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Docket Number 50-346

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Serial Number 2623

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United States Nuclear Regulatory Commission
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Subject: Status of the Design Basis Validation Program and the Planned Program to Convert to the Improved Standard Technical Specifications

Ladies and Gentlemen:

The purpose of this letter is to inform the NRC staff of the status of the ongoing Davis-Besse Nuclear Power Station (DBNPS) Design Basis Validation Program (DBVP) and to provide an update on the scope and schedule for completion of the program. This letter also provides an update on the DBNPS planned schedule for submitting a License Amendment application to convert the Operating License Technical Specifications to the improved Standard Technical Specifications (NUREG-1430).

DBVP Schedule:

The DBVP was self-initiated by the DBNPS staff. The purpose of the DBVP is to provide further assurance that design basis calculations are consistently reflected in the physical plant and in controlled documents used to support plant operation, and that the calculations contain sufficient information to support their underlying assumptions. The DBNPS staff informed the NRC in DBNPS letter Serial Number 2455, dated March 31, 1997, of the scope of the DBVP and the initial plans to complete it before the end of 1999.

The initial scope and schedule of the DBVP was based upon the areas of design basis information believed to warrant further attention and was defined in March, 1997. Subsequently, many emergent issues and plant events resulted in a substantial increase in high priority workload. This caused a review of the original schedule and a reprioritization to work this program on a less aggressive schedule. However, there has been an ongoing focus on maintaining a proper priority and schedule for the program. An important aspect of this continuing assessment of the schedule and progress has been the consideration of the program

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results to-date. Specifically, had the program results revealed weaknesses or deficiencies that represented vulnerabilities in personnel or station performance, a heightened priority and a more aggressive schedule would have been warranted. However, contrary to such a concern, the results of the program have been positive and encouraging. As discussed below, there have been very few items of any significance identified, and these have been unrelated, isolated issues that do not indicate any overall programmatic design basis documentation concern. As a result, the change in schedule and priority to extend the completion of the program through 2000 is appropriate, and no avoidable challenges to personnel or plant performance are expected to occur.

DBVP Scope:

The initial scope of the program selected thirty-five systems to review based on the system being a Maintenance Rule (10 CFR 50.65) risk significant system. Additionally, the four topical areas of flooding, missiles, seismic, and high energy line break were selected for review. Since the commencement and implementation of the DBVP, the systems and topical areas selected for inclusion in the DBVP have been further reviewed and revised. Attachment 1 contains the listing of systems and topical areas that were initially within the DBVP and the changes made to them. In addition, explanations are provided for the revision of the initial scope of the DBVP. These revisions have provided for a focusing of program resources on the areas most likely to result in achieving benefits.

Status of the DBVP:

To date, the DBVP has completed the review of analyses and calculations to identify component performance and analytical requirements, and key values and parameters essential in determining component performance requirements. Additionally, the DBVP has completed the review of existing calculations for adequacy and verification that the calculation information was translated into procedures, drawings, and setpoints.

As the review has progressed, open items have been identified that could not be readily dispositioned by the reviewers. These open items have been reviewed for safety significance (e. g., equipment operability, plant design basis, or unanalyzed condition). As described below, these open items have been categorized following the guidance provided in the document Nuclear Management and Resources Council (NUMARC) 90-12, "Design Basis Program Guidelines".

Fifty of the open items were initially categorized as having "important" safety-significance for resolution. The open items not categorized as "important" were captured for later disposition. Of these fifty items, twelve were subsequently categorized as "potential nonconforming conditions" in accordance with the DBNPS procedure NG-NA-00702, "Corrective Action Program" and were entered into the corrective action program for timely resolution. No equipment operability, functionality, or reportable concerns were identified. The review did not

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identify any discrepancies that impacted any licensing basis commitments. The remaining thirty-eight "important" items were entered into the DBNPS Corrective Actions Tracking System for follow up resolution and disposition.

