

C 05/16/78

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)
DISTRIBUTION FOR INCOMING MATERIAL

50-305

REC: CASE E G
NRC

ORG: JAMES E W
WI PUB SVC

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

DOCTYPE: LETTER NOTARIZED: YES

COPIES RECEIVED
LTR 3 ENCL 0

SUBJECT:
REQUESTING ISSUANCE OF EXEMPTION FROM REQUIREMENTS OF 10CFR50.46 AND 10CFR
APPENDIX K, TO PERMIT ROD INSERTION LIMITS AND OR/ THE CONFIRMATORY ORDER IN
REGARD TO FQ LIMITS... DURING OPERATION OF CYCLE 4... NOTARIZED 05/12/78.

PLANT NAME: KEWAUNEE

REVIEWER INITIAL: XJM
DISTRIBUTOR INITIAL:

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

NOTES:

- 1 & E - 3 CYS ALL MATERIAL
2. LAWRENCE(OELD) - 1 COPY ALL MATERIAL

GENERAL DISTRIBUTION FOR AFTER ISSUANCE OF OPERATING LICENSE.
(DISTRIBUTION CODE A001)

FOR ACTION: BR CHIEF SCHWENCER**LTR ONLY(7)

INTERNAL: REG FILE**LTR ONLY(1)
I & E**LTR ONLY(3)
HANAUER**LTR ONLY(1)
EISENHUT**LTR ONLY(1)
BAER**LTR ONLY(1)
EEB**LTR ONLY(1)
J. MCGOUGH**LTR ONLY(1)

NRC PDR**LTR ONLY(1)
OELD**LTR ONLY(1)
CHECK**LTR ONLY(1)
SHAO**LTR ONLY(1)
BUTLER**LTR ONLY(1)
J COLLINS**LTR ONLY(1)
J. MILLER
T. ABELL
E. CASE

EXTERNAL: LPDR'S
KEWAUNEE, WI**LTR ONLY(1)
TIC**LTR ONLY(1)
NSIC**LTR ONLY(1)
ACRS CAT B**LTR ONLY(16)

DISTRIBUTION: LTR 45 ENCL 0
SIZE: 3P

CONTROL NBR: 781360086

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

REGULATORY DOCKET FILE COPY

WISCONSIN PUBLIC SERVICE CORPORATION

Public Service

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

May 12, 1978

Mr. Edson G. Case
Acting Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Case:

Docket 50-305
Operating License DPR-43
Request for Exemption, Kewaunee Cycle 4

Reference: April 10, 1978, Letter to Division of Operating
Reactors from Mr. E. W. James

During recent discussions with members of the NRC Staff in regard to the logic inconsistency by Westinghouse Electric Corporation in their LOCA ECCS Evaluation Model employed for the Kewaunee Plant Safety Analysis, we have become aware of the opinion of the NRC Legal Staff that an exemption from the Commission's ECCS requirements will be necessary for the Director of Licensing to issue an amendment relative to rod insertion allowance. While we are not in agreement that an exemption is necessary since the request for License Amendment before the Commission is not ECCS related, the following is being provided to assure continued operation of the Kewaunee Plant in light of the opinion expressed by members of the Commission Staff.

On March 24, 1978, WPS was notified by Westinghouse Electric Corporation that it had determined that its LOCA ECCS Evaluation Model did not fully account for the heating effect of the zirconium-water reaction due to a logic inconsistency. On March 29, 1978, representatives of Westinghouse described to the NRC the error and provided an analysis justifying continued operation of all Westinghouse PWRs. On April 10, 1978, we submitted to the NRC an evaluation of the impact of that logic inconsistency on the operating limits for the Kewaunee Plant. On May 5, 1978, members of the NRC Staff indicated to WPS that, in their opinion, a request for exemption from the requirements of 10 CFR Section 50.46 and Appendix K to 10 CFR Part 50 was required for the Kewaunee Plant.

