Xcel Energy®

Prairie Island Nuclear Generating Plant
1717 Wakonade Drive East
Welch, MN 55089

NOV 26 2012

L-PI-12-103
10 CFR 50.54(f)

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Prairie Island Nuclear Generating Plant Units 1 and 2
Docket Nos. 50-282 and 50-306
Renewed License Nos. DPR-42 and DPR-60

PINGP Final 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, ADAMS Accession No. ML12053A340.

2. NRC Letter, "Endorsement of Nuclear Energy Institute (NEI) 12-07, 'Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features,'" dated May 31, 2012, ADAMS Accession No. ML12144A142.

3. NSPM Letter to NRC, "PINGP 90-Day Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Flooding Aspects of Recommendations 2.1 and 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated June 11, 2012.

On March 12, 2012, the NRC Staff issued Reference 1 to all NRC power reactor licensees and holders of construction permits in active or deferred status. Enclosure 4 of this letter contains specific Requested Actions, Requested Information, and Required Responses associated with Near-Term Task Force (NTTF) Recommendation 2.3, Flooding. As part of this letter, licensees were requested to perform flooding walkdowns to verify that plant features that are credited in the current licensing basis (CLB) for

protection and mitigation from external flood events are available, functional, and properly maintained.

In a letter to the NRC dated June 11, 2012 (Reference 3), Northern States Power Company, a Minnesota corporation (NSPM), d/b/a Xcel Energy, confirmed that it would use the flooding walkdown procedure NEI 12-07, "Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features," endorsed by the NRC in Reference 2, as the basis for the flooding walkdowns at the PINGP. In accordance with 10 CFR 50.54(f), NSPM is providing the results of its external flooding walkdowns, as well as its responses to the requested information in Enclosure 4 of Reference 1, on behalf of the Prairie Island Nuclear Generating Plant (PINGP).

The enclosure to this letter provides the information requested by the NRC in Reference 1 for NTTF Recommendation 2.3, Flooding. It also includes the results of the external flooding walkdowns completed at the PINGP following the guidance of NEI 12-07.

If there are any questions, or if additional information is needed, please contact Ms. Jennie Eckholt, Licensing Engineer, at 612-330-5788.

Summary of Commitments

This letter proposes the following new commitments and no revisions to existing commitments.

	Regulatory Commitments	Due Date
1	NSPM will complete resolution of deficiencies identified in Table 3.6-1, "Deficiency List," of the enclosure.	February 28, 2013
2	NSPM will complete inspection of flood protection features identified in Table 3.6-2, "List of Restricted Access," of the enclosure.	November 29, 2013

I declare under penalty of perjury that the foregoing is true and correct.

Executed on NOV 26 2012

James E Lynch
Site Vice President, Prairie Island Nuclear Generating Plant
Northern States Power Company - Minnesota

Enclosure

cc: Administrator, Region III, USNRC
Director, Office of Nuclear Reactor Regulation (NRR)
NRR Project Manager, PINGP, USNRC
Senior Resident Inspector, PINGP, USNRC

ENCLOSURE

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
EXTERNAL FLOODING WALKDOWN REPORT

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**REQUEST FOR INFORMATION PURSUANT TO 10 CFR 50.54(f)
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1.0 INTRODUCTION

The United States Nuclear Regulatory Commission (NRC) issued a letter to licensees, entitled "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 (Reference 5.1). In accordance with Recommendation 2.3, Flooding, of the March 12, 2012 NRC Request for Information (Enclosure 4 of Reference 5.1), Northern States Power Company, a Minnesota corporation (NSPM), d/b/a Xcel Energy, was requested to perform walkdowns 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 for the Prairie Island Nuclear Generating Plant (PINGP), Units 1 and 2.

External flooding walkdowns were performed by NSPM following the guidelines provided in Nuclear Energy Institute (NEI) document 12-07, Revision 0-A, "Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features," dated May 2012 (Reference 5.2). The NEI 12-07 guidance has been endorsed by the NRC in a letter dated May 31, 2012 (Reference 5.3). The results of the external flooding walkdowns performed at the PINGP are presented herein.

2.0 PURPOSE

In response to the accident at the Fukushima Dai-ichi nuclear power plant caused by the March 11, 2011, Tohoku earthquake and subsequent tsunami, the Commission established the NTTF to conduct a systematic review of NRC processes and regulations, and to make recommendations to the Commission for its policy direction. The NTTF recommendations are contained in a report to the commission, SECY-11-0093, "Near-Term Report and Recommendations for Agency Actions Following the Events in Japan," dated July 12, 2011 (Reference 5.4).

NTTF Recommendation 2.3, as amended by the NRC Staff Requirements Memorandum (SRM) associated with Commission Papers SECY-11-0124 and SECY-11-0137, instructed the NRC staff to issue requests for information to licensees pursuant to 10 CFR 50.54(f). Subsequently, the NRC Staff issued a letter on March 12, 2012 (Reference 5.1) which requested licensees to provide the following information under 10 CFR 50.54(f):

- Perform flood protection walkdowns using an NRC-endorsed walkdown methodology,
- 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,
- Identify any other actions taken or planned to further enhance the site flood protection,
- Verify the adequacy of programs, monitoring and maintenance for protection features, and,
- Report to the NRC the results of the walkdowns and corrective actions taken or planned.

In response to the NRC information request, external flooding walkdowns were performed by NSPM following the methodology provided in NEI 12-07, Revision 0-A (Reference 5.2). NSPM reviewed current licensing and design basis documents including flood mitigation procedures to identify site-specific flood protection features and mitigation procedures that are credited for protection from and mitigation of an external flooding event. Installed and temporary flood protection features were included in the scope of these reviews.

The scope of the external flooding walkdowns was established based on the site-specific flood protection features and mitigation procedures credited in the CLB. With the exception of identified deficiency described in this report, the walkdowns verified that permanent Structures, Systems, and Components (SSC); portable flood mitigation equipment; and the procedures needed to install and/or operate them during a flood are acceptable and capable of performing their design function as credited in the CLB. The results of the flooding walkdowns are

presented in Section 3.6 of this report. Any identified deficiencies were evaluated in accordance with the PINGP Corrective Action Program (CAP), and are listed in Table 3.6-1 of this report.

