ATTACHMENT A-1

Beaver Valley Power Station, Unit No. 1
Proposed Technical Specification Change No. 223

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ADMINISTRATIVE CONTROLS

ADD

(Proposed Wording)

DFR-66

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

(1) Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within ~~one~~ hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following ~~36~~ 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated:

a. At least once per 31 days by verifying that:

1. All penetrations(1) not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in their positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1.

2. All equipment hatches are closed and sealed.

b. By verifying that each containment air lock is in compliance with the requirements of Specification 3.6.1.3.

DELETE → ~~c. After each closing of each penetration subject to Type B testing, except the containment air locks, if opened following a Type A or B test, by leak rate testing the seal with gas at a pressure not less than P_a (40.0 psig), and verifying that when the measured leakage rate for these seals is added to the leakage rates determined pursuant to Specification 4.6.1.2.d for all other Type B and C penetrations, the combined leakage rate is less than $0.60 L_a$.~~

(1) Except valves, blind flanges, and deactivated automatic valves which are located inside the containment and are locked, sealed, or otherwise secured in the closed position. These penetrations shall be verified closed during each COLD SHUTDOWN except that such verification need not be performed more often than once per 92 days.

(Proposed Wording)

DPR-66

CONTAINMENT SYSTEMS

CONTAINMENT LEAKAGE

limited in accordance with Specification 6.17 titled "Containment Leakage Rate Testing Program."

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be ~~limited to:~~

DELETE →

~~a. An overall integrated leakage rate of:~~

~~1. ≤ L_a, 0.10 percent by weight of the containment air per 24 hours at P_a, (10.0 psig), or~~

~~b. A combined leakage rate of ≤ 0.60 L_a for all penetrations and valves subject to Type B and C tests when pressurized to P_a.~~

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the containment leakage rates exceeding the limits, restore the leakage rates to within limits within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

~~With either (a) the measured overall integrated containment leakage rate exceeding 0.75 L_a, or (b) with the measured combined leakage rate for all penetrations and valves subject to Types B and C tests exceeding 0.60 L_a, restore the leakage rate(s) to within the limit(s) prior to increasing the Reactor Coolant System temperature above 200°F.~~

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be ~~demonstrated at the following test schedule and shall be determined in accordance with Appendix J of 10 CFR 50*:~~

~~a. A Type A test (Overall Integrated Containment Leakage Rate) shall be conducted at 40 ± 10-month intervals during shutdown at P_a (40.0 psig).~~

determined in accordance with the Containment Leakage Rate Testing Program as follows:

DELETE →

~~* Exemption to Appendix J of 10 CFR 50, Section III.D.1(a), granted on December 5, 1984.~~

a. Types A, B and C (Overall Integrated and Local Combined Leakage Rate) testing, except for the containment air lock testing, shall be conducted in accordance with the Containment Leakage Rate Testing Program.

b. Air locks shall be tested in accordance with Surveillance Requirement 4.6.1.3.

(Next page is 3/4 6-5)

(Proposed Wording)

DELETE

SURVEILLANCE REQUIREMENTS (Continued)

b. If any periodic Type A test fails to meet .75 L_a, the test schedule for subsequent Type A tests shall be reviewed and approved by the Commission. If two consecutive Type A tests fail to meet .75 L_a, a Type A test shall be performed at least every 18 months until two consecutive Type A tests meet .75 L_a at which time the above test schedule may be resumed.

c. The accuracy of each Type A test shall be verified by a supplemental test which:

1. Confirms the accuracy of the Type A test by verifying that the difference between supplemental and Type A test data is within 0.25 L_a.

2. Has a duration sufficient to accurately establish the change in leakage for between the Type A test and the supplemental test.

3. Requires the quantity of gas injected into the containment or bled from the containment during the supplemental test to be equivalent to at least 25 percent of the total measured leakage rate at P_a (40.0 psig).

d. Type B and C tests shall be conducted with gas at P_a*(40.0 psig) at intervals no greater than 24 months except for tests involving:

1. Air locks,

2. Penetrations using continuous leakage monitoring systems, and

3. Valves pressurized with fluid from a seal system.

e. Air locks shall be tested and demonstrated OPERABLE per Surveillance Requirement 4.6.1.3.

f. Leakage from isolation valves that are sealed with fluid from a seal system may be excluded, subject to the provisions of Appendix J, Section III.C.3, when determining the combined leakage rate provided the seal system and valves are pressurized to at least 1.10 P_a (44.0 psig) and the seal system capacity is adequate to maintain system pressure for at least 30 days.

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* Applicable valves may be tested using water as the pressure fluid in accordance with the Inservice Testing Program.

(proposed Wording)

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

~~g. All test leakage rates shall be calculated using observed data converted to absolute values. Error analyses shall be performed to determine the inaccuracy of the measured leakage rates due to maximum measurement accuracy and instrument repeatability; the measured leakage rates shall be adjusted to include the measurement error.~~

↑ DELETE

(Proposed Wording)

CONTAINMENT AIR LOCKS

LIMITING CONDITION FOR OPERATION

3.6.1.3 Two containment air locks shall be OPERABLE:

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

- - - - - - - - - - - - - - - - GENERAL NOTES - - - - - - - - - - - - - - - -

1. Entry and exit is permissible to perform repairs on the affected air lock components.

2. Separate ACTION statement entry is allowed for each air lock.

3. Enter the ACTION of LCO 3.6.1.1 and 3.6.1.2, when air lock leakage results in exceeding the combined containment leakage rate acceptance criteria.

- -

a. With one containment air lock door inoperable in one or more containment air locks:(4)

1. Verify the OPERABLE door is closed in the affected air lock within 1 hour, and

2. Lock the OPERABLE door closed in the affected air lock within 24 hours, and

3. Verify the OPERABLE door is locked closed in the affected air lock at least once per 31 days.(5)

4. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

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(4) Entry and exit is permissible for 7 days under administrative controls to perform activities not related to the repair of affected air lock components.

(5) Air lock doors in high radiation areas may be verified locked closed by administrative means.

(Proposed Wording)

a. By performing the following air lock leakage rate testing at the frequency specified in the Containment Leakage Rate Testing Program:

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

~~a. Within 72 hours[11] following each containment entry, except when the air lock is being used for multiple entries, then at least once per 72 hours,[12] by~~ 1. Verify ~~verifying~~ no detectable seal leakage when the gap between the door seals is pressurized for at least 2 minutes to:

a) ~~X.~~ Personnel air lock ~~greater than or equal to 40.0 psig~~ ≥ P_a (40.0 psig).

b) ~~X.~~ Emergency air lock ~~greater than or equal to 10.0 psig~~ ≥ 10.0 psig.

or, ~~by quantifying[10]~~ quantify[7] the air lock door seal leakage to ensure that the leakage rate is ~~less than or equal to~~ ≤ 0.0005 L_a at ≥ P_a (40.0 psig) for the personnel air lock and ~~less than or equal to~~ ≤ 0.0005 L_a at ≥ 10.0 psig for the emergency air lock. when tested

2. Conduct the ~~b. By conducting~~ overall air lock leakage tests, ~~not less than~~ ≥ P_a (40.0 psig), and verify ~~ing~~ the overall air lock leakage rate is ~~less than or equal to~~ ≤ 0.05 L_a at ≥ P_a (40.0 psig): when tested

DELETE

a) At the frequency specified in the Containment Leakage Rate Testing Program, and

~~1. At least once per 6 months,[12] and~~

~~2. Prior to establishing CONTAINMENT INTEGRITY when maintenance has been performed on the air lock that could affect the air lock sealing capability. Local leak rate testing at a pressure of not less than P_a may be substituted for an overall air lock test where the design permits,[10] and~~

DELETE

~~(7) The provisions of Specification 4.0.2 are not applicable.~~

(7) An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test.

(8) applicable to Results shall be evaluated against the acceptance criteria ~~of~~ LCO 3.6.1.2.

~~(10) Exemption to Appendix J of 10 CFR 50, dated November 19, 1984 and July 26, 1995.~~

DELETE

(Proposed Wording)

SURVEILLANCE REQUIREMENTS (Continued)

b) → X. Following maintenance performed on the outer personnel air lock door which may result in a decrease in closure force on any part of the door sealing surface.

b. → X. At least once per 18 months during shutdown by verifying that only

DELETE → ~~1. Only~~ one door in each air lock can be opened at a time.

(Proposed Wording)

DPR-66

CONTAINMENT SYSTEMS

CONTAINMENT STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.6 The structural integrity of the containment shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.6.1.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the structural integrity of the containment not conforming to the above requirements, restore the structural integrity to within the limits ~~prior to increasing the Reactor Coolant System temperature above 200°F~~. within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.6.1 Containment Vessel Surfaces The structural integrity of the exposed accessible interior and exterior surfaces of the containment vessel, including the liner plate, shall be determined ~~during the shutdown for each Type A containment leakage rate test (reference Specification 4.6.1.2) by a visual inspection of these surfaces. This inspection shall be performed prior to the Type A containment leakage rate test to verify no apparent changes in appearance or other abnormal degradation.~~ at the frequency specified in the Containment Leakage Rate Testing Program, by a visual inspection of these surfaces. This inspection shall verify that there is no evidence of structural deterioration that might affect either the containment structural integrity or leak tightness.

4.6.1.6.2 Reports ~~An initial report of any abnormal degradation of the containment structure detected during the above required tests and inspections shall be made within 10 days after completion of the surveillance requirements of this specification, and the detailed report shall be submitted pursuant to Specification 6.9.2 within 90 days after completion. This report shall include a description of the condition of the liner plate and concrete, the inspection procedure, the tolerances on cracking and the corrective actions taken.~~ Reports of containment visual inspections shall be prepared in accordance with the Containment Leakage Rate Testing Program.

(Proposed wording)

BASES

3/4.6.1 PRIMARY CONTAINMENT

3/4.6.1.1 CONTAINMENT INTEGRITY

Primary CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the accident analyses. This restriction, in conjunction with the leakage rate limitation, will limit the site boundary radiation doses to within the limits of 10 CFR 100 during accident conditions.

3/4.6.1.2 CONTAINMENT LEAKAGE

REPLACE WITH INSERT "A"

The limitations on containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the accident analyses at the peak accident pressure, P_a. ~~As an added conservatism, the measured overall integrated leakage rate is further limited to $\leq 0.75\ L_a$ during performance of the periodic test to account for possible degradation of the containment leakage barriers between leakage tests.~~

~~The surveillance testing for measuring leakage rates are consistent with the requirements of Appendix "J" of 10 CFR 50.~~

~~The exemption to 10 CFR 50 Appendix J.III.D.1(a) allows Type A tests to be conducted on a 40 $\pm$ 10-month schedule, not in conjunction with any ISI tests.~~

DELETE

3/4.6.1.3 CONTAINMENT AIR LOCKS

BACKGROUND

Containment air locks form part of the containment pressure boundary and provide a means for personnel access during all MODES of operation.

Each air lock is nominally a right circular cylinder, with a door at each end. The doors are interlocked to prevent simultaneous opening. During periods wher containment is not required to be OPERABLE, the door interlock mechanism may be disabled, allowing both doors of an air lock to remain open for extended periods when frequent containment entry is necessary. The emergency air lock, which is located in the equipment hatch opening, is normally removed from the containment building and stored during a refueling outage. Each air lock door has been designed and tested to certify its ability to withstand a pressure in excess of the maximum expected pressure following a Design Basis Accident (DBA) in containment. As

Attachment to 3/4.6.1.2 Containment Leakage

INSERT "A"

Containment leakage is limited to $\leq$ 1.0 L_a, except prior to the first startup after performing a required Containment Leakage Rate Testing Program leakage test. At this time additional leakage limits must be met. As left leakage prior to the first startup after performing a required leakage test is required to be $< 0.60\ L_a$ on a maximum pathway leakage rate (MXPLR) basis for combined Type B and C leakage following an outage or shutdown that included Type B and C testing only and $< 0.75\ L_a$ for overall Type A leakage following an outage or shutdown that included Type A testing. At all other times between required leakage rate tests, the acceptance criteria is based on an overall Type A leakage limit of $\leq$ 1.0 L_a and $< 0.60\ L_a$ on a minimum pathway leakage rate (MNPLR) basis. The MXPLR for combined Type B and C leakage is the measured leakage through the worst of the two isolation valves, unless a penetration is isolated by use of a valve(s), blind flange(s), or de-activated automatic valve(s). In this case, the MXPLR of the isolated penetration is assumed to be the measured leakage through the isolation device(s).

BASES

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

BACKGROUND (Continued)

such, closure of a single door supports containment OPERABILITY. Each of the doors contains double o-ring seals and local leakage rate testing capability to ensure pressure integrity. DBA conditions which increase containment pressure will result in increased sealing forces on the personnel air lock inner door and both doors on the emergency air lock. The outer door on the personnel air lock is periodically tested in a manner where the containment DBA pressure is attempting to overcome the door sealing forces.

