



Energy Harbor Nuclear Corp.  
Davis-Besse Nuclear Power Station  
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May 16, 2022  
L-22-102

10 CFR 50.59(d)(2)

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), Energy Harbor Nuclear Corp. 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 4, 2020 through May 3, 2022.

There are no regulatory commitments contained in this submittal. If there are any questions or if additional information is required, please contact Mr. Phil H. Lashley, Manager – Fleet Licensing, at (330) 696-7208.

Sincerely,

A handwritten signature in black ink, appearing to read "Terry J. Brown", written over a horizontal line.

Terry J. Brown

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

cc: NRC Region III Administrator  
NRC Resident Inspector  
NRC Project Manager  
Utility Radiological Safety Board

Attachment  
L-22-102

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

Technical Requirements Manual (TRM) Emergency Diesel Generator (EDG) Inspections

Activity Description:

This activity involved a change to the TRM Technical Verification Requirement (TVR) 8.8.1.2 for performing EDG inspections. Performing inspections in accordance with Revision 5 of the Engine Systems, Inc. (ESI) – Electro-Motive Diesel (EMD) Optimized Maintenance Program was added as an alternative to performing manufacturer-recommended inspections.

The ESI-EMD Optimized Maintenance Program is considered the owner's group-recommended maintenance program. This optimized program utilizes condition monitoring and industry operating experience to reduce the risk for human errors when performing intrusive maintenance tasks such as disassembly inspections. The bases for the optimized program include:

- Enhanced condition monitoring practices
- Technical and laboratory analyses
- Industry operating experience
- ESI-EMD Owners Group position papers and guidance documents
- ESI-EMD Owners Group Recommended Maintenance Programs – Electrical and Mechanical (ESI-endorsed). These are considered the manufacturers recommendations.

A review of the ESI-EMD Optimized Maintenance Program identified forty maintenance activities with longer frequencies identified than what is specified in the ESI-EMD Owners Group Recommended Maintenance Programs. The other frequencies are either recommended to be performed more frequently or have the same frequency. The ESI-EMD Optimized Maintenance Program also includes the basis for the differences between the maintenance programs. Some of the most common bases provided include the use of nuclear industry operating experience, the reduced run time that diesels experience in the nuclear industry, the use of enhanced condition monitoring practices (such as engine analysis, oil analysis, and vibration analysis), and equipment evaluations (vendor and owners group). Each basis provided is for the specific activity identified and is not reliant on the overall ESI-EMD Optimized Maintenance Program being implemented. Where activities do rely on implementation of another activity such as engine analysis, it is explicitly identified in the basis discussion. If the basis is not being followed, then the optimized program is also not being followed or implemented correctly and thus the vendor maintenance program would need to be followed. The basis provided for each individual activity ensures that the reliability of the diesels is either maintained or improved by implementation of the ESI-EMD Optimized

Maintenance Program. Any change in reliability would be minimal, if any.

Summary of Evaluation:

The 10 CFR 50.59 screened into an evaluation by concluding the EDG design function is adversely affected by a potential reduction in reliability when using an owner's group-recommended maintenance program in lieu of a vendor-recommended maintenance program. Per Nuclear Energy Institute (NEI) 96-07, Revision 1, *Guidelines for 10 CFR 50.59 Evaluations*, if the activity decreases the reliability of a system, structure, or component design function, including either functions whose failure would initiate a transient/accident or functions that are relied upon for mitigation, then this is considered an adverse effect to a design function.

There are no new malfunctions or accident being introduced by this change. There is no increase in frequency of occurrence of an accident or likelihood of occurrence of a malfunction that is more than minimal due to the change. The design basis limits for fission products are unaffected since there is no change to any assumed failures of mitigating systems. The maintenance program is not an evaluation methodology; therefore the activity does not result in a departure from an evaluation method described in the Updated Final Safety Analysis Report (UFSAR). The activity did not meet any of the 10 CFR 50.59(c)(2) criteria; therefore, a license amendment was not required.