3.0 NRC REQUESTED INFORMATION

Appendix D of the NRC-endorsed Nuclear Energy Institute (NEI) 12-07 [Rev.0-A] *Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features* (NEI 12-07) (Reference 5.2), provides additional information on the specific NRC information requests from Enclosure 4 of the 10 CFR 50.54(f) letter (Reference 5.1). NSPM's responses to the NRC's 10 CFR 50.54(f) information requests can be found below in Sections 3.1 through 3.8. Sections 3.1 through 3.8 provided below are consistent with the NRC requested information 2.a thru 2.h listed in Enclosure 4 of Reference 5.1.

3.1 NRC Request - Design Basis Flood Hazard Level(s)

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

1. Identify all flood hazards that were evaluated in the site's design basis and the flood level resulting from each. Identify hazards that were screened out.
    i. Note that some flood hazards may be limiting for flood level and some for other considerations such as warning time and dynamic loading.
2. Describe any key assumptions (e.g., all culverts were assumed blocked).
3. Include information on the methodology used in developing the design basis flooding hazard.
4. If differences or contradictions in flood hazard levels were found in design or licensing basis documentation, include a description of the basis for flood level used.

3.1.1 PINGP Response - Design Basis Flood Hazards

This section discusses the external flood hazards that are credited in the PINGP's design and licensing basis, as well as the design basis flood level.

Site Description/Topography

The site is located within the city limits of the City of Red Wing, Minnesota on the right (West) bank of the Mississippi River. Topography near the Prairie Island site is fairly level to slightly rolling ground ranging in elevation from 675 ft. to 706 ft. Unless otherwise stated, all elevations are in feet above mean sea level (MSL), 1929 adjustment. The surface slopes gradually toward the Mississippi River on the northeast and to the Vermillion River on the southwest. Normal pool elevation at Lock and Dam Number 3 is at 674.5 ft. and the maximum reported flood (1965) was at 687.7 ft. Steep bluffs parallel this stretch of the Mississippi River and rise to above a 1,000 ft. elevation approximately 1-1/2 miles northeast and southwest of the site. Northeast and southwest of these bluffs, the ground

elevation ranges from 1,000 ft. to 1,200 ft. and is marked by many deeply eroded coulees. The plant grade surrounding the Power Block and Screenhouse is 694.5 ft. The site description and topography is described in detail in the PINGP Updated Safety Analysis Report (USAR) Section 2.2 (Reference 5.12).

Hydrology

The principal surface waters in the vicinity of the site are the Mississippi River, Sturgeon Lake, the Vermillion River, and the Cannon River. The levels of the Mississippi River and Sturgeon Lake are controlled by Lock and Dam Number 3, which is located approximately 1-1/2 miles downstream from the plant. The Vermillion River enters the main stream of the Mississippi below the dam. The flow in the Mississippi River is for the most part unregulated, i.e., natural river flow is passed through the dam so as to maintain an unvarying upper pool level. The normal upper pool is at 674.5 ft. This level may be lowered to 672.5 ft. at the dam to control pool elevation at Prescott to 674.5 ft. for a river flow of approximately 17,000 cfs. According to the U.S. Army, Corps of Engineers, the 1965 flood, which is the highest on record, has a recurrence interval of 150 years. The peak stage at Lock and Dam Number 3 during this flood was 687.7 ft. It is estimated by the Corps of Engineers that a flood having a 1000-year recurrence interval would have a peak stage of about 691.8 ft. at Lock and Dam Number 3, and a discharge of about 335,000 cfs.

Probable Maximum Flood (PMF)

A study to determine the magnitude of the probable maximum flood for this area of the Mississippi River was performed by Harza Engineering Company (Reference 5.9). The detailed results of the study are presented in USAR Appendix F (Reference 5.12). The probable maximum discharge was determined to be 910,300 cfs and to have a corresponding peak stage of 703.6 ft. The flood would result from meteorological conditions which could occur in the spring and could reach maximum river level in about 12 days. It was estimated that the flood stage would remain above 695 ft. for approximately 13 days. Wind generated waves would be of maximum height when the wind is from east to west in the direction of the circulating water intake canal. With a persistent wind speed of 45 mph the height of the significant wave would be less than 1.8 ft. (crest to trough). The maximum one percent wave height, consistent with the highest significant wave, is estimated to be less than 3.1 ft. It was determined that the maximum wave run-up elevation would be 706.7 ft.

The Harza Study determined the PMF at the PINGP by transposing an actual critical spring storm to the drainage basin and maximizing the precipitation for potential moisture. Potential snow cover and a critical temperature sequence were developed for determining snowmelt contribution to flood runoff. Flood runoff at the plant site was determined by developing unit hydrographs for 16

sub-basins, applying rainfall and snowmelt excesses to the unit hydrographs and routing the resultant hydrographs for the sub-basins to the project site.

A probable maximum summer storm over the project area was also studied in detail and the resulting flood at the project site determined. Although the summer storm was much larger than the spring storm, the much lower retention rates under ordinary spring conditions and the snowmelt contribution to runoff resulted in the spring storm producing the more critical flood.

Flooding due to backwater, usually caused by ice jams, was considered. The most serious flooding throughout the basin has been associated with excessive snowmelt and precipitation.

Lock and Dam Number 2 is located 17 miles upstream of the plant site. The difference in normal pool elevations across the dam is 12.2 ft. Failure of the dam could result in a sudden release of water, temporarily producing the effect of a flood in the river channel downstream of the dam. The storage effect of the lower channel basin and the resulting loss of head in the upper reservoir will greatly attenuate flooding effects at the Prairie Island site.

There is no flood hazard resulting from a dam break at Lock and Dam Number 2. This conclusion was substantiated by determining stable water level elevations at Lock and Dam Number 3 resulting from sustained flow with the loss of 10 tainter gates at Lock and Dam Number 2. Sustained flow will maintain the upper pool elevation at Lock and Dam Number 3, and will provide the volume of water needed in the lower pool to produce the maximum pool level consistent with steady flow supplied through 10 spillway bays. The flow resulting from these postulated extreme conditions would produce a river level at 684.5 ft. in the lower pool at Lock and Dam Number 2 with a corresponding level in the upper pool at Lock and Dam Number 3 of 676.5 ft.

