

Docket Number 50-346  
License Number NPF-3  
Serial Number 2028  
Enclosure  
Page 1

APPLICATION FOR AMENDMENT  
TO  
FACILITY OPERATING LICENSE NUMBER NPF-3  
DAVIS-BESSE NUCLEAR POWER STATION  
UNIT NUMBER 1

Attached are requested changes to the Davis-Besse Nuclear Power Station, Unit Number 1 Facility Operating License Number NPF-3. Also included is the Safety Assessment and Significant Hazards Consideration.


The proposed changes (submitted under cover letter Serial Number 2028) concern:

- Appendix A, Technical Specification 3/4.1.3.1, Reactivity Control Systems, Group Height - Safety and Regulating Rod Groups
- Appendix A, Technical Specification 3/4.1.3.3, Reactivity Control Systems, Position Indicator Channels

For: D. C. Shelton  
Vice President - Nuclear

By:   
T. J. Myers  
Director - Technical Services

Sworn and Subscribed before me this 30th day of April, 1992.

  
Notary Public, State of Ohio

EVELYN L. DRESS  
NOTARY PUBLIC, STATE OF OHIO  
My Commission Expires July 28, 1994

Docket Number 50-346  
License Number NPP-3  
Serial Number 2028  
Enclosure  
Page 2

The following information is provided to support issuance of the requested changes to the Davis-Besse Nuclear Power Station (DBNPS), Unit Number 1 Operating License Number NPP-3, Appendix A, Technical Specification (TS) 3/4.1.3.1, Group Height - Safety and Regulating Rod Groups, and 3/4.1.3.3, Position Indicator Channels.

A. Time Required to Implement: This change is to be implemented within 90 days after the NRC issuance of the License Amendment.

B. Reason for Change (License Amendment Request Number 91-0020):

This change is being proposed to remove unwarranted restrictions in the Technical Specifications which have resulted in delays in plant startups and to also clarify portions of Technical Specifications 3/4.1.3.1 and 3/4.1.3.3.

This request proposes changes to the TS 3/4.1.3.1 Action statement to clarify the proper progression of the Action. This request also proposes to revise the TS 3.1.3.3 Action statement as follows: Revising Action 3.1.3.3.a.2 by stating that Startup and Power Operation may continue; Adding references to Specifications 3.1.3.5 and 3.1.3.9 to Action 3.1.3.3.a.2.c; Revising Action 3.1.3.3.b to clarify that the action applies for the situation of more than one relative position indicator channel per control rod group inoperable, to clarify that the requirements of either Action 3.1.3.3.a.1 or 3.1.3.3.a.2 must be met, and to allow Startup or Power Operation to continue provided the absolute position indicator channels are operable for the affected control rods, and; Adding new Action 3.1.3.3.c to state that the provisions of Specification 3.0.4 are not applicable.

C. Safety Assessment and Significant Hazards Consideration: See Attachment.

Docket Number 50-346  
License Number NPF-3  
Serial Number 2028  
Attachment  
Page 1

## SAFETY ASSESSMENT AND SIGNIFICANT HAZARDS CONSIDERATION

### TITLE:

Revision of Technical Specification (TS) 3/4.1.3.1, Reactivity Control Systems, Group Height - Safety and Regulating Rod Groups, and 3/4.1.3.3, Reactivity Control Systems, Position Indicator Channels.

### DESCRIPTION:

The purpose of the proposed change is to modify the Davis-Besse Nuclear Power Station (DBNPS) Operating License NPF-3, Appendix A Technical Specifications. The proposed changes (see attached marked up Technical Specifications) revise TS 3/4.1.3.1, Group Height - Safety and Regulating Rod Groups, and 3/4.1.3.3, Position Indicator Channels. This request proposes changes to the TS 3/4.1.3.1 Action statement to clarify the proper progression of the Action. This request also proposes to revise the TS 3.1.3.3 Action statement as follows: Revising Action 3.1.3.3.a.2 by stating that Startup and Power Operation may continue; Adding references to Specifications 3.1.3.5 and 3.1.3.9 to Action 3.1.3.3.a.2.c; Revising Action 3.1.3.3.b to clarify that the action applies for the situation of more than one relative position indicator channel per control rod group inoperable, to clarify that the requirements of either Action 3.1.3.3.a.1 or 3.1.3.3.a.2 must be met, and to allow Startup or Power Operation to continue provided the absolute position indicator channels are OPERABLE for the affected control rods, and; Adding new Action 3.1.3.3.c to state that the provisions of Specification 3.0.4 are not applicable.

