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April 15, 1983

Director of Nuclear Reactor Regulation
Attention: Mr. John F. Stolz, Chief
Operating Reactors Branch No. 4
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

NRC DOCKETS 50-321, 50-366
OPERATING LICENSES DPR-57, NPF-5
EDWIN I. HATCH NUCLEAR PLANT UNITS 1, 2
NUREG-0737 ITEM II.K.3.28 - VERIFY QUALIFICATION OF
ACCUMULATORS ON AUTOMATIC DEPRESSURIZATION SYSTEM VALVES

Gentlemen:

By your letter of February 8, 1983, Georgia Power Company (GPC) was requested to provide additional information to enable the NRC staff to complete its review of the subject NUREG-0737 item. Our response to this request is attached as Enclosure 1.

Please contact this office if there are any questions.

Very truly yours,

J. T. Beckham, Jr.

JH/mb

Enclosure

xc: (all w/ encl)
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ENCLOSURE 1

ADDITIONAL INFORMATION REGARDING NUREG 0737 ITEM II.K.3.28 QUALIFICATION OF ACCUMULATORS ON AUTOMATIC DEPRESSURIZATION SYSTEM VALVES

The NRC (J.F. Stolz) letter to Georgia Power Company (J.T. Beckham, Jr.) dated February 8, 1983 requested additional information to enable the NRC staff to complete its review of NUREG 0737 Item II.K.3.28. For the purpose of responding to this letter the following definitions are made:

An ADS accumulator system is defined as an ADS Safety/Relief Valve (SRV), its solenoid-operated control valves and circuits, its accumulator, the accumulator drain valve, the check valve at the inlet to the accumulator, the interconnecting piping, and the supports for these components. A schematic diagram of an ADS accumulator system is provided as Figure 1. There are seven of these systems in each of the Hatch Units.

Backup system is defined as the Nitrogen System which supplies the ADS accumulator systems.

Modifications to improve the backup system are currently in progress at Plant Hatch Units 1 and 2; however, credit for these improvements is not taken in the following responses:

Item 1

Define the basis for the allowable leakage criteria for the ADS accumulator system (e.g., boundary conditions, environmental, and seismic parameters, operator interface, margin, etc.).

Response to Item 1

The ADS accumulators are sized to provide at least two ADS S/RV actuations with the drywell at 70% of its design pressure. The allowable leakage criteria ensures this capability for up to 1/2 hour following loss of the pneumatic supply to the accumulators.

Actuation of the ADS valves is automatic; however, actuation of ADS or of any S/RV can be accomplished manually if necessary.

The following margins are included in the Hatch ADS design:

The accumulators are sized to provide at least two actuations of each of the seven ADS valves during the first 1/2 hour following loss of the pneumatic supply to the accumulators; only one actuation of any three ADS valves is needed for depressurization.

The allowable accumulator system leakage rate to be proposed for inclusion in Technical Specifications is based on the drywell being at 70% of its design pressure or 43.4 PSIG. This drywell pressure results from the largest break for which ADS would be needed. As further mitigation, in accordance with the Hatch Mark I Containment Long Term Program and the BWR Owners Group Emergency Procedures Guidelines, the operator will be directed to either depressurize the vessel by use of the S/RVs or take action to reduce drywell pressure if the pressure were to exceed 17 PSIG. This action will limit the rise in drywell pressure due to the break and will effectively extend the accumulator availability because a lower accumulator pressure will be adequate to actuate an ADS valve. For example, if the drywell pressure is limited to 33.4 PSIG, accumulator availability would be extended to more than one hour.

Seismic and environmental parameters are addressed in the responses to Items 2,3,12, and 13.

Item 2

What margin is in the allowable leakage criteria to account for possible increase in leakage resulting from the effects of a harsh environment and/or a seismic event.

Response to Item 2

The ADS accumulator systems are designed to Seismic category I requirements. The check valves are soft-seated, spring loaded piston type valves which were specified for the harsh environment. There is no known mechanism for either a seismic event or a harsh environment to increase leakage from these systems. We believe the margin discussed in the response to Item 1 is sufficient to handle any uncertainties in this regard.

