



A PECO Energy/British Energy Company

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**Clinton Power Station**

P.O. Box 678  
Clinton, IL 61727  
Phone: 217 935-8881 Ext 4161

U-603378  
8E.100a  
June 19, 2000

Docket No. 50-461

10CFR50.90

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

Subject: Application for Amendment of Facility Operating License No.  
NPF-62 for Clinton Power Station Regarding the Leakage Testing  
Interval for Primary Containment Feedwater Penetrations (LA-00-006)

Dear Madam or Sir:

Pursuant to 10CFR50.90, AmerGen Energy Company, LLC (AmerGen) hereby requests an amendment of the Facility Operating License, No. NPF-62, for Clinton Power Station (CPS). Specifically, AmerGen requests a change to the testing Frequency specified for Technical Specification (TS) Surveillance Requirement (SR) 3.6.1.3.12 which requires periodic performance of a leak rate test for the primary containment feedwater penetrations that are designed to be sealed by the Feedwater Leakage Control System (FWLCS). (TS requirements for the new FWLCS at CPS, including SR 3.6.1.3.12, were recently established via License Amendment 127 to the CPS Operating License.) The purpose of this change to SR 3.6.1.3.12 is to establish the SR Frequency based on the performance-based Primary Containment Leakage Rate Testing Program currently described in TS 5.5.13, in lieu of the currently identified Frequency for this SR for which a specific test interval of "18 months" is specified. This change is consistent with industry guidance, and its approval will eliminate the need for a one-time TS extension request to extend the current SR 3.6.1.3.12 test interval to the next refueling outage (RF-7).

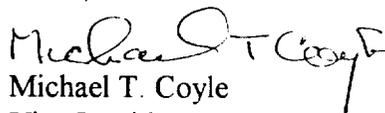
A description of the proposed change and the associated justification (including a Basis For No Significant Hazards Consideration) are provided in Attachment 2. A marked-up copy of the affected page(s) from the current TS is provided in Attachment 3. A marked-up copy of the affected page(s) from the current TS Bases is provided for information only in Attachment 4. (Following NRC approval of this request, AmerGen will revise the CPS TS Bases in accordance with the TS Bases Control Program of TS 5.5.11.) In addition, an affidavit supporting the facts set forth in this letter and its attachments is provided in Attachment 1.

ADD1

AmerGen respectfully requests NRC review and approval of this proposed change by August 13, 2000. Mid-cycle implementation of Amendment 127 has created a concern in meeting the SR required test interval of 18 months (along with the "overrun" allowance of SR 3.0.2) during the current operating cycle (Cycle 7). Under the TS requirements that are now in place, the surveillance interval for SR 3.6.1.3.12 will expire on August 13, 2000 for feedwater penetration "A," and on October 5, 2000 for feedwater penetration "B." The SR and required leak tests will become overdue at those times because of the lengthy plant shutdown/refueling outage that occurred following Cycle 6. For this reason, the proposed license amendment is requested prior to August 13, 2000, as it is AmerGen's intent to continue Cycle 7 operation through October 15, 2000, which is the planned start date for the next refueling outage. Approval of the proposed change to the SR Frequency will prevent a plant shutdown solely to perform this surveillance test. Initiation of a plant shutdown for the sole purpose of performing the SR would cause an unnecessary transient on the plant and would result in additional radiation exposure to personnel, since the surveillance test would need to be repeated during the upcoming refueling outage. Therefore, AmerGen appreciates the NRC Staff's prompt attention to this matter.

This application for amendment of the CPS Operating License was reviewed by the site Facility Review Group and the AmerGen Nuclear Review Board.

Sincerely yours,

  
Michael T. Coyle  
Vice President

TBE/blf

Attachments

cc: NRC Clinton Licensing Project Manager  
Regional Administrator, USNRC Region III  
NRC Resident Office, V-690  
Illinois Department of Nuclear Safety

AFFIRMATION

Michael T. Coyle, being first duly sworn, deposes and says: That he is Vice President for Clinton Power Station; that this application for amendment of Facility Operating License NPF-62 has been prepared under his supervision and direction; that he knows the contents thereof; and that the letter and the statements made and the facts contained therein are true and correct to the best of his knowledge and belief.