The containment air locks form part of the containment pressure boundary. As such, air lock integrity and leak tightness is essential for maintaining the containment leakage rate within limits in the event of a DBA. Not maintaining air lock integrity or leak tightness may result in a leakage rate in excess of that assumed in the unit safety analyses. ~~SR 4.6.1.2 leakage rate requirements comply with 10 CFR 50, Appendix J, as modified by approved exemptions.~~ DELETE

APPLICABLE SAFETY ANALYSES

The DBAs that result in a release of radioactive material within containment are a loss of coolant accident and a rod ejection accident. In the analysis of each of these accidents, it is assumed that containment is OPERABLE such that release of fission products to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of 0.1 percent of containment air weight per day. This leakage rate is defined in ~~10 CFR 50, Appendix J,~~ as L_a = 0.1 percent of containment air weight per day, the maximum allowable containment leakage rate at the calculated peak containment internal pressure P_a = 40.0 psig following a DBA. This allowable leakage rate forms the basis for the acceptance criteria imposed on the SRs associated with the air locks.

Specification 6.17 titled "Containment Leakage Rate Testing Program"

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

ACTIONS (Continued)

in which the OPERABLE door is expected to be open. At no time should the OPERABLE door be opened if it cannot be demonstrated that the inoperable door is sufficiently closed/latched. This verification is necessary to preclude an inadvertent opening of the inoperable door while the OPERABLE door is open. After each entry and exit, the OPERABLE door must be immediately closed. If ALARA conditions permit and personnel safety can be assured, entry and exit should be via an OPERABLE air lock.

General Note (2) has been added to provide clarification that, for this LCO, separate ~~Action~~ ACTION statement entry is allowed for each air lock.

In the event the air lock leakage results in exceeding the combined containment leakage rate acceptance criteria, General Note (3) directs entry into the ~~Required Action~~ ACTION statement of LCO 3.6.1.1 and LCO 3.6.1.2.

a. With one air lock door in one or more containment air locks inoperable, the OPERABLE door must be verified closed (~~Required Action~~ a.1) in each affected containment air lock. This ensures that a leak tight containment barrier is maintained by the use of an OPERABLE air lock door. This action must be completed within 1 hour. This specified time period is consistent with the ~~Required Action~~ of LCO 3.6.1.1 which requires CONTAINMENT INTEGRITY and containment leakage rates to be restored within 1 hour. and LCO 3.6.1.3.

In addition, the affected air lock penetration must be isolated by locking closed (~~Required Action~~ a.2) the OPERABLE air lock door within the 24 hour completion time. The 24 hour completion time is reasonable for locking the OPERABLE air lock door, considering the OPERABLE door of the affected air lock is being maintained closed. This action places additional positive controls on the use of the air lock when one air lock door is inoperable.

~~Required Action~~ a has been modified by a Note. Note (4) allows use of the air lock for entry and exit for 7 days under administrative controls. Containment entry may be required to perform non-routine Technical Specification (TS) Surveillances and Required Actions, as well as other activities on equipment inside containment that are required by TS or activities on equipment that support TS-required equipment. An example of such an activity would be the isolation of a containment penetration by at least one operable valve, and the subsequent repair and

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

ACTIONS (Continued)

post-maintenance technical specification surveillance testing on the inoperable valve. In addition, containment entry may be required to perform repairs on vital plant equipment which, if not repaired, could lead to a plant transient or reactor trip. This Note is not intended to preclude performing other activities (i.e., non-TS-required activities or repair of non-vital plant equipment) if the containment is entered, using the inoperable air lock, to perform an allowed activity listed above. This allowance is acceptable due to the low probability of an event that could pressurize the containment during the short time that the OPERABLE door is expected to be open.

ACTION statement

~~Required Action~~ a.3 verifies that an air lock with an inoperable door has been isolated by the use of a locked and closed OPERABLE air lock door. This ensures that an acceptable containment leakage boundary is maintained. The completion time of once per 31 days is based on engineering judgment and is considered adequate in view of the low likelihood of a locked door being mispositioned. ~~Required Action~~ a.3 is modified by a Note (5) that applies to air lock doors located in high radiation areas and allows these doors to be verified locked closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, it is unlikely that a door would become misaligned once it has been verified to be in the proper position.

b. With an air lock interlock mechanism inoperable in one or more air locks, the ~~Required Actions~~ and associated completion times are consistent with those specified in ~~Required Action~~ a.

ACTION statement

ACTION statements

The ~~Required Actions~~ have been modified by two Notes. Note (6) allows entry into and exit from containment under the control of a dedicated individual stationed at the air lock to ensure that only one door is opened at a time (i.e., the individual performs the function of the interlock). Note (5) applies to air lock doors located in high radiation areas and allows these doors to be verified locked closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access

BASES

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

ACTIONS (Continued)

to these areas is typically restricted. Therefore, it is unlikely that a door would become misaligned once it has been verified to be in the proper position.

c. With one or more air locks inoperable for reasons other than those described in ~~Required Actions~~ a or b, ~~Required Action~~ c.1 requires action to be initiated immediately to evaluate previous combined leakage rates using current air lock test results. An evaluation is acceptable, since it is overly conservative to immediately declare the containment inoperable if both doors in an air lock have failed a seal test or if the overall air lock leakage is not within limits. In many instances (e.g., only one seal per door has failed), containment remains OPERABLE, yet only 1 hour (per LCO 3.6.1.1) would be provided to restore the air lock door to OPERABLE status prior to requiring a plant shutdown. In addition, even with both doors failing the seal test, the combined containment leakage rate can still be within limits.

~~Required Action~~ c.2 requires that one door in the affected containment air lock must be verified to be closed within the 1 hour completion time. This specified time period is consistent with the ~~Required Actions~~ of LCO 3.6.1.1, which requires that CONTAINMENT INTEGRITY be restored within 1 hour.

Additionally, ~~Required Action~~ c.3 requires that the affected air lock(s) must be restored to OPERABLE status within the 24 hour completion time. The specified time period is considered reasonable for restoring an inoperable air lock to OPERABLE status, assuming that at least one door is maintained closed in each affected air lock.

For all ~~Required Actions~~, if the inoperable containment air lock cannot be restored to OPERABLE status within the required completion time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within the following 30 hours. The allowed completion times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

(Proposed wordy)

required by the Containment Leakage Rate Testing Program.

BASES

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

of the Containment Leakage Rate Testing Program.

SURVEILLANCE REQUIREMENTS (SR)

Maintaining containment air locks OPERABLE requires compliance with the leakage rate test requirements ~~of 10 CFR 50, Appendix J, as modified by approved exemptions.~~ This SR reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). The periodic testing requirements verify that the air lock leakage does not exceed the allowed fraction of the overall containment leakage rate. The frequency is ~~required by Appendix J, as modified by approved exemptions. Note (10) reflects the current approved exemption from Appendix J. Thus, SR 4.0.2 (which allows Frequency extensions) does not apply as stated in Note (7).~~

DELETE

Testing of the personnel air lock door seals may be accomplished with the air lock pressure equalized with containment or with atmospheric pressure. Each configuration applies P_a, as a minimum, across the sealing surfaces demonstrating the ability to function as designed. As long as the testing conducted is equivalent or more conservative than what might exist for accident conditions, the air lock doors will be able to perform their design function.

Performance of maintenance activities which affect air lock sealing capability, such as the replacement of the o-ring door seals and/or breach ring travel adjustment, will require performance of the appropriate surveillance requirements such as SR 4.6.1.3.a as a minimum. The performance of SR 4.6.1.3.b will depend on the air lock components which are affected by the maintenance. Replacement of o-rings and/or breech ring travel adjustment on the inner personnel air lock door, for example, normally will not require the performance of SR 4.6.1.3.e as a post maintenance test. Testing per SR 4.6.1.3.a is sufficient to demonstrate post accident leak tightness of the inner air lock door. The sealing force, which is applied to o-rings, is developed by the rotation of tapered wedges against the door's outer surface. This action forces the door to compress the o-rings which are located on the air lock barrel. When SR 4.6.1.3.a is performed, the area between the two concentric o-rings is pressurized to at least P_a and a leak rate of the two o-rings and sealing surface is determined. This test pressure applies an opposing force to the breech ring closure force. Since the containment pressure developed during a DBA applies a closing force which is supplemental to the breech ring force, the net result would be to improve the door sealing capability of the inner personnel air lock door over that which exists during the performance of SR 4.6.1.3.a. For this reason, performance of SR

a.2 · .1 · .1 · 1.

(Proposed Wording)

BASES

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

SURVEILLANCE REQUIREMENTS (SR) (Continued)

4.6.1.3.~~b~~ (a.2), which applies a force which opposes the breech ring force, is not necessary following certain inner air lock door maintenance. (.1) SR 4.6.1.3.a sufficiently demonstrates the ability of the inner air lock door to provide a leak tight barrier following maintenance affecting the door sealing surface.

Replacement of the o-rings on the outer personnel air lock door, which results in decreasing the breech ring closure force, will require performance of SR 4.6.1.3.~~b~~ (a.2) in addition to SR 4.6.1.3.a (.1) which is required due to the door being opened. This surveillance is required because containment DBA pressure tends to overcome the outer personnel air lock door sealing forces. Performance of SR 4.6.1.3.a (.1) on the outer personnel air lock applies an opposing force to the breech ring closure force in the same manner as previously described for the inner personnel air lock door. However, for the outer personnel air lock door, the containment pressure developed during a DBA applies an opening force which is opposing the breech ring closure force. Therefore, upon completion of certain maintenance activities, continued outer door leak tightness during a DBA cannot be assured by performance of SR 4.6.1.3.a alone. (.1) Maintenance which may result in a decrease in closure force on any part of the door sealing surface, (decreasing of breech ring travel for example), will require performance of SR 4.6.1.3.~~b~~ (a.2) The performance of this surveillance is necessary to ensure that containment DBA pressure applied against the outer door will not result in the unseating of the air lock door by overcoming of the breech ring closure forces to the point where the leakage becomes excessive. (a.2) Since SR 4.6.1.3.~~b~~ duplicates DBA forces on the outer personnel air lock door and also measures the air lock leakage rate, performance of this surveillance requirement demonstrates the continued ability of the outer personnel air lock door to provide a leak tight barrier, during a DBA, following specific maintenance activities.

The air lock interlock is designed to prevent simultaneous opening of both doors in a single air lock. Since both the inner and outer doors of an air lock are designed to withstand the maximum expected post accident containment pressure, closure of either door will support containment OPERABILITY. Thus, the door interlock feature supports containment OPERABILITY and personnel safety, considering the subatmospheric design, while the air lock is being used for personnel transit in and out of the containment. Periodic testing of this interlock demonstrates that the interlock will function as designed and that simultaneous opening of the inner and outer doors will not inadvertently occur.

BASES

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

SURVEILLANCE REQUIREMENTS (SR) (Continued) DELETE (7)

The SR has been modified by two ~~additional~~ Notes. Note (7) states that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. This is considered reasonable since either air lock door is capable of providing a fission product barrier in the event of a DBA. Note (8) has been added to this SR requiring the results to be evaluated against the acceptance criteria ~~of~~ LCO 3.6.1.2. This ensures that air lock leakage is properly accounted for in determining the combined containment leakage rate. applicable to

3/4.6.1.4 and 3/4.6.1.5 INTERNAL PRESSURE AND AIR TEMPERATURE

The limitations on containment internal pressure and average air temperature as a function of river water temperature ensure that 1) the containment structure is prevented from exceeding its design negative pressure of 8.0 psia, 2) the containment peak pressure does not exceed the design pressure of 45 psig during LOCA conditions, and 3) the containment pressure is returned to subatmospheric conditions following a LOCA.

The containment internal pressure and temperature limits shown as a function of river water temperature describe the operational envelope that will 1) limit the containment peak pressure to less than its design value of 45 psig and 2) ensure the containment internal pressure returns subatmospheric within 60 minutes following a LOCA.

The limits on the parameters of Figure 3.6-1 are consistent with the assumptions of the accident analyses.

3/4.6.1.6 CONTAINMENT STRUCTURAL INTEGRITY

This limitation ensures that the structural integrity of the containment vessel will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to ensure that the vessel will withstand the maximum pressure of 40.0 psig in the event of a LOCA. The visual and Type A leakage tests are sufficient to demonstrate this capability.

