UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

January 3, 2013

Mr. Michael J. Pacilio
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer (CNO), Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: ACKNOWLEDGEMENT OF RESPONSE TO NRC REQUEST FOR A WRITTEN RESPONSE TO NRC OBSERVATIONS AND CONCERNS REGARDING DRESDEN STATION PLAN FOR EXTERNAL FLOODING EVENTS

Dear Mr. Pacilio:

This acknowledges the receipt of your letter dated December 1, 2012, in response to the NRC's request for a written response to address NRC observations and concerns with the Dresden Nuclear Power Station (DNPS) response plan for external flooding events (ML12348A012). The NRC has developed clarifying questions which have been included as an Enclosure.

Although the NRC's observations and concerns do not constitute an immediate safety issue, the staff requests that Exelon Nuclear be ready to address those specific observations and concerns contained in the enclosure to this letter at the public meeting on January 29, 2013. Ultimately you should be able to demonstrate that your existing procedures and strategies would be successful in response to postulated external flooding events, up to and including those involving a probable maximum flood. The NRC will also expects that you will provide a written response after the public meeting to the enclosed questions and any clarifying questions that might be asked at the public meeting. The written responses should be submitted no later than 30 days after the public meeting.

If you believe that additional technical evaluations and assessments are necessary to fully address the NRC's observations and concerns, please describe the specific actions that you have taken, or plan to take, and a schedule for completion of those actions at the public meeting. If you propose alternative solutions vice your current response plan, please provide details for your formulation of those solutions and a schedule for implementation.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its Enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Please contact me at 630-829-9833 with any questions you may have regarding this letter or the Enclosure.

Sincerely,

/RA/

Jamnes L. Cameron, Chief
Branch 6
Division of Reactor Projects

Docket No. 50-237; 50-249
License No. DPR-19; DPR-25

Enclosure: NRC Staff Clarifying Questions for Dresden External Flooding Plan

cc w/encl: Distribution via ListServ

Enclosure

NRC Staff Clarifying Questions for

Dresden External Flooding Plan

NRC Observations of procedural weakness of the external flooding plan

Original Question

1. *The procedures were not sufficiently detailed with respect to the actions to be performed and relied heavily on an individual's knowledge of plant system. Please describe your basis for relying on knowledge-based actions and decisions and how that approach would be sufficient to ensure all required actions are accomplished.*

Follow up Question

1.1. What training periodicity do you intend to ensure this procedure works as written?

Original Question

2. *Discuss how plant notification and/or measurement of flood water levels above elevation 510' (when the gage at the US Army Corps of Engineers (USAGE) Navigation Lock and Dam is submerged) is performed. Explain how river level would be determined once flood waters exceed 510 feet, especially at critical flood levels where operator actions are specified in your procedure.*

Follow up Question

2.1. The licensee stated, “level may be determined by using plant process computer (PPC) Point E354, "Discharge Canal Water Level," which “is currently nonfunctional”. What are the site’s plans for preventative maintenance and surveillance frequencies to ensure functionality?

2.2. The Dresden site elevation is at 517 ft. The current design basis probable maximum flood (PMF) event elevation is 528 ft. It is our understanding that the “temporary flood barrier” that Exelon has acquired is 8 feet high. In the event of the PMF the temporary flood barrier will be over topped. What are the planned actions between 525 ft and 528 ft flood levels?

2.3. How much time will it take to deploy the rubber flood barrier? Is there sufficient time, using Dresden’s predictions for an untimely estimate of flood conditions, to get the barrier deployed considering the environmental conditions? Has the barrier potential location been surveyed/walked to make sure there are no connections, e.g. manholes or cable penetrations, on both sides of the berm location that might allow flooding inside the berm/barrier?

Original Question

6. *The procedure provides direction to "obtain boats," however, the details of such an activity are not included (e.g., from onsite storage, offsite entity with a durable agreement, etc). Explain the actual arrangements for obtaining needed boats (number, type, purpose, and source).*

Follow up Question

6.1. What is the minimum number of boats required to implement the flooding plan? Will these boats be available? Where will the boats be located and maintained?