Date: This 19<sup>TH</sup> day of June 2000.

Signed: Michael T. Coyle  
Michael T. Coyle  
Vice President

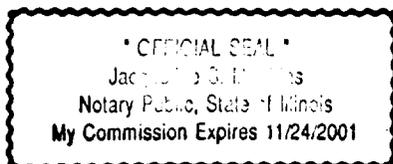
STATE OF ILLINOIS

DeWitt COUNTY

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SS.

Subscribed and sworn to before me this 19<sup>th</sup> day of June 2000.



Jacqueline S. Matthews  
(Notary Public)

## Background

On April 25, 2000, Amendment 127 to Facility Operating License No. NPF-62 was issued for the Clinton Power Station (CPS). The amendment was in response to a license amendment request (Letter U-603032) dated October 23, 1998, as supplemented and/or revised by Letter U-603160 dated February 22, 1999, Letter U-603212 dated June 24, 1999, and Letter U-603338 dated March 31, 2000. The license amendment supported implementation of a Feedwater Leakage Control System (FWLCS) to provide an enhanced means of isolating the primary containment feedwater penetrations by providing a water seal within the feedwater piping for the associated primary containment isolation valves following a loss of coolant accident (LOCA). This improvement ensures that post-LOCA leakage of containment atmosphere through the penetrations is minimized, thus minimizing the offsite radiological dose consequences from leakage via this pathway. The license amendment also supported a change to the periodic leakage testing requirements for the primary containment feedwater penetrations such that water is used as the test medium in lieu of air (as previously required). Specifically, a new SR was established for this leak test requirement (SR 3.6.1.3.12) which requires verifying at least once per 18 months that the combined leakage rate for both primary containment feedwater penetrations is  $\leq 3$  gpm when pressurized to  $\geq 1.1 P_a$ .

At the time of submittal of the initial amendment request, CPS was in an extended shutdown condition (i.e., the last refueling outage, RF-6), and completion of the FWLCS was anticipated prior to restart following RF-6. Thus, the amendment was originally requested to support plant startup with an operable FWLCS. Although installation and testing of the FWLCS was completed during the outage, Letter U-603160 informed the NRC Staff that the primary containment feedwater penetrations (i.e., the feedwater check valves) had been air leak tested with satisfactory leak test results (following, in particular, extensive modification of the outboard check valves to improve their leakage performance, as addressed further in Letter U-603225 from John P. McElwain to James E. Dyer, dated September 20, 1999). On this basis, it was identified that the requested amendment was no longer considered a startup restraint from the outage. Receipt of the amendment during the forthcoming (i.e., during the current) operating cycle (Cycle 7) was therefore anticipated.

During the impending NRC review and approval of the amendment request (to support eventual release of the FWLCS for operation), the FWLCS was maintained isolated from the feedwater and RHR system to which it is connected via closed manual isolation valves. These valves are located in the main steam tunnel and are inaccessible during plant operation (due to radiation levels in the steam tunnel and the somewhat inaccessible location of the valves within the steam tunnel). Issuance of the amendment with an immediate effective date (i.e., implementation date) would have required the FWLCS to be made immediately Operable. This was a concern due to the inaccessibility of the manual isolation valves during plant operation. On this basis, Letter U-603338 requested that the amendment contain a provision such that the amendment would not be effective or required to be implemented until the next plant shutdown. This provided the needed flexibility for making the FWLCS Operable in the safest possible manner.

On April 25, 2000, Amendment 127 to Facility Operating License No. NPF-62 was issued for CPS. The amendment stated that it was required to "be implemented at the earliest opportunity before startup from the first shutdown following issuance." At the time that the amendment was issued, the plant was in Mode 1 and it was expected that the plant would continuously run until the next planned refueling outage (RF-7) scheduled for October 15, 2000. CPS thus intended to release the FWLCS for operation and perform the required leak tests prior to startup following RF-7.

On Wednesday, May 17, 2000, a reactor scram occurred and a plant shutdown commenced. Prior to the shutdown, the plant had been operating for 356 continuous days following restart from RF-6. After completion of maintenance activities and preparations for restart from this forced outage, plant restart commenced on Sunday, May 21, 2000. In accordance with Amendment 127, CPS released the FWLCS for operation and implemented the requirements for the FWLCS prior to entry into Mode 2.

