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U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555-0001

Edwin I. Hatch Nuclear Plant  
Response to Request for Additional Information on a Technical Specifications Revision  
Request on Surveillance Requirements for Leak Testing on Containment Purge Valves

Ladies and Gentlemen:

Enclosed are SNC responses to the staff's Request for Additional Information (RFAI) concerning the Technical Specifications revision request for Surveillance Requirements (SR) 3.6.1.3.11 and 3.6.1.3.12 on Hatch Units 1 and 2, respectively. These SRs currently require the replacing the valve seats of the eighteen inch containment purge valves every 24 months.

The RFAI was received via facsimile transmission on March 4, 2005.

This letter contains no NRC commitments. If you have any questions, please advise.

Sincerely,

A handwritten signature in cursive script that reads "H. L. Sumner, Jr.".

H. L. Sumner, Jr.

HLS/OCV/daj

Enclosure: Response to Request for Additional Information

cc: Southern Nuclear Operating Company  
Mr. J. T. Gasser, Executive Vice President  
Mr. G. R. Frederick, General Manager – Plant Hatch  
RTYPE: CHA02.004

U. S. Nuclear Regulatory Commission  
Dr. W. D. Travers, Regional Administrator  
Mr. C. Gratton, NRR Project Manager – Hatch  
Mr. D. S. Simpkins, Senior Resident Inspector – Hatch

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## Enclosure

### Edwin I. Hatch Nuclear Plant – Units 1 and 2 Response to Request for Additional Information on Appendix J Leak Rate Test Technical Specifications Change Request

In the letter dated August 23, 2004, Southern Nuclear Operating Company (SNC) proposes to amend the Edwin I. Hatch Plant, Units 1 and 2 (Hatch) technical specifications (Surveillance Requirements (SR) 3.6.1.3.11 for Unit 1 and SR 3.6.1.3.12 for Unit 2, and their associated technical specifications bases). The proposal would revise technical specifications for containment purge valves with resilient seats by eliminating these SRs for replacing the valve seats. Instead, a Title 10 of the *Code of Federal Regulations (10 CFR)*, Part 50, Appendix J leakage rate test for containment purge valves would be performed every 30 months (i.e., every refueling outage). As a result of the Nuclear Regulatory Commission staff's review, the RAI is as follows:

#### NRC Question:

In Enclosure 1 to August 23, 2004, submittal, you have provided test history of 22 similar design, resilient seat, butterfly valves at Hatch showing that a total of 385 as-found leakage tests have been performed with 68 tests failing to meet the administrative leakage limit (i.e., failure rate of 17.7%). You also stated that the total of 68 as-found local leak-rate test (LLRT) failures include 23 seat-related failures and 19 failures with an unknown cause. You have concluded that since Hatch has been replacing the valve seats on an 18 to 48-month interval for most of these valves since the mid-1980s, a review of the Hatch work order records did not identify any failures that were attributable to aging-induced seat degradation.

Additionally, you have also stated that the Hatch data is different from the other boiling water reactor (BWR) experience in that the routine seat replacement interval is much shorter for Hatch than the other plants (18 to 48 months versus 72 to 120+ months), and the failure rate is much greater (17.1% versus 0.6% to 5.4%). Therefore, you state that the increased maintenance frequency associated with seat replacements at Hatch Plant correlates to an increased as-found LLRT failure rate.

Based upon the review of your submittal you have stated that increased maintenance frequency is responsible for the testing failure rate. Provide a discussion of the underlying causes that were identified for the testing failures and discuss the corrective actions associated with those failures.

#### SNC Response:

SNC is requesting a change in the mandate to perform preemptive maintenance on leak rate valves that pass the As-Found leak rate test. The failures of the As-Found leak rate test will continue to be repaired. The industry data for containment isolation valves (NUREG-1493 and Enclosure 1 to the August 23, 2004 submittal) demonstrates that excessive preemptive maintenance increases the failure rate on valves.

The cause of the Plant Hatch testing failures has varied for each case. The causes include issues such as a pinched seat, a slipped set screw, a failed packing o-ring, and excessive preemptive maintenance.

Several corrective actions have been implemented to improve the test performance of these valves. These actions included changes to part storage, modified seat ring manufacture, and

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modified seat material from a 5 year life to a 60 year life material. These actions are summarized in the Plant Specific Data of Enclosure 1 to the August 23, 2004 submittal.

The initial Staff concern that led to the increased seat replacements was aging of the soft seat material. The industry data has shown that the failure of large soft seat butterfly valves due to material aging is not a significant factor. SNC has further reduced the risk of seat aging failures in these valves by switching to a material that has a significantly improved life. Finally, the failure rates for containment isolation valves have been reviewed by the Staff in NUREG-1493. The Staff determined that the evaluated failure rates and longer leak rate intervals do not have a significant impact on reactor accident risk. Therefore, it is SNC's position that the requested Technical Specification amendment is acceptable and will result in fewer leak rate failures for these valves.

#### NRC Question:

You have concluded in Enclosure 1 to your August 23, 2004, submittal that the technical justification for revising the surveillance frequency of containment purge valves with resilient seats is based on the results from a total of 2457 tests, conducted from 1973 to 2003, that validates the frequency allowed by 10 CFR Part 50 Appendix J, Option B, and Regulatory Guide 1.163, and shows that the additional actions to assure function based on IE Circular 77-11 are not warranted. You have further concluded that this operating experience has shown that for well-maintained butterfly valves with resilient seats, used with a stable environmental and operating conditions, the 30-month leakage rate test interval is sufficiently frequent.

Considering that Hatch's as-found LLRT failure rate exceeded that of other BWR's as evidenced by the operating experience data, provide further justification for your proposal to relax Hatch's testing interval from 24 to 30 months.

#### SNC Response:

Comparisons of operating experience data may not be totally consistent since different plants have different leak rate acceptance criteria, and Plant Hatch's criteria are very stringent. SNC could change the acceptance criteria, however, there is little incentive to do so since the valve seats that pass As-Found leak rate testing are replaced anyway. Furthermore, the requested change in Enclosure 1 of the August 23, 2004 submittal is being made to be consistent with Regulatory Guide 1.163, and therefore does not represent a relaxation from established industry norms. Regulatory Guide 1.163 states that the test frequency for containment purge and vent valves in PWR's and BWR's should be limited to 30 months, with consideration given to operating experience and safety significance.

Under Appendix J, Option B, if a valve fails its as-found test, it shall be tested at a frequency of at least once per 30 months, until adequate good performance has been established. In the case of purge and vent valves the frequency would remain at 30 months.

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SNC is essentially requesting two things. One, to be relieved of the requirement to disassemble and reassemble a valve that is OPERABLE, and two, that the containment purge valves with resilient seat materials be placed on the same footing as the rest of the containment valves and on par with existing industry norms.

Hatch is currently on a 24 month refueling interval, and tests these valves during refueling outages. The practical effect of this is that the 24 month and 30 month intervals are essentially the same. The valves would realistically be tested at a frequency of 24 months.

In summary, 10 CFR 50 Appendix J, Option B presently allows purge and vent valves to be tested at an interval of up to once every 30 months. If a purge or vent valve were to fail its as-found leak test, the testing periodicity would remain the same at every 30 months.