Groundwater Elevation

The ground water table is normally within 5 to 20 ft. (approximately 674.5 ft.) of the ground surface of the site and appears to slope southwest from the Mississippi River toward the Vermillion River.

As described in the Section 12.2.3.1.6 of the USAR (Reference 5.12), the design of the power block structures and Screenhouse account for the uplift force associated with the probable maximum flood (703.6 ft).

3.1.2 PINGP Response - Key Assumptions

The most critical sequence of events leading to a major flood would be to have an unusually heavy spring snowfall and low temperatures after a period of

intermittent warm spells and sub-freezing temperatures has formed an impervious ground surface and then a period of extremely high temperatures followed by a major storm. This sequence of events is not unusual in the study area and the maximization of rainfall, snow-cover, and temperature would produce a probable maximum flood.

For the purpose of the PMF analysis, antecedent conditions were assumed to be such that extremely high runoff rates would result from snow melt and precipitation. Snow, water equivalent having a 1 percent probability, was assumed to cover the study area on March 31. On April 1, the maximum historical temperature sequence was started. By the fifth day the high temperatures were below the dewpoint temperatures of the storm and the probable maximum spring precipitation was assumed to begin April 5. Temperatures for the period following the maximum five-day sequence were assumed to be the same as those recorded for the April 7-16, 1921, period.

Additional details regarding key assumptions used in the analyses are described in USAR Appendix F (Reference 5.12).

3.1.3 PINGP Response - Methodology Used to Develop Design Basis Flood Hazard

As discussed in Section 3.1.1 of this report, the PMF at the PINGP site was determined by transposing an actual critical spring storm to the drainage basin and maximizing the precipitation for potential moisture. Potential snow cover and a critical temperature sequence were developed for determining snowmelt contribution to flood runoff.

The study area was divided into 16 sub-basins and unit hydrographs were developed for each, using synthetic methods. Snyder's method, which related basin characteristics to hydrograph shape and peak, was used for a first approximation. Computed coefficients of basin lag and unit hydrograph peak were then compared with coefficients for other unit hydrographs for basins in the study area, computed from recorded flood events. Because of the large number of lakes and swamps, basin lag times are considerably longer than other topographic features would indicate. Coefficients of basin lag were, therefore, taken as the average of the coefficients computed from the recorded floods. Unit hydrograph peaks were also increased by 25 percent and basin lag decreased by one-sixth, in accordance with standard Corps of Engineer practice.

Snowmelt and rainfall excesses were applied to unit hydrographs and the resulting hydrographs determined for each sub-basin. Sub-basin hydrographs were then routed to the project site, using the modified Wilson method. Hydrograph computation and flood routings were done by computer program. Travel times for flood routing were taken from recorded travel times for large

floods. Base flow was then added to the total of the routed hydrographs. Base flow was determined from long-term records of streamflow for nearby stations.

The peak elevation of the probable maximum flood was determined from a stage-discharge relationship developed for the site. The method used was an extension on logarithmic coordinates of the known rating curves for the U.S. Geological Survey Prescott and Winona gages and for the Corps of Engineers headwater gage at Lock and Dam No. 3. The stage scale of these three ratings was adjusted to give approximately a straight line on logarithmic coordinates, which is standard practice for logarithmic rating curves. The curves were then extended as a straight line to the discharge of the probable maximum flood. The stage-discharge relationship at the PINGP site was determined by interpolation between the Prescott and the Lock and Dam No. 3 curves.

The analysis results are presented in USAR Appendix F (Reference 5.12).

3.1.4 PINGP Response - Differences or Contradictions in Flood Hazard Levels

No differences or contradictions in flood hazard levels were identified in the design or licensing basis documentation.

3.2 NRC Request – Protection and Mitigation Features Considered in Licensing Basis

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.

1.0 Describe the flooding licensing basis including what plant configurations (modes of operation; for example, full power operations, startup, shutdown, and refueling) were considered. This description should be consistent with the scope of the flooding walkdowns.
2.0 Document the flood duration assumed in the CLB. If the CLB does not provide information on the flood duration, this lack of information should be documented in the walkdown report.
3.0 Describe the flood protection features that are credited in the CLB, such as incorporated, exterior and temporary barriers, time required for credited actions under flood conditions, active flood protection features, procedures, warnings credited for external floods, site drainage plan, etc.
4.0 Describe weather conditions or flood levels that trigger procedures and associated actions for providing flood protection and mitigation.
5.0 Describe the adverse weather conditions that were assumed concurrent with flood protection features and associated actions.

3.2.1 PINGP Response - Flooding Licensing Basis

This section provides a summary of the PINGP CLB that governs the design, operation and maintenance of plant SSCs for the protection and mitigation from external flooding events.

The CLB, as defined by 10 CFR 54.3, is the set of NRC requirements applicable to a specific plant, plus a licensee's docketed and currently effective written commitments for ensuring compliance with, and operation within, applicable NRC requirements and the plant-specific design basis, including all modifications and additions to such commitments over the life of the facility operating license. It also includes the plant-specific design basis information, defined by 10 CFR 50.2, as documented in the most recent USAR as required by 10 CFR 50.71.

The determination of the probable maximum flood (PMF) level of 703.6 is described in Section 3.1 of this report.

The main powerhouse structure consisting of the Reactor Buildings, the Auxiliary and Fuel Handling Building, the Turbine Building, the D5/D6 Diesel Generator Building, and the pump section of the Screenhouse structure are protected against the probable maximum flood of 703.6 ft. Flood Protection features are discussed in Section 3.2.3, and plant flood mitigation procedures are described in Section 3.2.4 of this report.

Discussion of applicable NRC regulations, docketed correspondence and commitments to the NRC that are included within the PINGP CLB for flood protection are summarized below.

3.2.1.1 General Design Criteria (GDC)

The Prairie Island Nuclear Generating Plant was designed and constructed to comply with NSPM's understanding of the intent of the Atomic Energy Commission (AEC) General Design Criteria (GDC) for Nuclear Power Plant Construction Permits, as proposed on July 10, 1967. Since the construction of the plant was significantly completed prior to the issuance of the February 20, 1971, 10 CFR 50, Appendix A General Design Criteria, the plant was not reanalyzed and the USAR was not revised to reflect these later criteria. However, the AEC Safety Evaluation Report acknowledged that the AEC staff assessed the plant, as described in the USAR, against the Appendix A design criteria and "... are satisfied that the plant design generally conforms to the intent of these criteria."