Since required surveillance testing had been successfully completed during RF-6 and the SRs were "current" (not expired), re-performance of the SR tests during the forced outage was not required. However, the surveillance interval for the newly issued SR 3.6.1.3.12 will expire (become overdue) on August 13, 2000 for feedwater penetration "A," and on October 5, 2000 for feedwater penetration "B." These expiration dates are due to the long plant shutdown/refueling outage that occurred following Cycle 6. This lengthy plant shutdown/refueling outage has affected other plant surveillances that have previously been identified to the NRC Staff and for which test interval extensions have been requested. (Reference: AmerGen Letters U-603300 dated December 16, 1999 and U-603357 dated April 24, 2000.) AmerGen's intent is to continue Cycle 7 operation through October 15, 2000, which is the planned start date for the next refueling outage (RF-7).

#### Basis for the FWLCS and SR 3.6.1.3.12

As noted previously, the FWLCS provides a means to seal the primary containment feedwater penetration isolation valves. The FWLCS is a qualified seal system as defined and described in ANSI/ANS-56.8-1994. Regulatory Guide (RG) 1.96, "Design of Main Steam Isolation Valve Leakage Control Systems for Boiling Water Reactor Nuclear Power Plants," establishes the requirements for the design and analytical evaluations of the effectiveness of the Main Steam Isolation Valve Leakage Control System. In the absence of a specific regulatory guide for a feedwater leakage control system, the guidance of RG 1.96 was applied to the design for the FWLCS.

The water for sealing the feedwater penetrations via the FWLCS is supplied from the suppression pool by the Residual Heat Removal (RHR) system. The FWLCS is thus an operating mode of the RHR system and consists primarily of piping and valves that connect the RHR system to the feedwater system. The two subsystems of the FWLCS are divisionally separate such that failure of one division will not impact the ability of the remaining division to completely establish a water seal for both trains of the feedwater system.

The system is able to be manually initiated approximately 20 minutes after a Design Basis Accident LOCA (i.e., when the reactor vessel coolant system pressure is reduced to a sufficiently low pressure), such that the associated feedwater piping can be assumed to be completely filled within one hour following accident initiation. During the post-LOCA one-hour period (when the FWLCS is initiated and the feedwater piping is being filled), a mixture of air (post-LOCA containment atmosphere) and water (post-LOCA suppression pool water) is conservatively assumed to leak directly to the environs through the feedwater penetrations. (Suppression pool water leakage is then also assumed to continue to leak through the penetrations throughout the long-term post-LOCA period.) For the purposes of the associated dose analysis, therefore, a maximum leakage through the feedwater penetrations was assumed. On this basis, a leak test requirement for the feedwater penetrations, based on an equivalent water leakage limit, was determined to be appropriate, in conjunction with the credit given to the FWLCS.

Amendment 127 supported implementation of the FWLCS and included associated Technical Specification operability and test requirements for the FWLCS, as well as new/revised leak rate test requirements for the feedwater penetrations. SR 3.6.1.3.12 was established to periodically confirm that the combined leakage rate of the primary containment feedwater penetrations is less than the leakage rate assumed in the dose analysis performed for the primary containment feedwater penetrations. The leakage rate is based on water as the test medium, and testing is performed using the methods presented in ANSI/ANS-56.8-1994, Section 3.4, since these penetrations are designed to be sealed by the FWLCS.

The Frequency (i.e., test interval) for SR 3.6.1.3.12 is currently specified as “18 months.” This Frequency (as denoted in Letter U-603032) was based on consistency with other Technical Specification Surveillance Requirements, and on the need to perform this Surveillance under the conditions that apply during a plant outage. As described further below, however, AmerGen has reconsidered specifying the Frequency for this SR in this manner.

