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Nuclear Business Unit

AUG 09 1996

LR-N96211

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

**RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION
DRYWELL TO SUPPRESSION CHAMBER VACUUM BREAKER TEST SCHEDULE
HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
DOCKET NO. 50-354**

The purpose of this letter is to provide additional information relative to the Drywell to Suppression Chamber Vacuum Breaker Test Schedule. This letter provides the responses to questions that were discussed during a teleconference between PSE&G and the NRR Hope Creek Project Manager on June 20, 1996.

Attachment 1 of this letter contains the questions asked by the NRC, along with PSE&G's responses. This information supports the previously submitted test schedule. The trending program that has been put into place will enable future failures to be predicted. PSE&G believes that had this trending program been put into place previously, the prior failures could have been predicted and prevented.

Should you have any questions or comments on this transmittal, do not hesitate to contact us.

Sincerely,

David R. Powell
Manager -
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Attachment

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The power is in your hands.

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ATTACHMENT 1

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION
HOPE CREEK GENERATING STATION
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NRC QUESTION I.A:

Where is the testing described in the UFSAR and how did previous testing differ?

PSE&G Response:

The Drywell to Suppression Chamber Vacuum Breaker testing requirements are described in UFSAR Section 6.2.6.5, "Special Testing Requirements." This section specified the following:

- * The valve and system orientations are the same as those for the Type A test, except that any open paths equalizing drywell and suppression chamber pressure during the Type A test are closed.
- * The drywell atmosphere is allowed to stabilize for 1 hour after attaining test pressure.
- * The leakage rate is calculated from pressure and temperature data, taking elapsed time into account.

During the surveillance tests that were conducted prior to and including the November 10, 1995 surveillance, a pressure decay test methodology was utilized. However, the above three UFSAR requirements were not met.

An UFSAR Change Notice has been generated in accordance with 10CFR50.59 and has been approved by Hope Creek. This Change Notice removed the requirement for the Type A test valve and system orientations and removed the type of test method. However, it retained the stabilization period and the temperature calculation requirements.

The basis for this change was that the change reduces the extent of the containment isolation that is required to perform an accurate leak rate measurement of the leakage through the vacuum relief valves between the Drywell and the Suppression Chamber. Any system that penetrates the Drywell or Suppression Chamber, and has the capability to produce volumetric or temperature changes must be controlled to obtain valid test results. Systems such as Residual Heat Removal and Drywell Chilled Water would be required to be in service to provide temperature stability over the test duration.

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In addition, the surveillance procedure has been revised to incorporate a bypass leakage methodology and to perform the surveillance test in accordance with the revised UFSAR.

NRC QUESTION I.B:

What did the review of previous test data reveal?

PSE&G Response:

During the past surveillance tests, the three UFSAR requirements discussed above were not met. The System Manager reviewed the previous tests and determined that the Drywell ventilation system provides adequate air volume mixing through fixed fan and coil system configuration during the performance of the test; no transients that could have non-conservatively affected the results occurred during any of the tests; and there were no changes in the system configuration during any of the tests. Therefore, no significant temperature changes would have occurred over the 10 minute test period.

NRC QUESTION I.C:

Confirm that LER 92-006 is the only previous report of failures.

PSE&G Response:

The previous Suppression Chamber to Drywell Vacuum Breaker surveillances were reviewed. The failure reported in LER 92-006 is the only failure prior to LER 95-031. Following the failure reported in LER 92-006, PSE&G submitted letter NLR-N92076, which established a test schedule. The NRC provided its concurrence with this schedule by letter dated July 2, 1992.

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NRC QUESTION II.A:

What was the cause of the failures reported in LER 95-031?

PSE&G Response:

The cause of the equipment failures was misalignment of the pallet to its valve body. Evidence of this was shown in the 'C', 'F', and 'H' valves where the seal was not centered on its body. In the case of the 'C' and 'H' valves, test pressure (0.8 psid) could be achieved, but not maintained, in the test stand. These valves were repaired by replacing the seals, making valve pallet to pivot block adjustments to re-center the pallet, and drilling new pivot block holes to maintain the pallet centered in a stress free condition.

The 'F' valve could not achieve test pressure in the test stand. Upon disassembly of the pallet, one of the hinge bolts broke, providing indication that the valve was misaligned and in a stressed condition. The 'F' valve pallet was re-centered on its valve body, re-assembled with new pivot block holes drilled, and successfully retested prior to being placed back onto the ring header.

When LER 95-031 was submitted on December 11, 1995, PSE&G suspected that the 'G' valve was a major contributor to the surveillance test failure. This was due to the results of a qualitative "paper test." However, the surveillance test that was conducted on the 'G' valve while it was in the test stand proved the valve to be satisfactory.

NRC QUESTION II.B:

Is there any commonality with the LER 92-006 failures?

PSE&G Response:

There is commonality between the 1992 and 1995 failures with regard to the 'F' and 'H' valves. As described in LER 92-006, these valve pallets were found misaligned, and the alignment pins for the hinge arm were found sheared upon disassembly. Corrective actions in 1992 included replacement of the hinge alignment pins, and adjustment of the pallet to achieve proper sealing. PSE&G believes that the new pivot block holes will remove the stress on the pallet and resolve the issue.

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NRC QUESTION III.A:

When was the final testing conducted?

PSE&G Response:

The testing was performed satisfactorily on March 13, 1996.

NRC QUESTION III.B:

What were the test results?

PSE&G Response:

0.04 inches of water per minute for a 10 minute period.

NRC QUESTION III.C:

What were the acceptance criteria?

PSE&G Response:

0.24 inches of water per minute for a 10 minute period.

NRC QUESTION IV:

Does the current surveillance test require a shutdown?

PSE&G Response:

The current surveillance test procedure is required to be performed in OPERATIONAL CONDITION 4, (COLD SHUTDOWN).

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NRC QUESTION V:

Describe the trending program for future testing.

PSE&G Response:

A procedural step was added to forward the completed procedure to the System Manager for review and trending of test results. The System Manager is expected to evaluate the data within 72 hours of test result receipt. This will allow the System Manager to examine the leak rate versus test data, extrapolate the information for the next 18 months, and recommend valve repairs or inspections, if necessary, at the beginning of a refuel outage. Corrective maintenance will be performed on individual valves as required.

The purpose of the trending program is to be able to predict if the vacuum breakers will successfully perform their safety function over the next operating cycle. A review of the results of the surveillances prior to the last failure indicates that a step change in each consecutive set of test results existed (see chart below). If the trending program had been implemented, the failure could have been predicted and corrective actions implemented to preclude the failure.

DATE	RESULTS
5/30/92	0.03
11/3/92	0.08
3/4/94	0.15