The PINGP USAR, Section 1.5, lists the GDC for the design, construction and operation of the plant (Reference 5.12). The AEC GDC (by number and title) pertaining to external flooding is provided below. USAR Section 1.5 also describes the licensee's understanding of the intent of the criteria (section titled

"Answer") and how the plant design complies with those requirements (Reference 5.12).

AEC Criterion 2 - "Performance Standards"

"Those systems and components of reactor facilities which are essential to the prevention of accidents which could affect the public health and safety or to mitigation of their consequences shall be designed, fabricated, and erected to performance standards that will enable the facility to withstand, without loss of the capability to protect the public, the additional forces that might be imposed by natural phenomena such as earthquakes, tornadoes, flooding conditions, winds, ice, and other local site effects. The design basis so established shall reflect: (a) appropriate consideration of the most severe of these natural phenomena that have been recorded for the site and the surrounding area and (b) an appropriate margin for withstanding forces greater than those recorded to reflect uncertainties about the historical data and their suitability as a basis for design."

ANSWER

The systems and components designated Class I in Section 12 are designed to withstand, without loss of capability to protect the public, the most severe environmental phenomena ever experienced at the site with appropriate margins included in the design for uncertainties in historical data. Potential environmental hazards are discussed and analyzed in Sections 2 and 14 of the report and the influence of these hazards on various aspects of the plant design is discussed in the sections covering the specific systems and components concerned. An outline of the design philosophy for Class I systems and components and a listing of the applicable report sections describing the systems and components covered by this criterion are included in USAR Section 1.2.

3.2.1.2 Regulatory Requirements and Licensing Commitments

Licensing Commitments made in docketed licensing correspondence (such as licensee responses to NRC bulletins, License Event Reports, Generic Letters, and Enforcement Actions) were reviewed. Two commitments were identified and are listed below by the licensing correspondence where the commitments were made:

Letter to NRC dated September 10, 2001 (PINGP LER 01-003-00) and Supplemental Letter dated April 12, 2002 (PINGP LER 01-003-01)

During inspections of flood panels (also referred to as flood doors and bulkheads) in 2001 a number of deficiencies were identified with flood panels that would preclude the panels from adequately performing their design function without compensatory measures (References 5.10 and 5.11). Corrective actions were completed to restore the flood panels to a condition where the panels would meet their design function. In addition, an annual surveillance procedure was implemented to be performed in the winter to ensure that the flood panels are ready (including verification of availability of required consumable materials and supporting equipment) in the event that a flood occurred. (Reference 5.10, 5.11)

NUREG-1960, Safety Evaluation Report Related to the License Renewal of Prairie Island Nuclear Generating Plant Units 1 and 2, dated August 2011.

As part of the plant's license renewal application, NSPM committed to enhance the Regulatory Guide 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants Program to include inspections of concrete and steel components that are below the water line at the Screenhouse and Intake Canal. The scope will also require inspections of the Approach Canal, Intake Canal, Emergency Cooling Water Intake, and Screenhouse immediately following extreme environmental conditions or natural phenomena including an earthquake, flood, tornado, severe thunderstorm, or high winds. The program parameters to be inspected will include an inspection of water-control concrete components that are below the water line for cavitation and erosion degradation. The program will also visually inspect for damage such as cracking, settlement, movement, broken bolted and welded connections, buckling, and other degraded conditions following extreme environmental conditions or natural phenomena. (Reference 5.13)

3.2.2 PINGP Response - Flood Duration

The flood would result from meteorological conditions which could occur in the spring and could reach maximum river level in about 12 days. It was estimated that the flood stage would remain above 695 ft. for approximately 13 days.

3.2.3 PINGP Response - Flood Protection Features

Flood protection features utilized at PINGP in the event of an external flood include both incorporated (installed) and temporary active and passive barriers. PINGP does not rely upon any flood protection features external to the immediate plant area as part of the current licensing basis that protect safety related SSCs from inundation and static/dynamic effects of external floods.

Incorporated engineered passive or active flood protection features are features that are permanently installed in the plant that protect safety related SSCs from

inundation and static/dynamic effects of external flooding. In general, examples include structural walls and penetration seals that are permanently incorporated into the plant structures.

Temporary passive or active flood protection features at PINGP include flood panels, portable pumps, etc. that similarly protect safety related SSCs from the effects of external flooding. These features are temporary in nature, i.e., they must be installed prior to the advent of the design basis external flood.

3.2.3.1 Incorporated External Flood Protection Features

The main powerhouse structure consisting of the Reactor Buildings, the Auxiliary and Fuel Handling Building, the Turbine Building, the D5/D6 Diesel Generator Building, and the pump section of the Screenhouse structure are protected against the probable maximum flood of 703.6 ft. The base slabs of these structures have been designed to resist the full hydrostatic head of the probable maximum flood. The top of the substructure and/or superstructure flood protection walls are at 705.0 ft, and are designed to resist the probable maximum flood. These structures are capable of withstanding the hydrostatic forces associated with the probable maximum flood and associated maximum wave run-up to 706.7 ft. Some water leakage would occur whenever wave action exceeds 705 ft. on certain portions of the Turbine Building and Auxiliary Building walls. This leakage would occur through the joint between the top of the concrete wall and the bottom of the metal siding. This event would not compromise, or cause a loss of, any safety related function for two reasons. First, the leakage would represent a relatively small quantity of water which could be easily handled by plant sump pumps. Second, the leakage would occur at a great enough distance from safety related equipment that there would be no direct contact of the water with such equipment. All construction joints are keyed and provided with water stops. Penetrations through the foundation base slabs and flood protection walls below 703.6 ft. were held at a minimum.

The only safeguards related equipment located outside the structures mentioned above are the diesel fuel tanks and fuel storage vaults, pipes and control cables all of which are buried and are designed to resist hydrostatic forces as well as other effects associated with the probable maximum flood.

