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U. S. Nuclear Regulatory Commission
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SUSQUEHANNA STEAM ELECTRIC STATION
PROPOSED AMENDMENT NO. 234 TO LICENSE
NPF-14: AND PROPOSED AMENDMENT NO. 199
TO LICENSE NPF-22: VACUUM BREAKER SETPOINTS
PLA-5228

Docket Nos. 50-387
and 50-388

Pursuant to 10CFR50.90, PPL Susquehanna LLC proposes to amend the Susquehanna Steam Electric Station (SSES) Unit 1 and Unit 2 Technical Specifications (TS). The proposed change will modify TS Surveillance Requirement SR 3.6.1.6.3 to expand the allowable vacuum breaker open differential pressure setpoint range to ≥ .25 and ≤ .75 psid. The Surveillance Requirement (SR) in the current SSES Technical Specifications requires testing to a range of ≥ .25 and ≤ .525 psid.

The benefit of this proposed change is a reduction in the number of opening set pressure test failures that are not indicative of an inability of the valves to perform their design basis function.

Attachment 1 presents the Safety Assessment for the proposed change.

Attachment 2 contains the "No Significant Hazards Consideration" and "Environmental Considerations" assessments. The "No Significant Hazards Considerations" assessment concludes that the proposed Technical Specification revisions do not involve a significant increase in the probability or consequence of an accident previously evaluated; do not create the possibility of a new or different kind of accident from any accident previously evaluated; and do not involve a significant reduction in the margin of safety. The "Environmental Considerations" assessment concludes that the revisions conform to the criteria for actions eligible for categorical exclusion as specified in 10CFR51.22(c)(9), and will not impact the environment.

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Attachment 3 contains marked-up pages of the Unit 1 and Unit 2 Technical Specifications.

Attachment 4 contains "camera ready" versions of the revised Unit 1 and Unit 2 Technical Specification pages.

Attachment 5 contains, for your information, markups of the associated TS bases.

The proposed changes have been approved by the SSES Plant Operations Review Committee and reviewed by the Susquehanna Review Committee.

PPL plans to implement the proposed changes during the Unit 2 Refueling and Inspection Outage scheduled Spring 2001. Therefore, we request NRC complete the review of this change request by February 15, 2001, to support our scheduled implementation dates.

Please contact Mr. M. H. Crowthers at (610) 774-7766 if there are any questions concerning this submittal.

Sincerely,

R. G. Byram

Attachments

cc: NRC Region I
Mr. S. Hansell, NRC Sr. Resident Inspector
Mr. R. G. Schaaf, NRC Sr. Project Manager
Mr. D. J. Allard, PA DEP

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of :

PPL Susquehanna, LLC : Docket No. 50-387

PROPOSED AMENDMENT NO. 234 TO LICENSE NPF-14:
VACUUM BREAKER SETPOINTS
SUSQUEHANNA STEAM ELECTRIC STATION
UNIT NO. 1

Licensee, PPL Susquehanna, LLC, hereby files a revision to its Facility Operating License No. NPF-14 dated July 17, 1982.

This amendment contains a revision to the Susquehanna SES Unit 1 Technical Specifications.

PPL Susquehanna, LLC
By:

R. G. Byram
Sr. Vice-President and Chief Nuclear Officer

Sworn to and subscribed before me
this 28th day of November, 2000.

Nancy J. Lannen
Notary Public

Notarial Seal
Nancy J. Lannen, Notary Public
Allentown, Lehigh County
My Commission Expires June 14, 2004

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of :

PPL Susquehanna, LLC : Docket No. 50-388

PROPOSED AMENDMENT NO. 199 TO LICENSE NPF-22:
VACUUM BREAKER SETPOINTS
SUSQUEHANNA STEAM ELECTRIC STATION
UNIT NO. 2

Licensee, PPL Susquehanna, LLC, hereby files a revision to its Facility Operating License No. NPF-22 dated March 23, 1984.

This amendment contains a revision to the Susquehanna SES Unit 2 Technical Specifications.

PPL Susquehanna, LLC
By:

R. G. Byram
Sr. Vice-President and Chief Nuclear Officer

Sworn to and subscribed before me
this 28th day of November, 2000.

