



**Consumers
Power
Company**

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Director, Nuclear Reactor Regulation
US Nuclear Regulatory Commission
Washington, DC 20555

DOCKET 50-255 - LICENSE
DPR-20 - PALISADES PLANT -
PHYSICS TEST PROGRAM

The physics test program to be utilized for Cycle 7 start-up is attached. This is the first revision to the Palisades Plant Physics test program since Cycle 4 submitted October 31, 1979. The test program has been revised to bring it into alignment with the newly developed ANS 19.6 and to reflect more recent general industry practices at PWRs. The procedure retains both the "review" and "acceptance" criterion for each test and maintains the commitments with regard to remedial action in case a criterion is exceeded.

The attached program is provided for your information.

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STARTUP PHYSICS TEST PROGRAM
PALISADES PLANT

I. Tests and Test Criteria

A. Low Power Tests

<u>Measured Parameter</u>	<u>Review Criterion</u>	<u>Acceptance Criterion</u>
ARO HZP Critical Boron Concentration	Within 50 Ppm of Prediction	None, however, Tech Spec limit applies to total reactivity anomalies.
Differential Soluble Boron Worth/Reference Rod Group Worth	Within 15 ppm/% $\Delta\rho$ of Predicted/ Within $\pm 10\%$ of Predicted Reference Rod Group Worth	Less than 125 ppm/% $\Delta\rho$
Control Rod Group Worths by Rod Swapping Method	Individual Group within $\pm 15\%$ or $\pm .15\%$ $\Delta\rho$ of predicted, whichever is greater. Sum of Groups $\pm 10\%$ (Reference Rod Group should be within $\pm 10\%$ by Boron dilution method)	Sum of groups within $\pm 10\%$ of predicted
Moderator Temperature Coefficient (ITC) all rods withdrawn	Within 5×10^{-5} $\Delta\rho/^\circ\text{F}$ of the Predicted Value	Between $+ 5 \times 10^{-5}$ $\Delta\rho/^\circ\text{F}$ and -35×10^{-5} $\Delta\rho/^\circ\text{F}$ when extrapolated to full power
Flux Symmetry at Power $\leq 30\%$ a) Incore flux measurement Deviation between the highest and lowest values in symmetric locations and deviations from predicted values for locations greater than 0.9 relative power.	Symmetric locations within $\pm 10\%$ Assembly Power within $\pm 10\%$ of prediction if relative power ≥ 0.9 .	None

<u>Measured Parameter</u>	<u>Review Criterion</u>	<u>Acceptance Criterion</u>
B. Intermediate Power Level Power Distribution Power 40 - 75%	Quadrant Tilt $\leq 3\%$ Assembly Power $\pm 10\%$ of Prediction if Rel. Power $>.9$ $\pm 15\%$ of Prediction if Rel. Power $\leq .9$ Assembly Power RMS Deviation $\leq 5\%$	Power Distribution Technical Specifications are met
C. Full Power Power Distribution at 90 - 100 % FP Critical Boron (Corrected to 100% FP)	Same as Intermediate Power Level Within 50 ppm of predicted	Same as Intermediate Power Level None, however, Tech Spec limit applies to total reactivity anomalies.

START-UP PHYSICS TEST PROGRAM

Palisades Plant

II. REMEDIAL ACTION

A. REVIEW CRITERIA

Failure to meet a test result review criterion is an indication that there may be some deficiency in the test, prediction or core loading. If a test result falls outside the review criterion, an engineering review will be conducted to determine the reason for the deviation and its impact on reactor safety. Such a review may consist of, but not be limited to, a review of the test and equipment, a repeat of the measurement, a review of the predictive calculation, a correlation with the results of other tests and/or a review of the results of testing from previous cycles.

B. ACCEPTANCE CRITERIA

Failure to meet an acceptance criterion indicates that a deficiency exists which may result in a violation of technical specification limits. In such a case, further operation shall be appropriately restricted to maintain margins of safety. An engineering review as described above shall be conducted to determine the cause of the deviation and appropriate corrective action. In the case of rod worths, the worth of an additional rod bank will be measured. The Plant Review Committee will review the action taken and disposition of the deviation before commencement of normal operation.