ATTACHMENT A-1

Beaver Valley Power Station, Unit No. 1
Proposed Technical Specification Change No. 199, Revision 1

The following is a list of the affected pages:

Affected Pages:	XIV
	1-2
	3/4 6-1
	3/4 6-5
	3/4 6-5a
	B 3/4 6-1

INDEX

BASES

(Proposed Wording)

REPORTABLE EVENT

1.7 A REPORTABLE EVENT shall be any of those conditions specified in Section 50.73 to 10 CFR Part 50.

CONTAINMENT INTEGRITY

1.8 CONTAINMENT INTEGRITY shall exist when:

1.8.1 All penetrations required to be closed during accident conditions are either:

a. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except as provided in Table 3.6-1 of Specification 3.6.3.1.

1.8.2 All equipment hatches are closed and sealed.

1.8.3 Each air lock is ~~OPERABLE pursuant to~~ in compliance with the requirements of Specification 3.6.1.3, ~~and~~ DELETE

1.8.4 The containment leakage rates are within the limits of Specification 3.6.1.2, and

ADD → 1.8.5 The sealing mechanism associated with each penetration (e.g., welds, bellows, or o-rings) is OPERABLE.

CHANNEL CALIBRATION

1.9 A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is calibrated.

CHANNEL CHECK

1.10 A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels measuring the same parameter.

(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:

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 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 as provided in Table 3.6-1 of Specification 3.6.3.1.

2. All equipment hatches are closed and sealed.

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

ADD INSERT "A"

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[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)

Attachment to "Containment Integrity"

INSERT "A"

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.

CONTAINMENT SYSTEMS

CONTAINMENT AIR LOCKS

LIMITING CONDITION FOR OPERATION

3.6.1.3 ~~Each~~ Two containment air locks shall be OPERABLE ~~with~~ DELETE:

DELETE

a. ~~Both doors closed except when the air lock is being used for normal transit entry and exit through the containment, then at least one air lock door shall be closed and~~

b. ~~An overall air lock leakage rate of less than or equal to 0.05 L_a at P_a (40.0 psig)~~.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

ADD INSERT "B"

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

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

1. ~~Maintain the associated OPERABLE air lock door closed and either restore the associated inoperable air lock door to OPERABLE status within 24 hours or~~ lock the ~~associated~~ OPERABLE ~~air lock~~ door closed in the affected air lock within 24 hours, and (2)

Verify the OPERABLE door is

2. ~~Operation may then continue until performance of the next required overall air lock leakage test provided that the associated OPERABLE air lock door is verified to be~~ locked closed in the affected air lock at least once per 31 days. (5)

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

DELETE

4. ~~The provisions of Specification 3.0.4 are not applicable~~.

REPLACE WITH INSERT "C"

b. With a containment air lock inoperable, except as the result of an inoperable air lock door, maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ADD

(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.

(6) Entry and exit of containment is permissible under control of a dedicated individual.

(Proposed Wording)

Attachment to "Containment Air Locks"

INSERT "B"

- - - - - - - - - - - - - - - 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, when air lock leakage results in exceeding the combined containment leakage rate.

- -

INSERT "C"

b. With the containment air lock interlock mechanism inoperable in one or more containment air locks:(6)

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

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

   3. Verify an 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.

c. With one or more containment air locks inoperable, except as the result of an inoperable air lock door and/or inoperable interlock mechanism:

   1. Immediately initiate action to evaluate the combined containment leakage rate per LCO 3.6.1.2, and

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

   3. Restore the air lock to OPERABLE status within 24 hours.

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

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

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

1. Personnel airlock ~~X~~ 40.0 psig greater than or equal to

2. Emergency air lock ~~X~~ 10.0 psig

REPLACE WITH INSERT "D" → or, by quantifying the total air lock leakage to ensure the requirements of 3.6.1.3.b are met.

b. By conducting overall air lock leakage tests, (9) at not less than P_a (40.0 psig), and verifying the overall air lock leakage rate is ~~within its limit~~: less than or equal to 0.05 L_a at P_a (40.0 psig)

1. At least once per 6 months, ~~X~~ and (7)

2. Prior to establishing CONTAINMENT INTEGRITY when ~~Upon completion of~~ maintenance ~~which~~ has been performed on the air lock that could affect the air lock sealing capability, ~~X~~ and (10)

c. At least once per 18 months during shutdown by verifying:

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

~~2. No detectable seal leakage when the volume between the emergency air lock shaft seals is pressurized to greater than or equal to 10.0 psig for at least 2 minutes.~~ ← DELETE

3. 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.