Item 3

A statement that test and/or analysis performed verified that a harsh environment and/or a seismic event would not increase the leakage rate.

Response to Item 3

The applicable components were procured to meet seismic and environmental qualification criteria which included appropriate testing.

Item 4

A statement that verifies that no credit was taken for non-safety related equipment and instrumentation when establishing the allowable leakage criteria.

Response to Item 4

No credit was taken for non-safety related equipment and instrumentation when establishing the allowable leakage criteria.

Item 5

Define the periodic leak testing of the ADS accumulator system (i.e., the time interval between these leak tests, along with a concise description of the test procedure employed).

Response to Item 5

Leak tests will be performed on all ADS accumulator systems at least once per operating cycle following adoption of the Technical Specifications described in the response to Item 11. The leak test first requires venting of the pneumatic supply header upstream of check valve F036 (Refer to Figure 1). A test pneumatic supply is then applied at the accumulator drain valve (F076). The makeup flow required to maintain the accumulator system pressure is measured in order to determine the total assembly leakage rate. Since the accumulator drain valve is normally closed and capped, leakage through the valve seat and cap will not be tested.

Item 6

Provide a concise description of the design and operation of the backup system and confirm that it will meet the overall requirements of the ADS system.

Response to Item 6

Georgia Power Company's interpretation of the overall requirements of the ADS system was provided in our December 30, 1981 submittal. Also in that submittal was a description of the design and operation of the backup system and confirmation that it met those requirements.

Item 7

A concise description of the alarms and instrumentation associated with the ADS accumulator system and backup system, if applicable.

Response to Item 7

There are no alarms or instrumentation directly associated with an ADS accumulator system. Low pressure and high pressure alarms are provided in the pneumatic header which supplies the ADS accumulator systems to alert the operator if the accumulators are not being properly charged.

Item 8

A concise description of the tests performed on the backup system and their frequency.

Response to Item 8

Functional testing will be performed on all active components of the backup system during every refueling outage.

Item 9

A concise description of the surveillance performed, and how frequent, on alarms associated with the ADS accumulator system and backup system, if applicable.

Response to Item 9

There are no alarms directly associated with an ADS accumulator system. The high and low pressure alarms in the backup system will be functionally tested and calibrated during every refueling outage.

Item 10

A statement that test and/or analysis have verified that leakage will not prevent the ADS from performing as required.

Response to Item 10

An analysis has been performed to determine the maximum allowable accumulator system leakage to ensure ADS valve operability per the criterion provided in the response to Item 1. Leakage less than or equal to this allowable will not prevent the ADS from performing as required.

Item 11

Excerpts from the plants technical specification, verifying that they specify the following:

ADS leak test frequency

Allowable leakage rate

Actions to be taken, in a specified time frame, should the allowable leakage rate be exceeded.

Response to Item 11

Plant Hatch Technical Specifications are being revised to require the following during every refueling outage:

ADS accumulator leak rate testing

Allowable leakage rate of 4.5 SCFH

Repairs to bring the leakage rate within the allowable range before plant startup

Item 12

A statement that confirms that the ADS accumulator system, associated equipment and control circuitry, and backup system, if applicable, are seismically qualified.

Response to Item 12

ADS accumulator systems and the backup system are designed to Seismic Category I criteria.

Item 13

A statement that confirms that the ADS accumulator system and associated equipment and control circuitry are qualified to accomodate the effects of and are compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents as stated in General Design Criteria 2 and 4 of Appendix A of 10CFR50.

Response to Item 13

The ADS accumulator systems are qualified to accomodate the effects of, and are compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents as stated in General Design Criteria 2 and 4 of Appendix A to 10CFR50. The electrical components in the ADS accumulator systems are included in the I&E Bulletin 79-01B qualification program.

Item 14

A statement verifying that the ADS valves, accumulators, associated equipment and instrumentation are capable of performing their function during and following an accident situation while taking no credit for non-safety related equipment and instrumentation.

Response to Item 14

The ADS accumulator systems are capable of performing their function during and following an accident situation while taking no credit for non-safety related equipment and instrumentation.