, performed at the frequency specified in the Containment Leakage Rate Testing Program,

CORE OPERATING LIMITS REPORT (Continued)

4. T. M. Anderson to K. Kniel (Chief of Core Performance Branch, NRC) January 31, 1980 -- Attachment: Operation and Safety Analysis Aspects of an Improved Load Follow Package. Methodology applied for the following Specification: 3.2.1, Axial Flux Difference-Constant Axial Offset Control

5. NUREG-0800, Standard Review Plan, U. S. Nuclear Regulatory Commission, Section 4.3, Nuclear Design, July 1981. Branch Technical Position CPB 4.3-1, Westinghouse Constant Axial Offset Control (CAOC), Rev. 2, July 1981. Methodology applied for the following Specification: 3.2.1, Axial Flux Difference-Constant Axial Offset Control

The core operating limits shall be determined so that all applicable limits (e.g., fuel thermal-mechanical limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis are met. The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements thereto, shall be provided on issuance, for each reload cycle, to the NRC Document Control Desk.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the U. S. Nuclear Regulatory Commission, Document Control Desk, within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification:

a. ECCS Actuation, Specifications 3.5.2 and 3.5.3.

b. Inoperable Seismic Monitoring Instrumentation, Specification 3.3.3.3.

c. Inoperable Meteorological Monitoring Instrumentation, Specification 3.3.3.4.

d. Seismic event analysis, Specification 4.3.3.3.2.

e. Sealed source leakage in excess of limits, Specification 4.7.9.1.3.

f. Miscellaneous reporting requirements specified in the Action Statements for Appendix C of the ODCM.

g. ~~Containment Inspection Report, Specification 4.6.1.6.2~~.

DELETED

(Proposed Wording)

OFFSITE DOSE CALCULATION MANUAL (ODCM) (Continued)

c. Shall be submitted to the Commission in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Annual Radioactive Effluent Release Report for the period of the report in which any change to the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (e.g., month/year) the change was implemented.

6.16 Moved to the PROCESS CONTROL PROGRAM.

ADD INSERT "B"

(Proposed Wording)

INSERT "B"

6.17 Containment Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions[1]. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995.

The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 40.0 psig.

The maximum allowable containment leakage rate, L_a, at P_a, shall be 0.10% of containment air weight per day.

Leakage Rate acceptance criteria are:

a. Containment leakage rate acceptance criterion is $\leq$ 1.0 L_a for the overall Type A leakage test and $<$ 0.60 L_a for the Type B and Type C tests on a minimum pathway leakage rate (MNPLR) basis. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $<$ 0.60 L_a on a maximum pathway leakage rate (MXPLR)[2] basis for Type B and Type C tests and $<$ 0.75 L_a for Type A tests.

b. Air Lock testing acceptance criteria and required action are as stated in Specification 3.6.1.3 titled "Containment Air Locks."

The provisions of Specification 4.0.2 do not apply to the test frequencies specified in the Containment Leakage Rate Testing Program.

The provisions of Specification 4.0.3 are applicable to the Containment Leakage Rate Testing Program.

---

(1) Exemptions to Appendix J of 10 CFR 50 dated November 19, 1984, December 5, 1984 and July 26, 1995.

(2) For penetrations which are isolated by use of a closed valve(s), blind flange(s), or de-activated automatic valve(s), the MXPLR of the isolated penetration is assumed to be the measured leakage through the isolation device(s).

ATTACHMENT A-2

Beaver Valley Power Station, Unit No. 2
Proposed Technical Specification Change No. 94

The following is a list of the affected pages:

Affected Pages:

XVI
3/4 6-1
3/4 6-2
3/4 6-3
3/4 6-4
3/4 6-5a
3/4 6-5b
3/4 6-9
B 3/4 6-1
B 3/4 6-2
B 3/4 6-4
B 3/4 6-5
B 3/4 6-6
B 3/4 6-7
B 3/4 6-8
B 3/4 6-9
6-21
6-25

INDEX

ADMINISTRATIVE CONTROLS

ADD

(Proposed Wording)

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

(1) Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within ~~one~~ hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following ~~36~~ 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated:

a. At least once per 31 days by verifying that:

1. All penetrations(1) not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in their positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1.

2. All equipment hatches are closed and sealed.

b. By verifying that each containment air lock is in compliance with the requirements of Specification 3.6.1.3.

DELETE →

~~c. After each closing of each penetration subject to Type B testing, except the containment air locks, if opened following a Type A or B test, by leak rate testing the seal with gas at a pressure not less than P_a (44.7 psig), and verifying that when the measured leakage rate for these seals is added to the leakage rates determined pursuant to Specification 4.6.1.2.d for all other Type B and C penetrations, the combined leakage rate is less than 0.60 L_a.~~

(1) Except valves, blind flanges, and deactivated automatic valves which are located inside the containment and are locked, sealed, or otherwise secured in the closed position. These penetrations shall be verified closed during each COLD SHUTDOWN except that such verification need not be performed more often than once per 92 days.

(Proposed Wording)

CONTAINMENT SYSTEMS

CONTAINMENT LEAKAGE

limited in accordance with Specification 6.17 titled "Containment Leakage Rate Testing Program."

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be ~~limited to:~~

DELETE →

~~a. An overall integrated leakage rate of $\leq L_a$, 0.10 percent by weight of the containment air per 24 hours at P_a, (44.7 psig).~~

~~b. A combined leakage rate of $< 0.60\ L_a$ for all penetrations and valves subject to Type B and C tests when pressurized to P_a (44.7 psig).~~

APPLICABILITY: MODES 1, 2, 3 and 4.

With the containment leakage rates exceeding the limits, restore the leakage rates to within limits within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ACTION:

~~With either (a) the measured overall integrated containment leakage rate exceeding 0.75 L_a, or (b) with the measured combined leakage rate for all penetrations and valves subject to Types B and C tests exceeding 0.60 L_a, restore the leakage rate(s) to within the limit(s) prior to increasing the Reactor Coolant System temperature above 200°F.~~

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be ~~demonstrated at the following test schedule and shall be determined in accordance with Appendix J of 10 CFR 50:~~

determined in accordance with the Containment Leakage Rate Testing Program as follows:

~~a. A Type A test (Overall Integrated Containment Leakage Rate) shall be conducted at 40 ± 10-month intervals during shutdown at P_a (44.7 psig).~~

DELETE →

~~b. If any Periodic Type A test fails to meet 0.75 L_a, the test schedule for subsequent Type A tests shall be reviewed and approved by the Commission. If two consecutive Type A tests fail to meet 0.75 L_a, a Type A test shall be performed at least every 18 months until two consecutive Type A tests meet 0.75 L_a at which time the above test schedule may be resumed.~~

a. Types A, B and C (Overall Integrated and Local Combined Leakage Rate) testing, except for the containment air lock testing, shall be conducted in accordance with the Containment Leakage Rate Testing Program.

b. Air locks shall be tested in accordance with Surveillance Requirement 4.6.1.3.

(Next page is 3/4 6-4)

(Proposed Wording)

DELETE

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

c. The accuracy of each Type A test shall be verified by a supplemental test which:

1. Confirms the accuracy of the Type A test by verifying that the difference between supplemental and Type A test data is within 0.25 L_a.

2. Has a duration sufficient to accurately establish the change in leakage rate between the Type A test and the supplemental test.

3. Requires the quantity of gas injected into the containment or bled from the containment during the supplemental test to be equivalent to at least 25 percent of the total measured leakage rate at P_a (44.7 psig).

d. Type B and C tests shall be conducted with gas at P_a^* (44.7 psig) at intervals no greater than 24 months except for tests involving:

1. Air locks,

2. Penetrations using continuous leakage monitoring systems, and

3. Valves pressurized with fluid from a seal system.

e. Air locks shall be tested and demonstrated OPERABLE per Surveillance Requirement 4.6.1.3.

f. Leakage from isolation valves that are sealed with fluid from a seal system may be excluded, subject to the Provisions of Appendix J, Section III.C.3, when determining the combined leakage rate provided the seal system and valves are pressurized to at least 1.10 P_a (49.2 psig) and the seal system capacity is adequate to maintain system pressure for at least 30 days.

g. All test leakage rates shall be calculated using observed data converted to absolute values. Error analyses shall be performed to determine the inaccuracy of the measured leakage rates due to maximum measurement accuracy and instrument repeatability; the measured leakage rates shall be adjusted to include the measurement error.

*Applicable valves may be tested using water as the pressure fluid in accordance with the Inservice Testing Program

(Proposed Wording)

CONTAINMENT AIR LOCKS

LIMITING CONDITION FOR OPERATION

3.6.1.3 Two containment air locks shall be OPERABLE:

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

- - - - - - - - - - - - - - - GENERAL NOTES - - - - - - - - - - - - - - -

1. Entry and exit is permissible to perform repairs on the affected air lock components.

2. Separate ACTION statement entry is allowed for each air lock.

3. Enter the ACTION of LCO 3.6.1.1 and 3.6.1.2 when air lock leakage results in exceeding the combined containment leakage rate acceptance criteria.

- -

a. With one containment air lock door inoperable in one or more containment air locks:(4)

1. Verify the OPERABLE door is closed in the affected air lock within 1 hour, and

2. Lock the OPERABLE door closed in the affected air lock within 24 hours, and

3. Verify the OPERABLE door is locked closed in the affected air lock at least once per 31 days.(5)

4. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

---

(4) Entry and exit is permissible for 7 days under administrative controls to perform activities not related to the repair of affected air lock components.

(5) Air lock doors in high radiation areas may be verified locked closed by administrative means.

a. By performing the following air lock leakage rate testing at the frequency specified in the Containment Leakage Rate Testing Program:

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

~~a. Within 72 hours[7a] following each containment entry, except when the air lock is being used for multiple entries, then at least once per 72 hours,[7a] by~~ 1. Verify ~~verifying~~ no detectable seal leakage when the gap between the door seals is pressurized for at least 2 minutes to:

a) ~~X.~~ Personnel air lock ~~greater than or equal to 44.7 psig~~ ≥ P_a (44.7 psig).

b) ~~X.~~ Emergency air lock ~~greater than or equal to 10.0 psig~~ ≥ 10.0 psig.

or, ~~by quantifying[10]~~ quantify[7] the air lock door seal leakage to ensure that the leakage rate is ~~less than or equal to~~ ≤ 0.0005 L_a at P_a (44.7 psig) for the personnel air lock and ~~less than or equal to~~ ≤ 0.0005 L_a at 10.0 psig for the emergency air lock. when tested

2. Conduct the ~~b. By conducting~~ overall air lock leakage tests, ~~not less than~~ at ≥ P_a (44.7 psig), and verify[8] the overall air lock leakage rate is ~~less than or equal to~~ ≤ 0.05 L_a at P_a (44.7 psig): when tested

a) At the frequency specified in the Containment Leakage Rate Testing Program, and

~~1. At least once per 6 months,[12] and~~

~~2. Prior to establishing CONTAINMENT INTEGRITY when maintenance has been performed on the air lock that could affect the air lock sealing capability. Local leak rate testing at a pressure of not less than P_a may be substituted for an overall air lock test where the design permits,[10] and~~

DELETE

~~(7) The provisions of Specification 4.0.2 are not applicable.~~

DELETE

(7) ~~X.~~ An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test.

(8) ~~X.~~ Results shall be evaluated against the acceptance criteria applicable to ~~of~~ LCO 3.6.1.2.

~~(10) Exemption to Appendix J of 10 CFR 50, as stated in the operating licence.~~

DELETE

SURVEILLANCE REQUIREMENTS (Continued)

b) → X Following maintenance performed on the outer personnel air lock door which may result in a decrease in closure force on any part of the door sealing surface.

b. → X At least once per 18 months during shutdown by verifying ~~that~~ that only

DELETE → ~~1. Only~~ one door in each air lock can be opened at a time.

(Proposed Wording)

NPF-73

CONTAINMENT SYSTEMS

CONTAINMENT STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.6 The structural integrity of the containment shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.6.1.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the structural integrity of the containment not conforming to the above requirements, restore the structural integrity to within the limits ~~prior to increasing the Reactor Coolant System temperature above 200°F.~~ within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.6.1 Containment Vessel Surfaces The structural integrity of the exposed accessible interior and exterior surfaces of the containment vessel, including the liner plate, shall be determined ~~during the shutdown for each Type A containment leakage rate test (reference Specification 4.6.1.2) by a visual inspection of these surfaces. This inspection shall be performed prior to the Type A containment leakage rate test to verify no apparent changes in appearance or other abnormal degradation.~~ at the frequency specified in the Containment Leakage Rate Testing Program, by a visual inspection of these surfaces. This inspection shall verify that there is no evidence of structural deterioration that might affect either the containment structural integrity or leak tightness.

4.6.1.6.2 Reports ~~An initial report of any abnormal degradation of the containment structure detected during the above required tests and inspections shall be made within 10 days after completion of the surveillance requirements of this specification, and the detailed report shall be submitted pursuant to Specification 6.9.2 within 90 days after completion. This report shall include a description of the condition of the liner plate and concrete, the inspection procedure, the tolerances on cracking and the corrective actions taken.~~ Reports of containment visual inspections shall be prepared in accordance with the Containment Leakage Rate Testing Program.

