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April 12, 2010

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

Subject: Duke Energy Carolinas, LLC (Duke Energy)

McGuire Nuclear Station, Units 1 and 2
Docket Nos. 50-369 and 50-370

Supplement to Response to NRC Request for Additional Information Regarding
Revision to Commitment in Response to Notice of Violation EA-08-220 (NRC
INSPECTION REPORT NOS. 05000369/2008009 AND 05000370 / 2008009).

In a letter dated December 7, 2009, Duke Energy provided a response to an NRC request for additional information dated November 6, 2009. The December 7, 2009 letter provided information regarding compensatory and other measures in place to assure operability of the Nuclear Service Water System (NSWS) in case of macro-fouling.

This letter supplements the December 7, 2009 response to include the results of an evaluation of debris associated with natural phenomena events as described in 10CFR50 Appendix A General Design Criterion 2, "Design bases for protection against natural phenomena." There are no new commitments from this supplemental response.

Please direct any questions you may have in this matter to R. E. Abbott at (980) 875-4685.

Very truly yours,


Regis T. Repko

Attachment

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Attachment

Supplemental Response to Information provided December 7, 2009.

Supplemental Response to Information provided December 7, 2009

In a letter dated December 7, 2009, Duke Energy provided additional information in response to an NRC request dated November 6, 2009. This letter is written to supplement the Duke Energy response. Specifically, in the December 7, 2009 letter, Duke Energy stated:

Backwashing occurs without the debris being removed from the strainer through the backwash discharge slot due to reverse flow conditions. Therefore, the backwash function provided, consisted only of backwash supply flow. The debris was crushed and ground in the clearances between the backwash outlet pads and strainer drum and then further degraded in the turbulent conditions within the strainer media, eventually reducing the debris size such that it passed through the strainer.

This conclusion is based on historical data, analyzed samples of debris and strainer inspections that indicate the debris is friable. This data continues to be confirmed by periodic surveys. Environmental surveys for new sources of fouling are annually updated in a site calculation. The historical data and periodic surveys indicate that the only macro-fouling sources which could be introduced into the Nuclear Service Water (NSW) system and strainers are alewife fish and corrosion products. The alewife are being monitored and controlled in the Standby Nuclear Service Water Pond (SNSWP), (i.e., the Ultimate Heat Sink) and blocked by intake screens at the Low Level Intake (LLI - normal operating source from Lake Norman). Additionally, McGuire has previously committed in LER 369/2009-01 to ensure periodic 'A' and 'B' train system flush procedures are in place to reflect the frequency, duration, flow rates and acceptance criteria required to assure the adequacy of the flush to prevent adverse accumulations of corrosion products.

In the December 7, 2009 letter, Duke Energy did not explain how the NSW strainer would address debris types associated with a natural phenomena event as described in 10CFR50 Appendix A, General Design Criterion (GDC) 2.

Duke Energy has updated the operability determination in the McGuire problem identification program (PIP M08-3371 and M07-4313) to document an evaluation of debris associated with a natural phenomena event as described in GDC 2. The GDC reads as follows:

Structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunamis, and seiches without loss of capability to perform their safety functions. The design bases for these structures, systems, and components shall reflect: (1) Appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, (2) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena and (3) the importance of the safety functions to be performed.

This supplemental evaluation and update to the operability determination addresses debris types in accordance with GDC 2 by first examining the McGuire licensing basis requirements and then exploring McGuire's capability to meet those requirements. The update also explores the credibility of transporting hard debris into the LLI and SNSWP intakes as the result of a tornado or hurricane and McGuire's defense-in-depth with respect to these types of events.

This update is summarized as follows:

- There are no McGuire licensing basis requirements beyond GDC 2 related to debris type and natural phenomena events.
- GDC 2 indicates that appropriate consideration must be given for the most severe of the natural phenomena that have been historically reported for the site and surrounding area. Based on a review of historical data at McGuire (includes Hurricane Hugo) and a review of historical data for the industry (includes 2 hurricanes, 4 tornadoes and one river flood), there are no additional debris types beyond those that have already been evaluated by current operability determinations that would have an adverse impact on McGuire.
- A tornado or hurricane event that deposits large quantities of debris at both the LLI and SNSWP intake is not credible. The intake structure at the SNSWP is located approximately 40 feet below the surface, and 100 yards from the nearest shore. The structure is elevated approximately 3 feet from the bottom of the pond, and does not provide a means of entry from the top of the structure. The LLI structure is located greater than 40 feet below the surface of the lake, is elevated several feet from the lake bottom, and also does not provide a means of entry from the top of the structure. The LLI intake is covered by a $\frac{3}{4}$ inch by $\frac{3}{4}$ inch screen and the SNSWP intake is covered by a trash rack. Flow velocity is sufficiently low at each structure, such that debris which readily sinks into the reservoir would not be drawn into the side of the intake structure.
- An earthquake event, with respect to debris generation, is not credible. The SNSWP is the seismically qualified nuclear service water reservoir, and is designed for the design basis seismic event. There are no debris sources within reasonable proximity to introduce a new debris source into the SNSWP for the seismic event.
- The NSW system remains operable, but degraded/nonconforming (OBDN) because there is a compensatory action to isolate the strainer backwash to the circulating water system (RC) and because Duke Energy has made an NRC commitment to implement three modifications: 1) provide an assured air source to the backwash supply valve, 2) re-route the backwash discharge line to the Ground Water (WZ) sump to limit elevation changes and 3) install a pump to discharge backwash to the essential RN return header to be implemented by the end of 2012.