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(7) → ~~X~~ The provisions of Specification 4.0.2 are not applicable.
(10) → ~~X~~ Exemption to Appendix J of 10 CFR 50, dated November 19, 1984.

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

(9) Results shall be evaluated against the acceptance criteria of LCO 3.6.1.2.

ADD →

(Proposed Wording)

INSERT "D"

or, by quantifying[8] 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 0.0005 L_a at 10.0 psig for the emergency air lock.

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 ≤ 0.75 La 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.

3/4.6.1.3 CONTAINMENT AIR LOCKS

The limitations on closure and leak rate for the containment air locks are required to meet the restrictions on CONTAINMENT INTEGRITY and containment leak rate. Surveillance testing of the air lock seals provides assurance that the overall air lock leakage will not become excessive due to seal damage during the intervals between air lock leakage tests.

REPLACE WITH INSERT "E"

(Proposed Wording)

Attachment to "Containment Air Locks"

INSERT "E"

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 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 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.

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

INSERT "E"

APPLICABLE SAFETY ANALYSES (Continued)

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.

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.

Each air lock is required to be OPERABLE. For the air lock to be considered OPERABLE, the air lock interlock mechanism must be OPERABLE, the air lock must be in compliance with the Type B air lock leakage test, and both air lock doors must be OPERABLE. The interlock allows only one air lock door of an air lock to be opened at one time. This provision ensures that a gross breach of containment does not exist when containment is required to be OPERABLE. Closure of a single door in each air lock is sufficient to provide a leak tight barrier following postulated events. Nevertheless, both doors are kept closed when the air lock is not being used for normal entry into and exit from containment.

APPLICABILITY

In Modes 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment air locks are not required in MODE 5 to prevent leakage of radioactive material from containment. The requirements for the containment air locks during MODE 6 are addressed in LCO 3.9.4, "Containment Building Penetrations."

ACTIONS

The ACTIONS are modified by a General Note (1) that allows entry and exit to perform repairs on the affected air lock component. If the outer door is inoperable, then it may be easily accessed to repair.

INSERT "E"

ACTIONS (Continued)

If the inner door is the one that is inoperable, however, then a short time exists when the containment boundary may not be intact (during access through the outer door). The ability to open the OPERABLE door, even if it means the containment boundary is temporarily not intact, is acceptable due to the low probability of an event that could pressurize the containment during the short time 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 such that it could inadvertently open while the OPERABLE door is opened. 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 statement entry is allowed for each air lock.

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

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.

   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

INSERT "E"

ACTIONS (Continued)

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 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.

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.

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

INSERT "E"

ACTIONS (Continued)

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.

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.

INSERT "E"

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).

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.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. 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

INSERT "E"

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 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.

INSERT "E"

SURVEILLANCE REQUIREMENTS (SR) (Continued)

The SR has been modified by two additional Notes. Note (8) 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 (9) 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.

ATTACHMENT A-2

Beaver Valley Power Station, Unit No. 2
Proposed Technical Specification Change No. 66, Revision 1

The following is a list of the affected pages:

Affected Pages:

I
II
XI
1-2
3/4 6-1
3/4 6-4
3/4 6-5
B 3/4 6-1

INDEX

DEFINITIONS

SECTION PAGE

1.0 DEFINITIONS

(Proposed wording)

INDEX

DEFINITIONS

(Proposed Wording)

INDEX

BASES

(Proposed Wording)

DEFINITIONS

CONTAINMENT INTEGRITY (Continued)

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except as provided in Table 3.6-1 of Specification 3.6.3.1.

1.8.2 All equipment hatches are closed and sealed. (J)

1.8.3 Each air lock is ~~OPERABLE pursuant to~~ (in compliance with the requirements of) Specification 3.6.1.3 ~~(a)~~ DELETE, and

1.8.4 The containment leakage rates are within the limits of Specification 3.6.1.2 (, and)

1.8.5 The sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is OPERABLE.

CHANNEL CALIBRATION

1.9 A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping, or total channel steps such that the entire channel is calibrated.

