

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 SCHWENCER,A. Operating Reactors Branch 1

SUBJECT: Forwards addl info re containment purge & venting sys per  
 NRC 800109 ltr.Discusses air flow path through purge valves.  
 Isolation function of purge & venting sys confirmed &  
 closing times checked.No seal leakage.

DISTRIBUTION CODE: A034S COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 4  
 TITLE: Containment Purging

NOTES:

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	05 BC <b>ORB#1</b>	7	7			
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	12 T&E	2	2	15 CORE PERF BR	1	1
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EXTERNAL:	03 LPDR	1	1	04 NSIC	1	1
	25 ACRS	16	16			

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Carolina Power & Light Company

February 22, 1980

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Office of Nuclear Reactor Regulation  
Attention: Mr. Albert Schwencer, Chief  
Operating Reactors Branch No. 1  
United States Nuclear Regulatory Commission  
Washington, D. C. 20555

H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2  
DOCKET NO. 50-261  
LICENSE NO. DPR-23  
REQUEST FOR ADDITIONAL INFORMATION FOR CONTAINMENT  
PURGE SYSTEM AND CONTAINMENT VENTING SYSTEM

Dear Mr. Schwencer:

In your letter of January 9, 1980, you requested additional information to continue your long term review of Purging and Venting During Operations. These items are addressed in the attached enclosure in the order presented by Enclosure I of your letter.

Very truly yours,

E. E. Utley  
Executive Vice President  
Power Supply and Customer Services

EEU/jc (3546)  
Attachment

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### Enclosure

- a. Discuss the provisions made to ensure that isolation valve closure will not be prevented by debris which could potentially become entrained in the escaping air and steam.

#### RESPONSE

The air flow path through the Containment Purge Valves is as follows:

1. Air through the inlet to containment goes through a diffuser containing six-inch openings to disperse the air evenly. In case of a pressure buildup in containment, this diffuser would act as a missile barrier to prevent large debris from entering the valve ducting. In addition, the redundancy of the two valves in series eight feet apart with Penetration Pressurization System (PPS) air supplied between at closure further minimizes the probability of valve inoperability due to debris.
2. The air to the outlet purge valves is through the HVH units discharge header ducting and is protected at each inlet/outlet from this header by a diffuser with similar openings and valve configuration as the purge inlet discussed in Item 1.

The Containment Vent Valves (Vacuum and Pressure Relief) are six-inch size. Because of their size, it is believed that sufficient mass flow of air and steam would not exist in their vicinity to create a debris problem. In the unlikely event that debris did enter the valve, the two valve configuration PPS being supplied between them on closure should assure closure of the penetration.

In addition, purge and vent openings inside containment are located several feet above the floor and in relatively open areas. Thus, their location minimizes the potential for debris near their openings. Therefore, although screens or other devices specifically for debris are not provided, other provisions as discussed above are believed sufficient to assure valve closure.

- b. Discuss the provisions made for testing the availability of the isolation function and the leakage rate for the isolation valves, individually, during reactor operation.

#### RESPONSE

The isolation function of the Containment Purge System and Venting system are confirmed and the closing times checked and recorded on the ISI test, number CPL-PI-42.0. This test is conducted at cold shutdown conditions when more than three months have lapsed since the last test and in any event, at refueling intervals.

The leakage rate of the isolation valves is constantly monitored by the Penetration Pressurizer System (PPS) during power operation, and would alarm in the control room in the event of significant valve leakage (.5 scfm).

- c. Provide an analysis to demonstrate the acceptability of the provisions made to protect structures and safety-related equipment; e.g., fans, filters, and ductwork, located beyond the purge system isolation valves against loss of function from the environment created by the escaping air and steam.

RESPONSE

There are no provisions needed to provide additional protection for structures and equipment located beyond the purge system isolation valves in the ventilation ductwork path since none of this equipment in that path is required for safe shutdown. Its primary purpose is for the normal operation of containment purging. Its sole safety related purpose is for containment air purging during reactor refueling operations.

- d. For the containment purge isolation valves, specify the differential pressure across the valve for which the maximum leak rate occurs. Further, provide test results (e.g., from vendor tests of leakage rate versus valve differential pressure) which support the above information.

RESPONSE

Original test conducted by the valve manufacturer and operating experience over a nine-year period verify these valves have zero leakage when properly maintained. The original test data shows no seal leakage when tested at 50 PSI differential.

No leakage is also assured by the PPS pressure of 46 PSI on the interspace between the valves as discussed in "Item b" response.

- e. In your October 1, 1979 submittal, the impact of open purge valves on ECCS performance was evaluated assuming a 2.7 second valve closure time. The valve closure times assumed in these evaluations should be based upon Technical Specification limits. Therefore, propose a Technical Specification which will limit the time required for the purge and vent isolation valves to close. This specification should reflect the action to be taken if the valves fail to close in the specified time during normal operability tests. A testing frequency should also be specified for these valves. If necessary, your ECCS evaluation should be resubmitted using this specified closure time and accounting for the time delay between the initiation of a postulated LOCA and the initiation of valve closure.

RESPONSE

The assumed 2.7 seconds was chosen as the longest postulated time for the isolation function of the purge and vent valves to be completed. There are indications from the preliminary information of the radiological consequences that the maximum operating position of the purge valves may be an additional restriction to assure the valves ability to function under accident conditions.

For this reason, we will defer submission of request for a Technical Specification change until all the evaluations are completed and the qualifications and requirements are completely reviewed. The present analysis schedule should permit us to complete this review and submit an appropriate license amendment request during April.