### SYSTEMS, COMPONENTS, AND ACTIVITIES AFFECTED:

Control Rod Drive Control System, including Control Rod Assembly Absolute Position Indication and Control Rod Assembly Relative Position Indication.

### SAFETY FUNCTIONS OF THE AFFECTED SYSTEMS, COMPONENTS, AND ACTIVITIES:

The control rod drive control system (CRDCS) consists of three basic components: (1) motor control system, (2) system logic, and (3) trip circuitry. Updated Safety Analysis Report (USAR) Section 7.4.1.1 discusses that the control portion of the CRDCS is not required for safety. Updated Safety Analysis Report Section 7.7.2.3, Control Rod Drive Control System (CRDCS), further states that only the CRDCS trip circuitry performs a safety function and that the other portions of the CRDCS are not required to function in any safety analysis.

The CRDCS - Without Trip Portion is described in USAR Section 7.7.1.3. Major subsystems of the system logic include the operator's control panel, control rod assembly position indication, automatic control logic functions and system monitoring functions. The CRDCS provides for withdrawal and insertion of groups of control rod assemblies (CRAs), or "control rod groups" to produce the desired reactor power output.

Updated Safety Analysis Report Section 7.7.1.3.2, Equipment Description, describes the available indication to determine the control rod assembly positions. Two methods of position indication are described: absolute position indication (API) and relative position indication (RPI).

The primary means of providing position indication of a control rod assembly is the API. The absolute position transducer consists of a series of magnetically operated reed switches mounted in a tube parallel to the Control Rod Drive Mechanism (CRDM) motor tube extension. Switch contacts close when a permanent magnet mounted on the upper end of the CRA leadscrew extension comes near. As the leadscrew (and the control rod assembly) moves, the switches operate sequentially, producing a voltage proportional to position.

The secondary means of providing position indication of a control rod assembly is the RPI. The relative position transducer is a small pulse stepping motor driven from the power supply for the control rod drive motor. The pulse-stepping motor drives a potentiometer whose output voltage provides relative position indication. Relative position indication informs the operator what the expected position of the control rod assembly should be. However, this is not as direct a method of determining control rod assembly position as is the absolute position indication, which involves the actuation of a switch at a known location.

Another means of providing position indication of a control rod assembly are the position reference indicators ("zone reference lights") referred to in TS Action 3.1.3.3. - 2. The zone reference light indication is developed from reed switches (similar to those used in the API system) located at discrete positions corresponding to 0, 25, 50, 75, and 100 percent withdrawn from the core.

The control rod position indication panel in the control room displays each control rod assembly position. Both relative and absolute control rod assembly positions can be shown on the same meter through switching via the use of the position indication select switch. The zone reference lights are located on a local panel (outside the control room).

In summary, the function of the position indicators is to provide the means for determining control rod assembly positions and thereby ensure compliance with the control rod alignment and insertion limits (Reference TS Bases 3/4.1.3, Movable Control Assemblies). Only the

separate CRDCS-Trip Portion has a safety function and the position indicators do not have a safety function in any safety analysis.

EFFECTS ON SAFETY:

The proposed change to TS 3.1.3.1, adding the word "and" to the end of the first three portions of Action 3.1.3.1.c.2 clarifies that Actions 3.1.3.1.c.2.a, b, and c must be performed with either Actions 3.1.3.1.c.2.d or e. This change is administrative and has no adverse effect on plant safety.

