ARKANSAS POWER & LIGHT COMPANY
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April 2, 1979

WILLIAM CAVANAUGH III
Vice President
Generation & Construction

1-049-2

Director of Nuclear Reactor Regulation
ATTN: Mr. R. W. Reid, Chief
Operating Reactor Branch #4
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Reactor Building Purging During Operation
(File: 1510, 1511.1)

Gentlemen:

Your letter of November 29, 1978, related concerns relative to potential failures of purge penetration valves which could lead to a degradation in containment integrity, and requested either:

(1) A proposed Technical Specification which requires that there be no purging during operation, or

(2) A schedule for proposing a Technical Specification which will limit purging to 90 hours per year and justification by test or by test and analysis, or

(3) A schedule for justification of unlimited purging.

Our letter of January 30, 1979 stated that we expected to complete and submit Option (2) above by April 1, 1979. We are herein submitting a Technical Specification which will limit purging to ninety hours per year and our bases. However, we are investigating justification for unlimited purging and may submit a Technical Specification change request to that effect at a later date.

The bases for purging the reactor building ninety hours per year is as follows.

The subject valve operators were sized analytically to seat and unseat the valve with a differential pressure of 59 psi and were shop tested to the manufacturer's procedure and were witnessed. The actual closing time at zero ΔP was less than five seconds for all valves installed in the ANO-1 purge system.

The fluidynamic characteristics of Butterfly valves tend to produce operating torques that will close the valve. If the fluidynamic effects were to be added to the operating tests, the valve may actually close in a shorter time than those in the static test. References for this phenomenon may be found in "A Contribution to the Study of Butterfly Valves" by D. Gaden from Water Power, December, 1951, and "Torque and Cavitation Characteristics of Butterfly Valves" by Turgut Sarpkaya, Paper #60-WA-105 from transactions of the ASME Journal of applied mechanics.

We wish to point out that even though our valves are sized to close against 59 psi, our accident analyses indicate that valve closure would actuate immediately on high reactor building pressure (4 psig) and that the valves would complete closure and isolation prior to the building pressure reaching 30 psig. We believe this margin is adequate for an operator of this size. This, combined with the unlikely occurrence of a LOCA during the allowed ninety hours of purging, substantiates a more than adequate margin of safety for ninety hours of purging per year.

Further, during our four years of operating experience, we have encountered no problems with the purge valves or operators. We have not, in the past, used the purge system for reducing reactor building atmosphere activity during normal operation. Our procedures do allow this, however, prior to personnel entry during power operation, if necessary. To date, we have used our purge system only to reduce the atmosphere activity and temperature prior to shutdown. This facilitates personnel entry and reduces costly down time. With these considerations and the above related justifications, we request your timely approval of the attached Technical Specifications.

Pursuant to 10 CFR 170.22, we have determined this request to involve a single safety issue and, therefore, is a Class III amendment requiring a $4000 remittance. A check for that amount is enclosed.

Very truly yours,

William Cavanaugh III

WC:ERG:lg

Enclosure

STATE OF ARKANSAS)
) SS
COUNTY OF PULASKI)

William Cavanaugh III, being duly sworn, states that he is Vice President, Generation & Construction, for Arkansas Power & Light Company; that he is authorized on the part of said Company to sign and file with the Nuclear Regulatory Commission this Supplementary Information; that he has reviewed or caused to have reviewed all of the statements contained in such information, and that all such statements made and matters set forth therein are true and correct to the best of his knowledge, information and belief.

William Cavanaugh III

SUBSCRIBED AND SWORN TO before me, a Notary Public in and for the County and State above named, this 2nd day of April 1979.

Notary Public

My Commission Expires:

February 17, 1982

3.22 REACTOR BUILDING PURGE VALVES

APPLICABILITY

This specification applies to the reactor building purge supply and exhaust isolation valves.

OBJECTIVE

To specify maximum time limits for reactor building purging during normal plant operation.

SPECIFICATION

3.22.1 The reactor building purge supply and exhaust isolation valves shall be concurrently open not more than 90 hours per calander year when reactor building integrity is required.

3.22.2 After reaching the limit of Specification 3.22.1,

a. The reactor building purge supply and exhaust isolation valves shall be closed.

b. With one reactor building purge supply and/or one exhaust isolation valve open, close the open valve(s) within 48 hours or be in cold shutdown within the next 24 hours.

c. With both reactor building purge supply and/or both exhaust isolation valves open, close the open valves within 1 hour or be in at least hot standby within the next 6 hours and in cold shutdown within the following 30 hours.

BASES

The reactor building supply and exhaust isolation valves are required to be closed during normal plant operation in order to ensure reactor building integrity. Purging is allowed approximately 1% of each year to allow control of the reactor building environment prior to personnel access during shutdown.

4.25 REACTOR BUILDING PURGE VALVES

APPLICABILITY

This specification applies to the reactor building purge supply and exhaust isolation valves.

OBJECTIVE

To assure reactor building integrity.

SPECIFICATION

4.25.1 The reactor building purge supply and exhaust isolation valves shall be determined closed:

a. At least once per 31 days, and

b. Within one hour following completion of a purging operation.

4.25.2 Prior to each purging operation, verify that the planned period of purging will not contribute to exceeding the limit of Specification 3.22.1.

BASES

Determination of reactor building purge valve closure will ensure that reactor building integrity is not unintentionally breeched and excessive quantities of radioactive materials released via the reactor building purge system.