Nancy J. Lannen
Notary Public

Notarial Seal
Nancy J. Lannen, Notary Public
Allentown, Lehigh County
My Commission Expires June 14, 2004

ATTACHMENT 1 TO PLA-5228

SAFETY IMPACT ASSESSMENT

Safety Impact Assessment: Vacuum Breaker Setpoints

1.0 INTRODUCTION

SSES incorporates a Mark II containment with the drywell located over the suppression chamber and separated by a diaphragm slab. The suppression chamber contains a pool of water with a depth that varies between 22' and 24' during normal operation. Eighty-seven downcomers and sixteen main steam safety relief valve (SRV) discharge lines penetrate the diaphragm slab and terminate at a pre-designated submergence within the pool. During a LOCA, the containment design directs steam from the drywell to the suppression pool via the downcomers to limit the maximum containment pressure response to less than the design pressure of 53 psig.

Towards the end of the postulated LOCA, when the steam flow through the break is small, the continued condensation of steam at the downcomer exit and/or condensation in the drywell due to the actuation of drywell sprays can create a vacuum in the drywell that can adversely affect drywell structural integrity. The function of the vacuum breakers is to prevent the creation of a vacuum in the drywell or an unacceptable differential pressure across the containment diaphragm slab. When the drywell pressure falls below the wetwell airspace pressure by an amount equivalent to the opening set pressure of the vacuum breakers, the vacuum breakers open to allow the suppression chamber atmosphere from the wetwell airspace to flow into the drywell. The Technical Specification Bases Section 3.6.1 and FSAR Section 6.2 provide a more detailed discussion.

A change is proposed to the SSES Unit 1 and 2 Technical Specification SR 3.6.1.6.3 to increase the tolerance for the opening set pressure setpoint from "≥ .25 and ≤ .525 psid" to "≥ .25 and ≤ .75 psid." This setpoint was originally specified in Technical Specifications as 0.5 psid +/- 5%, which accounts for the reason that the current upper limit of the setpoint is specified with such precision (i.e., 3 significant digits). The lower limit was later changed from 0.475 to 0.25 as part of Improved Technical Specification implementation at SSES (1998). This setpoint is established by adjusting the spring force of the spring cylinder to equate to a pressure differential across the valve disc that is within the required TS setpoint range. The specification of this setpoint and the manner in which to adjust the spring force was established as part of the design/qualification testing efforts to qualify the vacuum breakers for pool swell and other LOCA events. The design/qualification efforts undertaken to qualify the vacuum breakers for the

Inadvertent Spray Actuation (ISA) event established an optimum nominal setpoint pressure 0.5 psid that was based upon: 1) the manufacturer's design specification, 2) confirmation and approval during the Phase III Vacuum Breaker SQRT program (this included industry and NRC participation), and 3) verification during extensive pre-operational testing.

The safety significance of expanding the setpoint tolerance is addressed in this assessment. Technical justifications are provided to show that containment and vacuum breaker integrity are not adversely affected by the proposed change.

2.0 DESCRIPTION OF TECHNICAL SPECIFICATION CHANGE

2.1 Current Technical Specification

Technical Specification SR 3.6.1.6.3 states "Verify the opening setpoint of each required vacuum breaker is ≥ .25 and ≤ .525 psid." The SR is required to be implemented every 24 months.

The original Technical Specification setpoint was 0.5 psid +/- 5 % (0.475 psid to 0.525 psid). This optimum nominal set pressure was based on flow testing in which 1 psid was required across the valve system (i.e. two valves in series) for the valves to begin opening. The valve manufacturer assumed that the 1 psid across the valve system was equally shared by the two valves, i.e., 0.5 psid opening set pressure for each valve. Thus, the set pressure was established by the manufacturer during valve flow testing and was not analytically derived. The basis for the 5% tolerance on the 0.5 psid nominal setpoint is unclear, but is believed to be based upon an estimate of the data scatter observed during manufacturer flow testing.