(Proposed Wording)

3/4.6.1 PRIMARY CONTAINMENT

3/4.6.1.1 CONTAINMENT INTEGRITY

Primary CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the accident analyses. This restriction, in conjunction with the leakage rate limitation, will limit the site boundary radiation doses to within the limits of 10 CFR 100 during accident conditions.

3/4.6.1.2 CONTAINMENT LEAKAGE

The limitations on containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the accident analyses at the peak accident pressure, P_a. ~~As an added conservatism, the measured overall integrated leakage rate is further limited to $\leq$ 0.75 L_a during performance of the periodic test to account for possible degradation of the containment leakage barriers between leakage tests.~~

~~The surveillance testing for measuring leakage rates are consistent with the requirements of Appendix "J" of 10 CFR 50.~~

REPLACE WITH INSERT "C"

3/4.6.1.3 CONTAINMENT AIR LOCKS

BACKGROUND

Containment air locks form part of the containment pressure boundary and provide a means for personnel access during all MODES of operation.

Each air lock is nominally a right circular cylinder, with a door at each end. The doors are interlocked to prevent simultaneous opening. During periods when containment is not required to be OPERABLE, the door interlock mechanism may be disabled, allowing both doors of an air lock to remain open for extended periods when frequent containment entry is necessary. The emergency air lock, which is located in the equipment hatch o ening, is normally removed from the containment building and stored during a refueling outage. Each air lock door has been designed and tested to certify its ability to withstand a pressure in excess of the maximum expected pressure following a Design Basis Accident (DBA) in containment. As such, closure of a single door supports containment OPERABILITY. Each of the doors contains double o-ring seals and local leakage rate testing capability to ensure pressure integrity. DBA conditions which increase containment pressure will result in

Attachment to 3/4.6.1.2 Containment Leakage

INSERT "C"

Containment leakage is limited to $\leq$ 1.0 L_a, except prior to the first startup after performing a required Containment Leakage Rate Testing Program leakage test. At this time additional leakage limits must be met. As left leakage prior to the first startup after performing a required leakage test is required to be $< 0.60\ L_a$ on a maximum pathway leakage rate (MXPLR) basis for combined Type B and C leakage following an outage or shutdown that included Type B and C testing only and $< 0.75\ L_a$ for overall Type A leakage following an outage or shutdown that included Type A testing. At all other times between required leakage rate tests, the acceptance criteria is based on an overall Type A leakage limit of $\leq 1.0\ L_a$ and $< 0.60\ L_a$ on a minimum pathway leakage rate (MNPLR) basis. The MXPLR for combined Type B and C leakage is the measured leakage through the worst of the two isolation valves, unless a penetration is isolated by use of a valve(s), blind flange(s), or de-activated automatic valve(s). In this case, the MXPLR of the isolated penetration is assumed to be the measured leakage through the isolation device(s).

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

BACKGROUND (Continued)

increased sealing forces on the personnel air lock inner door and both doors on the emergency air lock. The outer door on the personnel air lock is periodically tested in a manner where the containment DBA pressure is attempting to overcome the door sealing forces.

The containment air locks form part of the containment pressure boundary. As such, air lock integrity and leak tightness is essential for maintaining the containment leakage rate within limits in the event of a DBA. Not maintaining air lock integrity or leak tightness may result in a leakage rate in excess of that assumed in the unit safety analyses. ~~SR 4.6.1.2 leakage rate requirements comply with 10 CFR 50, Appendix J, as modified by approved exemptions.~~ DELETE

APPLICABLE SAFETY ANALYSES

The DBAs that result in a release of radioactive material within containment are a loss of coolant accident and a rod ejection accident. In the analysis of each of these accidents, it is assumed that containment is OPERABLE such that release of fission products to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of 0.1 percent of containment air weight per day. This leakage rate is defined in ~~10 CFR 50, Appendix J,~~ as L_a = 0.1 percent of containment air weight per day, the maximum allowable containment leakage rate at the calculated peak containment internal pressure P_a = 44.7 psig following a DBA. This allowable leakage rate forms the basis for the acceptance criteria imposed on the SRs associated with the air locks.

Specification 6.8.4.d "Containment Leakage Rate Testing Program"

LCO

Each containment air lock forms part of the containment pressure boundary. As part of containment, the air lock safety function is related to control of the containment leakage rate resulting from a DBA. Thus, each air lock's structural integrity and leak tightness are essential to the successful mitigation of such an event.

(Proposed Wording)

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

ACTIONS (Continued)

If ALARA conditions permit and personnel safety can be assured, entry and exit should be via an OPERABLE air lock.

General Note (2) has been added to provide clarification that, for this LCO, separate ~~Action~~ ACTION statement entry is allowed for each air lock.

In the event the air lock leakage results in exceeding the combined containment leakage rate~~s~~ acceptance criteria, General Note (3) directs entry into the ~~Required Action~~ of LCO 3.6.1.1 and LCO 3.6.1.2.

a. With one air lock door in one or more containment air locks inoperable, the OPERABLE door must be verified closed (~~Required Action~~ a.1) in each affected containment air lock. This ensures that a leak tight containment barrier is maintained by the use of an OPERABLE air lock door. This action must be completed within 1 hour. This specified time period is consistent with the ~~Required Action~~ of LCO 3.6.1.1, which requires CONTAINMENT INTEGRITY to be restored within 1 hour. and LCO 3.6.1.2, and containment leakage rates

In addition, the affected air lock penetration must be isolated by locking closed (~~Required Action~~ a.2) the OPERABLE air lock door within the 24 hour completion time. The 24 hour completion time is reasonable for locking the OPERABLE air lock door, considering the OPERABLE door of the affected air lock is being maintained closed. This action places additional positive controls on the use of the air lock when one air lock door is inoperable.

~~Required Action~~ a has been modified by a Note. Note (4) allows use of the air lock for entry and exit for 7 days under administrative controls. Containment entry may be required to perform non-routine Technical Specification (TS) Surveillances and Required Actions, as well as other activities on equipment inside containment that are required by TS or activities on equipment that support TS-required equipment. An example of such an activity would be the isolation of a containment penetration by at least one operable valve, and the subsequent repair and post-maintenance technical specification surveillance testing on the inoperable valve. In addition, containment entry may be required to perform repairs on vital plant equipment which, if not repaired, could lead to a plant

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

ACTIONS (Continued)

transient or reactor trip. This Note is not intended to preclude performing other activities (i.e., non-TS-required activities or repair of non-vital plant equipment) if the containment is entered, using the inoperable air lock, to perform an allowed activity listed above. This allowance is acceptable due to the low probability of an event that could pressurize the containment during the short time that the OPERABLE door is expected to be open.

ACTION statement

~~Required Action~~ a.3 verifies that an air lock with an inoperable door has been isolated by the use of a locked and closed OPERABLE air lock door. This ensures that an acceptable containment leakage boundary is maintained. The completion time of once per 31 days is based on engineering judgment and is considered adequate in view of the low likelihood of a locked door being mispositioned. ~~Required Action~~ a.3 is modified by a Note (5) that applies to air lock doors located in high radiation areas and allows these doors to be verified locked closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, it is unlikely that a door would become misaligned once it has been verified to be in the proper position.

ACTION statements

b. With an air lock interlock mechanism inoperable in one or more air locks, the ~~Required Actions~~ and associated completion times are consistent with those specified in ~~Required Action~~ a.

ACTION statement

The ~~Required Actions~~ have been modified by two Notes. Note (6) allows entry into and exit from containment under the control of a dedicated individual stationed at the air lock to ensure that only one door is opened at a time (i.e., the individual performs the function of the interlock). Note (5) applies to air lock doors located in high radiation areas and allows these doors to be verified locked closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, it is unlikely that a door would become misaligned once it has been verified to be in the proper position.

(Proposed Wording)

BASES

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

ACTIONS (Continued)

ACTION statement

c. With one or more air locks inoperable for reasons other than those described in ~~Required Actions~~ a or b, ~~Required Action~~ c.1 requires action to be initiated immediately to evaluate previous combined leakage rates using current air lock test results. An evaluation is acceptable, since it is overly conservative to immediately declare the containment inoperable if both doors in an air lock have failed a seal test or if the overall air lock leakage is not within limits. In many instances (e.g., only one seal per door has failed), containment remains OPERABLE, yet only 1 hour (per LCO 3.6.1.1) would be provided to restore the air lock door to OPERABLE status prior to requiring a plant shutdown. In addition, even with both doors failing the seal test, the combined containment leakage rate can still be within limits.

e.g. both air lock doors inoperable and interlock mechanism inoperable or both air lock doors inoperable,

and LCO 3.6.1.2

ACTION statement

~~Required Action~~ c.2 requires that one door in the affected containment air lock must be verified to be closed within the 1 hour completion time. This specified time period is consistent with the ~~Required Actions~~ of LCO 3.6.1.1, which requires that CONTAINMENT INTEGRITY be restored within 1 hour.

and containment leakage rate limits

and LCO 3.6.1.2,

Additionally, ~~Required Action~~ c.3 requires that the affected air lock(s) must be restored to OPERABLE status within the 24 hour completion time. The specified time period is considered reasonable for restoring an inoperable air lock to OPERABLE status, assuming that at least one door is maintained closed in each affected air lock.

ACTION Statements

For all ~~Required Actions~~, if the inoperable containment air lock cannot be restored to OPERABLE status within the required completion time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within the following 30 hours. The allowed completion times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

(Proposed Wording)

required by the Containment Leakage Rate Testing Program.

BASES

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

of the Containment Leakage Rate Testing Program.

SURVEILLANCE REQUIREMENTS (SR)

Maintaining containment air locks OPERABLE requires compliance with the leakage rate test requirements ~~of 10 CFR 50, Appendix J, as modified by approved exemptions.~~ This SR reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). The periodic testing requirements verify that the air lock leakage does not exceed the allowed fraction of the overall containment leakage rate. The frequency is ~~required by Appendix J, as modified by approved exemptions. Note (10) reflects the current approved exemption from Appendix J. Thus, SR 4.0.2 (which allows Frequency extensions) does not apply as stated in Note (7).~~

DELETE

Testing of the personnel air lock door seals may be accomplished with the air lock pressure equalized with containment or with atmospheric pressure. Each configuration applies P_a, as a minimum, across the sealing surfaces demonstrating the ability to function as designed. As long as the testing conducted is equivalent or more conservative than what might exist for accident conditions, the air lock doors will be able to perform their design function.

Performance of maintenance activities which affect air lock sealing capability, such as the replacement of the o-ring door seals and/or breach ring travel adjustment, will require performance of the appropriate surveillance requirements such as SR 4.6.1.3.a as a minimum. (.1) The performance of SR 4.6.1.3.b will depend on the air lock components which are affected by the maintenance. (a.2) Replacement of o-rings and/or breech ring travel adjustment on the inner personnel air lock door, for example, normally will not require the performance of SR 4.6.1.3.b as a post maintenance test. Testing per SR 4.6.1.3.a is sufficient to demonstrate post accident leak tightness of the inner air lock door. (.1) The sealing force, which is applied to o-rings, is developed by the rotation of tapered wedges against the door's outer surface. This action forces the door to compress the o-rings which are located on the air lock barrel. When SR 4.6.1.3.a is performed, the area between the two concentric o-rings is pressurized to at least P_a and a leak rate of the two o-rings and sealing surface is determined. This test pressure applies an opposing force to the breech ring closure force. Since the containment pressure developed during a DBA applies a closing force which is supplemental to the breech ring force, the net result would be to improve the door sealing capability of the inner personnel air lock door over that which exists during the performance of SR 4.6.1.3.a. For this reason, performance of SR

(1.)

(Proposed wording)

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

SURVEILLANCE REQUIREMENTS (SR) (Continued)

4.6.1.3.b, which applies a force which opposes the breech ring force, is not necessary following certain inner air lock door maintenance. SR 4.6.1.3.a sufficiently demonstrates the ability of the inner air lock door to provide a leak tight barrier following maintenance affecting the door sealing surface.

Replacement of the o-rings on the outer personnel air lock door, which results in decreasing the breech ring closure force, will require performance of SR 4.6.1.3.b in addition to SR 4.6.1.3.a which is required due to the door being opened. This surveillance is required because containment DBA pressure tends to overcome the outer personnel air lock door sealing forces. Performance of SR 4.6.1.3.a on the outer personnel air lock applies an opposing force to the breech ring closure force in the same manner as previously described for the inner personnel air lock door. However, for the outer personnel air lock door, the containment pressure developed during a DBA applies an opening force which is opposing the breech ring closure force. Therefore, upon completion of certain maintenance activities, continued outer door leak tightness during a DBA cannot be assured by performance of SR 4.6.1.3.a alone. Maintenance which may result in a decrease in closure force on any part of the door sealing surface, (decreasing of breech ring travel for example), will require performance of SR 4.6.1.3.b. The performance of this surveillance is necessary to ensure that containment DBA pressure applied against the outer door will not result in the unseating of the air lock door by overcoming of the breech ring closure forces to the point where the leakage becomes excessive. Since SR 4.6.1.3.b duplicates DBA forces on the outer personnel air lock door and also measures the air lock leakage rate, performance of this surveillance requirement demonstrates the continued ability of the outer personnel air lock door to provide a leak tight barrier, during a DBA, following specific maintenance activities.

