



# Entergy Operations

Entergy Operations, Inc.  
P.O. Box 551  
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August 8, 1990

1CAN089002

U. S. Nuclear Regulatory Commission  
Document Control Desk  
Mail Station P1-137  
Washington, DC 20555

Subject: Arkansas Nuclear One - Unit 1  
Docket No 50-313  
License No. DPR-51  
Revised Request for License Amendment to  
Increase Reactor Power to a Level of 100%  
and Borated Water Storage Tank  
Technical Specification Change

Gentlemen:

On September 26, 1989, Entergy Operations transmitted to you a Request for License Amendment to Increase Reactor Power to a Level of 100% (1CAN098903). Due to events that have occurred since that time, this letter is being written to supersede the September 26, 1989 request.

Facility Operating License Amendment No. 120, transmitted by NRC letter dated May 16, 1989 (1CNA058904), authorized operation of ANO-1 up to a maximum steady-state reactor core power level of 2054 megawatts thermal (80% of full power). That amendment was in response to our request dated April 24, 1989 (1CAN048905) as supplemented on May 5, 1989 (1CAN058903), addressing a newly-identified postulated small break in the High Pressure Injection (HPI) system which was found to be not bounded by existing small break Loss of Coolant Accident (LOCA) analyses. The basis for the amendment was a formal Appendix K LOCA Evaluation Model, of which the analysis results were submitted, demonstrating that the ANO-1 HPI configuration would provide adequate core cooling in the event of a complete HPI line break at an operating power of 80% of full power.

Additionally, while performing a review of the Decay Heat Removal System as part of the ANO Design Configuration Documentation Project, several calculation errors and inconsistencies were identified, which together incorrectly characterized the flow capabilities of the Low Pressure Injection (LPI) and Reactor Building Spray (RBS) pumps when the pumps would be aligned to take suction from the Reactor Building sump. Specifically, the adequacy of the Net Positive Suction Head (NPSH) was in question under these circumstances. While restricted to 80% power, adequate margin existed to assure the pumps would function properly under Design Basis Accident conditions. This event was reported in Licensee Event Report 50-313/89-044-00 dated January 15, 1990 (1CAN019008).

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To allow resumption of full power operation (2568 megawatts thermal), Entergy Operations is implementing changes and permanent system modifications to address both the postulated HPI line break and the LPI and RBS NPSH concerns during the upcoming ninth refueling outage (1R9). A considerable effort has been made to address all aspects of the HPI small break LOCA analysis. An extensive modification is being implemented for the HPI system to add four new injection lines each with individual safety grade flow instrumentation. The new design has been modeled in detail to assess the system response to a spectrum of RCS breaks. This system modification, along with providing acceptable HPI system performance, will provide the control room operator with specific flowrate information for proper assessment and response to any small break LOCA. Our reanalysis conforms to the original Appendix K LOCA Evaluation Model.

The initial findings of the Reactor Building (RB) sump NPSH issue have been thoroughly reviewed and the interrelationships between associated analyses have been identified. A reanalysis of a number of complex analyses has been performed including:

- Revisions of the BWST inventory, post accident RB water level, and RBS and LPI NPSH calculations.
- Full computer re-analysis of the post accident RB pressure and temperature profiles (COPATTA).
- Complete re-analysis of the post LOCA offsite dose utilizing an updated methodology consistent with a recent Standard Review Plan.
- Re-analysis of the RBS and RB sump pH calculations consistent with the Standard Review Plan.

These re-analyses now provide updated, consistent design bases for ANO-1 that resolve the concern identified, and verify acceptable performance of the ECCS and RBS systems to allow 100% full power operation. Therefore, continued limitation of ANO-1 operation below the 100% power level will no longer be necessary after completion of the modifications and tests scheduled for implementation during the 1R9 Refueling Outage.

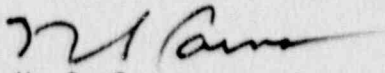
Engineering Reports are enclosed detailing the analysis results for the HPI line break and the RBS and LPI pump NPSH resolution. These results demonstrate acceptable performance for ANO-1 at 100% full power operation. The information contained in the HPI line break engineering report is considered proprietary to its author, Babcock and Wilcox (B&W), since it contains methods and data specific to B&W ECCS analysis which would provide a competitor an unfair advantage if used. Due to the proprietary nature of the material contained in the attached Engineering Report (86-1179795-01), B&W has requested that it be withheld from public disclosure. In accordance with 10CFR2.790 a non-proprietary version of this material and an affidavit from B&W containing a full statement of the reasons it is claimed that the information should be held from public disclosure are being submitted under separate cover by B&W.

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In advance of modification implementation and predicated upon the successful post-implementation testing of the design changes, Entergy Operations requests a license amendment to resume full power operation at steady-state reactor core power levels not in excess of 2568 megawatts. We request that this be granted prior to the end of 1R9, currently scheduled for completion on December 1, 1990. We are available to meet with the NRC Staff in your offices should further clarification be necessary. The License amendment request, associated Technical Specification changes, and the basis for these changes are attached. There is currently a pending Technical Specification change dated June 14, 1990 (1CAN069002) relating to the attached change to Specification 3.1.2.10.

In accordance with 10CFR50.91(a)(1), and using the criteria in 10CFR50.92(c), Entergy Operations has determined that the change involves no significant hazards consideration.

Very truly yours,

  
N. S. Carns

NSC:lw  
Attachments  
cc:

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Ms. Greta Dicus, Director  
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Little Rock, AR 72201

STATE OF ARKANSAS   )  
                              )  
COUNTY OF PULASKI   )

SS

I, N. S. Carns, being duly sworn, subscribe to and say that I am Vice President, Operations ANO for Entergy Operations, Inc.; that I have full authority to execute this oath; that I have read the document numbered 1CAN089002 and know the contents thereof; and that to the best of my knowledge, information and belief the statements in it are true.

N. S. Carns  
N. S. Carns

SUBSCRIBED AND SWORN TO before me, a Notary Public in and for the County and State above named, this 8 day of August, 1990.

Susan G. Dalton  
Notary Public

My Commission Expires:

May 7, 1993