The current Technical Specifications specify a setpoint of ≥ 0.25 and ≤ 0.525 psid. The lower limit was expanded from 0.475 to 0.25 psid during the conversion to the Improved Technical Specification format. That change was made to allow the valves to be set as low as possible below the maximum of .525 psid. The change to 0.25 psid was justified and approved on the basis that the new range fell within the allowances/ assumptions of the event analysis. The change proposed herein also falls within the allowances and assumptions of the event analysis as described in Section 3.0 of this assessment.

2.2 Proposed Technical Specification

The proposed change to the technical specification is a change to the upper setpoint tolerance limit. The proposed Technical Specification states "Verify the opening setpoint of each required vacuum breaker is ≥ .25 and ≤ .75 psid." The frequency is unaffected.

2.3 Reason for Change

LER 50-387/00-003-00 documented that 5 of 10 Unit 1 vacuum breakers failed to meet the set pressure acceptance criteria. The five valves that failed had opening setpoints of .526 to .540 psid. Historical test records reveal periodic similar test failures.

Investigation revealed that a significant delta exists between the opening pressure assumed in the accident analysis and the acceptance criteria in the Technical Specifications. As a result, an expansion of the setpoint tolerance can be made such that the setpoint remains conservative relative to the analysis assumptions.

Investigation also revealed the present test methodology and equipment do not permit discrimination between flow past the valve and valve seat leakage. The test equipment is only capable of creating a small volume and flowrate. Small amounts of leakage past this seat will prevent an adequate build-up of pressure under the disc during the test to simulate opening under accident conditions. The presence of this leakage is not significant since the actual opening pressure is based upon the spring force (which is unchanged) and the fact that the volume of gas available to pass through the vacuum breakers post-accident is far in excess of that which could be passed as leakage without opening the valve. As a result, valves can fail the set pressure surveillance due to leakage past the seat. This seat leak-by appears to have been a common cause test failure mechanism. In these cases, the vacuum breakers were removed from containment and the seat reworked or replaced to correct the seat leakage problem. Given the existing small tolerance associated with the setpoint, minor seat leakage can unnecessarily skew (in a conservative manner) the test measurements of opening set pressure. Raising the setpoint upper limit will compensate for the test issue.

The benefit of this change will be a reduction in the number of opening set pressure test failures that are *not* indicative of an inability of the valves to perform their design basis functions.

3.0 SAFETY IMPACT ASSESSMENT

3.1 Component Description

To equalize the differential pressure between the drywell and the wetwell, five pairs of 24-inch vacuum breakers (vacuum relief valves) are teed off the downcomers in the wetwell airspace. FSAR Figures 6.2-56, 6.2-57-1 and 6.2-57-2 illustrate the general installation of the vacuum breaker assembly. Each set of vacuum breakers consists of two valves in series, and is attached to a capped downcomer. (The capped feature eliminates the effects of post-LOCA chugging cycling loads on the vacuum relief valves.) A one-inch weir is located at the inlet of the five capped downcomers. The weir will reduce the flow down the five capped downcomers during the recirculation mode of ECCS to below the capacity of the 3" drain line, so that the downcomer will not fill with water to the vacuum breaker and impede its operation.

The vacuum relief valve assemblies are of the Anderson Greenwood CV1-L type, consisting of two valves. The two-valve assembly is used to provide redundancy in assuring that the vent path is closed. The valve is of a swing-check configuration with a pressure-boosted seal that provides additional sealing assurance when the valve is in the closed position and the drywell pressure exceeds the wetwell pressure. Each valve has a swing convex disc held in the closed position by spring force. The swing disc begins to open when the differential pressure across the valve reaches its set pressure.

The disc opens away from the convex side, relieving pressure up the downcomer into the drywell to allow noncondensibles to flow from the wetwell into the drywell. This prevents the drywell negative pressure and the diaphragm slab upload differential pressure from exceeding their design values. The valves are passive, swing check valves which open and close (spring assisted) due to pressure differentials across the disc only.

Spring and actuating cylinders are directly connected to the valve disc shaft. As a result, the cylinder pistons are exercised whenever the valve disc moves. The actuating cylinder provides dampening for the valve disc

in both the opening and closing directions via restricting orifices in the vent port and air inlet elbow. Similar dampening is also provided by the spring cylinder in the closing direction by means of a restricting orifice in the air inlet elbow. In the test mode, both cylinders are required to stroke the valve open by air emitted to the under-piston area by the solenoid valve.