The air lock interlock is designed to prevent simultaneous opening of both doors in a single air lock. Since both the inner and outer doors of an air lock are designed to withstand the maximum expected post accident containment pressure, closure of either door will support containment OPERABILITY. Thus, the door interlock feature supports containment OPERABILITY and personnel safety, considering the subatmospheric design, while the air lock is being used for personnel transit in and out of the containment. Periodic testing of this interlock demonstrates that the interlock will function as designed and that simultaneous opening of the inner and outer doors will not inadvertently occur.

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

SURVEILLANCE REQUIREMENTS (SR) (Continued)

DELETE

(7)

The SR has been modified by two ~~additional~~ Notes. Note (7) states that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. This is considered reasonable since either air lock door is capable of providing a fission product barrier in the event of a DBA. Note (8) has been added to this SR requiring the results to be evaluated against the acceptance criteria ~~of~~ applicable to LCO 3.6.1.2. This ensures that air lock leakage is properly accounted for in determining the combined containment leakage rate.

3/4.6.1.4 and 3/4.6.1.5 INTERNAL PRESSURE AND AIR TEMPERATURE

The limitations on containment internal pressure and average air temperature as a function of service water temperature ensure that 1) the containment structure is prevented from exceeding its design negative pressure of 8.0 psia, 2) the containment peak pressure does not exceed the design pressure of 45 psig during LOCA conditions, and 3) the containment pressure is returned to subatmospheric conditions following a LOCA.

The containment internal pressure and temperature limits shown as a function of service water temperature describe the operational envelope that will 1) limit the containment peak pressure to less than its design value of 45 psig and 2) ensure the containment internal pressure returns subatmospheric within 60 minutes following a LOCA. Additional operating margin is provided if the containment average air temperature is maintained above 100°F as shown on Figure 3.6-1.

The limits on the parameters of Figure 3.6-1 are consistent with the assumptions of the accident analyses.

3/4.6.1.6 CONTAINMENT STRUCTURAL INTEGRITY

This limitation ensures that the structural integrity of the containment vessel will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to ensure that the vessel will withstand the maximum pressure of 44.7 psig in the event of a LOCA. The visual and Type A leakage tests are sufficient to demonstrate this capability.

(performed at the frequency specified in the Containment Leakage Rate Testing Program)

SPECIAL REPORTS (Continued)

c. Inoperable Meteorological Monitoring Instrumentation, Specification 3.3.3.4.

d. Seismic event analysis, Specification 4.3.3.3.2.

e. Sealed source leakage in excess of limits, Specification 4.7.9.1.3.

f. Miscellaneous reporting requirements specified in the ACTION Statements for Appendix C of the ODCM.

g. ~~Containment Inspection Report, Specification 4.6.1.6.2~~ (DELETED)

h. Steam generator tube inservice inspection, Specification 4.4.5.5.

i. Inoperable accident monitoring, Specification 3.3.3.8.

j. Liquid Hold-Up Tanks, Specification 3.11.1.4.

k. Gas Storage Tanks, Specification 3.11.2.5.

l. Explosive Gas Monitoring Instrumentation, Specification 3.3.3.11.

6.10 RECORD RETENTION

6.10.1 The following records shall be retained for at least five (5) years;

a. Records and logs of facility operation covering time interval at each power level.

b. Records and logs of principal maintenance activities, inspections, repair and replacement of principal items of equipment related to nuclear safety.

c. All REPORTABLE EVENTS.

d. Records of surveillance activities, inspections and calibrations required by these Technical Specifications.

e. Records of reactor tests and experiments.

(Proposed Wording)

6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

Changes to the ODCM:

a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.n. This documentation shall contain:

1) Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and

2) A determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations.

b. Shall become effective after review and acceptance by the OSC and the approval of the General Manager Nuclear Operations, predesignated alternate or a predesignated Manager to whom the General Manager Nuclear Operations has assigned in writing the responsibility for review and approval of specific subjects.

c. Shall be submitted to the Commission in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Annual Radioactive Effluent Release Report for the period of the report in which any change to the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (e.g., month/year) the change was implemented.

6.16 Moved to the PROCESS CONTROL PROGRAM.

← ADD INSERT "D"

(Proposed Wording)

INSERT "D"

6.17 CONTAINMENT LEAKAGE RATE TESTING PROGRAM

A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54 (o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions(1). This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995.

The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 44.7 psig.

The maximum allowable containment leakage rate, L_a, at P_a, shall be 0.10% of containment air weight per day.

Leakage Rate acceptance criteria are:

a. Containment leakage rate acceptance criterion is $\leq 1.0\ L_a$ for the overall Type A leakage test and $< 0.60\ L_a$ for the Type B and Type C tests on a minimum pathway leakage rate (MNPLR) basis. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $< 0.60\ L_a$ on a maximum pathway leakage rate (MXPLR)(2) basis for Type B and Type C tests and $< 0.75\ L_a$ for Type A tests.

b. Air lock testing acceptance criteria and required action are as stated in Specification 3.6.1.3 titled "Containment Air Locks."

The provisions of Specification 4.0.2 do not apply to the test frequencies specified in the Containment Leakage Rate Testing Program.

The provisions of Specification 4.0.3 are applicable to the Containment Leakage Rate Testing Program.

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(1) Exemptions to Appendix J of 10 CFR 50, as stated in the operating license.

(2) For penetrations which are isolated by use of a closed valve(s), blind flange(s), or de-activated automatic valve(s), the MXPLR of the isolated penetration is assumed to be the measured leakage through the isolation device(s).

ATTACHMENT B

Beaver Valley Power Station, Unit Nos. 1 and 2
Proposed Technical Specification Change No. 223 and 94
REVISION OF CONTAINMENT LEAKAGE TESTING REQUIREMENTS

A. DESCRIPTION OF AMENDMENT REQUEST

Limiting Condition For Operation (LCO) 3.6.1.1 titled "Containment Integrity" would be revised. Specifically, the action statement would be revised by replacing the word "one" with the numerical value one. The words "following 36 hours" would be revised to read "following 30 hours." In addition, Surveillance Requirement (SR) 4.6.1.1.c would be deleted.

LCO 3.6.1.2 titled "Containment Leakage" would be revised by replacing the specific numerical limits on containment leakage rates with a reference to Specification 6.17 titled "Containment Leakage Rate Testing Program."

The Action statement of LCO 3.6.1.2 would be revised to require that the containment leakage rates be restored to within limits within 1 hour or the plant must be placed in cold shutdown within the following 36 hours.

SR 4.6.1.2 would be revised by removing the specific details on the required test intervals, test methodology and calculation of test results. Specifically, SR 4.6.1.2 would be revised by replacing the current reference to Appendix J of 10 CFR 50 with a new reference to the Containment Leakage Rate Testing Program. SR 4.6.1.2.a would be revised to require that Type A, B, and C testing, except for containment air lock testing, be conducted in accordance with the Containment Leakage Rate Testing Program. SR 4.6.1.2.b would be revised to reflect the wording similar to that contained in the current SR 4.6.1.2.e. For Beaver Valley Power Station (BVPS) Unit No. 1 only, the current footnote designated by a single asterisk would be deleted. The remaining surveillance requirements would be deleted.

The action statement of LCO 3.6.1.3 titled "Containment Air Locks" would be revised. Specifically, general note (3) would be revised by adding the words "and 3.6.1.2,." In addition, the words "acceptance criteria" would be added following the word "rate."

SR 4.6.1.3 would be revised by removing the specific details on required test frequency. These specific details would be replaced with wording which requires a test frequency as specified in the Containment Leakage Rate Testing Program. The words "when tested" would be added following the terms 0.0005 L_a and 0.05 L_a. Footnotes number (7) and number (10) would be deleted. The remaining two footnotes would be renumbered to reflect the deletion of footnote (7). The current footnote (9) would be modified by adding the words

"applicable to" following the word "criteria." In addition, minor editorial changes would be made due to reformatting and replacing of words with symbols. The symbol for greater than or equal to would be added to each specific test pressure not previously denoted by this symbol to add consistency to this surveillance requirement.

The action statement of LCO 3.6.1.6 titled "Containment Structural Integrity" would be revised to require that structural integrity be restored to within limits within 1 hour or the plant must be placed in cold shutdown within the following 36 hours.

SR 4.6.1.6.1 would be revised by removing the specific details on required test frequency. The specific details on test frequency would be replaced with wording which requires a test frequency as specified in the Containment Leakage Rate Testing Program. The acceptance criteria of the proposed SR 4.6.1.6.1 would be revised to require that no evidence of structural deterioration that might affect either the containment structural integrity or leak tightness be observed. SR 4.6.1.6.2 would be revised by removing the specific details on reporting requirements. The specific details would be replaced with wording which requires reports to be prepared in accordance with the Containment Leakage Rate Testing Program.

The Bases sections for 3/4.6.1.2, 3/4.6.1.3 and 3/4.6.1.6 would be revised to reflect changes made to each specification as previously noted. In addition, minor editorial changes would be made to add consistency between the Bases section and the Specifications and to provide additional clarification. Specification 6.9.2.g of the Administrative Controls section would be deleted. Specification 6.17 titled "Containment Leakage Rate Testing Program" would be added to the Administrative Controls Section. The Index would be revised to reflect the addition of Specification 6.17.

B. BACKGROUND

The Nuclear Regulatory Commission (NRC) has amended its regulations to provide a performance based option, Option B, for leakage rate testing of containments. Licenses may voluntarily comply with this Option B as an alternative to compliance with the previous requirement of 10 CFR 50 Appendix J now known as Option A of Appendix J. Option B is aimed at improving the focus of the body of regulations by eliminating prescriptive requirements that are marginal to safety and by providing licensees greater flexibility for cost-effective implementation methods for regulatory safety objectives. Option B of 10 CFR 50 Appendix J Section V.B titled "Implementation" requires that a request for revision to the technical specifications be submitted to the NRC which includes, by general reference, the regulatory guide or other

implementation document used to develop a performance-based-leakage testing program. This proposed amendment request contains the required reference to such document. In addition, a licensee must submit proposed technical specifications which would eliminate those technical specifications which implement the previous requirements contained in Option A. This proposed amendment request removes the prescriptive requirements of Option A concerning test frequencies and test methodology.

C. JUSTIFICATION

The proposed revision to the action statement of LCO 3.6.1.1 to require the plant to be in cold shutdown within 30 hours will make this action consistent with the other LCOs pertaining to primary containment. The 30 hour requirement is consistent with the NUREG 1431, Revision 1 titled "Standard Technical Specifications for Westinghouse Plants" (ISTS). The proposed revision of the word "one" to the numerical value one is also consistent with ISTS and other LCO action statements contained in the containment section of the technical specifications.

The proposed deletion of SR 4.6.1.1.c will remove the prescriptive details concerning retesting of penetrations subject to Type B testing. The prescriptive details on retesting of Type B penetrations are stated in Nuclear Energy Institute (NEI) 94-01, Revision 0, dated July 26, 1995, "Industry Guideline for Implementing Performance-Based Option of 10 CFR 50 Appendix J." Specifically, section 10.2.1.3 of the NEI 94-01 provides guidance on retesting of Type B penetrations. The Containment Leakage Rate Testing Program requirements, contained in proposed Specification 6.17, states that this program shall be in accordance with the guidelines contained in Regulatory Guide (RG) 1.163 titled "Performance-Based Containment Leak-Test Program." RG 1.163 endorses the use of NEI 94-01. Therefore, the Containment Leakage Rate Testing program will continue to require retesting of Type B penetrations based on guidance which has been endorsed by the NRC. The proposed requirements for the Containment Leakage Rate Testing Program will continue to require that the measured leakage rate for retested Type B penetrations, when combined with other Type B and C leakage rates, be less than 0.60 L_a.

The proposed amendment will remove the specific acceptance criteria for containment leakage rates from LCO 3.6.1.2. The specific details on containment leakage rate acceptance criteria are contained in proposed Specification 6.17. The proposed LCO 3.6.1.2 will directly reference Specification 6.17. For BVPS Unit No. 1 only, the limits specified in Specification 6.17 will allow the overall Type A leakage limit to be less than "or equal to" L_a. This change will make the

Type A leakage limit consistent with current BVPS Unit No. 2 technical specifications and ISTS. Allowing the overall Type A leakage rate to be equal to L_a is consistent with the BVPS Unit No. 1 design basis leak rate as stated in the Updated Final Safety Analysis Report (UFSAR) Section 14.3.5.2. In addition, for BVPS Unit No. 1 only, the combined leakage rate will be further limited to less than (i.e., delete "or equal to") .60 L_a which is consistent with the current BVPS Unit No. 2 technical specifications and ISTS.