The emergency and normal cooling water pumps are operable to a flood stage of elevation 695.0 ft. with no additional protective measures required. When three day forecasts project water elevation in excess of 692 ft., bulkhead closures are installed to allow cooling water system operation up to the maximum probable flood stage (installation of bulkheads is discussed in Section 3.2.4, below. The cooling water pumps and their associated equipment are located in the Class I, Type I portion of the Screenhouse which is designed for the probable maximum flood.

3.2.3.2 PINGP Response - Flood Mitigation Procedures

The PINGP is designed such that all areas critical to nuclear safety are protected against the effects of the probable maximum flood and associated maximum wave run-up. Plant operating procedures state the flood stage elevations at which plant protective measures must be taken. These procedures require placing the unit in Mode 3, Hot Standby, when flood stage elevation three-day projections exceed 692 ft. at the plant site. It is noted that operating procedures also require the plant be placed in Mode 4 based on High Energy Line Break (HELB) analysis, which is more restrictive than the actions for the external flooding event, before the flood bulkheads are installed.

Advance planning and preliminary arrangements for operation during floods would be based on the advisory reports of flood potential. Implementation of flood procedures would be based on the three-day forecasts of flood stage and actual flood stage at the plant site.

In the event that three-day flood forecasts project crests greater than the minimum access road elevations, plant emergency fuel oil storage tanks will be maintained on a "keep-full" status until the access road becomes impassable or the flood crest has subsided below this level. Backup provisions for transportation of plant personnel and other plant supplies will be instituted.

In the event that three-day forecasts project water elevation in excess of 692 ft, bulkheads, which are stored onsite, will be installed to close all openings in the flood protection walls.

PINGP Procedure AB-4, "Flood," outlines actions to be taken in the event that a three-day flood forecast exceeds elevation 678 ft. Action levels progress based on additional three-day flood forecasts at elevations 680 ft, 683 ft, 685 ft, 688 ft, 690 ft, and 692 ft.

Based on actual experience in the event that flooding is predicted at the site, the plant staffs a full time flood response team with a team leader. The team coordinates preparation activities to ensure that required tasks are completed by the responsible groups and that look-ahead activities are planned. For example, in 2011, procedure AB-4 was implemented when three day forecasted water elevation exceeded 678 ft. For this event the team relied on three day forecasted water elevations, but also used longer term water elevation forecast information available from the Army Corp of Engineers (USACE) at Lock & Dam #3. The team developed plans to implement the actions in AB-4, including conducting management level reviews to ensure that plans for other contingencies were in place.

Emergency classifications are defined based on river water elevation. Should river elevation reach 692 ft, a Notification of Unusual Event is declared. Should river elevation reach 698 ft., an Alert is declared.

3.2.4 PINGP Response - Weather Conditions That Trigger Protective Actions

Due to the geographical nature of the area around the plant, the probability of a flash flood is quite low. It is expected that plant personnel would be aware of the approach of a flood of 683' (or higher) several days or weeks before the water reached this height. In general, the plant would be made aware of an emergency flood by the following:

- Flood warnings will come from the National Weather Service (NWS) through news releases or from Xcel Energy Corporate Office. Based on previous history, the predictions of an impending flood are given before the snow melt has progressed to an appreciable amount or following extremely heavy rains. These predictions are made weekly, daily, and hourly as flood conditions warrant.

- As water levels increase, the indicators on the Control Room panels and associated computer inputs will show increasing level.

Advance planning and preliminary arrangements for operation during floods are based on the long-range advisory reports of flood potential. Implementation of the flood procedures are based on the three-day forecasts of flood stage and the actual flood stage at the plant site. The three day flood forecast is a prediction that takes into account several surrounding principle surface waters.

Specific actions in the flood procedure are implemented based on projected water elevations from the three-day flood forecasts.

3.2.5 PINGP Response Adverse Weather Conditions Assumed with Protective Features and Actions

The CLB does not describe adverse weather conditions that are assumed concurrent with flood protection features and associated actions.

3.3 NRC Request – Warning Systems to Detect the Presence of Water

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

1. Describe the room water level warning systems credited for their flood protection function in the plant's external flooding licensing basis.

Note that systems that detect internal flooding sources are not part of the scope of the walkdown.

3.3.1 PINGP Response - Water Level Warning Systems Credited

The fuel oil storage tanks of the D5/D6 Diesel Generator Building are located in a Seismic Category I reinforced concrete fuel oil storage vault. The fuel oil storage vaults are located below ground level. The vaults provide the required three-hour rated fire protection barrier and are designed to withstand the effects of tornado generated missiles, site flood and buoyancy force considerations. The storage vaults are provided with leak detection sumps. If a sump fills with water and/or fuel oil, an alarm will actuate on the main diesel generator local control panel. The associated alarm response procedure directs the operator to check for the source of leakage and to restore sump level to normal. The vaults are accessed from a manway at grade level, and removal of a manway to inspect the vault for leakage is not possible during a design basis flood. Thus, provisions are implemented in PINGP Procedure AB-4, "Flood," to ensure that SSCs important to safety are not adversely impacted in the event that flood waters were to leak in to the vault during a design basis flood.

During flood events below the design basis flood (i.e., water elevation below grade level), the vaults could be accessed to determine the source of leakage and take actions, as necessary.

There are no other room water level warning systems credited for flood protection function in the plant's external flooding licensing basis.

3.4 NRC Request – Effectiveness of Flood Protection Features

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 (Reference 5.1).

1. The purpose of the 2.3 walkdowns is to verify the conformance with the CLB; the adequacy of the CLB will be addressed as part of the 2.1 flood reevaluations if an integrated assessment is required.

2. The acceptance criteria for the walkdowns are described in section 6 of the guideline. This approach is consistent with requested information item 1.h of the 50.54(f) letter. Discuss how the plant implemented this approach.
3. This discussion should include an evaluation of the overall effectiveness of the plant's flood protection features to perform their credited functions during a variety of site conditions (as defined previously), as determined by the results of the walkdowns (the features are available, functional, and implementable). The CAP process will determine which of the walkdown observations are deficiencies and what actions were taken or planned to address them. Questions such as the following should be evaluated for a variety of site conditions:
    - Is the barrier system functional?
    - Are operator actions feasible?
4. Describe how other existing plant equipment, structures, and procedures might mitigate the effects of an external flood under a variety of plant configurations.