A compression spring holds the valve disc against the seal; by the relation of this force to the disc seal area, the set pressure at which the valve will open is determined. The set pressure is the pressure difference below which the valve will remain shut, and above which it will open. At set pressure, an equilibrium exists where the seal area times the set pressure is equal to, and balanced against, the spring force with the valve closed. When a differential pressure across the valve causes a torque about the shaft greater than that produced by the spring cylinder, the valve will begin to open and remain open as long as this force remains greater than the closing force produced by the spring. When this flow produces less torque than the spring system produces, the valve will close.

Four vacuum breaker assemblies are adequate to assure diaphragm slab differential pressures remain below design allowables. The fifth assembly is available to address single-active failure concerns.

3.2 Safety-Related Functions

The design basis for the vacuum breakers during a LOCA includes three functions: (1) to prevent steam bypass to the wetwell; (2) to maintain the structural integrity of the drywell floor; and (3) to relieve the vacuum in the drywell during an Inadvertent Spray Actuation (ISA). The first function is associated with the closing of the vacuum relief valve, while the latter two functions are associated with opening the valve. The impact of the proposed change on the three safety related functions is as follows:

(1) Preventing Steam Bypass: The vacuum breakers must remain closed to prevent bypass leakage when the drywell pressure exceeds the wetwell pressure, and must open to prevent containment or drywell floor failure. The function of preventing bypass leakage to the wetwell airspace is associated with closing and thus not directly applicable to the evaluation of the opening set pressure; the intent of the SR is to verify the valve's vacuum relief function, and is not used to evaluate the bypass leakage function of the valve. The constraints on defining the opening set pressure setpoint are

determined by the two opening functions (i.e., maintaining diaphragm floor integrity and maintaining containment). Therefore, the vacuum breaker function of preventing steam bypass need not be further evaluated.

(2) Maintaining Drywell Floor Integrity: Vertical loading on the diaphragm slab will occur during postulated LOCAs because of pressure differences between the drywell and wetwell. This differential pressure loading could take the form of downward loading in which the drywell pressure exceeds that of the wetwell, or upward loading (i.e. creating an "upload") when the wetwell pressure is higher. Upward loading is the limiting case as described in the FSAR section 6.2.1.1.3.3.1.5. Two cases are analyzed in the FSAR section 6.2.1.1.3.3.1.5 to determine the maximum upward differential pressure across the drywell floor. In both cases, all noncondensibles were conservatively assumed to have been carried over into the wetwell. These two cases were: 1) inadvertent spray actuation (ISA) of one containment spray train and 2) maximum ECCS spillage through the postulated large recirculation line break. The ISA was shown to be the limiting case, resulting in a worst case differential pressure across the diaphragm slab of 4.6 psid (drywell vs. wetwell), which occurs approximately 30 seconds after event initiation, and reaches an equilibrium of 3 psid approximately 130 seconds after event initiation.

(3) Relieving Drywell Vacuum: Primary containment has been designed for a pressure of –5.0 psig (primary to secondary containment). If this value is exceeded in the drywell, the liner plate on the drywell wall could buckle and tear, resulting in a containment breach. The worst case for this consideration results from the ISA event. During such a transient, cold spray is passed through the drywell atmosphere, resulting in a drop in vapor region temperature and a corresponding drop in vapor region pressure. As stated in the FSAR, Section 6.2.1.1.4, the ISA analysis reveals that the peak negative drywell pressure (drywell vs. secondary containment) for this scenario is –4.72 psig.

3.3 Technical Justification for Expanding Acceptance Criteria Tolerance

(1) Drywell Floor Integrity and Drywell Vacuum Relief Concerns

The safety significance of this change can be addressed by reviewing the original design basis analysis of the ISA scenario since it is, as described in Section 3.2, the most limiting event for the vacuum breaker opening functions.