The proposed revision to the action statement of LCO 3.6.1.2 is necessary to reflect that containment leakage rates can be determined during plant operation (i.e. Modes 1 thru 4). As such, the appropriate action should be stated in this specification should the containment leakage rate limits be exceeded during plant operation. The proposed action statement is consistent with the proposed action statement of LCO 3.6.1.1 and ISTS. Since compliance with LCO 3.6.1.1 requires that containment leakage be within limits per the definition of Containment Integrity, the proposed action statement of LCO 3.6.1.2 is appropriate if the containment leakage rate limits are exceeded. The proposed action statement will continue to not permit entry into Mode 4 (i.e., reactor coolant temperature above 200°F) if the conditions of LCO 3.6.1.2 are not met. The restrictions on containment leakage rates for entry into Mode 4 will be contained in Specification 6.17.

The proposed revisions to SR 4.6.1.2 will remove the prescriptive testing and scheduling requirements from this surveillance requirement. Instead, this surveillance requirement will require that containment leakage rates be determined in accordance with the Containment Leakage Rate Testing Program. The Containment Leakage Rate Testing Program will be based on the guidelines contained in RG 1.163 as required by Specification 6.17. RG 1.163 endorses NEI 94-01 as an acceptable method for complying with the provisions of Option B in Appendix J to 10 CFR 50. In addition, NEI 94-01 references ANSI/ANS-56.8-1994 for detailed descriptions of the technical methods and techniques for performing Type A, B, and C tests. Since the Containment Leakage Rate Testing Program will be based on NRC endorsed guidance to implement the provisions of Option B in Appendix J to 10 CFR 50, the specific reference to Appendix J of 10 CFR 50 along with the test frequencies can be deleted from SR 4.6.1.2.

The proposed deletion of the current SR 4.6.1.2.a, b, c, d, f and g, which contain specific details on test schedules, test accuracy verification, test methods and error analyses, is consistent with the ISTS. The ISTS does not contain this level of detail concerning containment leakage rate testing. The specific guidance on conducting containment leakage testing is contained in Option B of Appendix J directly or in

reference documents which are endorsed by the NRC. Therefore, it is not necessary to specifically state these requirements in the technical specifications. The proposed SR 4.6.1.2.a will reference that Type A, B and C testing, except for containment air lock testing, will be performed in accordance with the Containment Leakage Rate Testing Program. The current SR 4.6.1.2.e has been generally incorporated into the proposed SR 4.6.1.2.b. The wording has been modified by deleting the words "demonstrated OPERABLE." This wording is not necessary since LCO 3.6.1.3 requires that each air lock be demonstrated operable. Since SR 4.6.1.2 specifically pertains to containment leakage rates, it is more appropriate to reference the testing portion of SR 4.6.1.3 only.

The proposed revision to general note number (3) of LCO 3.6.1.3 titled "Containment Air Locks" will ensure that both action statements are entered if air lock leakage results in exceeding the combined containment leakage rate. The proposed action statement of LCO 3.6.1.2 is applicable during Modes 1 thru 4 and specifically addresses containment leakage rates. The proposed addition of the words "acceptance criteria" will clarify the intent of this note.

The proposed revisions to SR 4.6.1.3 will remove the prescriptive scheduling requirements from this surveillance requirement. Instead, this surveillance requirement will be performed at the frequency specified in the Containment Leakage Rate Testing Program. Since NEI 94-01, one of the bases documents for the Containment Leakage Rate Testing Program, prescribes guidance on the required test frequency for containment air lock testing, the proposed change will continue to ensure that containment air lock testing is performed at the test frequency endorsed by the NRC. This change is consistent with ISTS, in that, the ISTS does not contain specific details on containment air lock testing frequency. The proposed elimination of footnotes (7) and (10) will allow the details contained in these two footnotes to be contained in Specification 6.17 titled "Containment Leakage Rate Testing Program." Therefore, this information will be applicable to all leakage rate testing performed in accordance with the Containment Leakage Rate Testing Program including containment air lock testing. The remaining two footnotes will be renumbered to reflect the deletion of footnote (7). The proposed revision to the current footnote (9) will reflect that specific acceptance criteria will no longer be contained in LCO 3.6.1.2. The other changes to SR 4.6.1.3 will add consistency to this surveillance requirement and are necessary due to elimination of the specific test frequencies.

The proposed revision to the action statement of LCO 3.6.1.6 titled "Containment Structural Integrity" is necessary to reflect appropriate action should the structural integrity of the containment be found not to meet the LCO acceptance

criteria during Modes 1 thru 4. The proposed wording will continue to not permit entry in Mode 4 (i.e., reactor coolant temperature above 200°F) if the conditions of LCO 3.6.1.6 are not met. This change is consistent with the proposed action statement of LCO 3.6.1.1, LCO 3.6.1.2 and ISTS.

The proposed revisions to SR 4.6.1.6.1 will remove the prescriptive scheduling requirements from this surveillance requirement. Instead, this surveillance requirement will be performed at the frequency specified in the Containment Leakage Rate Testing Program. Since RG 1.163, one of the bases documents for the Containment Leakage Rate Testing Program, prescribes guidance on the required test frequency for containment vessel inspections, the proposed change will continue to ensure that this inspection is performed at the frequency endorsed by the NRC. The proposed change to the acceptance criteria is consistent with the acceptance criteria for visual inspection of the containment stated in Option B of 10 CFR 50 Appendix J. This change is consistent with ISTS, in that, the ISTS does not contain specific details on containment vessel inspection frequencies.

The proposed revision of SR 4.6.1.6.2 will remove the prescriptive reporting requirements from this surveillance requirement. Instead, this surveillance requirement will require reports to be prepared in accordance with the Containment Leakage Rate Testing Program. Since NEI 94-01, one of the bases documents for the Containment Leakage Rate Testing Program, prescribes the requirement for report preparation, the proposed change will continue to ensure that reports will be prepared as required by the NRC. This change is consistent with ISTS , in that, the ISTS does not contain specific details on containment visual inspection reports.

Administrative Controls Section 6.9.2.g is no longer required due to changes to NRC reporting requirements. The final rule on 10 CFR Parts 50, 55, and 73 titled "Reduction of Reporting Requirements Imposed on NRC Licensees" dated March 14, 1995 (60 FR 13615) no longer requires that containment leakage rate tests summary reports be submitted to the NRC. Since the report of the visual inspection of the containment vessel is part of containment leakage rate tests summary reports, this reporting requirement can be deleted.

The proposed addition of Specification 6.17 titled "Containment Leakage Rate Testing Program" will ensure that a program is established which meets the requirements of 10 CFR 50, Appendix J, Option B. This specification also states the values for P_a and L_a as required by 10 CFR 50, Appendix J, Option B. The proposed wording for Specification 6.17 will state the modified containment leakage rate acceptance criteria previously contained in LCO 3.6.1.2 as discussed in the justification for changes to LCO 3.6.1.2. The current

exemptions to Appendix J of 10 CFR 50 are contained in proposed footnote (1). These exemptions are currently denoted in the containment systems LCOs. Since these LCOs will no longer contain specific details on containment leakage testing, it is necessary to move this information to proposed Specification 6.17. Proposed footnote (2) is required to allow a plant startup with a containment isolation valve(s) inoperable. Specification 6.17 requires that for the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria be based on a maximum pathway leakage rate (MXPLR). With one of two series isolation valves inoperable, for example, the MXPLR may be based on the inoperable valve. Therefore, the leakage rate acceptance criteria could be exceeded which would prohibit entry into Mode 4. Footnote (2) allows the MXPLR to be determined for these cases on the isolation device leakage rate and not on the inoperable valve leakage rate. The proposed listing of isolation devices on Footnote (2) is consistent with LCO 3.6.1.1. The proposed wording states that Specification 4.0.2 does not apply. The requirements of 10 CFR 50, Appendix J, Option B may be violated if the surveillance extension provided by Specification 4.0.2 were used. Guidance on frequency extension should be based on the requirements of 10 CFR 50, Appendix J, Option B and not under the generic requirements of Specification 4.0.2. This addition is consistent with ISTS. The proposed wording clarifies that the provisions of Specification 4.0.3 applies. The application of Specification 4.0.3 is consistent with the current technical specifications concerning containment leakage testing and the ISTS. The Index is required to be revised to reflect the addition of Specification 6.17.

The changes to the Bases Sections 3/4.6.1.2 and 3/4.6.1.3 are necessary due to the proposed changes to their respective Specifications. Editorial changes are also included to provide consistency between the Specification wording and the Bases wording and to provide additional examples of appropriate Action statements to be entered depending on equipment availability.

D. SAFETY ANALYSIS

The proposed change will not affect the ability of the containment to provide a fission product barrier following a Design Basis Accident (DBA). The containment leakage rate will continue to be determined using NRC endorsed test methodologies and guidance on test frequency which have been determined to demonstrate that the containment will limit leakage to the value assumed in the accident analysis following a DBA. The containment leakage rate assumed in the accident analysis ensures that offsite dose consequences does not exceed 10 CFR Part 100 limits following a DBA.

The proposed amendment does not change the required test pressure (Pa) for conducting Type A, B, and C testing. The maximum allowable "as found" overall Type A leakage rate will be slightly increased for BVPS Unit No. 1 only, but will not exceed the value assumed in the accident analysis. The "as left" measured overall Type A containment leakage rate and the measured combined Type B and C leakage rate limits will not be increased. Therefore, allowable containment leakage rate limits, for Mode 4 entry, will not be increased. The maximum allowable "as found" overall Type A leakage rate will remain unchanged for BVPS Unit No. 2.

The ability of the containment air locks to provide a fission product barrier remains unchanged. The containment air locks will continue to be tested in a manner which will demonstrate their ability to perform this function. The proposed changes do not lower the required test pressure for conducting containment air lock testing. The maximum allowable containment air lock leakage limit remains unchanged.

The containment vessel will continue to be inspected at a frequency which will demonstrate that the structural integrity of the containment vessel is being maintained. Reports on the visual inspection will continue to be prepared in accordance with the Containment Leakage Rate Testing Program.

The proposed deletion of the reporting requirement 6.9.2.g is administrative in nature and does not affect plant safety. The proposed addition of Specification 6.17 will ensure that the Containment Leakage Rate Testing Program is based on a periodic testing program which has been determined to be adequate to verify the leakage integrity of the containment and those containment systems and components which penetrate the containment. The remaining changes are editorial in nature and do not affect plant safety.

Therefore, this change is considered safe, based on the fact that the revised Specifications will continue to require adequate testing be conducted on a periodic basis to demonstrate the ability of the containment to provide a fission product barrier following a DBA. The "as left" measured overall Type A containment leakage rate limit will continue to provide margin between measured containment leakage and the containment leakage rate assumed in the accident analysis for calculating offsite dose consequences. The proposed change will not impose additional challenges to the containment structure in terms of peak pressure. The calculated offsite dose consequences of a DBA will remain unchanged since the assumed containment leakage rate and the maximum allowable "as found" overall Type A containment leakage rate are equal.

E. NO SIGNIFICANT HAZARDS EVALUATION

The no significant hazard considerations involved with the proposed amendment have been evaluated, focusing on the three standards set forth in 10 CFR 50.92(c) as quoted below:

> The Commission may make a final determination, pursuant to the procedures in paragraph 50.91, that a proposed amendment to an operating license for a facility licensed under paragraph 50.21(b) or paragraph 50.22 or for a testing facility involves no significant hazards consideration, if operation of the facility in accordance with the proposed amendment would not:
>
> (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or
>
> (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 following evaluation is provided for the no significant hazards consideration standards.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Containment leakage is not an accident initiator. The proposed amendment does not add or modify any existing plant equipment. Therefore there is no increase in the probability of an accident previously evaluated.

   The consequences of an accident previously evaluated are not significantly increased. The proposed changes do not affect the assumptions, parameters or result of any Updated Final Safety Analysis (UFSAR) accident analyses. The containment leakage rate will continue to be maintained within the limit assumed in the accident analysis for a Design Basis Accident (DBA). The proposed changes do not modify the response of the containment during a DBA. The proposed amendment will continue to ensure that the ability of the containment structure, including the containment air locks, to limit leakage from a DBA is demonstrated using test methodologies and guidance on test frequencies that have been determined to be acceptable to meet the requirements of 10 CFR 50, Appendix J, Option B.

   The potential increase to overall accident risk due to the containment leak tightness decreasing between extended

testing intervals and the resulting potential increased radioactivity release to the environment during a DBA has been determined to be minimal based on the findings of NUREG 1493 titled "Performance-Based Containment Leak-Test Program." In addition, due to the performance based nature of 10 CFR 50 Appendix J, Option B, the extended test intervals are utilized only when the component(s) have demonstrated an acceptable performance history. Therefore, a significant decrease in containment leak tightness between extended test intervals is not expected as a result of this proposed change.