Title:

New Core Response Analysis Following a Main Steam Line Break (MSLB)

Activity Description:

This activity implemented a calculation for the core response following a MSLB. A complete re-analysis with new methodology was performed using the RELAP5/MOD2-B&W computer software, the latest plant models, corrected steam line pressure tap locations, an updated single failure assumption, a more negative moderator temperature coefficient at hot zero power conditions to support longer cycle length core designs, and an updated core cooling capability evaluation.

The new methodology is approved by the Nuclear Regulatory Commission (NRC) and includes the manner for determining responses to postulated accidents for the primary and secondary systems, and the core. For the MSLB analysis, the restrictions and approved topical report requirements in the staff's safety evaluation report were incorporated.

The single failure assumption and more negative moderator temperature coefficient changes were determined to be conservative changes.

The acceptability of the core cooling capability evaluation in the UFSAR following a steam line break was based on the minimum departure from nucleate boiling ratio (DNBR) following the postulated accident. For the subject activity, core cooling capability acceptance was changed from meeting the DNBR criterion to meeting two acceptance criteria: 1) The core is subcritical after reactor trip; 2) The peak core thermal power prior to reactor trip remains below 112 percent full power and the peak return to power following the cooldown remains sufficiently low to ensure DNBR limits are not exceeded. Energy Harbor Nuclear Corp. determined that these two criteria provide results that are conservative relative to an explicit calculation for DNBR.

#### Summary of Evaluation:

The use of an alternate method than originally described in the UFSAR used in establishing the safety analyses and establishing the design bases met the definition of an adverse change and was evaluated under 10 CFR 50.59(c)(2)(viii). The evaluation concluded the change was not a departure from a method of evaluation described in the UFSAR used in establishing the design bases or in the safety analyses because the method has explicit NRC approval and all restrictions and requirements were incorporated into the analysis. Furthermore, the evaluation determined that the activity did not result in a more than minimal increase in the frequency or consequence of an accident previously evaluated in the UFSAR. The activity did not result in a more than minimal increase in the likelihood of occurrence or the consequences of a malfunction of a system, structure, or component important to safety previously-evaluated in the UFSAR. No new or different accidents or malfunctions of systems, structures, or components are created. No fission product barrier design basis limits are exceeded or altered. The activity did not meet any of the 10 CFR 50.59(c)(2) criteria; therefore, a license amendment was not required

#### Title:

Updated Control Room Radiation Dose Calculations

#### Activity Description:

This activity involved evaluation of updated control room beta skin radiation doses due to a maximum hypothetical accident and a fuel handling accident. The whole body and thyroid doses were unchanged. Cycle 22 and cycle 23-specific source terms were used for the maximum hypothetical accident, and a cycle 22-specific source term was used for the fuel handling accident. Use of cycle-specific source terms was conservative and resulted in higher calculated doses. However, the skin doses for both accidents remained less than the acceptance criteria, and the increase in doses were less than ten percent of the margin to the acceptance criteria for both accidents.

Summary of Evaluation:

The change was not an accident initiator and therefore would neither result in a more than minimal increase in the frequency of occurrence of an accident previously evaluated in the UFSAR, nor a more than minimal increase in the likelihood of occurrence of a malfunction of a system, structure, or component important to safety previously evaluated in the UFSAR. The change did not result in a more than minimal increase in the consequences of an accident previously evaluated in the UFSAR because the doses increased less than ten percent of the margin to the acceptance criteria and remained less than the acceptance criteria. The activity did not affect the consequences of a malfunction of a system, structure, or component important to safety. No new or different accidents or malfunctions of systems, structures, or components are created. No fission product barrier limits were changed or altered, and there was no departure from a method of evaluation described in the UFSAR. Therefore, the updated calculations did not meet the criteria of 10 CFR 50.59(c)(2) and prior approval was not required to implement the change.