The containment depressurization rate analysis for a postulated inadvertent spray actuation assumed that vacuum breakers begin to open at a *wetwell-to-drywell pressure* of 2.81 psid (FSAR Section 6.2.1.1.3.2). The analysis indicates that this value is based upon a pressure of 1.8 psid *across the valve assembly* to begin opening. The correlation between the *wetwell-to-drywell pressure* and the *pressure across the valve assembly* is due to other flow losses in the wetwell-to-drywell flow path to account for the difference between these two values.

The 1.8 psid valve assembly opening differential pressure was derived from the "ramp" opening curve. This curve relates the mass flow (or degree open) to the differential pressure across the valve assembly. This ramp curve was established by selecting a conservative position (i.e., to the right of the actual measured flow characteristic curve for the valve) on the mass-flow/differential pressure graph, assuming that the vacuum breaker area increases linearly with pressure differential across the valve until the valve is full open.

The ISA assumptions regarding vacuum breaker opening pressure (i.e., the ramp curve) is very conservative when compared to the actual flow characteristic curves derived from empirical vacuum breaker test data. Actual flow testing of the original valves revealed an opening set pressure of 1.0 psid across the valve assembly, or 0.5 psid across a single valve. Compared to this 0.5 psid value, the ISA assumed value of 0.9 psid (1.8 psid/2) is 80% more conservative, in that the ISA assumed it will take a greater differential pressure, and thus more time to initiate opening.

The proposed technical specification change expands the tolerance resulting in an acceptable set pressure of 0.75 psid, at the high end of the acceptance range. This change provides a minimum margin of 20%

to the 0.9 psid value that is assumed in the accident analysis. Containment pressure response sensitivity analyses were performed which show that the containment pressure response is not significantly affected by changes in vacuum breaker lifting differential pressure. For example, the analysis shows that an increase in the lifting ΔP at the valves from 0.5 to 1.0 psid only resulted in an increase of 0.07 psi in the peak negative pressure. Since the setpoint change results in an insignificant affect on containment pressure response, the change to 0.75 psid represents effectively no change to the safety analysis margin.

Actual valve performance and setpoint adjustment procedures provide additional conservatism. A review of recent test history (i.e., the last several outages on both units) reveals that no vacuum breaker has had an as-found set pressure of greater than 0.6 psid (50% margin to analysis assumption value of 0.9 psid). Furthermore, most failures due to a high set pressure have been less than 0.55 psid (0.25 psid difference from the current upper limit of 0.525 psid). Currently, work practices direct the workers to adjust the valves to achieve a set pressure of less than 0.5 psid when set pressure adjustments are made to the valves. Thus, based upon past performance and maintenance practices, valve performance will be unaffected by the proposed change and is expected to be much lower than the upper limit proposed by this change.

(2) Impacts on Structural Integrity of Vacuum Breaker Components

The worst-case structural effects on the vacuum breaker occur during the pool swell event. At the start of a postulated LOCA, the steam from the break purges the air from the drywell into the wetwell airspace throughout the downcomers. This drywell purging produces the phenomenon known as pool swell. In addition to the actuation of the vacuum breakers during the LOCA depressurization phase, the vacuum breakers might actuate during pool swell early in the postulated LOCA. The wetwell pressure could exceed the drywell pressure sufficiently for a short period of time during pool swell so as to actuate the vacuum breakers. During pool swell, rapid valve actuation subjects the disc assembly to opening and closing impact loads.

An evaluation of the resultant torsion and bending impacts on the shaft reveals that:

a. the increased setpoint tolerance does not result in a torque on the shaft due to the disc that exceeds the analysis;

b. the shaft is not adversely affected by the torsional loading associated with the setpoint change; and

c. the shaft will not yield due to bending and torque combined.

3.4 Evaluation of Impacts of Proposed Change

The setpoint expansion does not adversely affect the vacuum breakers' ability to perform their design basis functions. Specifically, the calculation determined the following:

- The vacuum breaker's design basis function of preventing bypass leakage from the drywell to the wetwell is unaffected by the expansion of the opening pressure setpoint.
- Each valve and thus the valve assembly will open sooner than assumed in the accident analysis.
- The proposed increase in set pressure will not affect the design basis function of the vacuum breakers to maintain the drywell floor integrity. Relative to the opening differential pressure assumed in the limiting ISA analysis, the vacuum breakers will open sooner than assumed.
- The proposed increase in opening set pressure will not affect the design basis function of relieving negative drywell pressure. Relative to the opening differential pressure assumed in the ISA analysis, the vacuum breakers will open sooner.
- Containment pressure response is not significantly affected by the proposed change.
- An evaluation of the resultant torsion and bending impacts on the shaft reveals that: (1) the increased setpoint tolerance does not result in a torque on the shaft due to the disc that exceeds the analysis; (2) the shaft is not adversely affected by the torsional loading associated with the setpoint change; and (3) the shaft will not yield due to bending and torque combined.