CHANNEL CHECK

1.10 A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels measuring the same parameter.

CHANNEL FUNCTIONAL TEST

1.11 A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated signal into the channel as close to the primary sensor as practicable to verify OPERABILITY including alarm and/or trip functions.

CORE ALTERATION

1.12 CORE ALTERATION shall be the movement or manipulation of any component within the reactor pressure vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe conservative position.

SHUTDOWN MARGIN

1.13 SHUTDOWN MARGIN shall be the instantaneous amount of reactivity by which the reactor is or would be subcritical from its present condition assuming all full length rod cluster assemblies (shutdown and control) are fully inserted except for the single rod cluster assembly of highest reactivity worth which is assumed to be fully withdrawn.

(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:

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 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* 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 as provided in Table 3.6-1 of Specification 3.6.3.1.

2. All equipment hatches are closed and sealed.

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

ADD INSERT "F"

*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)

Attachment to "Containment Integrity"

INSERT "F"

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.

CONTAINMENT SYSTEMS

CONTAINMENT AIR LOCKS

LIMITING CONDITION FOR OPERATION

3.6.1.3 ~~Each~~ Two containment air lock(s) shall be OPERABLE ~~with~~ DELETE:

DELETE →

a. ~~Both doors closed except when the air lock is being used for normal transit entry and exit through the containment, then at least one air lock door shall be closed, and~~

b. ~~An overall air lock leakage rate of less than or equal to 0.05 L_a at P_a (44.7 psig).~~

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

ADD INSERT "G"

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

Verify an OPERABLE door is closed in the affected air lock within 1 hour, and (3)

1. ~~Maintain the associated OPERABLE air lock door closed and either restore the associated inoperable air lock door to OPERABLE status within 24 hours or~~ (2) Lock the ~~associated~~ OPERABLE ~~air lock~~ door closed. in the affected air lock within 24 hours, and

~~Operation may then continue until performance of the next required overall air lock leakage test provided that the associated OPERABLE air lock door is verified to be~~ Verify the OPERABLE door is locked closed in the affected air lock at least once per 31 days. (5)

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

REPLACE WITH INSERT "H"

~~4. The provisions of Specification 3.0.4 are not applicable.~~ DELETE

b. With a containment air lock inoperable, except as a result of an inoperable air lock door, maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ADD

(4) Entry and exit is permissible for 7 days under administrative controls to perform activites 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.

(6) Entry and exit of containment is permissible under control of a dedicated individual.

(Proposed Wording)

Attachment to "Containment Air Locks"

INSERT "G"

- - - - - - - - - - - - - - - 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, when air lock leakage results in exceeding the combined containment leakage rate.

- -

INSERT "H"

b. With the containment air lock interlock mechanism inoperable in one or more containment air locks:(6)

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

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

   3. Verify an 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.

c. With one or more containment air locks inoperable, except as the result of an inoperable air lock door and/or inoperable interlock mechanism:

   1. Immediately initiate action to evaluate the combined containment leakage rate per LCO 3.6.1.2, and

   2. Verify a door is closed in each affected air lock, within 1 hour, and

   3. Restore the air lock to OPERABLE status within 24 hours.

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

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

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

1. Personnel airlock ~~>~~ 44.7 psig (greater than or equal to)

2. Emergency air lock ~~>~~ 10.0 psig

REPLACE WITH INSERT "I" → or, by quantifying the total air lock leakage to insure the requirements of 3.6.1.3.b are met.

b. By conducting overall air lock leakage tests, (9) at not less than P_a (44.7 psig), and verifying the overall air lock leakage rate is ~~within its limit~~: (less than or equal to 0.05 L_a at P_a (44.7 psig))

1. At least once per 6 months, ~~X~~ and (7)

Prior to establishing CONTAINMENT INTEGRITY when → 2. ~~Upon completion of~~ maintenance ~~which~~ has been performed on the air lock that could affect the air lock sealing capability, ~~X~~ (10) and

c. At least once per 18 months during shutdown verifying: DELETE

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

~~2. No detectable seal leakage when the volume between the emergency air lock shaft seals is pressurized to greater than or equal to 44.7 psig for at least 2 minutes.~~

DELETE → 3. 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.

