee cited Plant Procedure 0POP04-ZO-0002, "Natural or Destructive Phenomena Guidelines," as providing actions in the event of a Tornado Watch/Warning, Hurricane Watch/Warning, and Flooding/Potential Flooding (including from MCR breach). Watches and warnings are issued by the National Weather Service (NWS) and relayed to STP by IMPACT Weather Service. The licensee stated that the MCR surveillance activity performed 6 days per week would detect a loss of inventory or anomalous conditions that could represent a breach of the MCR.

### **3.2.4 Reasonable Simulation and Results**

The purpose of performing reasonable simulations is to verify that the required flood protection procedures or activities can be executed as specified/as written.

The licensee stated that a review and simulation of the procedure governing the actions to be taken in response to natural or destructive phenomena (including MCR leakage or breach) was performed. The licensee did not provide a description of the actions that were evaluated or the simulation that was performed; however, the licensee concluded that the activity is not impeded by the event it is intended to mitigate and that the actions can be completed in a reasonable amount of time. The licensee stated that although the CLB provides no specific timing in which to accomplish the actions, the actions can be completed within a reasonable amount of time.

### **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 reported that there are no credited external flooding warning systems installed at the STP site. However, as stated by the licensee the flood detectors are present in building sumps for detection of internal flooding.

Based on the NRC staff's review, the licensee appears to have provided information to describe any warning systems as requested in the 50.54(f) letter and consistent with the walkdown guidance.

### **3.4 Effectiveness of Flood Protection Features**

The licensee stated that the design basis flood event is a hypothesized breach in the embankment of the MCR. All other flood mechanisms evaluated for the STP site, including probable maximum precipitation as well as several dam failures and the probable maximum hurricane at the mouth of the Colorado River at the Gulf of Mexico, would produce site flood levels below the MCR hypothesized breach.

The licensee reported that all flood protection features at the STP site that are intended to protect safety-related structures and equipment against the design basis MCR breach flooding

event include a combination of both passive design features and flood doors. Most of the watertight doors are normally closed, but there are two sets of watertight doors for each unit that are normally open, and station personnel would be required to close them to prevent flooding in the SSCs. The licensee cites a recent study not included in the CLB, and which is currently under review by the NRC, that determined the timeframe for an MCR breach under non-instantaneous failure scenarios would allow an approximate 30-minute time period before flood waters reached the bottom of these flood doors.

All features inspected that were not immediately acceptable were entered into the licensee's corrective action program. The licensee concluded that in general, flood protection and mitigation measures were found to be available, functional and maintained consistent with the CLB.

The licensee defined the acceptance criteria for the flood protection features by the requirements in the current licensing basis using guidance from NEI 12-07. The license visually inspected the flood protection features to identify any material degradation as well as verifying the configuration with design documents.

No details were provided by the licensee on the parties responsible for notifying the station personnel to close the flood doors.

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 12, 2012,<sup>8</sup> the licensee responded to the 50.54(f) letter that it intended to utilize the NRC-endorsed walkdown guidelines contained in NEI 12-07, "Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features."<sup>9</sup> The licensee's walkdown submittal dated November 26, 2012, indicated that the licensee implemented the walkdowns consistent with the intent of 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

The licensee performed walkdowns of approximately 1,500 flood protection features including doors, penetrations, airlocks, hatch covers, and manholes. Interior and exterior walls were also scanned as a general part of the walkdown procedure. The Essential Cooling Pond (ECP)

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<sup>8</sup> ADAMS Accession No ML12163A127.

<sup>9</sup> ADAMS Accession No ML12173A215.

embankment was also inspected for degradation as a part of the walkdowns. In addition, the licensee performed a review and simulation of manual actions without providing describing details for the procedures/actions that were evaluated or the simulations performed. STPNOC concluded that the actions can be executed as specified, the actions can be completed in a reasonable amount of time (no time is specified in the current licensing basis), completion of the response activities are not impeded by the event, and staff is available to carry out the activities. Minor deficiencies found during the review of flood mitigation procedures and entered into a CAP condition report, but no further details were provided by the licensee in the walkdown report.

Flooding events at STP are postulated to occur in any plant operational mode, and thus no specific modes are identified for protection and mitigation from flooding. STPNOC did not discuss environmental conditions considered concurrent with the design basis flooding event although completion of the activity was stated not to be impeded by the event it is intended to mitigate or prevent.

The licensee 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 plant's flood protection features. Flood protection mitigation measures were found to be available, functional and maintained consistent with the CLB; however, some deficiencies were identified. The licensee stated that the required flood mitigation actions can be completed as specified.

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." The licensee identified deficiencies because of the flood walkdowns. The licensee stated that deficiencies either have been or are being addressed in the CAP. The deficiencies at STP are described in Section 3.6.5 below and include penetrations, seals, door mechanisms, and check valves.

NEI 12-07 specifies that licensees identify observations in the CAP that were not yet dispositioned at the time the walkdown report was submitted. In the walkdown report, the licensee identified observations included in the site CAP but not the disposition of all these observations. Observations included minor degradation of features including light corrosion, small cracks in penetration seals, discolored Hydrosil (sealant), and dried and cracked boot seals.

### 3.6.3 Flood Protection and Mitigation Enhancements

The licensee stated that planned or newly installed enhancements identified as a result of Institute of Nuclear Power Operations Industry Event Report 11-1 and during preparatory work for the flood walkdowns included flood seal installations in unsealed penetrations in truck bays; relocation of flood seals to facilitate inspection; and, reworking of coatings.