3.5 Evaluation of Impact of Change on Operator Performance

This change will not affect operator performance. The expansion of the opening set pressure setpoint tolerance provides for margin in the surveillance acceptance criteria. As discussed above, the valves will open sooner than assumed in the accident analysis.

4.0 REFERENCES

4.1 LER 50-387/00-003-00, issued 4/24/00, Multiple Test Failures were experienced during operating setpoint verification testing of Suppression Chamber-to-Drywell Vacuum Breakers.

ATTACHMENT 2 TO PLA-5228

NO SIGNIFICANT HAZARDS CONSIDERATION
AND
EVNIRONMENTAL CONSIDERATION

NO SIGNIFICANT HAZARDS CONSIDERATIONS AND ENVIRONMENTAL CONSIDERATION

NO SIGNIFICANT HAZARDS CONSIDERATIONS

PPL Susquehanna LLC Unit 1 and Unit 2 Technical Specification Surveillance Requirement (SR) 3.6.1.6.3 requires the suppression chamber to drywell vacuum breakers setpoint be verified to be within ≥ .25 and ≤ .525 psid. The proposed change expands the allowable setpoint range to ≥ .25 and ≤ .75 psid.

Implementation of the change will reduce the number of opening set pressure test failures that are not indicative of an inability of the valves to perform their design basis function.

PPL Susquehanna LLC has evaluated the changes proposed in accordance with the criteria specified by 10CFR50.92 and has determined that the proposed changes do not involve a significant hazards consideration. The criteria and conclusions of our evaluation are presented below.

1. **The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.**

   This proposed change does not involve an increase in the probability or consequences of an accident previously evaluated.

   The SR is required to verify that the vacuum breakers open when required by the containment safety analysis. The vacuum breakers setpoint prevent the creation of a vacuum in the drywell or an unacceptable differential pressure across the containment diaphragm slab. When the drywell pressure falls below the airspace pressure by an amount equal to the open set pressure of the vacuum breakers, the vacuum breakers open to allow the suppression chamber atmosphere from the wetwell airspace to flow into the drywell.

   The ability to maintain containment integrity is not affected by the proposed change. Containment analyses are not affected by the proposed change.

   Containment analyses assume the vacuum breakers open at .9 psid. Thus, the vacuum breakers at the new setpoint range are bounded by the setpoint assumed in the analysis. Sensitivity analyses show that the containment pressure response is insignificantly affected by the proposed change.

The setpoint expansion does not adversely affect the vacuum breakers ability to perform their design basis functions.

Based on the above, it is concluded that the proposed change to the vacuum breakers setpoint surveillance requirement does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. **The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.**

   The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated. This proposed change allows an expanded setpoint range. No other changes in requirements are being proposed. This change will not physically alter the plant (no new or different type of equipment will be installed). This change will not alter the operation of process variables, structures, systems, or components as described in the safety analysis. The new range is bounded by the safety analysis assumptions. Thus, a new or different kind of accident will not be created from implementation of the proposed change.

3. **The proposed change does not involve a significant reduction in the margin of safety.**

   This proposal does not involve a significant reduction in the margin of safety.

   The containment pressures are insignificantly affected by the proposed change. Safety analyses assume a bounding setpoint. The operation of the vacuum breakers are not affected.

   Therefore, this proposed change does not represent a significant reduction in the margin of safety.

