

REVISED TECHNICAL SPECIFICATIONS
PROPOSED CHANGE NO. 88

Revised Pages

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DISCUSSION

Section 5.2.B of the Cooper Nuclear Station (CNS) Technical Specifications requires that the control material for the 137 cruciform-shaped control rods be composed of boron carbide powder (B_4C) compacted to approximately 70 percent theoretical density except for the Hybrid I control rods which contain approximately 15 percent hafnium. The specific nature of this Technical Specification precludes the use of control rod designs utilizing a different composition of control materials, particularly hafnium metal. The ability to utilize these different control blade designs would be beneficial in that longer control rod lifetimes could be achieved, thus resulting in a smaller number of rods being discharged over the life of the plant. This would reduce on-site storage and handling as well as reduce the volume of radioactive waste being generated.

In order to make use of these upgraded control rod designs, Nebraska Public Power District (District) is proposing that Section 5.2.B of the CNS Technical Specifications be changed to contain a more generic description of the allowed control rod material. The proposed Section 5.2.B would allow the use of any control rod absorber material that has been specifically approved by the NRC for use in BWRs. This would allow the use of B_4C powder as well as hafnium metal since both have been approved for use by the NRC. It will also allow the District to utilize other absorber control materials after they receive NRC approval in the future without necessitating additional license amendment requests.

The proposed section will not change the existing requirement to have 137 cruciform-shaped control rods nor will it affect the Limiting Conditions of Operation (LCOs) 3.3.A, 3.3.B, and 3.3.C in the Technical Specifications. These LCOs require that a minimum shutdown margin exist, require that each control rod be coupled with its drive to restrict the control rod drop accident impact and specify the average and four-rod scram times.

As an administrative change, the District is also proposing to revise Section 6.5.1.D of the CNS Technical Specifications that governs the submittal of the monthly operating report. This section directs that the monthly operating report be submitted to the individual designated in the current revision of NRC Regulatory Guide 10.1. The criteria for the submittal of written communications to the NRC under 10CFR50 have been revised and are now governed by 10CFR50.4. Accordingly, the District proposes to revise Section 6.5.1.D to indicate that the monthly operating report is to be submitted in the manner specified by 10CFR50.4. In addition, the submittal deadline for the report has been changed to the 15th of the month following the calendar month covered by the report. This new

submittal date follows the guidance contained in the Standard Technical Specifications for BWRs.

As an administrative change, the District also proposes to revise Technical Specifications Sections 5.3, 5.3.A, and 5.3.B to clarify where the design for the reactor vessel, primary containment, and secondary containment is specified. Technical Specifications currently states that the design shall be as described in specified sections of the Safety Analysis Report (SAR). As a result of approved modifications related to the Mark 1 Containment Improvement Program and the replacement of the reactor recirculation system loop piping, it is now necessary to specify that the reactor vessel, primary containment, and secondary containment design is described in the corresponding specified sections of the Updated Safety Analysis Report (USAR), which is updated as required by 10CFR50.71(e). In addition, a typographical error is corrected in Section 5.3 by replacing "IV-20" with "IV-2.0." These administrative changes are proposed to clarify the requirements of these Sections.

SIGNIFICANT HAZARDS DETERMINATION

10CFR50.91(a)(1) requires that licensee requests for operating license amendments be accompanied by an evaluation of significant hazards posed by the issuance of the amendment. This amendment request is considered to contain three (3) separate changes, with each separately evaluated with respect to the criteria given in 10CFR50.92(c). These changes are:

- (a) Revising Technical Specification Section 5.2.B to contain a more generic description of the allowed control rod neutron absorber material.
- (b) Revising Technical Specification Section 6.5.1.D to specify that the monthly operating report be submitted in the manner specified by 10CFR50.4 and to be submitted no later than the 15th of the month following the calendar month covered by the report.
- (c) Revising Technical Specifications Sections 5.3, 5.4.A, and 5.4.B to specify that the design description is in the USAR instead of the SAR.

The enclosed Technical Specification change is judged to involve no significant hazards based on the following:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

EVALUATION

- (a) The proposed change allows the use of neutron absorbing material that has been specifically approved for use by the NRC in BWR control rods. Use of these materials will not significantly alter the neutron absorption, mechanical, or other functional characteristics of a control rod. The proposed change does not change the required number of control rods nor does it affect existing Limiting Conditions of Operation for minimum shutdown

margin for the core, coupling of a control rod with its drive mechanism to address the Control Rod Drop Accident and the control rod average and four rod scram time requirements. The acceptability of utilizing the control rod materials and design will be verified following nuclear industry standards in the reload and licensing analyses. The proposed change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

- (b) The proposed change revises the schedule and the manner of submittal of the monthly operating report. This change is administrative in nature and does not affect any plant operation, hardware, or analysis. It does not involve a significant increase in the probability or consequences of an accident previously evaluated.
- (c) The proposed change to reference the USAR for the design of the reactor vessel, primary containment, and secondary containment is administrative in nature. This change does not affect any plant operation, equipment, or analysis, and therefore does not create a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility for a new or different kind of accident from any accident previously evaluated?

EVALUATION

- (a) The use of NRC approved neutron absorber material in the control rods will not create any new mode of plant operation or alter the control rods in such a way as to affect their function or continued operability. The proposed change does not create the possibility for a new or different kind of accident from any accident previously evaluated.
- (b) The change to the schedule and manner of submittal of the monthly operating report is administrative in nature and will not cause any new mode of plant operation or change to the facility. This change will not create the possibility for a new or different kind of accident from any accident previously evaluated.
- (c) The proposed change to reference the USAR for the design of the reactor vessel, primary containment, and secondary containment is administrative in nature. This change does not affect any plant operation, equipment, or analysis, and therefore does not create the possibility for a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in the margin of safety?