#### Description of Proposed Change

The proposed change to the Technical Specifications, as reflected in the annotated TS pages provided in Enclosure 3, revises the Frequency currently denoted in SR 3.6.1.3.12. AmerGen has now determined that, similar to other leak test requirements associated with the containment and containment penetrations, the Frequency or test interval for SR 3.6.1.3.12 should be performance-based. Changing the Frequency (i.e., test interval) for this SR from 18 months to a performance-based frequency is accomplished by appropriately linking this test requirement to the Primary Containment Leakage Rate Testing Program (which is outlined in TS 5.5.13). Therefore, the following change is specifically proposed:

Under the FREQUENCY column for SR 3.6.1.3.12 (on page 3.6-19a of the CPS Technical Specifications), replace “18 months” with the words “In accordance with the Primary Containment Leakage Rate Testing Program.”

This change is consistent with SR 3.6.1.3.8, SR 3.6.1.3.9 and SR 3.6.1.3.10, all of which involve leak testing performed at a frequency “in accordance with the Primary Containment Leakage Rate Testing Program.”

In addition to the above, a format change is requested regarding the relative order of SR 3.6.1.3.11 and SR 3.6.1.3.12. The latter is the new (but current) SR for the primary containment feedwater penetration leak rate testing and is the last SR listed under TS 3.6.1.3. SR 3.6.1.3.11 involves testing of instrumentation excess flow check primary containment isolation valves. This SR is not a leak test requirement and is not associated with the Primary Containment Leakage Rate Testing Program like the SRs that currently precede this SR. Further, this SR does not have the same Note associated with SR 3.6.1.3.8, SR 3.6.1.3.9 and SR 3.6.1.3.10 which clarifies the Applicability of those SRs (by noting that they are only required to be met in Modes 1, 2, and 3).

It is therefore proposed that the order of SR 3.6.1.3.11 and 3.6.1.3.12 be reversed so that the SR for leak testing of the primary containment feedwater penetrations precedes the SR for testing of the excess flow check valves. (The leak rate test requirement for the primary containment feedwater penetrations would then be SR 3.6.1.3.11, and the test requirement for the instrumentation excess flow check valves would then be SR 3.6.1.3.12.) This would group the feedwater penetration leak test requirement with the other leak test requirements having the same Applicability and Frequency. The SR associated with the instrumentation excess flow check valves would then be the last SR listed under TS 3.6.1.3. This is in keeping with the format of the generic Improved Technical Specifications (NUREG-1434). [Note: To avoid confusion, and through the remainder of the discussion in this Attachment, references to the primary containment feedwater penetration leak test will continue to be to SR 3.6.1.3.12, consistent with the current Technical Specifications.]

#### Justification for Proposed Change

The proposed change is consistent with the recommendations of current industry guidelines. CPS has previously adopted 10 CFR 50, Appendix J - Option B (granted by Amendment 105) and revised the TS to incorporate a “Primary Containment Leakage Rate Testing Program” under TS 5.5.13 in the Administrative Controls section of the TS. Compliance with TS 5.5.13 includes following the guidelines contained in Regulatory Guide 1.163, “Performance-Based Containment Leak-Test Program.” This Regulatory Guide recognizes Nuclear Energy Institute (NEI) document, NEI 94-01, Revision 0, dated July 26, 1995, “Industry Guideline for Implementing Performance-Based Option of 10 CFR 50 Appendix J,” as providing methods acceptable to the NRC staff for complying with the provisions of Option B in Appendix J to 10 CFR 50 (subject to certain limitations).

As previously noted, the FWLCS is a qualified seal system as defined and described in ANSI/ANS-56.8-1994. However, for reasons also explained previously, it was determined to be necessary to impose a leak rate test on the primary containment feedwater penetrations to maintain conformance with the assumptions of the dose analysis that was re-performed

with credit given to the FWLCS. The leak test imposed on the feedwater penetrations is not unlike other leak tests imposed on containment penetrations pursuant to 10 CFR 50 Appendix J, and therefore, regulatory guidance for implementation of Appendix J (Option B) requirements is applicable to the feedwater penetrations. Section 6.0 of NEI 94-01 specifies that primary containment barriers sealed with a qualified seal system shall be periodically tested to demonstrate their functionality in accordance with the plant TS and that the test frequency may be set using a performance basis in a manner similar to the guidelines described for Type B and Type C test intervals. Therefore, specifying a TS Frequency “In accordance with the Primary Containment Leakage Rate Testing Program” rather than specifying a Frequency of “18 Months” is consistent with the guidance of NEI 94-01.