The proposed change to TS 3.1.3.3 adding additional references to TS 3.1.3.5 and 3.1.3.9 to Action 3.1.3.3.a.2.c is a clarification. Technical Specification 3.1.3.5 requires all safety rods to be fully withdrawn. Technical Specification 3.1.3.6 (currently referenced), requires that the regulating rod groups be positioned within the acceptable operating limits for regulating rod positions provided in the Core Operating Limits Report (COLR). Technical Specification 3.1.3.9 requires that the APSR group be within the acceptable operating limits for APSR position specified in the COLR. This change clarifies that TS 3.1.3.5 and 3.1.3.9 remain applicable when in Action 3.1.3.3.a.2, and has no adverse effect on plant safety.

The proposed change to TS 3.1.3.3 revising Action 3.1.3.3.b to add the words "per control rod group" is a clarification. Action 3.1.3.3.a provides the action to take "with a maximum of one absolute position indicator channel per control rod group or one relative position indicator channel per control rod group inoperable ..." [emphasis added]. Since Action 3.1.3.3.a allows up to one RPI channel per control rod group to be inoperable, the position indicator channels being referred to in Action 3.1.3.3.b address the progression to more than one RPI channel per control rod group. This change is a clarification and has no adverse effect on plant safety.

The proposed change to TS 3.1.3.3 revising Action 3.1.3.3.b to state that the requirements of either Action 3.1.3.3.a.1 or 3.1.3.3.a.2 must be met, is a clarification. Action 3.1.3.3.b addresses the progression of an increased number of inoperable relative position indicator channels from that of a single inoperable relative position indicator channel per control rod group. Since this is a progression from the situation of a single relative position indicator per control rod group, the requirements of Action 3.1.3.3.a must also be met. Explicitly stating this requirement clarifies the proper action to be taken in the event Action 3.1.3.3.b is entered directly. This change is a clarification and has no adverse effect on plant safety.

Technical Specification Action 3.1.3.3.b currently allows operation in Modes 1 and 2 to continue for up to 24 hours in the event this Action statement is entered. As described above, the proposed change to Action 3.1.3.3.b would allow operation in Modes 1 (Power Operation) and 2 (Startup) to continue provided the API channels are operable for the associated control rod assemblies. With an RPI channel inoperable, the primary means of position indication for the rod is still provided by



the operable API channel, and therefore the requirement to shut down is overly restrictive. The API is a more direct indication since it utilizes fixed switches as a means of determining control rod position, while the RPI utilizes an indirect means of determining control rod position. Recognition of the API as the more reliable control rod assembly position indicator is reflected in the fact that during normal operation the RPI is reset as necessary to match the API; therefore, the API is used as the "known" position of a control rod assembly. Typically, inoperable RPI channels can be restored with the plant undergoing startup (Mode 2) or continued power operation (Mode 1). It should also be noted that the position reference indication required by TS Actions 3.1.3.3.a.2.a and 3.1.3.3.a.2.b provides another means of position indication in addition to API. Should both the API and RPI be inoperable for the same control rod assembly, then the shutdown requirements of TS 3.0.3 would apply and shut down from a Mode 1 or Mode 2 condition would be required to be initiated within one hour. With both the API and RPI inoperable for the same control rod assembly, startup entry into Mode 2 would be prohibited. Since reliable control rod assembly position indication continues to be provided by the operable API channels and the zone reference lights, and given the fact that the rod position indication systems do not perform a safety-related function, this change has no adverse effect on plant safety.

The proposed change to TS 3.1.3.3 clarifying Action 3.1.3.3.a.2 by stating that "Startup and Power Operation may continue" in lieu of the present wording "Operation may continue" reflects the proposed change to take exception to TS 3.0.4. This change is discussed below and has no adverse effect on plant safety.