EVALUATION

- (a) The proposed change allows the use of neutron absorbing material that has been specifically approved by the NRC for use in BWR control rods. It does not change the required number of existing control rods. It does not affect existing Technical Specification requirements regarding minimum core shutdown margin, coupling of control rods to their drive mechanism and scram times for average rod and four-rod grouping. Margins of safety will be verified using approved methodologies and criteria in the reload and licensing analysis. The proposed change will not involve a significant reduction in the margin of safety.
- (b) The change to the schedule and manner of submittal of the monthly operating report is administrative in nature and does not affect plant operation, equipment, setpoints or analyses and will not involve a significant reduction in the margin of safety.
- (c) The proposed change to reference the USAR for the design of the reactor vessel, primary containment, and secondary containment is administrative in nature. This change does not affect any plant operation, equipment, or analysis, and therefore does not create a significant reduction in the margin of safety.

CONCLUSION

The District has evaluated the proposed changes described above against the criteria of 10CFR50.92(c) in accordance with the requirements of 10CFR50.91(a)(1). This evaluation has determined that the proposed changes to Technical Specifications to allow the use of other NRC approved neutron absorber material in control rods and the two administrative changes will not involve (1) a significant increase in the probability of an accident previously evaluated, (2) create the possibility for a new or different kind of accident from any accident previously evaluated, or (3) create a significant reduction in the margin of safety. Therefore, the District requests NRC approval of Proposed Change Number 88.

5.0 MAJOR DESIGN FEATURES

5.1 Site Features

The Cooper Nuclear Station site is located in Nemaha County, Nebraska, on the west bank of the Missouri River, at river mile 532.5. This part of the river is referred to by the Corps of Engineers as the Lower Brownville Bend. Site coordinates are approximately 40° 21' north latitude and 95° 38' west longitude. The site consists of 1351 acres of land owned by Nebraska Public Power District. About 205 acres of this property is located in Atchison County, Missouri, opposite the Nebraska portion of the station site. The land area upon which the station is constructed is crossed by the Missouri River on the east and is bounded by privately owned property on the north, south, and west. At the west site boundary, a county road and Burlington Northern Railroad spur pass the site.

The reactor (center line) is located approximately 3600 feet from the nearest property boundary. No part of the present property shall be sold or leased by the applicant which would reduce the minimum distance from the reactor to the nearest site boundary to less than 3600 feet without prior NRC approval.

The protected area is formed by a seven foot chain link fence which surrounds the site buildings.

5.2 Reactor

- A. The reactor shall contain 548 fuel assemblies. Each assembly shall consist of a matrix of Zircalloy clad fuel rods with an initial composition of slightly enriched uranium dioxide (UO_2) as fuel material. Fuel assemblies shall be limited to those fuel designs approved by the NRC for use in BWRs.
- B. The core shall contain 137 cruciform-shaped control rods. The control material shall be neutron absorber materials specifically approved by the NRC for use in BWR control rods.
- C. Lead Test Assembly (LTA) control blades and fuel assemblies of different design than described above may be installed under the provisions of 10CFR50.59 in conjunction with vendor test programs. The LTAs shall have been analyzed using methods previously approved by the NRC. The licensee will provide the NRC with a report describing the LTAs and analyses not less than 30 days prior to startup.

5.3 Reactor Vessel

The reactor vessel shall be as described in Section IV-2.0 of the USAR. The applicable design shall be as described in this section of the USAR.

5.4 Containment

- A. The principal design parameters for the primary containment shall be as given in Table V-2-1 of the USAR. The applicable design shall be as described in Section XII-2.3 of the USAR.
- B. The secondary containment shall be as described in Section V-3.0 of the USAR.
- C. Penetrations to the primary containment and piping passing through such

6.5.1.C (Cont'd)

1. A tabulation on an annual basis of the number of station, utility and other personnel (including contractors) receiving exposures greater than 100 mrem/yr and their associated man rem exposure according to work and job functions, 1/ e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance (describe maintenance), waste processing, and refueling. The dose assignment to various duty functions may be estimates based on pocket dosimeter, TLD, or film badge measurements. Small exposures totaling less than 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total whole body dose received from external sources shall be assigned to specific major work functions.
2. A summary description of facility changes, tests or experiments in accordance with the requirements of 10CFR50.59(b).
3. Pursuant to 3.8.A, a report of radioactive source leak testing. This report is required only if the tests reveal the presence of 0.005 microcuries or more of removable contamination.
4. Documentation of all challenges to relief valves or safety valves.

D. Monthly Operating Report

Routine reports of operating statistics, shutdown experience, and a narrative summary of operating experience relating to safe operation of the facility, shall be submitted on a monthly basis in the manner specified by 10CFR50.4 no later than the 15th of each month following the calendar month covered by the report.

E. Annual Radiological Environmental Report

1. Routine radiological environmental reports covering the surveillance activities related to the Station operation during the previous calendar year shall be submitted to the NRC before May 1 of each year.
2. The Annual Radiological Environmental Report shall include the following:
 - a. A summary of doses to a Member of the Public Offsite due to Cooper Station aqueous and airborne radioactive effluents, calculated in accordance with methods compatible with the ODAM.
 - b. A summary of the results of the land use census required in Specification 4.21.F.2.

1/ This tabulation supplements the requirements of §20.407 of 10CFR Part 20.