3.4.1 PINGP Response – Purpose of the Walkdowns

The purpose of the external flooding walkdown was to verify the conformance of external flood features with the CLB.

In addition to the visual component of the external flooding walkdown, a review of the preventative maintenance and surveillance programs was performed. The purpose of the review was to validate that the credited features were contained in a program that would ensure their continued conformance with the CLB.

3.4.2 Acceptance Criteria Development

PINGP developed acceptance criteria based on the guidance provided by NEI 12-07 Section 6 and Appendix A (Reference 5.2) for each type of flood feature listed in Section B of the guidance. This approach is consistent with the requested information Item 1.h from Enclosure 4 of the 10 CFR 50.54(f) letter (Reference 5.1).

The acceptance criteria for each flood feature were annotated in Part B.1 of the PINGP Walkdown Record Forms, where applicable.

3.4.3 Evaluation of the Overall Effectiveness of the Plant's Flood Protection Features

The results of the external flooding walkdown program show that the flood protection features appear, with the exception of one (1) identified deficiency, to be effective overall in meeting their intended credited functions based upon the defined acceptance criteria. In those cases where observations suggested that acceptance criteria were not met or were questionable, the potential issue was captured in the PINGP CAP to determine if it is a deficiency and what actions are to be taken.

Section 3.6 of this report provides a detailed discussion of the results from the external flooding walkdowns.

3.4.4 Other Existing Plant Equipment, Structures, and Procedures that Might Mitigate the Effects of an External Flood under a Variety of Plant Configurations

The current licensing basis for protection and mitigation of an external flooding event, including plant equipment, structures, and procedures, is discussed in Section 3.2 of this report.

No other existing plant equipment, structures, or procedures were identified other than those already credited in the CLB, which might mitigate an external flooding event.

A review of the preventative maintenance and surveillance programs was performed. Consistent with Reference 5.2, the review was performed to verify that the feature is included in a test, monitoring, or inspection program, that the program is being implemented, and that the scope of the program is adequate to confirm the flood protection function of the feature. The associated preventative maintenance and surveillance programs were evaluated for each feature and considered to be acceptable, with four (4) identified areas for improvements, which are discussed in Section 3.6.1 of this report.

3.5 NRC Request – Implementation of the 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 (Reference 5.1), including actions taken in response to the peer review.

1.0 Confirm that guidance was followed (and options selected when available within the guidance) and any exceptions taken to the guidance.
2.0 Describe how the walkdown teams were organized (e.g., number of members, general background, etc.).
3.0 Describe the approach used to comply with guidance on walkdown team selection and training.

3.5.1 PINGP Response – Walkdown Guidance and Exceptions

The NEI 12-07 guidance was followed for the external flooding walkdown scoping, execution, and documentation. No exceptions were taken to the guidance.

A reasonable simulation of various aspects of procedure AB-4, "Flood," was performed as part of the external flooding walkdown to ensure site preparation and response for the licensing basis flood event were adequate and could be completed within acceptable time under the conditions expected. Additional details are discussed in Section 3.6.1 of this report.

3.5.2 PINGP Response –Team Organization

The PINGP flood walkdown team was composed of qualified individuals of various technical disciplines. The walkdown team members represented discipline areas with complementary skills sets that included field/inspection experience, design engineering, knowledge of plant flood protection features, and knowledge of the current PINGP flooding licensing basis.

3.5.3 PINGP Response –Training and Qualification

In accordance with Section 5.3 of NEI 12-07 (Reference 5.2), multiple skill sets were available to participate in the evaluation of a given flood mitigation feature depending on the intended credited function. Each flood mitigation feature was evaluated by a minimum of two individuals from the team. Initial observations during the field walkdowns were evaluated by individuals with skill sets including

structural engineering, knowledge of plant flood protection features and thorough understating of external flooding licensing basis.

The flood walkdown team was made familiar with the information required to respond to the NRC's 10 CFR 50.54(f) request for information (Enclosure 4 of Reference 5.1). The external flooding walkdown team members completed the training developed by the NEI Fukushima Flooding Task Force and available through the INPO NANTeL website (Appendix C of Reference 5.2). In addition to the NANTeL training, the walkdown team reviewed the site's current licensing basis.

3.6 NRC Request – Results of Flooding Walkdown

Summarize 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.

1. Description of all deficiencies as determined by the CAP. Observations that are entered into the CAP and not dispositioned as deficiencies do not need to be reported.
2. Description of any observations reported in the CAP that were not dispositioned at the time of the report.
3. Describe actions that were taken or are planned to address the deficiencies using the guidance in Regulatory Issues Summary 2005-20 Revision 1.
4. Flood protection features that could not be inspected, including:
    i. Features affected by restricted access:
        - Justification for delay
        - Schedule
        - Any necessary special procedures
    ii. Inaccessible features:
        - Basis for reasonable assurance that the feature is available and will perform its credited function or an assessment of the impact of non-performance of the function.
        - If more than one "inaccessible" flood protection feature with potential loss of function is reported, then an evaluation of the aggregate effect flood protection features must be provided.

3.6.1 PINGP Response – Results of Flooding Walkdowns

Summary of Findings

The plant flood protection features were found to be as described in the CLB (available, functional, and maintained), with one exception that is considered a deficiency. The deficiency is described in Table 3.6-1: Deficiency List. The deficiency notwithstanding, the flood protection features in aggregate would perform their design function as credited in the CLB. Detailed observations, photographs, and qualitative dispositions were documented for retention.

Eight (8) flood features were added to the CAP for material or design evaluation and were annotated in the walkdown record forms. Of the 8 items added to the CAP, none were determined to be deficiencies using the CAP (see "Deficiencies" section below for further discussion on the features identified as deficiencies).

Of the 52 walkdown record forms for physical flood features, sixteen (16) walkdown record forms contain specific areas or components that were determined to be subject to restricted access and were entered into the CAP for future scheduling and disposition.

Of the specific features included within the scope of the 52 walkdown record forms, all were included in a preventative maintenance or surveillance program with the exception of four (4) specific items. These four (4) specific items were entered into the CAP for determination of the need to be included in a preventative maintenance or surveillance program. These four items do not affect the capability of the flood protection feature to perform its intended function.