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

(9) Results shall be evaluated against the acceptance criteria of LCO 3.6.1.2

---

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

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

 (Proposed Wording)

Attachment to "Containment Air Locks"

INSERT "I"

or, by quantifying[8] 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 0.0005 L_a at 10.0 psig for the emergency air lock.

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 La 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 "J"

3/4.6.1.3 CONTAINMENT AIR LOCKS

The limitations on closure and leak rate for the containment air locks are required to meet the restrictions on CONTAINMENT INTEGRITY and containment leak rate. Surveillance testing of the air lock seals provides assurance that the overall air lock leakage will not become excessive due to seal damage during the intervals between air lock leakage tests.

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 sub-atmospheric 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

(Proposed Wording)

Attachment to "Containment Air Locks"

INSERT "J"

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 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 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.

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

INSERT "J"

APPLICABLE SAFETY ANALYSES (Continued)

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.

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.

Each air lock is required to be OPERABLE. For the air lock to be considered OPERABLE, the air lock interlock mechanism must be OPERABLE, the air lock must be in compliance with the Type B air lock leakage test, and both air lock doors must be OPERABLE. The interlock allows only one air lock door of an air lock to be opened at one time. This provision ensures that a gross breach of containment does not exist when containment is required to be OPERABLE. Closure of a single door in each air lock is sufficient to provide a leak tight barrier following postulated events. Nevertheless, both doors are kept closed when the air lock is not being used for normal entry into and exit from containment.

APPLICABILITY

In Modes 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment air locks are not required in MODE 5 to prevent leakage of radioactive material from containment. The requirements for the containment air locks during MODE 6 are addressed in LCO 3.9.4, "Containment Building Penetrations."

ACTIONS

The ACTIONS are modified by a General Note (1) that allows entry and exit to perform repairs on the affected air lock component. If the outer door is inoperable, then it may be easily accessed to repair.

INSERT "J"

ACTIONS (Continued)

If the inner door is the one that is inoperable, however, then a short time exists when the containment boundary may not be intact (during access through the outer door). The ability to open the OPERABLE door, even if it means the containment boundary is temporarily not intact, is acceptable due to the low probability of an event that could pressurize the containment during the short time 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 such that it could inadvertently open while the OPERABLE door is opened. 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 statement entry is allowed for each air lock.

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

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.

   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

INSERT "J"

ACTIONS (Continued)

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 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.

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.

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

INSERT "J"

ACTIONS (Continued)

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.

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 combined 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.

INSERT "J"

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).

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.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. 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

INSERT "J"

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 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.

INSERT "J"

SURVEILLANCE REQUIREMENTS (SR) (Continued)

The SR has been modified by two additional Notes. Note (8) 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 (9) 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.

ATTACHMENT B

Beaver Valley Power Station, Unit Nos. 1 and 2
Proposed Technical Specification Change No. 199 and 66, Revision 1
REVISION OF SPECIFICATION 3.6.1.1 TITLED "CONTAINMENT INTEGRITY,"
SPECIFICATION 3.6.1.3 TITLED "CONTAINMENT AIR LOCKS"
AND ASSOCIATED BASES AND DEFINITION OF CONTAINMENT INTEGRITY

A. DESCRIPTION OF AMENDMENT REQUEST

The proposed change would revise Section 1.0 titled "Definitions." The specific revision would be to revise item 1.8.3 under the Containment Integrity definition. Item 1.8.3 would be modified by replacing the words "OPERABLE pursuant to" with the words "in compliance with the requirements of." In addition, for Beaver Valley Power Station (BVPS) Unit No. 1 only, a new item 1.8.5 would be added which pertains to sealing mechanisms. This item currently exists as item 1.8.5 in BVPS Unit No. 2's definition of "containment integrity."

Limiting Condition For Operation (LCO) 3.6.1.1 would be revised to include a new Surveillance Requirement (SR) 4.6.1.1.c. This new SR would require re-testing of penetrations subject to Type B leak testing if they are opened following a Type A or B test. The new leak rate would then be required to be factored into the total combined containment leakage rate. In addition, the current SR 4.6.1.1.b would be modified by replacing the words "OPERABLE per" with the words "in compliance with the requirements of." The existing footnote designated by a single asterisk would be designated by the number one.

