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March 11, 2002

Docket Nos. 50-321
50-366

HL-6208

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

Edwin I. Hatch Nuclear Plant
Response to Requests for Additional Information on
Technical Specification Change Request:
Excess Flow Check Valve Surveillance Requirements (EFCV)

Ladies and Gentlemen:

Attached you will find responses to your questions concerning our request for a Hatch Unit 1 and Unit 2 Technical Specifications (TS) change on Excess Flow Check Valve Surveillance Requirements. The TS change request was originally submitted to you on September 19, 2001. Also attached are Unit 1 and Unit 2 Bases pages which have changed to include a reference to NEDO-32977-A. This is in response to one of your questions.

Your questions were transmitted to us via electronic correspondence on January 16, 2002. We responded, also electronically, on February 14, 2002. This correspondence does not change any of those earlier responses. It only serves to place them on the docket.

Mr. H. L. Sumner, Jr. states he is Vice President of Southern Nuclear Operating Company and is authorized to execute this oath on behalf of Southern Nuclear Operating Company, and to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

Lewis Sumner

H. L. Sumner, Jr.

Sworn to and subscribed before me this 11th *day of* March *2002.*

Jan C. Edge
Notary Public

Commission Expiration Date: 07/27/05

OCV/eb

Attachments:
1. NRC Questions and SNC Responses
2. Changed Bases Pages

A-001

cc: Southern Nuclear Operating Company
Mr. P. H. Wells, Nuclear Plant General Manager
SNC Document Management (R-Type A02.001)

U.S. Nuclear Regulatory Commission, Washington, D.C.
Mr. L. N. Olshan, Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II
Mr. L. A. Reyes, Regional Administrator
Mr. J. T. Munday, Senior Resident Inspector - Hatch

Attachment 1

Edwin I. Hatch Nuclear Plant
Response to Requests for Additional Information on
Technical Specification Change Request:
Excess Flow Check Valve Surveillance Requirements (EFCV)

NRC Questions

1. Confirm the number of EFCVs installed in Unit 1.

2. Identify the refueling outage dates used for data collection for Unit 1.

3. Identify the refueling cycles that experience EFCV failures.

4. The submittal identified that EFCV failures will be documented in the licensees corrective action program. However, the minimum performance criteria was not identified. Provide the minimum performance criteria established for EFCV performance.

5. A review of the bases indicates that GE topical report NEDO-32977-A is not referenced as the basis for the proposed changes to EFCV surveillance intervals.

6. The EFCV failures (failures to check flow) noted in the licensee's submittal are relatively high compared to the EFCV failures per plant listed in topical report NEDO-32977-A. Provide additional EFCV data approximately 10 years) including the most recent outage to provide additional insights into EFCV performance. Provide a discussion on the applicability of topical report NEDO-32977-A to Plant Hatch based on plant specific EFCV performance. Integrate responses with questions 2 and 3.

Attachment 1
Response to Requests for Additional Information on
Technical Specification Change Request:
Excess Flow Check Valve Surveillance Requirements (EFCV)

SNC Responses

Response to Question # 1:

There are a total of 87 EFCVs on Unit 1, and a total of 87 EFCVs on Unit 2.

Response to Question #4:

As stated in our original submittal, any EFCV that fails to check flow in its surveillance test will be documented in the Hatch corrective action program as a surveillance test failure. EFCV valve failures that are repaired but not replaced will be included in the next surveillance. Additionally, performance criteria will be established to ensure EFCV reliability. The criteria will be less than or equal to two maintenance preventable functional failures (MPFFs) per cycle (18 months or 24 months). There will also be an additional criteria of less than or equal to two consecutive test failures.

Response to Question #5:

The Topical report is not referenced in the generic change (TSTF-334). Nonetheless, the appropriate bases page will be revised to include the reference to the Topical Report. A published version is included in this attachment.

Response to Questions # 2,#3, and #6:

For the period from 1990 to 1999 no further failures were discovered beyond those already reported under the original submittal. However, the September 2000 outage on Unit 1 did result in one failure, and the March 2000 outage for Unit 2 resulted in one failure. No failures were reported for the September 2001 Unit 2 outage.

Summarizing, from 1990 to the present, we have four Unit 2 failures and two Unit 1 failures.

The topical report (page 14, Table 4-1) provides EFCV failure rate data for twelve plants which participated in the original Owner's Group activity. The amount of time over which the EFCV data was reported varied from 8.8×10^5 hours to 2.03×10^7 hours. As pointed out in our plant specific submittal, (Hatch was not a participating member of the original BWROG committee) the operating time over which our EFCV failure data was taken was 3.43×10^6 hours for each unit. This is comparable to the operating time histories in the GE Topical report.

