

April 28, 2014

MEMORANDUM TO: Ronaldo Jenkins, Chief  
Licensing Branch 3  
Division of New Reactor Licensing  
Office of New Reactors

FROM: Tekia Govan, Project Manager **/RA/**  
Licensing Branch 3  
Division of New Reactor Licensing  
Office of New Reactors

SUBJECT: AUDIT SUMMARY OF THE FERMI NUCLEAR STATION SITE IN  
SUPPORT OF THE REVIEW OF THE FERMI UNIT THREE  
COMBINED LICENSE APPLICATION REGARDING GEOLOGY,  
SEISMOLOGY, AND GEOTECHNICAL ENGINEERING

The U.S. Nuclear Regulatory Commission (NRC) staff, supported by members of the U.S. Geological Survey, conducted a site audit on November 3 - 5, 2009, at the Fermi Nuclear Station in Monroe County, Michigan as part of the NRC staff's review of the Fermi 3 combined license (COL) application.

The purpose of the site audit was to discuss issues and review data relevant to the areas of geology, seismology, and geotechnical engineering. Over the course of the audit, the NRC staff reviewed the applicant's geotechnical boring program, visited multiple locations to observe geologic site characteristics, and discussed the NRC staff's requests for additional information (RAIs) that were submitted to the applicant prior to the audit. This memorandum provides a summary of the audit results that had not been previously documented as an official agency record.

On the first day of the audit, the NRC staff reviewed the applicant's geotechnical boring program that involved 36 borings at the site. The NRC staff observed subsurface core samples representing nearly 500 feet of stratigraphy beneath the Fermi site, including the Silurian-age Bass Islands Group, the foundation unit for the Fermi 3 nuclear island. The NRC staff also observed the geophysical logs for the subsurface borings that identified depth to layers and rock type.

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On the second day of the audit, the NRC staff visited the Fermi site as well as locations near the site to observe the geologic setting and exposed stratigraphy. While on the Fermi Nuclear Station site, the NRC staff made a series of stops including locations of various drill holes, water-monitoring wells, the inflow canal for cooling water, and drainage canals. The NRC staff then visited the Denniston Rock Quarry in Monroe, Michigan, to observe a section of Quaternary-age sand and glacial till and an estimated 25-30 m of the underlying Silurian-age Bass Islands Group, which is being excavated in the quarry. In a couple of locations at the quarry, the NRC staff noted discontinuous or disrupted layering of Bass Islands Group units. Due to safety considerations, the NRC staff was not able to examine the quarry walls close enough to make a definitive interpretation regarding the origin of these features. The NRC staff determined that additional RAIs would be developed following the audit. Following the quarry visit, the NRC staff visited Swan Creek, a northwest-southeast linear trending creek that the applicant identified during its site investigations. The NRC staff visited multiple paleoshoreline and sand ridge locations, one of which is considered to be a Lake Erie paleoshoreline. The NRC staff also visited an agricultural field where the applicant had projected the possible Sumpter Pool fault. While the NRC staff observed that the land surface on the south rises slightly compared to a lower area of a drainage valley to the north, the NRC staff did not consider this difference in land elevations to be indicative of fault movement and the NRC staff observed no consistent pattern of higher or lower topography elsewhere along the projected trace of the fault.

On the third day of the audit, the NRC staff visited Detroit Edison offices in Detroit, Michigan to review the NRC staff's RAIs related to geology, seismology, and geotechnical information that had been submitted to the applicant prior to the audit. During the discussions, the applicant provided an overview of its plans for responding and requested clarifications of questions, where needed. The NRC staff completed its audit on the afternoon of November 5, 2009.

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\*w/comments

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