Nebraska Public Power District

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February 20, 1992

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Reference: Letter from J. M. Pilant to T. A. Ippolito, dated April 16, 1979, "Reload 4, Cycle 5 - Startup Physics Testing"

Subject: Reload 14, Cycle 15 - Startup Physics Testing
Cooper Nuclear Station
NRC Docket No. 50-298, DPR-46

Gentlemen:

The purpose of this letter is to inform you that the acceptance criteria for the startup physics tests described in the Reference have been met for the recent Cycle 15 startup. Summary of the test results are contained in the attachment. Detailed results of the testing are available at Cooper Nuclear Station for review.

If you have any questions regarding these tests, please contact my office.

Sincerely,

G. R. Horn
Nuclear Power
Group Manager

GRH/dls
Attachment

cc: NRC Regional Administrator
USNRC - Region IV
Arlington, TX

NRC Resident Inspector
Cooper Nuclear Station

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1. CORE LOADING VERIFICATION

I. PURPOSE

This test visually verifies the core is loaded as intended.

II. DESCRIPTION

An underwater television camera or suitable viewing device will be employed to verify both proper orientation and location of each fuel assembly in the reactor core. At least one independent person must also either participate in performing the verification or review a videotape of the verification prior to startup.

III. CRITERIA AND ACTIONS

The as-loaded core must conform with the referenced core upon which the licensing analysis was performed. Any discrepancies discovered in the loading will be promptly corrected and the affected areas reverified tc be properly loaded prior to startup.

Conformance to the referenced loading will be demonstrated by a permanent core serial number map and documented by the signatures of the verifiers.

IV. SUMMARY OF RESULTS

The as-loaded core was found to conform exactly with the referenced core upon which the licensing analysis was performed. Permanent records of the verification are stored in the plant record file.

2. CONTROL ROD OPERABILITY AND SUBCRITICALITY CHECK

I. PURPOSE

This test ensures no gross local reactivity irregularities exist and all operable control rods are functioning properly.

II. DESCRIPTION

The control rod mobility test will be performed after the four bundles surrounding the given control rod are loaded. The subcriticality check will be performed after the core loading has been completed. Performance of this test will provide assurance that criticality will not occur due to the withdrawal of a single rod. Each control rod in the core will be withdrawn and inserted one at a time to ensure its mobility with drive pressure. Also, the nuclear instrumentation will be monitored during the movement of each control rod to verify subcriticality.

III. CRITERIA AND ACTIONS

For those control rods that will not move under normal drive pressure, appropriate repairs or adjustments will be made so that the drive pressure criteria can be met or the rod will be declared inoperable as described in the Technical Specifications. If criticality were to be achieved by the withdrawal of a single control rod, the control rod would be inserted and all further rod movements would cease and an investigation would be conducted to determine the cause.

IV. SUMMARY OF RESULTS

All control rods moved satisfactorily under normal drive pressure and the core remained subcritical during the individual withdrawal of each control rod.

3. TIP SIGNAL UNCERTAINTY TEST

I. PURPOSE

This test determines the Traversing In-Core Probe (TIP) System total uncertainty using a statistical analysis.

II. DESCRIPTION

Total TIP signal uncertainty consists of geometric and random noise components. Data to perform the analysis are obtained at intermediate power levels and/or power levels greater than 75% with the reactor operating at steady state in an octant symmetric rod pattern (if possible). These data will be additionally used to perform a gross TIP symmetry check, which is a comparison on integrated readings from symmetrically located TIPs.

III. CRITERIA AND ACTIONS

A. The total TIP signal uncertainty (random noise plus geometric uncertainties) for all data sets should be less than 9%. A minimum of two or up to six data sets may be used to meet the above criterion. If the 9% criterion is not met and the calculations have been rechecked, the calibration of TIP system (e.g., axial alignment) shall be checked. It may be necessary to omit data pairs from the analysis if the exact octant symmetry is not attainable in fuel loading or control rod patterns. In such cases, offline code predictions of exposure or control rod induced asymmetry may prove useful in explaining the uncertainty.

B. The gross check of TIP signal symmetry should yield a maximum deviation between symmetrically located pairs of less than 25%. If the criterion cannot be met, the cause of the asymmetry must be investigated and an explanation attempted per Criterion A.

IV. SUMMARY OF RESULTS

A. Two data sets were obtained for the total TIP uncertainty analysis. The total TIP uncertainty was determined to be 1.66% for the first data set and 1.56% for the second data set. This is well within the 9% criterion.

B. Two data sets were used for the gross TIP symmetry analysis. The gross TIP uncertainty was determined to be 3.55% and 3.52% respectively. This is well within the 25% criterion.