The test intervals specified in the Technical Specifications for surveillances are generally based on experience, engineering judgment, and/or risk assessment, taking into account the nature of the test (complexity, intrusiveness, etc.) and what other surveillances are performed to verify Operability of the required function or equipment. The interval should reflect a balance or optimization between the unavailability of the affected equipment or function caused by performing the test, and the confirmation or restoration of full availability resulting from performing the test. Increasing the time interval between Surveillance tests can result in a safety enhancement because the unavailability due to testing is reduced. It has previously been found that reduced testing is acceptable where industry or operating experience has shown that the tested functions or components usually pass the Surveillance when performed at the specified interval.

Although SR 3.6.1.3.12 is a new requirement, and thus there is limited test history for this leak test requirement, the acceptance criterion for this SR was based, in part, on the expected capability of the primary containment feedwater penetrations to meet the new water-type leak test acceptance criterion. On this basis, the primary containment feedwater penetrations can be expected to pass the surveillance test per SR 3.6.1.3.12 whether the associated test interval is “18 months” or “in accordance with the Primary Containment Leakage Rate Testing Program.” Further, associating the test interval for SR 3.6.1.3.12 with the Primary Containment Leakage Rate Testing Program is appropriate since a performance-based approach to testing serves to establish or confirm the optimum test interval.\*

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\* Per RG 1.163, primary containment Type C local leak rate test intervals may be extended, in general, for up to 60 months based on performance. However, per Regulatory Position C.2 of the Regulatory Guide, “the interval for Type C tests for main steam and feedwater isolation valves in BWRs...should be limited to 30 months as specified in Section 3.3.4 of ANSI/ANS-56.8-1994, with consideration given to operating experience and safety significance.” Although the leak test required pursuant to SR 3.6.1.3.12 is not, strictly speaking, an Appendix J Type C test, the maximum test interval for this SR will be limited to 30 months consistent with RG 1.163.

Finally, it should be noted that, similar to other leak tests performed for the containment or containment penetrations pursuant to 10 CFR 50 Appendix J, leak testing of the feedwater penetrations can only be performed during a plant shutdown. Option B of 10 CFR 50 Appendix J was intended to provide flexibility in the scheduling of leak tests, in part, to better accommodate the different fuel cycle lengths that may exist for different facilities or to accommodate reasonable extensions of test intervals that were formerly nominal, fixed test intervals, when justified by performance. Although a specified Frequency of "18 months" for SR 3.6.1.3.12 is consistent with the length of Clinton's current operating cycle, a performance-based frequency in accordance with the Primary Containment Leakage Rate Testing Program provides the flexibility needed to preclude the potential need for a Technical Specification change in the future that would otherwise be required to accommodate an interval that exceeds 18 months (plus allowed overrun) and yet would still be within a performance-based interval for the primary containment feedwater penetrations.

#### Immediate Need for Proposed Change

As explained previously, the proposed change to revise the Frequency (i.e., test interval) for SR 3.6.1.3.12 from "18 months" to "In accordance with the Primary Containment Leakage Rate Testing Program" is requested at this time due to a recent, unexpected shutdown and the subsequent required implementation of Amendment 127. Mid-cycle implementation of Amendment 127 has created a concern in meeting the SR required test interval of 18 months (along with the "overrun" allowance of SR 3.0.2) during Cycle 7. Under the TS requirements that are now in place, the surveillance interval for SR 3.6.1.3.12 will expire on August 13, 2000 for feedwater penetration "A," and on October 5, 2000 for feedwater penetration "B." The SR and required leak tests will become overdue at those times because of the lengthy plant shutdown/refueling outage that occurred following Cycle 6\*. For this reason, the proposed license amendment is requested prior to August 13, 2000, as it is AmerGen's intent to continue Cycle 7 operation through October 15, 2000, which is the planned start date for the next refueling outage.