ENVIRONMENTAL CONSIDERATION

An environmental assessment is not required for the proposed revisions because the requested revisions conform to the criteria for actions eligible for categorical exclusion as specified in 10CFR51.22(c)(9). The requested revisions will have no impact on the environment. As discussed above, the proposed revisions do not involve a significant hazard consideration. The proposed revisions do not involve a change in the types or increase in the amounts of effluents that may be released off-site. In addition, the proposed revisions do not involve an increase in the individual or cumulative occupational radiation exposure.

ATTACHMENT 3 TO PLA-5228

MARKED-UP TECHNICAL SPECIFICATION PAGES

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.2	Perform a functional test of each required vacuum breaker.	31 days AND Within 12 hours after discharge of steam to the suppression chamber from S/RV operation AND Within 12 hours following an operation that causes any of the vacuum breakers to open
SR 3.6.1.6.3	Verify the opening setpoint of each required vacuum breaker is ≥ 0.25 and ≤ ~~.525~~ .75 psid.	24 months

LDCN 3191

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.2	Perform a functional test of each required vacuum breaker.	31 days AND Within 12 hours after discharge of steam to the suppression chamber from S/RV operation AND Within 12 hours following an operation that causes any of the vacuum breakers to open
SR 3.6.1.6.3	Verify the opening setpoint of each required vacuum breaker is ≥ 0.25 and ≤ ~~.525~~ .75 psid.	24 months

ATTACHMENT 4 TO PLA-5228

"CAMERA-READY" TECHNICAL SPECIFICATION PAGES

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.2	Perform a functional test of each required vacuum breaker.	31 days AND Within 12 hours after discharge of steam to the suppression chamber from S/RV operation AND Within 12 hours following an operation that causes any of the vacuum breakers to open
SR 3.6.1.6.3	Verify the opening setpoint of each required vacuum breaker is ≥ 0.25 and ≤ .75 psid.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.2	Perform a functional test of each required vacuum breaker.	31 days AND Within 12 hours after discharge of steam to the suppression chamber from S/RV operation AND Within 12 hours following an operation that causes any of the vacuum breakers to open
SR 3.6.1.6.3	Verify the opening setpoint of each required vacuum breaker is ≥ 0.25 and ≤ .75 psid.	24 months

ATTACHMENT 5 TO PLA-5228

TECHNICAL SPECIFICATION BASES MARKUPS

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.6.2

Each required vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This ensures that the safety analysis assumptions are valid. The 31 day Frequency of this SR was developed, based on Inservice Testing Program requirements to perform valve testing at least once every 92 days. A 31 day Frequency was chosen to provide additional assurance that the vacuum breakers are OPERABLE, since they are located in a harsh environment (the suppression chamber airspace). In addition, this functional test is required within 12 hours after either a discharge of steam to the suppression chamber from safety/relief valve operation or after an operation that causes any of the vacuum breakers to open.

SR 3.6.1.6.3

Verification of the vacuum breaker opening setpoint is necessary to ensure that the safety analysis assumption regarding vacuum breaker open differential pressure setpoint ~~of ≥ 0.25 and ≤ .525 psid~~ is valid. The 24 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. For this facility, the 24 month Frequency has been shown to be acceptable, based on operating experience, and is further justified because of other surveillances performed at shorter Frequencies that convey the proper functioning status of each vacuum breaker.

REFERENCES

1. FSAR, Section 6.2.

2. Final Policy Statement on Technical Specifications Improvements, July 22, 1993 (58 FR 39132).

LDCN 3191

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.2 (continued)

since they are located in a harsh environment (the suppression chamber airspace). In addition, this functional test is required within 12 hours after either a discharge of steam to the suppression chamber from safety/relief valve operation or after an operation that causes any of the vacuum breakers to open.

SR 3.6.1.6.3

Verification of the vacuum breaker opening setpoint is necessary to ensure that the safety analysis assumption regarding vacuum breaker open differential pressure setpoint ~~of ≥ 0.25 and ≤ .625 psid~~ is valid. The 24 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. For this facility, the 24 month Frequency has been shown to be acceptable, based on operating experience, and is further justified because of other surveillances performed at shorter Frequencies that convey the proper functioning status of each vacuum breaker.

REFERENCES

1. FSAR, Section 6.2.

2. Final Policy Statement on Technical Specifications Improvements, July 22, 1993 (58 FR 39132).