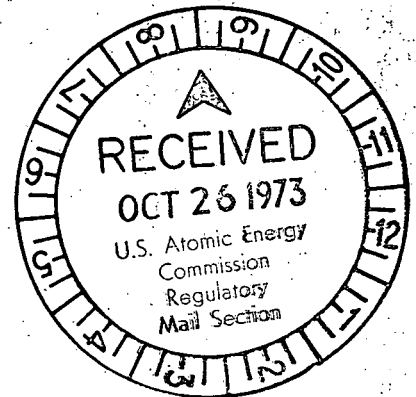
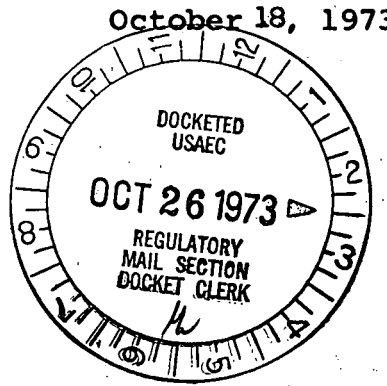




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Regulatory Docket File

Mr. D. J. Skovholt
Assistant Director for
Operating Reactors
Directorate of Licensing
Office of Regulation
U.S. Atomic Energy Commission
Washington, D.C. 20545



Subject: Scram Reactivity Limitations for Dresden
Units 2 and 3 and Quad-Cities Units 1 and 2 -
AEC Dkts 50-237, 50-249, 50-254 and 50-265

Dear Mr. Skovholt:

In response to discussions with your staff and knowing of your interest in this subject, the following information is provided.

Information concerning this subject has been provided previously in the following letters and reports (references).

1. Letter to D. J. Skovholt from L. D. Butterfield, Jr., dated December 18, 1972 same subject.
2. Proposed modification 73-2 to Dresden Final Safety Analysis Report to J. F. O'Leary from L. D. Butterfield, Jr., dated March 5, 1973.
3. Supplement A to Proposed Modification 73-2 to Dresden Final Safety Analysis Report to J. F. O'Leary from L. D. Butterfield, Jr., dated May 1, 1973.
4. Dresden Station Special Report No. 29 to J. F. O'Leary from L. D. Butterfield, Jr., dated July 2, 1973.

In Reference 1, the following was stated:

"The Technical judgement is that the Quad-Cities 1 and 2 and Dresden 2 plants cannot operate until an end of cycle condition within existing Technical Specifications. It is the judgement that the exposure at this time is sufficiently low causing

the control inventory to be sufficiently high such that a scram rate can be obtained which will not result in operation outside Technical Specifications. The exact point at which some plant change or revision in operating strategy must be made is not known and could be determined only by extensive calculations. The judgement is that the plants should not operate beyond 7500 MWD/T."

Recent analyses of the cycle scram reactivity characteristics have indicated that the FSAR transient analysis is applicable only out to 5850 MWD/T into the cycle for Dresden 2 (6550 core average exposure) and 6250 MWD/T into the cycle for Quad-Cities 1 and 2. These values were calculated by considering the original FSAR analysis methods and present nuclear characteristics. Recognizing the refinement in methods and the change in nuclear inputs for actual plant operation, adequate margin was assured to accommodate uncertainties in calculational techniques and input values.

The current exposures and expected derating dates for Dresden 2 and Quad-Cities 1 and 2 are the following:

<u>Unit</u>	<u>Exposure - 10/1/73</u>	<u>Expected Date of Derating</u>
Quad-Cities 1	5100	January, 1974
Quad-Cities 2	4500	March, 1974
Dresden 2	6200	November, 1973

These deratings will be to 97% of rated reactor power. The analyses and results described in Reference 4 are applicable to Dresden Unit 2 and Quad-Cities Units 1 and 2. Reference 4 will be considered as part of the design basis for these units and the units will be operated accordingly.

The present 97% limitation for Dresden 3 was initiated at 750 MWD/T into cycle 2 based on the generic 1972 scram reactivity curve. This prediction for Dresden 3 was determined by an analysis of the hot excess reactivity (K_{ex}) of the unit. A correlation of the hot K_{ex} and the scram reactivity curve was made for Dresden 3 based on the work done on the Nine Mile Point

Commonwealth Edison Company

Mr. D. J. Skovholt

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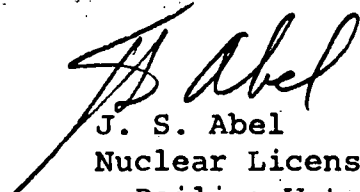
October 18, 1973

Unit and Dresden 3. That correlation shows that the FSAR scram reactivity curve will be reached at a $K_{ex} = .033$ in the first cycle. The actual calculation done for the second Dresden 3 cycle gave a value (at 750 MWD/T) of $K_{ex} = .036$. This slight change in excess reactivity is a result of the axial reactivity distribution peaking further up in the core causing the scram response to degrade requiring higher control fraction to maintain an equivalent response.

For the current Dresden 3 fuel cycle it is predicted that the generic (Spring 1972) scram curve will be reached at $K_{ex} = .014$ or approximately 2750 MWD/T into cycle 2 at which point the unit will be derated to 91%. The current exposure will not be reached before the scheduled refueling outage in January, 1974. No further derating of Dresden Unit 3 is expected during the present fuel cycle.

One signed original and 59 copies of this letter are submitted.

Very truly yours,



J. S. Abel
Nuclear Licensing Administrator -
Boiling Water Reactors