The specific Hatch failure rate study for the original submittal was performed over a span of three refueling outages for each unit. For Unit 1, March, 1996, September, 1997 and March, 1999 were the outages researched. For Unit 2, they were: September 1995, March 1997, and September 1998. Concerning the actual number of failures listed in the Topical report, the numbers varied from zero to four for the originally participating plants. Seven utilities reported

no failures, two reported one failure, one reported two failures, one reported three failures, and one reported four failures. At Hatch, three failures were reported for Unit 2; two during the September 1998 outage and the other on March of 1997. One failure was reported on Unit 1, occurring during the September 1997 outage. The Unit 2 number is on the high side of the failures reported in the topical report, but both Unit 1 and 2 are within the range of the numbers in the Topical report. The best estimate failure rates and the upper limit failure rates for Units 1 and 2, though higher than the composite, are also within the range of reported failure rates. So the Hatch failure numbers and rates are within the bounds of the Topical report. Therefore, with respect to EFCV performance, we believe the conclusions of the Topical report are applicable to Hatch.

The Topical report summary states, "...demonstrated experience of valve reliability, coupled with low consequences of excess flow check valve failure, provide justification for extending the test interval up to once in ten years." Although the Unit 2 failure rates may be on the high side when compared with the other plants listed in the report, this is a relative high failure rate. All utilities represented in the table, including Hatch 1 and 2, show a low failure rate throughout the reported operating histories.

Additionally and as mentioned in our original submittal, Dragon and Marotta are the valve manufacturers for Unit 1 and 2 respectively. Both valves are well represented in the Topical report with four of the twelve utilities using Marotta valves and three using Dragon valves. So with respect to the type of valve used at Hatch, we also believe the Topical report is applicable to Hatch Units 1 and 2.

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Changed Bases Pages

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.8

This SR requires a demonstration that each reactor instrumentation line excess flow check valve (EFCV) (of a representative sample) is OPERABLE by verifying that the valve reduces flow to within limits on an actual or simulated instrument line break condition. (The representative sample consists of an approximately equal number of EFCVs, such that each EFCV is tested at least once every 10 years [nominal]. In addition, the EFCVs in the sample are representative of the various plant configurations, models, sizes, and operating environments. This ensures that any potentially common problem with a specific type of application of EFCV is detected at the earliest possible time.) This SR provides assurance that the instrumentation line EFCVs will perform as designed. The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass this Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint. (The nominal 10 year interval is based on performance testing as discussed in NEDO-32977-A, "Excess Flow Check Valve Testing Relaxation" (Ref. 7). Furthermore, any EFCV failures will be evaluated to determine if additional testing in that test interval is warranted to ensure overall reliability is maintained. Operating experience has demonstrated that these components are highly reliable and that failures to isolate are very infrequent. Therefore, testing of a representative sample was concluded to be acceptable from a reliability standpoint.) Any excess flow check valve that fails to check flow during its surveillance test will be documented in the Hatch corrective action program as a surveillance test failure. The failure will be evaluated and corrected and, if the valve is repaired and not replaced, it will be added to the next cycle's surveillance.

SR 3.6.1.3.9

The TIP shear isolation valves are actuated by explosive charges. An in place functional test is not possible with this design. The explosive squib is removed and tested to

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.9 (continued)

provide assurance that the valves will actuate when required. The replacement charge for the explosive squib shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of the batch successfully fired. The Frequency of 18 months on a STAGGERED TEST BASIS is considered adequate given the administrative controls on replacement charges and the frequent checks of circuit continuity (SR 3.6.1.3.4).

SR 3.6.1.3.10

The analyses in References 1 and 3 are based on leakage that is less than the specified leakage rate. Leakage through each MSIV must be $\leq$ 11.5 scfh when tested at $\geq$ 28.0 psig.

The Frequency is required by the Primary Containment Leakage Rate Testing Program (Ref. 6).

SR 3.6.1.3.11

The valve seats of each 18 inch purge valve (supply and exhaust) having resilient material seats must be replaced every 18 months. This will allow the opportunity for repair before gross leakage failure develops. The 18 month Frequency is based on engineering judgment and operational experience which shows that gross leakage normally does not occur when the valve seats are replaced on an 18 month Frequency.

SR 3.6.1.3.12

The Surveillance Requirement provides assurance that the excess flow isolation dampers can close following an isolation signal. The 18 month Frequency is based on vendor recommendations and engineering judgment. Operating experience has shown that these dampers usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

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BASES (continued)

REFERENCES

1. FSAR, Section 14.4.

2. Technical Requirements Manual

3. FSAR, Section 5.2.

4. 10 CFR 50, Appendix J, Option B.

