WISCONSIN PUBLIC SERVICE CORPORATION

P.O. Box 1200, Green Bay, Wisconsin 54305

May 12, 1978

Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention Mr. A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Reload Safety Evaluation Cycle 4

Reference: Letter to Mr. James from Mr. A. Schwencer
dated May 3, 1978

Enclosed you will find forty (40) copies of the following attachments submitted in support of our application for Amendment to the Technical Specifications concerning the operation of Cycle 4 of the Kewaunee Nuclear Power Plant.

(1) Figure 1, page 15, of the RSE for Cycle 4 has a typographical error in it. Please insert the attached page in place of the existing page and destroy the removed page.

(2) Attachment No. 2 provides a listing of the currently planned Physics/Startup Tests to be performed for Cycle 4 along with the acceptance criteria for each test.

(3) Attachment No. 3 contains the response to those questions transmitted by the referenced letter concerning the RSE for Cycle 4 submitted as supplemental information in our application for change to the Technical Specifications.

C 05/16/78

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REC: SCHWENCER A
NRC

ORG: JAMES E W
WI PUB SVC

DOCDATE: 05/12/78
DATE RCVD: 05/15/78

DOCTYPE: LETTER NOTARIZED: NO

COPIES RECEIVED
LTR 1 ENCL 40

SUBJECT:
FORWARDING SUPPORTING DOCUCMENTS AS LISTED TO APPLICANT"S APPL FOR AMEND, TECH SPEC PROPOSED CHANGE CONCERNING THE OPERATION OF THE RELOAD SAFETY EVALUATION CYCLE 4 OF SUBJECT FACILITY.

PLANT NAME: KEWAUNEE

REVIEWER INITIAL: XJM
DISTRIBUTOR INITIAL: mc

********** DISTRIBUTION OF THIS MATERIAL IS AS FOLLOWS **********

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DISTRIBUTION: LTR 40 ENCL 39
SIZE: 2P+7P

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********** THE END **********

The results of the Physics/Startup tests for Cycle 4 will be made available to the Staff 45 days after startup and a formal Physics Test Report will be docketed 90 days after Cycle 4 startup.

Very truly yours,

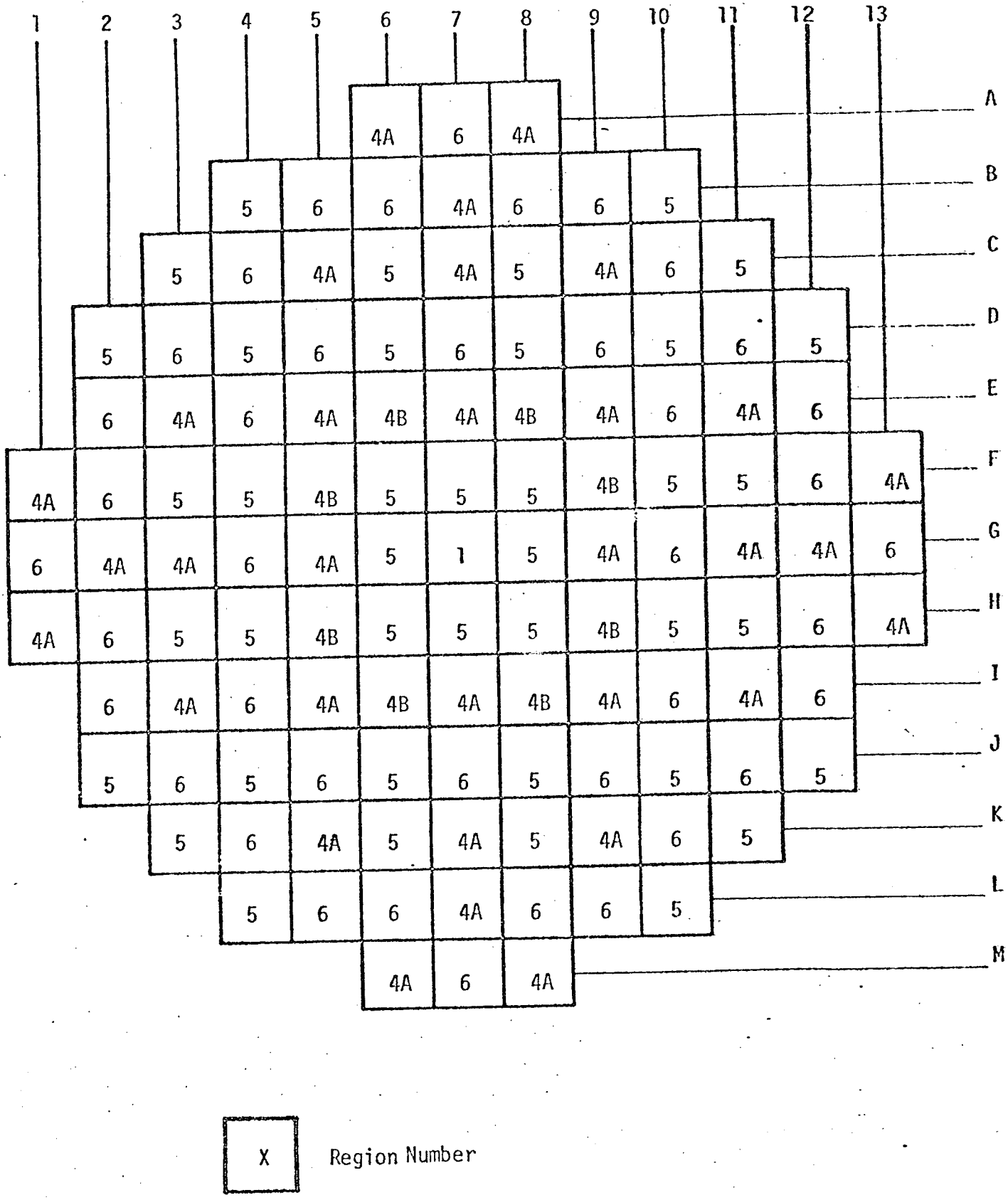
E. W. James
Senior Vice President
Power Supply & Engineering