The proposed change would also revise LCO 3.6.1.3 titled "Containment Air Locks." The word "each" would be replaced by the word "two." LCO 3.6.1.3, items "a" and "b," would be relocated. Item "a" will be incorporated into the LCO Bases. Item "b" will be incorporated into the requirements of SR 4.6.1.3. The action statement of LCO 3.6.1.3 would be revised by adding three new general notes. Note (1) allows entry and exit into an air lock to perform repairs. Note (2) states that separate action statement entry is allowed for each air lock. Note (3) requires entry into the action statement of LCO 3.6.1.1 when the air lock leakage rate results in exceeding the combined containment leakage rate.

Action statement "a" would be modified to reflect the condition when one or more air locks are affected by an inoperable door. A new footnote designated by the number four would be added which permits entry and exit for 7 days under administrative controls to perform activities not related to the repair of affected air lock components. Action statement "a.1" would be modified to require verification that an operable door is closed in the affected air lock within 1 hour. In addition, the existing requirement to lock the associated operable air lock door closed

would be separated from "a.1" and exist as "a.2." Existing action statement "a.2" would be modified by deletion of the words pertaining to continued operation until performance of the next required overall air lock leakage test and by the addition of a new footnote designated by the number five. Footnote (5) would allow the 31 day verification, that an air lock door is locked, to be performed by administrative means. This action statement would be renumbered as "a.3" and the existing "a.3" renumbered as "a.4." Also, the exemption to Specification 3.0.4 would be deleted.

A new action statement "b" would be added to provide guidance for the condition where the air lock interlock mechanism is inoperable. A new footnote (6) would be added which would allow entry and exit of containment, through an air lock with an inoperable interlock mechanism. This evolution would be permitted provided that a dedicated individual ensures that one air lock door is maintained closed.

The existing action statement "b" would be modified and be designated action statement "c." The modifications to existing action statement "b" would include the addition of words which reflect the condition when one or more air locks are inoperable, except as the result of an inoperable air lock door and/or inoperable interlock mechanism. A new requirement would be added which requires an evaluation of the combined containment leakage rate per LCO 3.6.1.2. Also, a requirement would be added to verify a door is closed in each affected air lock within one hour.

SR 4.6.1.3.a would be revised by addition of footnote (7). Footnote (7) is currently designated as the pound symbol and will no longer apply to SR 4.6.1.3.b.1. The existing words in SR 4.6.1.3 "or, by quantifying the total air lock leakage to ensure the requirements of 3.6.1.3.b are met" would be replaced. The proposed wording would allow the door seal leakage to be quantified to ensure that the leakage rate is less than or equal to 0.0005 L_a. A new footnote (8) would be applied to this proposed wording on quantifying door leakage. Footnote (8) would state that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. The symbols "≥" would be replaced with the words "greater than or equal to."

SR 4.6.1.3.b would be revised by the addition of a new footnote (9) which requires that the results of the overall air lock leakage test be evaluated against the acceptance criteria of LCO 3.6.1.2. The words "within its limit" would be replaced with the words "less than or equal to 0.05 L_a at P_a" with the specific pressure designated for each Unit. SR 4.6.1.3.b.2 would

be revised by replacing the words "Upon completion of" with the words "Prior to establishing CONTAINMENT INTEGRITY when." The footnote pertaining to the exemption to Appendix J would be designated by the number (10). Additionally, this footnote would be modified, for BVPS Unit 2 only, by the addition of the words "as stated in the operating license." A new SR 4.6.1.3.b.3 would be added and would state the following: "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." SR 4.6.1.3.c.2 would be deleted by this proposed change request.

The Bases section for 3/4.6.1.3 titled "Containment Air Locks" would be expanded to reflect the applicable wording contained in NUREG 1431, Revision 0, titled "Standard Technical Specifications for Westinghouse Plants." The Index pages would be revised to reflect the page changes due to the various revisions associated with this change request.

B. BACKGROUND

Both BVPS Unit Nos. 1 and 2 have two separate containment air locks. Each air lock is a circular cylinder with doors at each end which are interlocked to prevent simultaneous opening. Since both Beaver Valley containments operate at subatmospheric pressure, the interlock provides personnel safety in addition to preventing a direct path out of containment. 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 assures that the containment is operable. Each of the doors contain double o-ring seals and local leakage testing capability to ensure pressure integrity. For an air lock to be considered operable, the air lock interlock mechanism must be operable, the air lock must be in compliance with Type B leakage limits, and both air lock doors must be operable.