Specific aspects of procedure AB-4 related to protection of SSCs important to safety were evaluated using a reasonable simulation methodology consistent with that described in the NEI 12-07 guidance (Reference 5.2). The reasonable simulation consisted of the following:

- Review of the time available between the initial three day forecast and when the flood water exceeds site grade. PINGP Procedure AB-4, "Flood," outlines actions to be taken in the event that the three-day flood forecast exceeds elevation 678 ft. Action levels progress based on additional three-day flood forecast at elevations 680 ft, 683 ft, 685 ft, 688 ft, 690 ft, and 692 ft. For the design basis flood, the total time available between the initial three-day forecast of water elevation of 678 ft and when the water elevation reaches the site grade (695 ft) is approximately six (6) days.
- A critical action during this time frame is installation of the flood doors and bulkheads. Per the procedural steps, at a three day forecasted water elevation of 692 ft, both Units are shutdown and placed in Mode 4. After both Units are in Mode 4, the flood doors and bulkheads are installed. For the design basis flood, the total time available between the three-day forecast of water elevation of 692 ft and when the water elevation reaches the site grade (695 ft) is approximately four (4) days.
- Walkthroughs were performed of actions in AB-4 that are related to protection of SSCs important to safety. Walkthroughs included interviews and field walkdowns of selected flood protection features and procedure steps with the responsible workgroups. These walkthroughs consisted of reviewing the time required to complete the actions, personnel requirements and availability, resource requirements and availability, and any impacts due to adverse conditions (either from the event it is intended to mitigate or other adverse conditions that could reasonably be expected to simultaneously occur.

As a result of the procedure simulation, several enhancements were suggested to improve the clarity in the procedure, increase overall preparedness, and streamline actions needed to protect SSCs important to safety. These items were entered into the CAP. One deficiency (see Table 3.6-1 of this report) was identified as a result of the walkthrough of the flood mitigation procedure. Per the definition of "deficiency" in Reference 5.2, a deficiency identifies a flood protection feature that would be unable to perform its intended flood protection function when subject to a design basis flooding hazard. This condition would not necessarily lead to compromising the site's overall ability to provide protection or mitigation of an external flood.

Additionally, operator training in procedure AB-4 was reviewed and determined to be adequate. The criteria for training adequacy was determined by (1) review of lesson plans that include understating the PINGP external flood CLB, training on procedural responsibilities, requirements, and actions, and information sharing regarding industry events and operating experience, (2) review of training periodicity. Steps in AB-4 assigned to other departments such as Maintenance are within normal training, experience and skill of the craft and no specialized training is considered necessary. Training records are available in the PINGP training records system.

All external flooding walkdown observations have been dispositioned and associated actions have been assigned through the CAP.

3.6.1.1 Deficiencies

As determined by the CAP, one feature was determined to be a deficiency. See Table 3.6-1: Deficiency List, for the identified deficiency, including a brief description of the feature, the reported degraded condition, and actions assigned with the anticipated due date.

3.6.1.2 Observations

All observations entered into the CAP have been dispositioned and determined not be deficiencies. At the time of this report, there are no outstanding dispositions of observations.

3.6.1.3 Describe Actions to address the Deficiencies

The actions planned to address the deficiencies are described in Table 3.6-1, "Deficiency List," at the end of this report.

3.6.1.4 Restricted and Inaccessible Flood Protection Features

During the course of the PINGP External Flooding Walkdown Program, 16 specific items were not inspected due to restricted access. Table 3.6-2,

"Restricted Access," lists those items that were not inspected during the course of the PINGP external flooding walkdown, including the basis for the delay. All restricted-access features will be tracked by the work management process and visually inspected by November 29, 2013.

No special procedures are required for inspection of the restricted-access features. The features require additional plant support that was not available during normal plant operations.

During the course of the PINGP External Flooding Walkdown Program, concrete basemat was determined to be inaccessible. The concrete basemats are thick concrete floors with a thick concrete topping. The functional requirement of the concrete floors is to prevent or limit water intrusion so that equipment important to safety is not impacted by the flood level.

The affected floor areas are located in the Turbine Building and Auxiliary Building. The concrete basemat is buried with the floor being covered with up to two feet of topping concrete. Thus, inspection is not feasible as it would require removal of the concrete topping.

There is no common failure mechanism for the floors during the CLB flood event (PMF). The floor areas are thick walled concrete structures. Any postulated leakage through the floor would be due to groundwater intrusion and would be limited. Potential in-leakage during a design basis flood into the Turbine Building and Auxiliary Building has been evaluated in an existing design calculation to determine the maximum allowable rate of inleakage into each building. Based on groundwater intrusion via a restricted path through the thick walled concrete structure, significant in-leakage is not anticipated, and is reasonably expected to be less than the calculated maximum allowable rate. Inspections of the topping concrete in these areas did not identify any signs that the underlying basemat concrete is degraded. Therefore, reasonable assurance exists that the feature is available and functional.

3.7 NRC Request – Available Physical Margin (APM)

Report that APM has been collected and documented in the Walkdown Record Form.

3.7.1 PINGP Response – Documentation of Available Physical Margin

The APM has been collected and documented, as applicable, in the walkdown record forms, in accordance with NEI 12-07. As necessary, this information will be used in the flood hazard reevaluations performed in response to NTTF Recommendation 2.1: Flooding of the 10 CFR 50.54(f) letter (Reference 5.1).

3.8 NRC Request – Other Planned/Newly Installed Flood Protection Features or Mitigation Measures

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. Describe changes determined to be necessary by the flood walkdowns and whether they have been completed or their schedule for completion.

3.8.1 PINGP Response - Planned/Newly Installed Flood Protection Features or Mitigation Measures

At this time, NSPM has not installed or planned to install any new flood protection features, or implement any new flood mitigation features.

4.0 CONCLUSIONS

The identified plant flood-protection physical features, the majority of which were incorporated passive protection features, were found to be as described in the CLB (available, functional, and maintained) with the exception of one feature, described in Table 3.6-1: Deficiency List. The results of the external flooding walkdown show that the flood protection features and operator responses are effective overall. A deficiency was identified during the walkdowns but it does not impact the overall effectiveness of the external flooding program.

