UNITED STATES
ATOMIC ENERGY COMMISSION
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September 26, 1972

K. Kniel, Chief, PWR Branch #2, L

WISCONSIN PUBLIC SERVICE CORPORATION (KEWAUNEE) -
COMMENTS, TECHNICAL SPECIFICATIONS

The enclosed memorandum from our Region III (Chicago) Office, concerning the subject Technical Specifications, is forwarded for your consideration. Of concern is that the proposed Technical Specifications permit the achievement of criticality with all control rods fully inserted during low power physics testing. We concur with the Regional position that this proposed mode of operation is contrary to established nuclear safety practices and recommend that the Kewaunee Technical Specifications be modified to reflect adequate shutdown margin requirements for all modes of operation.

J. G. Keppler, Chief,
Reactor Testing and Operations
Branch
Directorate of Regulatory Operations

Enclosure:
Memo dtd 9/14/72

cc: R. C. DeYoung, L
R. H. Vollmer, L
L. P. Crocker, L
B. H. Grier, RO:III
D. M. Hunnicutt, RO:III

UNITED STATES
ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

TELEPHONE
(312) 858-2660

September 14, 1972

J. G. Keppler, Chief, Reactor Testing and Operations Branch
Directorate of Regulatory Operations, Headquarters

WISCONSIN PUBLIC SERVICE CORPORATION (KEWAUNEE)
DOCKET NO. 50-305
COMMENTS ON TECHNICAL SPECIFICATIONS

The August 31, 1972, issue of the proposed Kewaunee Technical Specifications, Section 3.10.d.8. which states, "During the low power physics test to measure total control rod worth and shutdown margin, the reactor may be critical with all rods inserted." is in conflict with nuclear safety concepts.

The incorporation of this type test into the proposed technical specifications as a test or operating condition for any nuclear reactor and, in particular, a large power reactor in which the neutron flux and the heat flux cannot be measured accurately at low (watts thermal) power levels is unacceptable. The information of limited interest to be gained by this type test cannot be justified in view of the potential risk of a reactor excursion or damage to reactor fuel or components.

These technical specifications do not specify the minimum requirements and/or conditions that must be met prior to and during an approach to critical. No procedures, the technical competency level of personnel or controls (special instrumentation, etc.) are required by the technical specifications.

Section 3.10. basis recognizes that the required drop time to dashpot entry is consistent with safety analysis. The technical specifications fail to recognize that introduction of boric acid for reactor control and/or emergency shutdown by use of safety injection pumps is a time consuming process that requires the boric acid solution to be pumped from a storage tank through long pipelines into the reactor coolant system, solution mixing within the reactor vessel and primary piping and circulation through the fuel region to insert negative reactivity at a very slow rate. There is no indication that a safety analysis of this nuclear unsafe test has been attempted or completed.

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The initial evaluation of the Kewaunee Technical Specifications was forwarded for your information and evaluation on October 8, 1971. Page 2, Item No. 4, of this evaluation cautioned that technical specifications should not allow criticality with all rods inserted. Several cover memoranda forwarding comments related to technical specification reviews for Zion 1, D. C. Cook 1, and Prairie Island 1 facilities, repeated the plea for statement(s) that strictly prohibit criticality without adequate shutdown margin.

To date, RO:III has not received any written communication indicating that RO:III should consider criticality with all rods fully inserted as an accepted test or operating condition nor has RO:III received written information that RO:HQ would condone this possibly unsafe condition at a nuclear facility.

D. M. Hunnicutt, Chief
Reactor Testing and Startup Branch

Attachments:
Pages TS 3.10-3 and -4, E 8-31-72, Kewaunee Technical Specifications

3. If the quadrant power tilt ratio exceeds 1.05 but is less than 1.12 for a sustained period of more than 24 hours without known cause, or if such a tilt recurs intermittently without known cause, the reactor power shall be reduced to ≤ 50% of full power. E

4. If the core is operating above 85% power with one excore nuclear channel out of service, then the core quadrant power balance shall be determined once a day using either the movable detectors or core-exit thermocouples.

d. Rod Insertion Limits

1. The Shutdown Rods shall be fully withdrawn when the reactor is critical or approaching criticality.

2. The Part Length Rod Bank may be moved over the entire travel range, full-out to full-in, as required by axial power distribution control. E

3. The control banks shall be limited in physical insertion; insertion limits are shown in Figures TS 3.10-2, 3 and 4. Application of these limits is specified in Specifications 3.10.d4, et seq.

4. Control Bank D shall be inserted no more than 0.5% reactivity at full power. At lower power levels Control Bank D and the other control banks may be inserted further to compensate for the reactivity effect of power level change; however, the total control bank reactivity insertion shall be no more than the sum of 0.5% and the largest expected (end-of-life) power defect. Figure TS 3.10-2 shows the allowed physical insertion corresponding to this specification.

5. Control bank insertion may be further restricted if, (1) the measured control rod worth of all rods, less the worth of the worst stuck rod, is less than 5.52% reactivity at the beginning of the first cycle or the equivalent value if measured at any other time, (2) if a rod is inoperable (Specification 3.10.g).

6. Insertion limits do not apply during physics tests

7. Insertion limits do not apply during period exercise of the individual rods.

8. During the low power physics test to measure total control rod worth and shutdown margin, the reactor may be critical with all rods inserted.

e. Rod Misalignment Limitations

1. If a full length or part length RCC is shown by the Rod Position Indicator Channel to be misaligned from its bank by more than 15 inches, then, if the RCC is not realigned within 8 hours, the rod shall be declared inoperable.

2. Unless a full length or part length RCC having an inoperable Rod Position Indicator Channel is shown to be aligned by indirect means, such as a partial movable detector map, then, if the RCC is not realigned within 8 hours, the rod shall be declared inoperable.

3. If both rod misalignment monitors (Item 15a and b - Table TS 3.5-2) are inoperable for 4 hours or more. The nuclear overpower trip shall be reset to 93% of rated power. In addition, the increase surveillance noted in the Table shall be performed.

f. Inoperable Rod Position Indicator Channels

1. If a rod position indicator channel is out of service then