Based on the above discussion, it is concluded that this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change does not involve any physical changes to the plant or changes in plant operating configuration. The proposed amendment involves changes to plant programs and administrative requirements used in determining acceptable containment performance. The performance of plant systems, including the containment structure, during plant operation remains unchanged.

   Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the change involve a significant reduction in a margin of safety?

   The margin of safety is not significantly reduced by this proposed change. The acceptance criteria for "as left" measured containment leakage rates is not being increased as result of this proposed amendment. For Beaver Valley Power Station (BVPS) Unit No. 1 only, the "as found" maximum allowable overall Type A leakage rate is being slightly increased. However, the slight increase does not exceed the value assumed in accident analysis for containment leakage during a DBA due to changing the acceptance criteria from less than to less than or equal to. The margin between the acceptable "as left" measured overall Type A containment leakage rate and the leakage rate assumed in the accident analysis is not being decreased.

   The maximum "as found" allowable overall Type A leakage rate remains unchanged for BVPS Unit No. 2. The margin

between the acceptable "as left" measured overall Type A containment leakage rate and the leakage rate assumed in the accident analysis is also not being decreased.

The maximum allowable measured combined Type B and C leakage rate is not being increased above the current limits.

The maximum peak containment pressure following a DBA remains unchanged. The containment depressurization time following a DBA remains unchanged. The calculated offsite dose consequences of a DBA remains unchanged.

The proposed amendment continues to ensure reactor containment system reliability by periodic testing in compliance with 10 CFR 50, Appendix J, Option B. The extension of Type A, B and C test frequencies permitted by 10 CFR 50 Appendix J, Option B, is not expected to result in a significant decrease in containment leak tightness between test intervals. Due to the performance based nature of 10 CFR 50 Appendix J, Option B, the extended test intervals are utilized only when the component(s) have demonstrated an acceptable performance history. Therefore, a significant decrease in containment leak tightness between extended test intervals is not expected as a result of this proposed change.

The changes which are either administrative or editorial in nature will not reduce the margin of safety because they have no impact on any safety analysis assumptions.

Therefore, based on the above discussion, it can be concluded that the proposed change does not involve a significant reduction in a margin of safety.

F. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Based on the considerations expressed above, it is concluded that the activities associated with this license amendment request satisfies the no significant hazards consideration standards of 10 CFR 50.92(c) and, accordingly, a no significant hazards consideration finding is justified.

ATTACHMENT C-1

Beaver Valley Power Station, Unit No. 1
Proposed Technical Specification Change No. 223

Applicable UFSAR Changes

REGULATORY GUIDE 1.144, SEPTEMBER 1980: AUDITING OF QUALITY ASSURANCE PROGRAMS FOR NUCLEAR POWER PLANTS

Beaver Valley Power Station - Unit 1(BVPS-1) will meet the intent of Regulatory Guide 1.144 for the auditing of its Quality Assurance Program during the operations phase with the following clarifications and alternatives:

Paragraph C.1

The applicability of the referenced regulatory guides/ANSI standards [RG 1.28: ANSI N45.2, RG 1.28: ANSI N45.2.9, and RG 1.74: ANSI N45.2.10] is as stated in the respective positions on these regulatory guides/ANSI standards as described in the UFSAR.

Paragraph C.3

Scheduled internal audit frequency will be as specified in Paragraph C.4 of Regulatory Guide 1.33, Rev. 2, February 1978.

The pre-audit and post-audit conferences required by Sections 4.3.1 and 4.3.3 of ANSI N45.2.12-1977 may be fulfilled by a variety of communications such as telephone conversations.

REGULATORY GUIDE 1.155, JUNE 1988: STATION BLACKOUT

The utilization of BVPS emergency diesel generators as alternate AC (AAC) power sources for coping with station blackout, and the reliability program for these generators follow the guidance of Regulatory Guide 1.155 (June 1988).(10,11) ADD INSERT "1"

1.3.4.2 American National Standards Institute (ANSI) Standards

N45.2.5: DRAFT 3, REVISION 1, JANUARY 1974, "SUPPLEMENTARY QUALITY ASSURANCE REQUIREMENTS FOR INSTALLATION, INSPECTION AND TESTING OF STRUCTURAL CONCRETE AND STRUCTURAL STEEL DURING THE CONSTRUCTION PHASE OF NUCLEAR POWER PLANTS"

The Duquesne Light Company follows the guidance of ANSI N45.2.5, Draft 3, Revision 1, January 1974. Procedures and/or specifications were developed prior to, and implemented concurrent with the start of the operations phase.

N45.2.8: DRAFT 3, REVISION 2, SEPTEMBER 1973, "SUPPLEMENTARY QUALITY ASSURANCE REQUIREMENTS FOR INSTALLATION, INSPECTION, AND TESTING OF MECHANICAL EQUIPMENT AND SYSTEMS FOR THE CONSTRUCTION PHASE OF NUCLEAR POWER PLANTS"

The Duquesne Light Company follows the guidance of ANSI N45.2.8, Draft 3, Revision 2, September 1973. Procedures and/or specifications were developed prior to, and implemented concurrent with the start of the operations phase.

(Proposed Wording)

INSERT "1"

RG No. 1.163, September 1995

UFSAR Reference Section 5.6

Performance-Based Containment Leak-Test Program

The Containment Leakage Rate Testing Program is in accordance with the guidelines contained in RG No. 1.163. This regulatory guide provides guidance on an acceptable performance based leak test program, leakage rate test methods, procedures, and analyses that may be used to comply with the performance based Option B in Appendix J of 10 CFR 50.

(Proposed Wording)

3. The nuclear control operator utilizing remote indicating control room instruments determines the containment atmospheric ambient pressure, temperature and radiation levels.

4. These levels are compared to predetermined levels which specify the protective apparatus and allowable times for the entering personnel.

5. Personnel entering the containment are provided with necessary instruments to verify the radiation levels, particulate activity levels and oxygen content of the containment atmosphere prior to proceeding to the work area.

6. Any significant changes of containment atmospheric parameters noted by an annunciator in the main control room or any plant condition which, in the opinion of the nuclear control operator or shift supervision, could pose a threat to the safety of personnel in the containment will require the evacuation of personnel from the containment.

Tests and Inspections

The containment vacuum ejector is not considered a part of the engineered safety features and, since it is such a simple mechanical device, periodic tests are not required. The mechanical containment vacuum pumps are operated during the initial containment leakage rate test (Section 5.5) and demonstrated to have adequate capacity to remove inleakage. During normal unit operation, they are alternated in service, thus providing periodic testing of each containment vacuum pump.

5.4.2.2. Containment Leakage Monitoring System

Design Bases

The containment leakage monitoring system is used to determine the leakage rate of the containment under periodic test conditions. The containment leakage rate is determined using the absolute test method, and either the Mass Point or Total Time data analysis method is used to calculate the containment leakage rate.

Option B.

The system provides for measurement of containment leakage rate of less than 0.1 percent of the contained volume in 24 hours with an accuracy sufficient to meet the requirements of Appendix J, 10 CFR 50. The system is designed in accordance with ANSI N45.4, American National Standard, Leakage Rate Testing of Containment Structures for Nuclear Reactors, March 17, 1972. Containment leakage rate testing is conducted in accordance with 10 CFR 50, Appendix J with certain exceptions as noted in the Technical Specifications.

Option B

(Proposed Wording)

The environmental conditions (atmospheric pressure, temperature, and humidity) inside and outside the containment structure were continuously monitored during the test to evaluate their contribution to the response of the containment. The test was not conducted under extreme weather conditions such as snow, heavy rain, or strong wind.

When the containment structure was subjected to the peak test internal pressure, the maximum radial growth was expected to be approximately three-quarters inch and the maximum vertical deformation at the dome apex to be approximately one and one-half inch. These deformations were calculated for the analytical stress evaluation of the containment liner. Strain measurements were made on the steel liner using conventional strain gages at adequately selected points.

During the acceptance test, visual examination and instrumentation were used to record cracking and changes in measurements, both vertically and radially, due to the response of the concrete containment structure to the air pressure test of the liner. Prior to testing, the outside of the concrete structure was surveyed, measured, and inspected for cracks, and all pertinent information recorded. During the test, measurements were made of the radial deflections at various locations on the wall from the top of the mat to the spring line of the dome. Two permanent pits located approximately 90 degrees apart were provided for access to the containment wall below ground grade. These pits allowed localized visual inspection and measurements of the lower part of the wall.

Vertical deflections were measured at the apex and spring line of the dome. Additional strain measurements were made on the surface areas adjacent to the equipment access hatch and in other areas where stresses were critical.

Deformations were measured by linear variable differential transducers (LVDT's) mounted at the internal surface of the linear plate. LVDT's were also used to measure displacements of the concrete ring around the equipment hatch. Cracks larger than 0.01 inch which occur during the test were recorded. They were measured by an optical comparator and checked with feeler gages. After the completion of the test recovery of the structure was recorded. The crack pattern was again inspected and recorded.

The containment concrete surface was whitewashed in areas of high stress and at openings to chart crack patterns. Photographs were taken of the crack patterns to provide permanent records.

Temperature, barometric pressure and weather conditions were recorded hourly during the test period.

Containment Leakage Rate Tests

The containment leakage rate tests are performed in accordance with the guidelines of Appendix J of 10CFR50, "Primary Reactor Containment Leakage Testing for Water Cooled Power Reactors".

(Option B)

(Proposed Wording)

The containment leakage testing program includes the performance of Type A tests, to measure the containment overall integrated leakage rate, Type B tests, to measure leakage of certain containment components, and Type C tests, to measure containment isolation valve leakage rate.

The preoperational Type A test was conducted according to the rules of Section III.A of Appendix J. Option A.

Periodic tests are conducted in accordance with ~~Section III.D.1 of~~ Appendix J (with the exemption noted in the Technical Specifications). These tests are performed using the leakage monitoring system (described in Section 5.4.2.2). Option B. Delete

The measured leakage rate does not exceed the design basis accident leakage rate (La) of 0.1 percent per 24 hours of the weight of containment air at the calculated peak containment pressure of 40.0 psig. The remaining leakage characteristics are determined in accordance with ~~Appendix J, Sections III.A.4.a and III.A.5.a.~~ the Containment Leakage Rate Testing Program (CLRTP). Option B

Type B tests are carried out to monitor the principal sources of leak development in accordance with Appendix J, ~~Section III.B.1 Test Methods.~~ These tests are performed to measure leakage originating at containment penetrations, air lock door seals, equipment and personnel access hatches, and all other components which may develop leaks and require repairs to meet the acceptance criterion of the Type A test.

The preoperational ~~and periodic~~ Type B tests ~~are~~ were conducted according to the rules of Appendix J ~~Section III.B.2~~ by local pneumatic pressurization of the containment components at a pressure not less than Pa. The acceptance criterion for Type B tests is given in ~~Appendix J, Section III.B.3.~~ the CLRTP. periodic Option A.

The periodic Type B tests are scheduled according to the guidelines of ~~Appendix J, Section III.D.2.~~ CLRTP. Option B.

The Type C tests are performed on the isolation valves to verify their sealing capability and leaktightness according to Appendix J, ~~Section III.C.1.~~ The test includes valve closure and leakage tests. A valve closure test is conducted prior to a valve leakage test to demonstrate the proper sealing capability of a valve upon receipt of an isolation signal. Those isolation valves which are normally closed are exercised to verify closure and sealing capabilities. Those containment isolation valves which are in a system that is expected to be filled with water for 30 days following a LOCA and therefore do not represent a containment atmosphere leak path are not subject to the Type C test requirements of 10CFR50 Appendix J. ~~III.C.1~~ Option B.

(Proposed Wording)

the

The Type C tests are conducted according to the guidelines of ~~Appendix J, Section III.C.1~~ by local pneumatic pressurization at a pressure Pa.

CLRTP

~~The periodic Type C tests are conducted according to the guidelines of Appendix J, Section III.D.3.~~

DELETE

The structural integrity of the containment will be determined during the shutdown for each Type A containment leakage rate test in accordance with the ~~Technical Specifications~~. CLRTP.

Table 5.3-1a, "Containment Isolation Arrangements", lists the containment isolation valves which can be individually leak tested.

(Proposed Wording)

ATTACHMENT C-2

Beaver Valley Power Station, Unit No. 2
Proposed Technical Specification Change No. 94

[redacted]

Applicable UFSAR Changes

TABLE 1.8-1 (Cont)

RG No. 1.150, Rev. 1
UFSAR Reference Section 5.3.1, 5.3.3

ULTRASONIC TESTING OF REACTOR VESSEL WELDS DURING PRESERVICE AND INSERVICE EXAMINATIONS (FEBRUARY 1983)

Ultrasonic testing of the reactor vessel welds during preservice and inservice examinations at BVPS-2 will follow the guidance of this regulatory guide as described in the Preservice Inspection Program, which was submitted to the NRC in Letter 2NRC-5-154, dated December 26, 1985, and the Inservice Inspection Program, which is scheduled to be submitted to the NRC in the last quarter of 1986.