sna

Attach.

FIGURE 1

CORE LOADING PATTERN
KEWAUNEE NUCLEAR PLANT
UNIT 1 - CYCLE 4



ATTACHMENT NO. 2
May 12, 1978

KEWAUNEE NUCLEAR POWER PLANT

CYCLE 4 PHYSICS TESTS

Test	Acceptance Criteria
Boron Endpoint	
All rods out	$\pm$ 50 ppm from predicted
Reference bank in	$\pm$ 50 ppm from predicted
Boron Worth	None
Temperature Coefficient - ARO	$\pm$ 3 pcm/^{o}F from predicted
RCCA reference bank worth	$\pm$ 10% from predicted
Rod Swap	
Individual Bank Worths	$\pm$ 20% from predicted
Total Banks Worth	$\leq$10% RMS of deviation from predicted
Power Distribution Flux Maps	
Hot Zero Power	Analyze to verify measured
$\approx$75% Power	Values of F_Q^N, $F\Delta_H^N$, assembly-
$\approx$90% Power	wise relative power and quadrant
Full Power	to average power tilt ratios are
	within Tech Spec limits

Kewaunee Cycle 4

Peaking Factors vs. Core Height

Sub-Case Analysis*

Height from Core Bottom (ft.)	Maximum F_Q x Power	ARO $F_{xy}(z)$	D-In $F_{xy}(z)$
11.7	1.123	1,465	1.665
11.2	1.610	1.435	1.617
10.6	1.779	1.435	1.594
9.7	1.925	1.435	1.580
8.8	2.037	1.435	1.580
7.9	2.057	1.435	1.580
6.9	2.033	1.440	1.592
6.0	2.018	1.454	1.610
5.1	2.019	1.468	1.627
4.1	1.993	1.479	1.641
3.2	1.985	1.483	1.648
2.3	2.038	1,470	1.636
1.3	2.016	1.435	1.592
.7	1.838	1.435	1.608
.3	1.318	1.435	1.631

* Letter NS-CE-1749 dated April 6, 1978 from C. Eicheldinger to John F. Stolz, Non-Proprietary portion of Attachment 1.