C. JUSTIFICATION

These changes, in general, reflect the Improved Standard Technical Specifications contained in NUREG 1431, Revision 0. The proposed revisions to item 1.8.3 under the Definitions section and SR 4.6.1.1.b will permit entry into the action statements of LCO 3.6.1.3 and avoid the possibility of entering the action statement of LCO 3.6.1.1. The definition of containment integrity and the requirements of SR 4.6.1.1.b require that the air lock be operable. Entry into any of the action statements of LCO 3.6.1.3 can be interpreted that the air lock is inoperable in terms of the requirements of LCO 3.6.1.1 (i.e., containment integrity is not being maintained). LCO 3.6.1.1 requires that the containment integrity be restored to operable within 1 hour or cold shutdown must be achieved within

the following 36 hours. The proposed revisions will allow compliance with the requirement of LCO 3.6.1.1 while in the action statements of LCO 3.6.1.3. This is consistent with the latest revision of NUREG 0452 (Standard Technical Specifications) where this potential for competing action statements was resolved.

The proposed addition of item 1.8.5 under the definitions section, for BVPS Unit No. 1 only, will make both Unit's Technical Specifications (TS) consistent. Since the Unit No. 1 containment building contains mechanical and electrical penetrations which utilize o-ring seals, this requirement is applicable to Unit No. 1.

The proposed addition of SR 4.6.1.1.c will ensure that penetrations subject to Type B leak testing, except for the air locks, are leak tested after being opened to demonstrate operability. This surveillance requirement is consistent with item 1.8.5 under the containment integrity definition.

The proposed revisions to LCO 3.6.1.3 would reflect that BVPS Unit Nos. 1 and 2 each have two containment air locks (i.e., personnel air lock and emergency air lock). The current wording of LCO 3.6.1.3 action statements only pertains to a single component being inoperable. A condition where two doors on two separate air locks are inoperable is not addressed by the present LCO wording. The proposed change will clarify this configuration. Containment integrity will continue to be maintained with a single operable door in the closed position.

A general note (1) would be added to LCO 3.6.1.3 to clarify that entry and exit is permissible through a closed or locked closed operable door for the purpose of repairing the affected air lock components. The LCO action statement requires that the remaining operable air lock door be maintained closed and locked closed after a 24 hour period has elapsed. If the inner air lock door is inoperable, then the outer door must be maintained locked closed and this would not permit the outer door to be opened at any time. Without the clarification provided by the proposed general note, repair of the inner door, for example, on the personnel air lock would pose additional safety risks and increased radiation exposure to maintenance personnel attempting a containment entry via the emergency air lock. The emergency air lock was added for safety concerns to provide a second means of egress from containment. Egress through the emergency air lock is possible, however, its function is to provide an emergency exit route. Under an emergency condition, rapid egress is required to facilitate medical treatment of injured personnel, if required. Therefore, the emergency air lock is designed to quickly equalize the differential pressure between the inside of the air lock and the outside atmosphere. This rapid equalization has resulted in ruptured ear drums and general personnel

discomfort. Also, personnel using the emergency air lock are exposed to higher radiation fields due to the lack of a shield wall between the air lock and the reactor vessel area. The containment crane wall, which provides shielding for the personnel air lock, is open in the area of the emergency air lock.

The proposed addition of general note (2) will clarify that separate entry into the action statements for each air lock is permitted and that the required action times are independent for each air lock. This change is necessary to specify that the completion times for this LCO are on a component basis rather than a condition basis. Multiple entries into proposed action statements "a," "b," or "c" for air locks with independent completion times does not represent degradation of containment leak tightness, only degradation of the entry and exit capabilities. In the event that the condition of the air locks represent degradation of the containment leak tightness, action will be taken in accordance with LCO 3.6.1.1. The proposed general note (3) will ensure that the action statement of LCO 3.6.1.1 is entered when the air lock leakage rate results in exceeding the combined containment leakage rate. LCO 3.6.1.1 is referenced in general note (3) in lieu of LCO 3.6.1.2. LCO 3.6.1.1 action statement requires a plant shutdown in 36 hours if its requirements are not met. LCO 3.6.1.2's action statement only prohibits entry into Mode 4. This action statement would not be appropriate for plant operation, i.e., Mode 1 through 4 operation. In addition, the definition of containment integrity requires that containment leakage rates are within the limits of Specification 3.6.1.2. Therefore, if the allowable containment leakage rate is exceeded due to excessive air lock leakage, containment integrity is no longer being maintained and therefore the action statement of LCO 3.6.1.1 is appropriate for this condition.

