



THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

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Al Kaplan

VICE PRESIDENT
NUCLEAR GROUP

September 12, 1988
PY-CEI/NRR-0907 L

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Perry Nuclear Power Plant
Docket No. 50-440
NRC Bulletin 88-07
Power Oscillations in BWR's

Gentlemen:

The subject Bulletin requested assurance that adequate procedures and instrumentation were available, and that adequate operator training was provided, to prevent the occurrence of uncontrolled neutron flux oscillations during all modes of BWR operation. In response to the Bulletin's requested action Number 1 for a prompt briefing, licensed reactor operators and shift technical advisors were thoroughly briefed on the March 9, 1988 LaSalle Unit 2 event described in the Bulletin. This briefing occurred before the Bulletin was issued except for those operators participating in the NRC pilot examination. Bulletin action item Number 1 was completed for all appropriate personnel by June 30, 1988. These briefings also included discussions of plant conditions which may result in instabilities and how to recognize the onset of oscillations.

In response to the Bulletin's requested action Number 2 for verification of adequacy of procedures and operator training programs, the following actions have been taken. For Bulletin actions 2a and 2b on conditions causing instability and their avoidance, a review of Perry operating procedures has verified that normal power changes and plant maneuvering minimize entry into regions 1 and 2 of the power/flow map as outlined in General Electric SIL 380. Although our procedures were found to be adequate, several enhancements were made to (1) emphasize avoidance of the region of potential instabilities as best as practical, and (2) clarify how to exit from the region of potential instabilities or provide for suppression of oscillations if necessary.

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For Bulletin actions 2c and 2d on recognition of oscillations, and corrective actions which can be taken, procedures have been changed to incorporate the lessons learned from the LaSalle event. Magnitude of neutron flux oscillations is the indicator of instability. The Off Normal Instruction for recirculation pump trip already directed (prior to the LaSalle incident) immediate exit from region 1 by use of CRAM rods, and directed a reactor scram if oscillations become unstable. As a result of Bulletin reviews, a specific criterion for manual scram has been added. The Off Normal Instruction for an unexplained change in power or reactivity already covered (prior to the Bulletin) other entries into regions 1 or 2, and gave direction on actions required to suppress oscillations, and also to scram if oscillations become unstable.

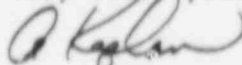
Licensed operators are routinely trained to procedure revisions, including those enhancements and LaSalle lessons learned described above. In addition to the briefings of licensed operators and STA's described above, the licensed operator and STA training programs will be enhanced to provide training on a continuing basis for avoidance, detection and suppression of oscillations.

Available instrumentation for the operator to evaluate oscillations includes the 8 average power range monitors (APRM's) and 41 strings of local power range monitors (LPRM's) for calculating peak-to-peak amplitudes. These systems are described in Section 7.6.1.4 of the Perry USAR; the design has been evaluated for requirements specific to the detection and mitigation of oscillations and found to be acceptable as-is.

The BWR Owners Group has also performed an assessment of SIL 380 and LaSalle lessons learned, which confirms our conclusions that the above described training, procedures and reactor instrumentation are adequate to minimize the potential for neutron flux oscillations to occur and to suppress any that do occur.

If you have further questions, please call.

Very truly yours,



Al Kaplan
Vice President
Nuclear Group

AK:njc

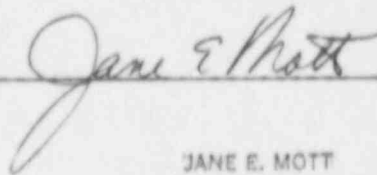
cc: T. Colburn
K. Connaughton
USNRC Region III

Alvin Kaplan who, being duly sworn, deposed and said that (1) he is Vice President, Nuclear Group of The Cleveland Electric Illuminating Company, (2) he is duly authorized to execute and file this report on behalf of The Cleveland Electric Illuminating Company and as duly authorized agent for Duquesne Light Company, Ohio Edison Company, Pennsylvania Power Company and the Toledo Edison Company, and (3) the statements set forth therein are true and correct to the best of his knowledge, information and belief.



Alvin Kaplan

Sworn to and subscribed before me, this 13th day of September, 1988.



JANE E. MOTT
Notary Public, State of Ohio
My Commission Expires February 30, 1990
(Recorded in Lake County)