The loss of flow transient for the Kewaunee Cycle 4 reload was evaluated based on a generic study for a number of similar 2 loop plants. This study was conducted to determine the effect of using the new trip reactivity curve on the loss of flow analyses. The plants used in the generic analysis were similar in those parameters which most affect the loss of flow transient, i.e., thermal power, average temperatures and system pressure. Since the original analysis had significant margin to a DNBR of 1.3, a comparison of the decrease in margin for the worst case in the generic study to the amount of margin available was made and the results of this evaluation reported. Since the RSE was filed, a detailed analysis has been done. The results of this analysis show that the minimum DNBR still meets the design basis of 1.30.

Kewaunee Nuclear Power Plant
List of Safety Analyses

Accident	Latest Analysis
Uncontrolled RCCA Withdrawal from a Subcritical Condition	2/78 (Core 4 - RSE)
Uncontrolled RCCA Withdrawal at Power	2/78 (Core 4 - RSE)
RCC Assembly Misalignment	1/27/71 (AM7 - FSAR) 11/76 (Core 3 - RSE - Addressed Only)
CVCS Malfunction	1/27/71 (AM7 - FSAR) (2/76 - Core 2B - RSE - Addressed Only)
Startup of an Inactive RC Loop	1/27/71 (AM7 - FSAR) (2/76 - Core 2B - RSE - Addressed Only)
Excessive Heat Removal Due to FW System Malfunctions	1/27/71 (AM7 - FSAR) (2/76 - Core 2B - RSE - Addressed Only)
Excessive Load Increase Incident	1/27/71 (AM7 - FSAR) (2/76 - Core 2B - RSE - Addressed Only)
Loss of Reactor Coolant Flow	3/73 (WCAP-8903) (2/78 - Core 4 - RSE - Addressed Only)
Locked Rotor Accident	2/78 (Core 4 - RSE)
Loss of External Electrical Load	1/27/71 (AM7 - FSAR) (2/76 - Core 2B - RSE - Addressed Only)
Loss of Normal Feedwater	8/31/73 (AM33 - FSAR) (2/76 - Core 2B - RSE - Addressed Only)

Loss of AC Power to Plant Auxiliaries	8/31/72 (AM21 - FSAR) (2/76 - Core 2B - RSE - Addressed Only)
Fuel Handling Accidents	1/27/71 (AM7 - FSAR) (2/76 - Core 2B - RSE - Addressed Only)
Accidental Release - Recycle or Waste Liquid	1/27/71 (AM7 - FSAR) (2/76 - Core 2B - RSE - Addressed Only)
Accidental Release - Waste Gas	1/27/71 (AM7 - FSAR) (2/76 - Core 2B - RSE - Addressed Only)
Steam Generator Tube Rupture	1/27/71 (AM7 - FSAR) (2/76 - Core 2B - RSE - Addressed Only)
Rupture of a Steam Pipe	4/13/73 (AM28 - FSAR) (2/78 - Core 4 - RSE - Addressed Only)
Rupture of a CR Drive Mechanism Housing	2/78 (Core 4 - RSE)
Turbine Missile Damage to Spent Fuel Pool	1/4/72 (AM14 - FSAR) (2/76 - Core 2B - RSE - Addressed Only)
RC System Pipe Rupture (LOCA)	12/10/76 (AM40 - FSAR)
Loss of RC from Small Ruptured Pipes or from Cracks in Large Pipes which Actuate ECCS	4/1/75 (AM36 - FSAR)
Major RC Pipe Ruptures (LOCA)	12/10/76 (AM40 - FSAR)
Core and Internals Integrity Analysis	5/12/72 (AM17 - FSAR)
Containment Integrity Evaluations	11/8/71 (AM12 - FSAR)
Offsite Dose Consequences	8/31/72 (AM21 - FSAR)
Effects of Containment Leakage By-Passing Shield Building Annulus	1/4/72 (AM14 - FSAR)

Effects of Leakage from Residual Heat Removal System	6/30/72 (AM19 - FSAR)
Charcoal Filter Ignition Hazard Due to Iodine Adsorption	12/1/72 (AM22 - FSAR)
Generation & Disposition of Hydrogen	1/22/73 (AM23 - FSAR)
Containment Pressure Response to LOCA	33 - 10/19/73