4.1 Deficiencies

One deficiency, listed in Table 3.6-1 of this report, was identified as a result of the walkthrough of the flood mitigation procedure. Per the definition of "deficiency" in NEI-12-07 (Reference 5.2), a deficiency identifies a flood protection feature that would be unable to perform its intended flood protection function when subject to a design basis flooding hazard. As described in Table 3.6-1, this condition would not lead to compromising the overall ability to provide protection or mitigation. The deficiency was entered into the CAP for resolution.

4.2 Restricted-Access Flood Features

Sixteen flood features were deemed restricted access, and require future inspection and disposition (see Table 3.6-2: Restricted Access).

Restricted-access features have been entered into the CAP to align required plant support. All restricted-access features will be tracked by their respective maintenance orders and visually inspected by November 29, 2013.

4.3 Inaccessible Flood Features

During the course of the PINGP External Flooding Walkdown Program, the concrete basemat for the Auxiliary Building and Turbine Building 695 ft elevation was determined to be inaccessible. However, reasonable assurance exists that the feature is available and functional.

5.0 REFERENCES

5.1 NRC Letter to Licensees, dated March 12, 2012, "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" (ADAMS Accession No. ML12053A340).

5.2 NEI 12-07, Revision 0-A, "Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features," dated May 2012 (ADAMS Accession No. ML12173A215).

5.3 NRC Letter to Nuclear Energy Institute (NEI) dated May 31, 2012, "Endorsement of Nuclear Energy Institute (NEI) 12-07, "Guidelines For Performing Verification Walkdowns of Plant Flood Protection Features," (ADAMS Accession No. ML12144A142).

5.4 SECY-11-0093, "Near-Term Report and Recommendations for Agency Actions Following the Events in Japan," dated July 12, 2011 (ADAMS Accession No. ML111861807).

5.5 SECY 11-0124, "Recommended Actions to be taken without Delay from the Near-Term Task Force Report," dated September 9, 2011 (ADAMS Accession No. ML11245A158).

5.6 SECY 11-0137, "Prioritization of Recommended Actions to be Taken in Response to Fukushima Lessons Learned," dated October 3, 2011 (ADAMS Accession No. ML11272A111).

5.7 SRM SECY 11-0124, "Recommended Action to be taken without Delay from the Near-Term Task Force Report," dated October 18, 2011 (ADAMS Accession No. ML112911571).

5.8 SRM SECY 11-0137, "Prioritization of Recommended Actions to Be Taken in Response to Fukushima Lessons Learned," dated December 15, 2011 (ADAMS Accession No. ML113490055).

5.9 Harza Engineering, Probable Maximum Flood Study, Mississippi River at Prairie Island, Minnesota, incorporated as Appendix F in the PINGP USAR.

5.10 LER 1-01-03, "Plant in Unanalyzed Condition Due to Flood Panel Deficiencies," dated September 10, 2001 (ADAMS Accession No. ML12610162).

5.11 LER 1-01-03, Supplement 1, "Plant in Unanalyzed Condition Due to Flood Panel Deficiencies," dated April 12, 2002 (ADAMS Accession No. ML021160306).

5.12 Prairie Island Nuclear Generating Plant, Updated Safety Analysis Report (USAR), Revision 31.

5.13 NUREG-1960, "Safety Evaluation Report Related to the License Renewal of the Prairie Island Nuclear Generating Plant Units 1 and 2", dated August 2011 (ADAMS Accession No. ML11235A622) and NUREG-1960, Supplement 1, dated August 2011 (ADAMS Accession No. ML11236A175).

Table 3.6-1: Deficiency List

Description of Feature	Condition	Impact	Actions	Anticipated Completion Date
Operation of Sump Pumps	Sump Pumps are powered from non-diesel backed power supplies. Procedure AB-4 specifies to install portable sump pumps, but does not provide specifics regarding power supply to ensure that portable sump pumps are available during a loss-of-offsite power event.	Sump pumps are provided in the flood mitigation procedure to minimize water accumulation in the structures due to wave run-up elevation exceeding elevation 705 ft; where water could potentially enter the structure between the intersection of the concrete flood wall and the steel panels. Based on a maximum wave height of 3.1 ft, a wave run-up height could exceed elevation 705 ft when flood elevation is greater than 701.9 ft; which could occur for approximately five days during the design basis flood. In addition, there are significant volumes available within the structures to accommodate inleakage below the levels that could impact SSCs important to safety.	Develop plan to provide portable sump pumps with power supplies that will be available during a loss-of-offsite power event. Revise AB-4 to described deployment of sump pumps.	February 28, 2013.

Table 3.6-2: Restricted Access

Number	Location	Short Description of Justification	Work Request No.
1	Unit 1 Turbine Oil Sump	Confined Space.	85061
2	Unit 2 Turbine Oil Sump	Confined Space.	85061
3	Victaulic Coupling for Administrative Building Roof Drain Pipe	Requires access behind Turbine Building Elevator. (along Column Row A)	85061
4	Wall Behind Stored Location for Flood Bulkhead MK-7	Move bulkhead from stored location.	85061
5	Area Below Turbine Building Elevator near Column Row A	Requires access below Elevator.	85061
6	Area Below Turbine Building Elevator near Column Row G	Requires access below Elevator.	85061
7	Area below Auxiliary Building Elevator	Requires access below Elevator.	85061
8	Conduits Inside Electrical Pull Box 1045	Requires opening of electrical boxes.	85061
9	Conduits Inside Electrical Pull Box 1051	Requires opening of electrical boxes.	85061
10	Conduits Inside Electrical Pull Box 2045	Requires opening of electrical boxes.	85061
11	Conduits Inside Electrical Pull Box 2051	Requires opening of electrical boxes.	85061
12	Conduits inside Three Electrical Pull Boxes in Overhead of Screenhouse Basement (One along East Wall and Two along South Wall)	Requires opening of electrical boxes.	85061
13	Specific Floor Areas in Auxiliary Building	Entry into high radiation, locked high radiation or contaminated areas requires specific radiation protection support.	85061
14	Residual Heat Removal Pump Pits	Entry requires specific operational plant conditions.	85061
15	Auxiliary Building Sump	Entry requires specific radiation protection support.	85061
16	Emergency Diesel Generator Fuel Oil Storage Tank Vaults	Confined Space.	85061