#### Basis for No Significant Hazards Consideration Determination

In accordance with 10CFR 50.92, a proposed change to the operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed change would not: (1) involve a significant increase in the probability or consequences of any accident previously evaluated, (2) create the possibility of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety. The proposed change has been evaluated against each of the three criteria, and it has been determined that the change does not involve a significant hazard because:

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\* As noted previously, the length of RF-6 affected other plant surveillances for which interval extensions were requested in a previous amendment application. SR 3.6.1.3.12 was not addressed in that application since the application was made prior to the issuance of Amendment 127.

- (1) The proposed change does not involve a significant increase in the probability or consequences of any accident previously evaluated.

The proposed change to Technical Specification Surveillance Requirement (SR) 3.6.1.3.12 involves a change in frequency of the combined leakage rate of the primary containment feedwater penetrations that are designed to be sealed by the Feedwater Leakage Control System (FWLCS). Testing performed pursuant to this Surveillance Requirement is not an initiator to any accident previously evaluated. The proposed change does not affect the design, operational characteristics, function or reliability of the FWLCS or the primary containment feedwater penetrations. Further, the change has no impact on plant design or operation, as it is merely a change in the specified frequency for the affected SR. Therefore, the proposed change does not affect any parameters or conditions that may contribute to the initiation of any accidents previously evaluated, and as a result, the probability of initiation of any accident previously evaluated will not be significantly increased.

The proposed change to the specified Frequency for SR 3.6.1.3.12 would permit a longer test interval for this surveillance. An excessively long test interval could result in reduced leak tightness of the feedwater penetrations and, therefore, in reduced effectiveness of the barrier presented by the feedwater penetrations and the FWLCS. However, this potential is precluded by making the SR 3.6.1.3.12 test interval performance based. Such an approach is based on approved industry guidelines reflected in the Primary Containment Leakage Rate Testing Program outlined in Technical Specification 5.5.13. Accordingly, a longer test interval would only be permitted if leak test performance supports the longer interval. It should also be noted that the acceptance criterion for the water-type leak test imposed by SR 3.6.1.3.12 was established on the expected capability of the feedwater penetrations to meet this acceptance criterion. Thus, the proposed change to SR 3.6.1.3.12 will not result in reduced barrier performance of the feedwater penetrations, nor in reduced effectiveness of the FWLCS. These barriers for the prevention or minimization of post-LOCA radioactive release from the containment will not therefore be adversely impacted by the proposed change. The FWLCS and the feedwater penetrations will still be required to be Operable per the Technical Specifications and thus capable of performing their accident mitigation functions assumed in the accident analysis. On this basis, the consequences of any accident previously evaluated are not affected by the proposed change.

Based on the above, the proposed change does not involve a significant increase in the probability or consequences on any accident previously evaluated.

- (2) The proposed change would not create the possibility of a new or different kind of accident from any accident previously evaluated.

Changing the surveillance Frequency of the combined leakage rate of the primary containment feedwater penetrations that are designed to be sealed by the FWLCS does not involve a change in the design, configuration, or method of operation of the plant. The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the method governing normal plant operation. No new accident initiators are introduced as a result of the change in specified surveillance Frequency. Therefore, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

- (3) The proposed change will not involve a significant reduction in the margin of safety.

The margin of safety related to the proposed change involves the offsite dose consequences that result from the release of radioactive material from the containment following a design basis accident. This release is effected by leakage through the containment, including the feedwater penetrations sealed by the FWLCS. The proposed change to the Frequency for the leakage rate test for these penetrations does not involve a change to the acceptance criteria for the leakage rate test, nor in the effectiveness of the testing since the test interval for the test will be performance based. That is, an acceptable level of reliability (leak tightness) of the feedwater penetrations will be maintained using the performance-based Primary Containment Leakage Rate Testing Program. On this basis, the proposed change does not involve a reduction in the margin of safety.

Based upon the above analysis, the proposed change will not increase the probability or consequences of any accident previously evaluated, create the possibility of a new or different kind of accident from any accident previously evaluated, or involve a significant reduction in the margin of safety. Therefore, the proposed change meets the requirements of 10 CFR 50.92(c) and involves no significant hazard consideration.