Action statement "a" would be modified by Note (4) which would allow entry and exit through an air lock with an inoperable door for a 7-day period. This Note is necessary for the same reasons previously discussed for general note (1). However, this note allows entry and exit to perform activities not related to the repair of the air lock. These activities could include the repair of vital plant equipment which, if not repaired, could lead to a plant transient or reactor trip. In addition, non-routine technical specification surveillances could be required to be performed inside the containment building. A post-maintenance test of a reactor coolant pressure isolation valve, in accordance with SR 4.4.6.3.1, is an example of a non-routine technical specification surveillance which would require a containment entry. Therefore, Note (4) would allow containment entry and exit for 7 days to perform these activities. The proposed modification to action statement "a.1" will ensure that the operable door is verified to be closed within 1 hour. This will ensure that at least one leak tight

containment barrier is closed. Additionally, action statement "a.1" is further revised by separating into two action statements.

Existing action statement "a.2" would be modified by deletion of the reference to performing the overall air lock leakage test. This reference is not necessary since this requirement, to perform the overall air lock leakage test on a six month basis, is not waived by entering into the inoperable door action statement. Therefore, the overall air lock leakage test must continue to be performed on a six month frequency. This action statement would also be modified by the addition of footnote (5). This footnote allows the 31 day verification of the locked closed air lock door to be performed by administrative means for air lock doors located in high radiation areas. Since access to high radiation areas is restricted by plant administrative procedures and physical barriers, the probability of an air lock door being misaligned (i.e., not locked closed) once it has been verified to be in the proper position is low. Therefore, use of footnote (5) does not result in any significant increase in risk of door mispositioning.

Action statement "a.4," which pertains to the exemption to Specification 3.0.4, would be deleted by this proposed amendment. This exception is no longer necessary due to the proposed revisions to action statement "a." Under Specification 3.0.4, mode entry is permitted if the associated actions for the mode to be entered permit continued operation in the mode or specified condition for an unlimited period of time. The proposed revisions to action statement "a" reflect this situation and therefore the exception to Specification 3.0.4 is no longer required.

The proposed addition of a new action statement "b" would provide compensatory measures in the event an air lock interlock mechanism is inoperable. Action statement "b" compensates for the interlock mechanism being inoperable by precluding any situation where the interlock would be required to operate. Administrative controls would be substituted for the design feature of the interlock. The administrative controls consist of locking closed one operable door and the use of a dedicated individual, as required by footnote (6), to ensure that at least one operable air lock door is maintained closed should passage through the air lock be required. Footnote (5) is again applied to the 31 day verification of a locked closed door for the same reasons as previously discussed for action statement "a.2." A condition where the containment air lock interlock is inoperable is not addressed by the present LCO wording. Since the plant is in a safe condition with the air lock interlock inoperable, passage through the air lock utilizing administrative controls ensures that one air lock door is maintained closed and that containment integrity will continue to be maintained with a single operable door in the closed position.

The proposed action statement "c" is a modification to the current action statement "b." Proposed action statement "c" reflects the condition when the inoperability is not due to an inoperable air lock door and/or inoperable interlock mechanism. In addition, a new action requirement "c.1" has been added which requires immediate initiation of an evaluation to ensure that the combination of the previous combined leakage rates and the current air lock test results does not result in exceeding the maximum allowable combined leak rate of 0.60 L_a. 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, the containment remains operable (i.e., the combined containment leakage rate does not exceed 0.60 L_a with the overall air lock leakage rate exceeding 0.05 L_a). Yet the current wording of LCO 3.6.1.1 would provide for only 1 hour to restore the operable status prior to requiring a plant shutdown. The proposed action statement "c.2" requires that one door in the affected air lock be verified to be closed within one hour. This time period is consistent with the required actions of LCO 3.6.1.1, which requires that containment integrity be restored within 1 hour. The remaining actions of proposed action statement "c.2" are the same as those which currently exist in action statement "b."