US NRC
DISTRIBUTION SERVICES
BRANCH

1978 MAY 15 AM 9 22

RECEIVED DISTRIBUTION
SERVICES UNIT

781360086

Acc 1 S
3/5
ADD J. Miller
T. Abell
E. CDE

Mr. Edson Case
May 12, 1978
Page 2

The logic inconsistency in the Evaluation Model involves the interface between the zirconium-water reaction heat generation calculation and the heat conduction equation. Both the zirconium-water reaction equation (Baker-Just) and the heat conduction equation are solved correctly. However, the heat conduction equation uses a volumetric heat flux from the zirconium-water reaction calculation. The output of the zirconium-water reaction calculation is a surface heat flux. This surface heat flux is modified by dividing by the thickness of the radial mesh size between the surface temperature node and the first node inside the clad to obtain a volumetric heat flux. It is this calculation which was performed incorrectly. The inconsistency underestimates the volumetric heat flux due to zirconium-water reaction by a factor of two.

The April 10, 1978, submittal presented a proposed solution to the problem discovered by Westinghouse and proposed an Interim Basis for continued operation of the Kewaunee Plant for then the remainder of Cycle 3 and for the future operation of Cycle 4. As stated in that submittal, a 2.16 interim F_Q limit was proposed and a commitment to operate within that limit was made. That letter was submitted to sufficiently address the logic inconsistency such that a confirmatory order could be issued by the Commission requiring operation in accordance with the proposed F_Q limit of 2.16 until a corrected model is approved sometime during operation of Cycle 4.

If the requested exemption from ECCS requirements is determined to be necessary for the issuance of the amendment for rod insertion allowance desired for Cycle 4, the granting of the exemption would be in the public interest. Further analysis is necessary to satisfy the Staff that ECCS legal requirements are fully met. In order to satisfy the Staff, approval of a revised ECCS Evaluation Model must be obtained by Westinghouse, the analyses for Kewaunee must be performed by Westinghouse, and the analyses must be reviewed and approved by the Staff. We understand that Staff approval of the revised Westinghouse ECCS Evaluation Model is not expected until July 1978. We estimate that the analysis for Kewaunee will require approximately three months. Thus, the total time required until the Staff approves the revised analyses is expected to be at least six months. If the Kewaunee Plant were not allowed to operate during this period, a large replacement capacity would be needed and the associated costs to WPS, its partners and their customers during that period would be unduly high. As presented in the Spent Fuel Storage Modification application pending before the Commission, the economic cost of termination of operation of the Kewaunee Plant has a lower bound of \$45 million per year. Very clearly, the economic impact upon the licensees and their customers would be very significant.

The Kewaunee Plant is the largest single unit on the combined operating systems of the licensees and the removal of that unit from the system for an extended period could jeopardize system reliability, particularly during the summer, and could result in serious consequences to the licensees, their customers and the general public in the State of Wisconsin.

Mr. Edson Case

May 12, 1978

Page 3

Environmentally, the impact of the logic inconsistency in and of itself is negligible since the proposed FQ limit provides the same margin of safety which existed prior to discovery of the problem. The environmental impact of failure to operate the Kewaunee Plant due to this issue would be severe and adverse since older and emergency generation would have to be employed to supply the power demands of customers. Those older and emergency units are not as environmentally compatible as the Kewaunee Plant which has well documented negligible adverse environmental impact.

Wisconsin Public Service Corporation, Wisconsin Power & Light Company, and Madison Gas & Electric request the Director of Licensing to issue an exemption from the requirements of 10 CFR Section 50.46 and 10 CFR Appendix K, as he deems necessary, to permit timely issuance of the requested amendment, addressing rod insertion limits and/or the Confirmatory Order in regard to FQ limits.

The requested exemption and/or Confirmatory Order is fully justified from the standpoint of the public health and safety, as discussed above. The reference letter of April 10, 1978, demonstrates that continued operation of the facility will be in accordance with the limits of 10 CFR Section 50.46. The granting of the requested exemption and/or Confirmatory Order will have no adverse effects on the common defense and security.

Finally, the granting of Applicant's request for exemption and/or Confirmatory Order is in the public interest.

Very truly yours,



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

sna

Subscribed and Sworn to
Before Me This 12th Day
of May 1978



Notary Public, State of Wisconsin

My Commission Expires

February 11, 1979