May 21, 2018
L-18-035

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

SUBJECT:
Davis-Besse Nuclear Power Station, Unit No. 1
Docket No. 50-346, License No. NPF-3
Report of Facility Changes, Tests, and Experiments

In accordance with 10 CFR 50.59(d)(2), FirstEnergy Nuclear Operating Company (FENOC) hereby submits the Report of Facility Changes, Tests, and Experiments for the Davis-Besse Nuclear Power Station, Unit No. 1. The attached report covers the period of May 24, 2016 through May 11, 2018.

There are no regulatory commitments contained in this submittal. If there are any questions or if additional information is required, please contact Mr. Thomas A. Lentz, Manager - Nuclear Licensing & Regulatory Affairs, at (330) 315-6810.

Sincerely,

Mark B. Bezillal

Attachment:
Davis-Besse Nuclear Power Station, Unit No. 1 Report of Facility Changes, Tests, and Experiments

cc: Nuclear Regulatory Commission (NRC) Region III Administrator
NRC Resident Inspector
NRC Project Manager
Utility Radiological Safety Board
Performance of Core Bores and the Installation of Relative Humidity Probes in the Shield Building

Activity Description:

The activity involves the implementation of core boring holes into the concrete wall of the shield building and the installation of relative humidity probes. This activity also involves computer evaluations for the procurement and installation of the digital relative humidity probes and a calculation that evaluated radiological dose considerations.

The laminar cracking condition within the shield building concrete wall is subject to propagation resulting from freezing moisture. As such, the core bores for monitoring this condition are up to 4-inch nominal diameter while the holes for the relative humidity probes are 1-inch diameter or less. In all cases, core bore depth was limited such that a minimum of 21 inches of concrete remains intact, and cutting of reinforcement steel was prohibited. The original design of the shield building had a nominal thickness of 30 inches and did not include these monitoring core bores. The total surface area of all of the core drills was limited to less than 113.1 square feet to minimize the impact on the shield building functions. Drilling into the shield building below elevation 620 feet from 260 degrees to 267 degrees was prohibited in order to prevent the creation of a radiological direct line of sight to the technical support center. Additional restrictions excluded any core bores into the shield building in the auxiliary building envelope.

Summary of Evaluation:

This change involves the drilling of new core bores into the shield building and the installation of relative humidity probes. The change is required to support monitoring of the laminar cracking condition within the shield building.

The only aspect of the change that requires a full evaluation against the requirements of 10 CFR 50.59 is the dose consequence following an accident. The dose consequences following an accident are potentially adversely affected by the activity, since the core bores reduce the amount of radiation shielding provided by the shield building in those locations. The design function of the shield building, to provide radiation shielding, is described in Section 1.2.10 of the updated final safety analysis report (UFSAR). The methodology used to evaluate the direct shine dose consequences is not described in the UFSAR. The change in radiation dose, as a result of the activity, was determined by calculation to be sufficiently small such that it does not represent a clear increase to the consequences of any accident.
The shield building is a passive structure that does not currently initiate any UFSAR described accidents or malfunctions. All design functions of the shield building were met during, and remain met after, implementation of the activity. The activity does not affect how the shield building or interrelated systems, structures, and components respond to an accident or malfunction. No new failure modes are created as a result of the activity that would initiate any new or current UFSAR-described accident or malfunction. Therefore, it has been determined that the proposed changes do not meet any of the criteria specified in paragraph (c)(2) of 10 CFR 50.59. Additional core bores for monitoring laminar cracking are to be installed at a later date.