Technical Specification 3.0.4 states, in part, "Entry into an OPERATIONAL MODE or other specified applicability condition shall not be made unless the conditions of the Limiting Condition for Operation are met without reliance on provisions contained in the ACTION statements unless otherwise excepted." The proposed change to TS 3.1.3.3 adding a new Action 3.1.3.3.c exempting TS 3.1.3.3 from the provisions of TS 3.0.4 is in accordance with NRC guidance provided in Generic Letter (GL) 87-09, "Section 3.0 and 4.0 of the Standard Technical Specifications (STS) on the Applicability of Limiting Conditions for Operation and Surveillance Requirements", dated June 4, 1987. Generic Letter 87-09 states: "For an LCO that has Action Requirements permitting continued operation for an unlimited period of time, entry into an operational mode or other specified condition of operation should be permitted in accordance with those Action Requirements." TS 3.0.4 would unduly restrict plant operation since conformance to the Action Requirements provides an acceptable level of safety for continued operation. Therefore, the exception to TS 3.0.4 should apply to existing TS Action 3.1.3.3.a which permits continued plant operation. With NRC approval of the proposed change to TS Action 3.1.3.3.b, this Action will also meet the criterion described in GL 87-09. Therefore, since conformance to the Action requirements establishes an acceptable level of safety for continued plant operation, this change will have no adverse effect on plant safety.

SIGNIFICANT HAZARDS CONSIDERATION:

The NRC has provided standards in 10CFR50.92(c) for determining whether a significant hazard exists due to a proposed amendment to an Operating License for a facility. A proposed amendment to an Operating License for a facility involves no significant hazards in operation if the facility in accordance with the proposed changes would: (1) Not involve a significant increase in the probability or consequences of an accident previously evaluated; (2) Not create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) Not involve a significant reduction in a margin of safety. Toledo Edison has reviewed the proposed change and determined that a significant hazards consideration does not exist because operation of the Davis-Besse Nuclear Power Station, Unit Number 1, in accordance with these changes would:

- 1a. Not involve a significant increase in the probability of an accident previously evaluated because no Updated Safety Analysis Report accident initiators are affected by the proposed changes. The proposed change to TS Action 3.1.3.3.b to allow startup and operation in Modes 1 and 2 to continue (provided the conditions of the Action statement are met) has no bearing on experiencing an accident previously evaluated. The remaining proposed changes are clarifications only and have no adverse effect on the probability of experiencing an accident previously evaluated.
- 1b. Not involve a significant increase in the radiological consequences of an accident previously evaluated because the proposed changes do not invalidate accident conditions or assumptions used in evaluating the radiological consequences of any accident. The proposed change to TS Action 3.1.3.3.b to allow startup and operation in Modes 1 and 2 to continue (provided the conditions of the Action statement are met) does not alter the source term, containment isolation, or allowable releases, and therefore will not increase the radiological consequences of a previously evaluated accident. The remaining changes are clarifications only and have no adverse effect on the consequences of an accident previously evaluated.
- 2a. Not create the possibility of a new kind of accident from any accident previously evaluated because no new types of failures or accident initiators are introduced by the proposed changes.
- 2b. Not create the possibility of a different kind of accident from any accident previously evaluated because no different accident initiators or failure mechanisms are introduced by the proposed changes.
3. Not involve a significant reduction in the margin of safety. The proposed change to TS Action 3.1.3.3.b to allow startup and operation in Modes 1 and 2 to continue (provided the conditions of the Action statement are met) will not have an adverse effect on margin of safety. Reliable rod position indication will continue

Docket Number 50-346  
License Number NPP-3  
Serial Number 2028  
Attachment  
Page 6

to be provided. All accident analyses will remain valid. The remaining changes are clarifications only and no adverse changes in margins of safety will occur.

CONCLUSION:

On the basis of the above, Toledo Edison has determined that the License Amendment Request does not involve a significant hazards consideration. As the License Amendment Request concerns a proposed change to the Technical Specifications that must be reviewed by the NRC, this License Amendment Request does not constitute an unreviewed safety question.

ATTACHMENT:

Attached are the proposed marked-up changes to the Operating License.