#### 3.6.4 Planned or Newly Installed Features

The licensee determined that changes were necessary by the flood walkdowns. Some flood seals are being relocated to facilitate easier inspections in the future. As a result of deficiencies, several changes were discussed in Section III.B of the walkdown report. Several flood seals have been replaced as a result of the walkdown, and others were stated as being scheduled for replacement. An action to seal a process line was entered into the CAP. Maintenance was ordered to ensure the functionality of flood doors. Preventative maintenance and associated procedures are being revised to ensure needed repairs are identified and made in a timely manner going forward.

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

In the walkdown report, the licensee noted the following deficiencies and actions taken or planned to address the deficiencies:

- An electrical manhole was missing a required flood seal and was corrected with a flood penetration seal installation.
- A 2-inch diameter cutoff and unsealed process line was found in the Electrical Auxiliaries Building and entered into the CAP.
- Seals on electrical manholes were found to be missing required restraints and were replaced with flood penetration seals and included restraints.
- Flood seals were found to be degraded due to chronic exposure to water on some electrical manholes and below grade building penetrations were replaced and that others were scheduled for replacement.
- During inspections of watertight doors, holding dogs that were not working were adjusted and preventative maintenance procedures revised to include verification of functionality.
- A check valve in a drain and sump line was found to have a missing flapper which was entered into the CAP and replaced. Regular inspection of check valves was to be included in the preventative maintenance program update which was entered into the CAP.
- Various flood protection features found to have minor degradation (e.g., light corrosion, small cracks in seals, etc.) during the walkdowns were entered into the CAP to ensure that they are repaired as necessary.

Minor deficiencies were said to be found during the review of procedures. The licensee stated that a CAP condition report was written to address these procedural deficiencies.

#### 3.6.6 Staff Analysis of Walkdowns

The NRC staff reviewed the licensee's walkdown report dated November 26, 2012. The licensee stated that flood protection and mitigation measures were found to be available,

functional and maintained in accordance with the CLB. The licensee walked down features such as doors, penetrations, airlocks, hatch covers, and manholes in various buildings and areas of the plant and visually inspected interior and exterior walls. An inspection of the ECP embankment was also included in the walkdowns. The licensee stated that observations of issues found to need further consideration were entered into the site CAP. The licensee stated that identified deficiencies were either addressed or were being addressed in the CAP at the time of the walkdown report.

The licensee stated that a review and simulation of the procedure governing the actions to be taken in response to a natural or destructive phenomena (including MCR leakage or breach) was performed. The licensee concluded that completion of the activity is not impeded by the event it is intended to mitigate or prevent (including MCR leakage or breach) and the licensee stated the CLB does not specify a time to complete these actions.

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 NRC staff concludes that the licensee's implementation of the walkdown process meets the intent of the walkdown guidance.

### **3.6.7 Available Physical Margin**

NRC staff issued an RAI to the licensee regarding the APM dated December 23, 2013. The licensee responded by letter dated January 30, 2014. The licensee has reviewed its APM determination process, and entered any unknown APMs into its CAP. The NRC staff reviewed the response, and concludes that the licensee met the intent of the APM determination per NEI 12-07.

Based on the NRC staff's review, 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 walkdown guidance. Further, the staff reviewed the response, and 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>10</sup> In accordance with the TI, NRC inspectors independently verified that the STP 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 report dated February 5, 2013,<sup>11</sup> documents the results of this inspection. No findings of significance were identified.

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<sup>10</sup> ADAMS Accession No. ML12129A108.

<sup>11</sup> ADAMS Accession No. ML13037A195.

#### 4.0 WALKDOWNS NOT PERFORMED FOR FLOOD-PROTECTION FEATURES

The licensee identified inaccessible and restricted access features.

##### 4.1 Restricted Access

Restricted access features identified by the licensee include flood penetration seals within electrical boxes or conduits which contain either energized equipment and/or require scaffolding or ladders to facilitate inspection. In some cases, piping insulation must be removed for inspection of the flood penetration seals. Two buried check valves considered restricted access by the licensee must either be excavated or inspected with remote viewers to ensure the flood feature is verified. The licensee stated that a valve part replacement in one of these valves would also verify the intended flood protection function. All restricted items were entered in to the site CAP and inspections were planned for completion no later than November 15, 2013.

##### 4.2 Inaccessible Features

The licensee determined that flooding protection seals, penetration seals in a manhole, flood penetration seals were inaccessible. Flooding penetration seals were in accessible due to a location within a high radiation area. Based on inspection of similar seals constructed of the same material and subject to the same environmental conditions, the licensee stated that it can be reasonably assured that these seals will perform their intended function for the full duration of the flood condition. Manholes seals are sealed using a sealant (Hydrosil) bonded to an overlain (Ductsil) material. Removing the waterproofing material was found to damage the bond between the sealant and the overlain material. Therefore, based on the inspection of a portion of these seals, the licensee stated that there is assurance of the flood feature being able to perform their intended function for the full duration of the flooding condition. The flood penetration seals found to be inaccessible were buried below grade. Based on a review of the design of the pipe containing these flood seals, the licensee stated that assurance can be provided for these flood features. In summary, the licensee provided a basis for assurance that the inaccessible access features are available and will perform their credited function.

#### 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 staff's inspection, identified no immediate safety concerns. The NRC staff acknowledges that the licensee was to complete the delayed walkdown items no later than November 15, 2013, consistent with the regulatory commitment. The NRC staff reviewed the information provided and determined that sufficient information was provided to be responsive to Enclosure 4 of the 50.54(f) letter.

D. Koehl

- 2 -

If you have any questions, please contact me at 301-415-3016 or via e-mail at  
[Balwant.Singal@nrc.gov](mailto:Balwant.Singal@nrc.gov).

Sincerely,

/RA/

Balwant K. Singal, Senior Project Manager  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-498 and 50-499

Enclosure:  
Staff Assessment of Flooding  
Walkdown Report

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**ADAMS Accession No.: ML14150A191**

\*email dated May 15, 2014

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