#### Environmental Impact Consideration

The proposed license amendment was evaluated against the criteria of 10 CFR 51.22 for environmental considerations. Since the proposed change involves no change to the design or operation of the facility, the proposed change (1) does not significantly increase individual or cumulative occupational radiation exposures, (2) does not significantly change the types or significantly increase the amount of effluents that may be released offsite, and (3) as discussed in this enclosure, does not involve a significant hazards consideration. Based on the foregoing, it has been concluded that the proposed Technical Specification change meets the criteria given in 10 CFR 51.22(c)(9) for categorical exclusion from the requirement for an Environmental Impact Statement.

**Marked-Up Page of the Technical Specifications**

SURVEILLANCE	FREQUENCY
<p>SR 3.6.1.3.11 12</p> <p>Verify each instrumentation line excess flow check primary containment isolation valve actuates within the required range.</p>	<p>18 months</p>
<p>SR 3.6.1.3.12 11</p> <p>-----NOTE----- Only required to be met in MODES 1, 2, and 3. -----</p> <p>Verify that the combined leakage rate for both primary containment feedwater penetrations is <math>\leq 3</math> gpm when pressurized to <math>\geq 1.1 P_a</math>.</p>	<p><del>18 months</del></p> <p>In accordance with the Primary Containment Leakage Rate Testing Program</p>

REORDER

**Associated Pages of the Technical Specifications Bases**

BASES

SURVEILLANCE  
REQUIREMENTS

re-order SRs

SR 3.6.1.3.11

12

This SR requires a demonstration that each instrumentation line excess flow check valve (EFCV) is OPERABLE by verifying that the valve activates within the required differential pressure or flow range. This SR provides assurance that the instrumentation line EFCVs will perform so that predicted radiological consequences will not be exceeded during the postulated instrument line break events (Ref. 7). 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.

The operating limit or process parameter value associated with this SR, as read from plant indication instrumentation, is considered nominal. Instrument indications that are considered nominal do not require compensation for instrument indication uncertainties (Ref. 13).

SR 3.6.1.3.12

11

This SR ensures that the combined leakage rate of the primary containment feedwater penetrations is less than the specified leakage rate. The leakage rate is based on water as the test medium since these penetrations are designed to be sealed by the FWLCS. The 3 gpm leakage limit has been shown by testing and analysis to bound the condition following a DBA LOCA where, for a limited time, both air and water are postulated to leak through this pathway. During the first hour following a DBA LOCA, the leakage is conservatively assumed to be entirely containment atmosphere. The feedwater check valves, 1B21-F010A(B) and 1B21-F032A(B), limit this leakage to the air equivalent of 3 gpm. During the remainder of the event, motor-operated valve(s) 1B21-F065A(B) assist to limit leakage in conjunction with the FWLCS.

The leakage rate of each primary containment feedwater penetration is assumed to be the maximum pathway leakage, i.e., the leakage through the worst of the three isolation valves [either 1B21-F010A(B), 1B21-F032A(B) or 1B21-F065A(B)] in each penetration. This provides assurance that the assumptions in the radiological evaluations of References 1 and 2 are met. Dose associated with leakage (both air and water) through the primary containment feedwater penetrations is considered to be in addition to the dose associated with all other secondary containment bypass leakage paths.

The Frequency is ~~consistent with other testing used to verify PCIV leakage.~~

required by the Primary Containment Leakage Rate Testing Program.

BASES

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SR 3.6.1.3 <sup>111</sup>~~12~~ (continued)

A Note is added to this SR which states that the primary containment feedwater penetrations are only required to meet this leakage limit in Modes 1, 2, and 3. In other conditions, the Reactor Coolant System is not pressurized and specific primary containment leakage limits are not required.

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REFERENCES

1. USAR, Chapter 15.6.5.
  2. USAR, Section 15.6.4.
  3. USAR, Section 15.7.4.
  4. USAR, Section 6.2.
  5. USAR, Table 6.2-47.
  6. 10 CFR 50, Appendix J, Option B.
  7. Regulatory Guide 1.11.
  8. Calculation IP-0-0059.
  9. Calculation IP-0-0056.
  10. Calculation IP-0-0028.
  11. Calculation IP-0-0063.
  12. Calculation IP-0-0064.
  13. Calculation IP-0-0065.
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