



ARKANSAS POWER & LIGHT COMPANY

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October 6, 1982

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Director of Nuclear Reactor Regulation
ATTN: Mr. J. F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Director of Nuclear Reactor Regulation
ATTN: Mr. Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

SUBJECT: Arkansas Nuclear One - Units 1 and 2
Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6
Additional Information Concerning
Reactor Coolant System High Point Vents

Gentlemen:

Your letters dated January 20, 1982, (1CNAØ182Ø5) and March 1, 1982, (2CNAØ382Ø1) requested additional information concerning reactor coolant system high point vents for ANO-1 and ANO-2, respectively. Information which was unavailable at the time of our initial response on August 18, 1982 (ØCANØ882Ø4) is contained in Attachment 1 for ANO-1 and Attachment 2 for ANO-2.

Very truly yours,

Donald A. Ruster
for John R. Marshall
Manager, Licensing

JRM:JK:sc

Attachments

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ATTACHMENT 1

ANO-1

4. Verify that the following RCS vent system failures have been analyzed and found not to prevent the essential operation of safety-related systems required for safe reactor shutdown or mitigation of the consequences of a design basis accident:
- b. Postulated missiles generated by failure of RCS vent system components.

Response:

Credible missiles generated by the failure of the RCS vent valves were not postulated based on the valve design. The valves have two separate bonnet retaining features to preclude their ejection as a potential missile. First, the valve bonnet is screwed into the valve body. Second, a sealing circumferential weld further attaches the bonnet to the body. The valve stem was not considered as a potential missile because of the back seat feature and the solenoid actuator which would effectively restrain the valve stem.

- d. Fluid sprays from RCS vent system component failures. Sprays from normally unpressurized portions of the RCS vent system that are Seismic Category 1 and Safety Class 1, 2 or 3 and have instrumentation for detection of leakage from upstream isolation valves need not be considered.

Response:

Leak detection is provided for on each of the four RCS vents by monitoring the pressure between the redundant vent valves. The pressure of each vent line is indicated in the control room and a common alarm is sounded on any one indicating a pressure buildup caused by the leakage past the upstream vent valve.

Fluid spray from a postulated rupture of the RCS vent piping would be limited by the flow restricting orifice located near the nozzle connection. Safety-related equipment located in the area are designed to function in a spray environment and redundant equipment is physically separated so that spray from one rupture cannot impact both trains.

ATTACHMENT 2

ANO-2

2. The following items apply to the portions of the RCS vents that form a part of the reactor coolant pressure boundary, up to and including the second normally closed valve (reference NUREG-0737, Item 11.B.1, Clarification A.(7)):
 - c. Demonstrate that internal missiles and the dynamic effects associated with the postulated rupture of piping will not prevent the essential operation of the RCS vents (i.e., at least one vent path remains functional) (reference Appendix A to 10 CFR Part 50, General Design Criterion 4).

Response:

Redundant vent paths from a single vent point are not required (reference NUREG-0737, Item 11.B.1, Changes to Previous Requirements and Guidance (4)), but a degree of redundancy is provided by having one RCS vent from the reactor vessel head and one from the pressurizer. Both these vent paths connect to a distribution header which will allow the gasses to be directed to either the quench tank or the containment atmosphere. The piping is arranged so that a single missile strike can only incapacitate one vent or one vent path. Either the vent from RV head or pressurizer and/or the vent path to the quench tank or the containment atmosphere will remain operable for RCS venting.

As indicated in FSAR Section 3.6.2.2, "No breaks were postulated in piping having a nominal diameter less than or equal to one inch." A flow limiting orifice is installed in each RCS vent line which will limit the flow to less than that defined for LOCA.

3. Verify that the following RCS vent failures have been analyzed and found not to prevent the essential operation of safety-related systems required for safe reactor shutdown or mitigation of the consequences of a design basis accident.
 - b. Postulated missiles generated by failure of RCS vent components.

Response:

The RCS vent valves were evaluated and were not considered credible missiles as described in FSAR Section 3.5.2.3.2. These valves are of the welded bonnet type featuring screwed bonnets and backseats.

- c. Fluid sprays from RCS vent component failures. Sprays from normally unpressurized portions of the RCS vents that are Seismic Category 1 and Safety Class 1, 2 or 3 and have instrumentation for detection of leakage from upstream isolation valves need not be considered.

Response:

Leak detection of the RCS vent valves is accomplished by monitoring the pressure of the distribution header between the vent valves on the RV head and the pressurizer and the vent discharge valves to the quench tank and the containment atmosphere. The pressure is both indicated and alarmed in the control room.

Piping failures of high energy piping having a nominal diameter less than or equal to one inch were not postulated. However, any fluid spray from a rupture in the piping upstream of the RCS vent valves would be limited by the flow restricting orifices installed in the vent line near the nozzle connections. The safety-related instrumentation located in the area are designed to function in a spray environment.