Original Question

8. *The procedure does not appear to consider that the electrical bus for the emergency diesel generators (EDGs) is at the 517' elevation and the potential to create a personnel hazard if the bus were automatically energized. Explain provisions for addressing normal automatic plant responses, such as automatic start of diesel generators and energization of an electrical bus, in situations where personnel hazards could be created because of flooding. Explain where those provisions are provided to operating crews.*

Follow up Question

8.1. How does the site plan to deal with the effects on personnel and equipment from the potential buildup of toxic gases during the use of the diesel and gasoline pumps in the reactor building?

NRC Observations of design weakness of the external flooding plan

Original Question

2. *The licensee's procedures called for local control of both the Isolation Condenser inlet valves and the hoist height of the diesel-driven pump. It was not clear that the licensee had accounted for the battery life of the communication pathway (walkie-talkie) to support this activity. Additionally, communication with both operators in the control room is critical since the Isolation Condenser controls for Unit 2 and Unit 3 are on opposite sides of the control room. Explain arrangements for ensuring that adequate communications would be available for the duration of a probable maximum flood event.*

Follow up Question

2.1. During the flooding procedure how does the site intend on monitoring Reactor Vessel Level and Pressure without electrical power? What level of communications will the flooding procedure require between the isolation condenser level control and diesel flood pump operation?

Additional NRC Staff Identified Issues with the External Flooding Design Plan

Original Question

2. *The Updated Final Safety Analysis Report (UFSAR), Section 3.4, discusses using an "emergency flood pump" to pump water to both units' isolation condensers. Dresden's Dresden Operating Abnormal (DOA) procedure 0010-04 states: "Rig the reactor building crane or jib crane at elevation 545 foot with a 2 ton capacity chain fall to allow lifting the diesel-driven emergency make-up pump to a height of a least 15 feet above the floor." Please describe the logistics of operating a diesel pump while suspended from a chain fall and explain the reliability of this approach.*

Follow up Question

2.1. The Dresden Flooding Plan historically assumed the use of four pumps to provide redundant means to provide makeup water to the isolation condenser. The current procedure only has a single pump to providing cooling water to two reactor units and requires coordination between multiple operators. Please justify this reduction in redundancy and discuss which regulatory change process was used to permit this procedural modification. Discuss the mission time and duty of the pump; demonstrate through evaluation the capability of the pump to provide required pressure and flow. Discuss the sites commensurate actions should the single diesel flood pump engine fail versus a required support component fail, e.g. clogged hose. Approximately how much time is available before the isolation condenser would boil dry or to a level in the shell beneath the tube bundle? What impact would that have on reactor conditions?

Original Question

5. *The flood response plan calls for use of flood waters as a cooling source for the Isolation Condenser. When flood waters recede below the plant grade of 517 feet, please identify what water source will be used to continue cooling of the Isolation Condenser.*

Follow up Question

5.1. Please provide the basis for using a non-safety related pump to respond to a Design Basis Event.

Original Question

7. *In the event of a flood at the level up to the probable maximum flood (528 feet), please describe the potential impact of flood waters on radiological conditions on site (for example, flooded contaminated areas and rooms containing tanks of radioactive materials/waste). Please discuss the radiological conditions that operators onsite would have to contend with while performing required actions.*

Follow up Question

7.1. The site’s flooding strategy does not describe resources or efforts required to secure radiological and chemical hazards due to the effects from flooding, and any associated effects due to flooding, including potential impacts to dry fuel storage containers. Please describe actions presently required to be taken and actions that may be required to ensure during a flooding event that radiological and chemical source conditions do not constitute a threat to plant staff or cause an uncontrolled offsite release.

Please contact me at 630-829-9833 with any questions you may have regarding this letter or the Enclosure.

Sincerely,

/RA/

Jamnes L. Cameron, Chief
Branch 6
Division of Reactor Projects

Docket No. 50-237; 50-249
License No. DPR-19; DPR-25

Enclosure: NRC Staff Clarifying Questions for Dresden External Flooding Plan

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Letter to M. Pacilio from J. Cameron dated January 3, 2013.

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