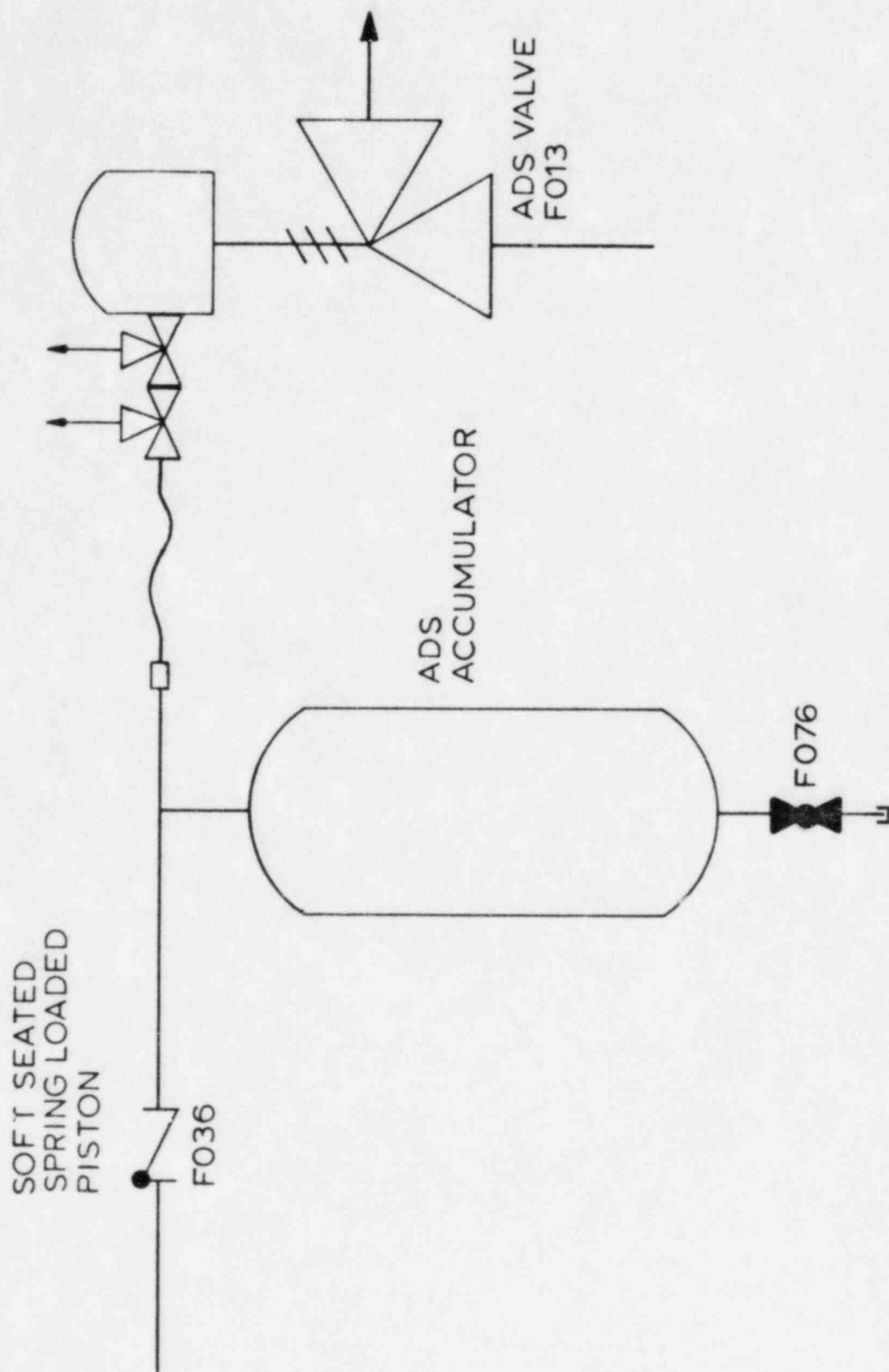


FIGURE 1
ADS VALVE ACCUMULATOR SYSTEM
(TYPICAL)