Design Basis Validation Reports have been prepared for each of the thirty systems capturing the above information, including the listing of each system's open items. The DBNPS Plant and Design Basis Engineering staffs have reviewed these reports. The disposition of the open items for each system is currently scheduled to be completed by December 31, 2000.

Conversion to Improved Standard Technical Specifications:

As discussed in DBNPS letter Serial Number 2517 to the NRC dated December 21, 1998, the schedule for submittal of the improved Standard Technical Specifications (STS) conversion License Amendment application for the DBNPS, depends on first completing the DBVP. Many of the same DBNPS engineering personnel presently involved with the DBVP will be involved in the conversion process and will bring their knowledge and expertise to the conversion program. The DBNPS staff now plans to commence the resource-intensive conversion process in June, 2001 (which is a scheduled non-refueling year) and submit the License Amendment application to the NRC in the fourth quarter of 2002. In the meantime, the DBNPS staff will continue to provide resource support to the NRC/Nuclear Energy Institute Technical Specification Task Force, as a member of the Babcock and Wilcox Owners Group, in continuing to further refine the present improved STS and support development of Risk-Informed STS.

This completes providing the NRC staff with updated information for these two programs. No specific action or written response is requested from the NRC regarding this letter. However, should you have any questions or require additional information, please contact James L. Freels, Manager – Regulatory Affairs, at (419) 321-8466.

Very truly yours,



JCS/DRW/laj

attachments

cc: J. E. Dyer, Regional Administrator, NRC Region III
D. V. Pickett, NRC/NRR Senior Project Manager
K. S. Zellers, NRC Region III, DB-1 Senior Resident Inspector
Utility Radiological Safety Board

DAVIS-BESSE NUCLEAR POWER STATION
DESIGN BASIS VALIDATION PROGRAM
SYSTEMS AND SELECTED TOPICAL AREAS

I. Plant Systems Within Design Basis Validation Program Scope

The following plant systems were selected for the Design Basis Validation Program based on these systems being Maintenance Rule (10 CFR 50.65) Risk Significant Systems:

- Safety Features Actuation System
- 4160 Volt Electrical System
- Emergency Diesel Generator/Station Blackout Diesel Generator
- 125/250 VDC Electrical System
- 240/120 VAC Instrument Electrical System
- 480 Volt Electrical System
- Steam and Feedwater Rupture Control System
- Anticipatory Reactor Trip Systems
- Reactor Protection System
- Auxiliary Feedwater System/Motor Driven Feedwater Pump/Condensate Storage System
- Emergency Ventilation System
- Containment Hydrogen Control System
- High Pressure Injection System
- Decay Heat Removal System
- Spent Fuel Pool Cooling System
- Main Steam System
- Component Cooling Water System
- Service Water System/Dilution Pump/ECCS Room Coolers
- Containment Air Cooling System
- Containment Vacuum Relief Valves
- Control Room Normal and Emergency Ventilation Systems
- Reactor Coolant System
- Containment Spray System
- Core Flooding System
- Steam Generators
- Make Up System
- Station and Instrument Air
- Low Voltage Switchgear HVAC
- Service Water Ventilation
- Main Feedwater

II. Plant Systems Removed from Initial Design Basis Validation Program Scope

As discussed in its letter (Serial Number 2438) to the NRC dated February 11, 1997, prior to the implementation of the Design Basis Validation Program, the DBNPS had completed much of the effort required to compile the DBNPS design basis. This was accomplished through the establishment of a "Configuration Management Program," and through the development of "Systems Descriptions" and a "Design Criteria Manual." The purpose of the Design Basis Validation Program was to follow up these items with a review of the design basis calculations of selected plant systems. During the implementation of the Design Basis Validation Program, several plant systems, initially included within the program's scope, were identified as suitable for removal from the program. Following further evaluation, the plant systems listed below were removed from the program:

- **Diverse Scram System:** This system was designed in response to the 1984 NRC rulemaking, 10 CFR 50.62, "Requirements for Reduction of Risks from Anticipated Transients Without Scram (ATWS) Events for Light-Water-Cooled Nuclear Power Plants," and NRC Generic Letter 85-06, "Quality Assurance Guidance for ATWS Equipment that is not Safety-Related." The Diverse Scram System (DSS) was installed in 1990 and, therefore, is relatively new. Configuration management elements of the plant modification process were in-place when it was designed and installed. The DSS design is relatively simple and not safety-related. Accordingly, the DSS was removed from the scope of the Design Basis Validation Program.
- **Condensate System:** The Condensate System is not a safety-related system. The Condensate Storage Tanks, which supply water to the Auxiliary Feedwater (AFW) System for cooldown of the plant, were reviewed as part of the AFW System review effort. In addition, the Main Feedwater System, which is connected to the Condensate System, was reviewed under the Design Basis Validation Program. Accordingly, the Condensate System was removed from the scope of the Design Basis Validation Program.
- **Chemical Addition System:** The Chemical Addition System consists of components for boric acid addition, reactor coolant chemical addition, feedwater chemical addition and Steam Generator wet lay-up chemical addition. This system is not required for safe shutdown of the plant. The DBNPS USAR Section 15, "Accident Analysis," assumes no credit for this system to prevent or mitigate the consequences of an accident. Accordingly, the Chemical Addition System was removed from the scope of the Design Basis Validation Program.
- **Integrated Control System:** The Integrated Control System (ICS) is not safety-related. The ICS is not required for reactor protection because all accidents were analyzed without ICS. The DBNPS USAR Section 15, "Accident Analysis," assumes no credit for any ICS function that might be available to prevent or mitigate the consequences of an accident. Accordingly, the ICS was removed from the scope of the Design Basis Validation Program.

- Switchyard/Transformers: The switchyard and its transformers are not safety-related. The backup Emergency Diesel Generators, Station Blackout Diesel Generator, 4160 Volt Electrical System and the 480 Volt Electrical System were reviewed under the Design Basis Validation Program. Accordingly, the Switchyard/Transformers were removed from the scope of the Design Basis Validation Program.

III. 10CFR Part 50, Appendix A, General Design Criteria

The following General Design Criteria topical areas, which were identified as part of the initial scope of the Design Basis Validation Program, have been removed from the program based on the reasons provided below:

- Flooding: This topic was reviewed as part of the DBNPS's Individual Plant Examination (IPE) in May, 1992. Therefore, this review was not repeated under the Design Basis Validation Program.
- Missiles: Very few plant modifications have been implemented or are projected to be implemented over the plant life that affect internally or externally-generated missiles. Furthermore, the criteria and design basis for missiles are well-documented in the existing DBNPS Design Criteria Manual. Accordingly, this topic was removed from the scope of the Design Basis Validation Program.
- High Energy Line Break: The majority of the High Energy Line Break analyses were already re-performed in the early 1990's. Accordingly, this topic was removed from the scope of the Design Basis Validation Program.
- Seismic: The Seismic Qualification Users Group (SQUG) Program recently conducted has effectively reviewed the DBNPS seismic design bases. Accordingly, this topic was removed from the scope of the Design Basis Validation Program.

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Attachment 2

COMMITMENT LIST

THE FOLLOWING LIST IDENTIFIES THOSE ACTIONS COMMITTED TO BY THE DAVIS-BESSE NUCLEAR POWER STATION (DBNPS) IN THIS DOCUMENT. ANY OTHER ACTIONS DISCUSSED IN THIS SUBMITTAL REPRESENT INTENDED OR PLANNED ACTIONS BY THE DBNPS. THEY ARE DESCRIBED ONLY FOR INFORMATION AND ARE NOT REGULATORY COMMITMENTS. PLEASE NOTIFY THE MANAGER-REGULATORY AFFAIRS (419-321-8466) AT THE DBNPS OF ANY QUESTIONS REGARDING THIS DOCUMENT OR ANY ASSOCIATED REGULATORY COMMITMENTS.

COMMITMENT

Complete Design Basis Validation Program.

DUE DATE

December 31, 2000