RG No. 1.155, June 1988
UFSAR Reference Section 8.3.1.1.19

STATION BLACKOUT

BVPS utilizes the emergency diesel generators at each unit as an alternate AC (AAC) power source to operate systems necessary for coping with a station blackout. The design of the cross-tie circuit between BVPS-1 and BVPS-2 AAC power sources conforms with guidance provided by RG No. 1.155.

ADD

RG No. 1.163, September 1995

UFSAR Reference Section 6.2.6

Performance-Based Containment Leak-Test Program

The Containment Leakage Rate Testing Program is in accordance with the guidelines contained in RG No. 1.163. This regulatory guide provides guidance on an acceptable performance based leak test program, leakage rate test methods, procedures, and analyses that may be used to comply with the performance based option B in Appendix J of 10 CFR 50.

(Proposed wording)

computer system. Indicators are provided in the main control room to monitor hydrogen gas concentrations and an indicating light shows the hydrogen recombiner is operating. A recorder for hydrogen gas concentration (channel A only) is provided.

The following controls and instruments are located on the hydrogen analyzer panel: a stream selector switch for stream to be analyzed, indicating lights for reference/zero gas pressure, or calibration/sample gas pressure low alarm, and high gas concentration.

The hydrogen recombiner inline heater is controlled from its own control panel in the safeguards area. When in AUTO (heater on permissive), the heater will energize if the hydrogen recombiner blower is running and if the metal temperature of the heater is less than 625°F.

6.2.6 Containment Leakage Testing

The containment leakage rate tests are performed in accordance with 10 CFR 50, Appendix J, ~~1973;~~ and GDC 52, 53, and 54. Option B

The purpose of the containment leakage test program is to assure that leakage through the reactor containment, systems, and components penetrating the containment boundary does not exceed the allowable leakage rate values as specified in the Technical Specifications (Chapter 16) or other design base documents.

The containment leak testing program includes the performance of Type A tests to measure the containment overall integrated leak rate; Type B tests to detect local resilient seal leakage at electrical penetrations, equipment hatch, personnel hatch, emergency escape trunk, and fuel transfer tube flange; and Type C tests to measure containment isolation valve leakage rates.

6.2.6.1 Containment Integrated Leak Rate Test - Type A

The ~~preoperational and~~ periodic Type A leakage rate test will be conducted in accordance with 10 CFR 50, Appendix J, ~~Paragraph III.A~~ Option B. Pretest requirements will be identified and included as part of the Type A test procedure to ensure that the necessary preparations, precautions, and temporary modifications have been completed prior to Type A test commencement. Such pretest requirements will include unit status, instrumentation requirements, support systems status, temporary test or measurement equipment requirements, supplementary

DELETE

(Proposed Wording)

testing requirements, general containment inspection requirements prior to containment closeout, personnel assignment, shift briefings, etc.

In accordance with the Containment Leakage Rate Testing Program (CLRTP),

~~Prior to commencement of the Type A test~~, a general inspection of the accessible interior and exterior surfaces of the containment structure will be performed for the purpose of identifying evidence of deterioration which may effect the containment structural integrity or leaktightness. Visual inspection will be performed to detect and observe: gross deformations of the interior surfaces of steel containment liner; paint failure due to massive rusting, electrolysis, or abrasion; evidence of exterior concrete spalling or cracking; high stress areas of the containment concrete such as

equipment hatch, personnel hatch, electrical and valve penetration areas; accessible areas at the bend line; shake space integrity, etc. Should evidence of containment degradation be found, the Type A or structural acceptance test will not be performed until an evaluation has been performed and repairs made, if required. Such structural deterioration and subsequent corrective actions taken will be reported ~~as part of the Type A test report described in Section 6.2.6.4.~~ in accordance with the CLRTP.

System Venting and Draining

To place the primary reactor containment system as close to post-accident conditions as possible, those portions of the fluid systems that are part of the reactor containment boundary that may be opened directly to the containment or outside atmosphere under post-accident conditions will be opened or vented to the appropriate atmosphere during the test.

Those lines which are normally fluid-filled and which may be drained or have the fluid driven off by the accident, including portions of systems inside or outside containment that penetrate the containment and may rupture as a result of a LOCA, will be drained to the extent necessary to expose the containment isolation valve seats to the containment atmosphere, except as noted by the following. Systems that are required for proper conduct of the test or to maintain BVPS-2 in a safe condition during the test shall be operable in their normal mode and need not be vented or drained. Additionally, systems that are normally filled with water and operable under post-accident conditions, such as the CHRS, need not be vented or drained. Systems that are not vented or drained during the Type A test and which could become exposed to the containment atmosphere during a leakage DBA will be Type C tested, and the Type C test leakage rate for the penetration path will be added to the upper confidence limit.

The CLRTP provides additional exceptions for not venting or draining of penetrations

The test pressure to which the containment is subjected during the Type A test is equivalent to the calculated peak containment pressure following the design basis accident. Temporary air compressors will be utilized to raise containment pressure. When the containment has reached test pressure, containment temperature will be monitored for a period of not less than 4 hours until stabilization criteria have been met. Once stabilized, the containment parameters of temperature, pressure, and vapor pressure will be observed and recorded for the duration of testing. The duration of the test period will be sufficient to enable adequate data to be accumulated and analyzed so that a leakage rate and upper confidence unit can be accurately determined. During this period, the containment leak rate will be calculated by the mass point or total time analysis technique to verify that it is within the limits of the BVPS-2 Technical Specifications requirements. Upon determination of an acceptable leakage rate, a verification test will be performed to confirm the capability of the method and the test instrumentation used to determine the containment

(Proposed wording)

leakage rate. Having met all test criteria, the containment will be vented and reduced to atmospheric conditions.

"as left"

The acceptance criteria for an acceptable leakage rate test requires that containment leakage be less than 0.75 La, as defined by ~~10 CFR 50, Appendix J~~ CLRTP. A superimposed leak test will be conducted immediately following the Type A test. The results from this test will be considered acceptable provided the ~~difference between the superimposed leak test data and the Type A test data is less than 0.25 La.~~ within the acceptance criteria specified in ANSI/ANS 56.8 1994

DELETE →

~~If a periodic test fails to meet the acceptance criteria specified, the USNRC will be notified and the Type A test schedule applicable to subsequent tests will be discussed with the USNRC. If two consecutive periodic Type A leakage tests fail to meet the applicable acceptance criteria, a Type A leakage test will be performed at each refueling shutdown or every 18 months, whichever occurs first, until two consecutive Type A leakage tests meet the acceptance criteria, after which a normal retest schedule will then be resumed.~~

6.2.6.2 Containment Penetration Leakage Rate Test - Type B

Type B containment penetration leakage tests are conducted in accordance with the CLRTP. ~~10 CFR 50, Appendix J, Section III.B~~. Type B leakage tests are intended to detect local leakage and to measure leakage across containment electrical penetrations, equipment and personnel hatches, emergency escape trunk, and fuel transfer tube flange. A list identifying all containment penetrations is provided in Table 6.2-60.

The makeup air method of testing, which will primarily be used to measure Type B leakage, consists of the pressurization of a component with air or nitrogen and measuring leakage using a flowmeter installed in the pressurization line.

The test pressure to which Type B tests will be conducted is identical to that specified in Section 6.2.6.1 for Type A testing.

DELETE →

~~The periodic retest schedule for Type B testing (except air locks) does not require performances during each reactor shutdown for refueling, but in no case at intervals greater than 2 years. Air locks shall be tested at 6 month intervals. However, air locks when opened during such intervals will be tested after each opening except when the airlock is being used for multiple entries, when it shall be tested once per 3 days.~~

The periodic retest schedule for Type B testing will be in accordance with the CLRTP. ~~10 CFR 50, Appendix J, Paragraph III.D.2~~.

6.2.6.3 Containment Isolation Valve Leak Rate Tests - Type C

(Proposed Wording)

Type C testing is performed on containment isolation valves to verify their sealing capability and leaktightness. All testing will be performed in accordance with the requirements of ~~10 CFR 50, Appendix~~ the CLRTP.

(Proposed Wording)

DELETE

~~J, Paragraph III.C.1.~~ Type C tests will be performed by local pressurization applied in the same direction as that when the valve would be required to perform its safety function, unless it can be demonstrated that testing in a reverse direction is as conservative. Each valve to be tested will be closed by its normal means, that is, motor, solenoid, diaphram, handwheel, etc, and will receive no additional adjustments (hand-tightening after closure by motor) or preliminary exercising.

The containment isolation valves will be tested by local pressurization to the pressure specified in Section 6.2.6.1 for the Type A test. The test method will be to vent and drain a system, or portions thereof, and to pressurize across one, or a series of valves with air or nitrogen using primarily the makeup air method described in Section 6.2.6.2. Test connections located on both the inlet and outlet sides of a valve, or pair of valves, are provided to facilitate system draining and/or pressurization. Leakage will be measured using an installed flow meter in the pressure supply line. On multiple valve penetrations, only the highest leaking valve shall be recorded as the penetration leak rate. Valves, and their respective system status which must be Type C tested, are listed in Table 6.2-60. Test vents, drains, and connections located between isolation valves will have two barriers (valve with cap, and valve with flange) and will be administratively controlled. These connections will not be leak tested.

"as left"

The test pressure will be as specified in Section 6.2.6.1 for Type A testing.

The acceptance criteria for allowable leakage associated with Type B and Type C combined leakages is to be in accordance ~~with 10 CFR 50, Appendix J, Paragraphs III.B.3 and III.C.3~~ the CLRTP.

Scheduling for each periodic Type C test will be in accordance with the CLRTP. ~~10 CFR 50, Appendix J, Paragraph III.D.3, and performed during each reactor shutdown for refueling, but in no case at intervals greater than 2 years~~.

6.2.6.4 Scheduling and Reporting of Periodic Tests

The ~~proposed~~ DELETE schedules for ~~preoperational and~~ DELETE periodic tests are in accordance with ~~10 CFR 50, Appendix J.~~ the CLRTP.

~~1. Containment integrated leak rate (Type A): Preoperational Type A testing will be performed prior to fuel load. Periodic Type A testing will be performed three times at equal intervals during a 10-year period. The third test will be performed when BVPS-2 is shut down for the 10-year plant in-service inspections.~~

~~2. Containment penetration leakage testing (Type B): Preoperational Type B testing will be completed prior to~~

Report preperation for periodic Type A, B, and C testing will be in accordance with the CLRTP.

(Proposed Wording)

~~fuel load and will be complete to support the Type A test. Periodic Type B testing, other than air locks, will be performed during each reactor refueling shutdown or other convenient intervals, but in no case at intervals greater than 2 years. Air locks will be periodically tested every 6 months or after opening~~.

~~3. Containment isolation valve leakage testing (Type C): Preoperational Type C testing will be completed prior to fuel load and will be complete to support the Type A test. Periodic Type C testing will be performed during each refueling shutdown, but in no case at intervals greater than 2 years. Reporting of preoperational and periodic Types A, B, and C testing will be in accordance with 10 CFR 50, Appendix J, Paragraphs V.B.1, .2, and .3~~.

6.2.7 Fracture Prevention of Containment Pressure Boundary Materials

A summary of the fracture toughness characteristics of the containment pressure boundary materials and the confirmation of compliance to GDC 51 can be found in the DLC transmittal to the NRC (Woolever 1983).

6.2.8 References for Section 6.2

Aerojet Nuclear Company (ANC) 1976. RELAP4/MOD 5: A Computer Program for Transient Thermal Hydraulic Analysis of Nuclear Reactors and Related Systems. User's Manual Vol I-III, Report ANCR-NUREG-1335.

American National Standards ~~Institute 1981~~ (for). Containment System Leakage Testing Requirements. ANSI/ANS-56.8-~~1981~~ 1994. (This document used only as a guideline.)

American Nuclear Society (ANS) 1978. Decay Heat Power in Light Water Reactors. ANS Proposed Standard 5.1, Revised September 1978.

Anderson, T.M. (Westinghouse) 1979. Personal Communication (Letter NS-TMA-2075 dated April 25, 1979) to J.F. Stolz, USNRC. Westinghouse LOCA Mass and Energy Release Model for Containment Design - March 1979 Version.

Bloom, G. R., et al. 1982. Hydrogen Distribution in a Containment with a High Velocity Hydrogen-Steam Source, presented at the Second International Workshop on the Impact of Hydrogen on Water Reactor Safety, Albuquerque, New Mexico.

Bordelon, F.M., Massie, H.W., Sr., Zordan, T.A. 1974a. Westinghouse Emergency Core Cooling Evaluation Model Summary. WCAP-8339.

(Proposed wording)