5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

6. Primary Containment Leakage Rate Testing Program.

7. NEDO-32977-A, "Excess Flow Check Valve Testing Relaxation."

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.8

This SR requires a demonstration that each reactor instrumentation line excess flow check valve (EFCV) (of a representative sample) is OPERABLE by verifying that the valve reduces flow to within limits on an actual or simulated instrument line break condition. (The representative sample consists of an approximately equal number of EFCVs, such that each EFCV is tested at least once every 10 years [nominal]. In addition, the EFCVs in the sample are representative of the various plant configurations, models, sizes, and operating environments. This ensures that any potentially common problem with a specific type of application of EFCV is detected at the earliest possible time.) This SR provides assurance that the instrumentation line EFCVs will perform as designed. The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass this Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint. (The nominal 10 year interval is based on performance testing as discussed in NEDO-32977-A, "Excess Flow Check Valve Testing Relaxation" (Ref. 8). Furthermore, any EFCV failures will be evaluated to determine if additional testing in that test interval is warranted to ensure overall reliability is maintained. Operating experience has demonstrated that these components are highly reliable and that failures to isolate are very infrequent. Therefore, testing of a representative sample was concluded to be acceptable from a reliability standpoint.) Any excess flow check valve that fails to check flow during its surveillance test will be documented in the Hatch corrective action program as a surveillance test failure. The failure will be evaluated and corrected and, if the valve is repaired and not replaced, it will be added to the next cycle's surveillance.

SR 3.6.1.3.9

The TIP shear isolation valves are actuated by explosive charges. An in place functional test is not possible with this design. The explosive squib is removed and tested to

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.9 (continued)

provide assurance that the valves will actuate when required. The replacement charge for the explosive squib shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of the batch successfully fired. The Frequency of 18 months on a STAGGERED TEST BASIS is considered adequate given the administrative controls on replacement charges and the frequent checks of circuit continuity (SR 3.6.1.3.4).

SR 3.6.1.3.10

This SR ensures that the leakage rate of secondary containment bypass leakage paths is less than the specified leakage rate. This provides assurance that the assumptions in the radiological evaluations that form the basis of the FSAR (Ref. 3) are met. The secondary containment bypass leakage paths are: 1) main steam condensate drain, penetration 8; 2) reactor water cleanup, penetration 14; 3) equipment drain sump discharge, penetration 18; 4) floor drain sump discharge, penetration 19; and 5) chemical drain sump discharge, penetration 55. The leakage rate of each bypass leakage path is assumed to be the maximum pathway leakage (leakage through the worse of the two isolation valves) unless the penetration is isolated by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. In this case, the leakage rate of the isolated bypass leakage path is assumed to be the actual pathway leakage through the isolation device. If both isolation valves in the penetration are closed, the actual leakage rate is the lesser leakage rate of the two valves. The Frequency is required by the Primary Containment Leakage Rate Testing Program (Ref. 7).

SR 3.6.1.3.11

The analyses in References 1 and 4 are based on leakage that is less than the specified leakage rate. Leakage through each MSIV must be $\leq$ 100 scfh, and a combined maximum pathway leakage $\leq$ 250 scfh for all four main steam lines when tested at $\geq$ 28.8 psig. In addition, if any MSIV exceeds the 100 scfh limit, the as left leakage shall be $\leq$ 11.5 scfh for that MSIV.

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.11 (continued)

The Frequency is required by the Primary Containment Leakage Rate Testing Program.

SR 3.6.1.3.12

The valve seats of each 18 inch purge valve (supply and exhaust) having resilient material seats must be replaced every 18 months. This will allow the opportunity for repair before gross leakage failure develops. The 18 month Frequency is based on engineering judgment and operational experience which shows that gross leakage normally does not occur when the valve seats are replaced on an 18 month Frequency.

SR 3.6.1.3.13

The Surveillance Requirement provides assurance that the excess flow isolation dampers can close following an isolation signal. The 18 month Frequency is based on vendor recommendations and engineering judgment. Operating experience has shown that these dampers usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Chapter 15.
2. Technical Requirements Manual.
3. FSAR, Section 15.1.39.
4. FSAR, Section 6.2.
5. 10 CFR 50, Appendix J, Option B.
6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
7. Primary Containment Leakge Rate Testing Program.
8. NEDO-32977-A, "Excess Flow Check Valve Testing Relaxation."