SR 4.6.1.3.a would be modified by applying the existing note, pertaining to Specification 4.0.2, to the 72 hour test interval for the air lock door seal. The application of this note to the 72 hour surveillance is consistent with how it is currently applied to the 6 month surveillance test required by SR 4.6.1.3.b.1. Since 10 CFR 50, Appendix J, requires the 72 hour frequency for door seal testing, Specification 4.0.2 cannot be applied to the 72 hour frequency. Also, the modification to the statement on quantifying total air lock leakage will allow door seal leakage to be quantified. The leakage limit of 0.0005 L_a is based on air lock testing experience and leakage limits we feel must be maintained in order to ensure containment internal pressure limits continue to be met in accordance with LCO 3.6.1.4. The proposed statement on quantifying door seal leakage would contain a new footnote (8). This footnote states that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. This is reasonable since either air lock door is capable of providing a fission product barrier in the event of a design basis accident (DBA).

SR 4.6.1.3.b would be modified to actually state the leakage limit of less than or equal to 0.05 L_a. This change is necessary since the proposed LCO wording would no longer state the leakage limits. SR 4.6.1.3.b would also be modified by the addition of a new footnote (9). This footnote requires that the results of the overall air lock leakage test be evaluated against the acceptance criteria of LCO 3.6.1.2. This action will ensure

that air lock leakage is properly accounted for in determining the combined containment leakage rate. SR 4.6.1.3.b.2 would be modified by the addition of the words "Prior to establishing containment integrity when." This change is necessary to more accurately reflect the wording contained in our exemption to Appendix J. For BVPS Unit 2 only, the footnote pertaining to the exemption to Appendix J would be modified to reflect that the exemption is stated in the operating license. This change will clarify where the exemption is stated.

The proposed addition of SR 4.6.1.3.b.3 will ensure that following maintenance on the outer personnel air lock, which may result in a decrease in closure force on any part of the door sealing surface, the overall air lock leakage rate is verified. Due to the unique design of the outer personnel air lock door, where containment DBA pressure is attempting to overcome the door sealing forces, an additional surveillance requirement is necessary to demonstrate the continued ability of this door to provide a leak tight barrier, during a DBA, following specific maintenance activities.

For both emergency air lock doors and the inner personnel air lock door, containment DBA pressure tends to improve the door sealing capability by applying a force which is supplemental to the door sealing forces. Performance of the presently required SR 4.6.1.3.a following door opening for such activities as door maintenance or containment entry and exit, is sufficient to demonstrate the ability of these doors to provide a leak tight barrier during a DBA. The sealing force, which is applied to o-rings, is developed by the rotation of wedges against the door's 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 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 these doors over that which exists during the performance of SR 4.6.1.3.a. For this reason, performance of SR 4.6.1.3.b, which applies a force which opposes the breech ring force, is not necessary following certain air lock door maintenance. SR 4.6.1.3.a sufficiently demonstrates the ability of these air lock doors to provide a leak tight barrier following maintenance affecting the door sealing surface.

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 other air lock doors. However, for the outer personnel air 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 (i.e., decreasing of breech ring travel), will require performance of SR 4.6.1.3.b.3. 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.3 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 proposed deletion of SR 4.6.1.3.c.2, pertaining to the testing of the emergency air lock shaft seals, will not alter the testing requirements for the emergency air lock. The shaft seals on the emergency air lock will continue to be tested on a 24 month frequency as required by 10 CFR 50, Appendix J. In addition, at least one side of each of the shaft seals is pressurized to at least P_a each time the overall 6 month air lock test is conducted. If the shaft seals were to exhibit leakage, the overall air lock test would detect and measure this leakage. The personnel air lock also contains shaft seals on each of the mechanical penetrations for the 18 inch diameter emergency escape hatch operating mechanisms. There is not a specific technical specification surveillance requirement for these penetrations. The shaft seals on the personnel air lock are Type B leak tested at least once per 24 months under our Appendix J leak testing program. Therefore, elimination of SR 4.6.1.3.c.2 will not reduce the testing requirements on the emergency air lock and will make the stated technical specification surveillance requirements consistent for the emergency air lock and the personnel air lock.

The Bases for LCO 3.6.1.3 would be expanded to contain additional information pertaining to the specific requirements of this LCO. The proposed changes to the Bases are consistent with NUREG 1431 and will provide the plant operators with more information to assist them in understanding the bases for each of the items contained in this specification.

D. DEVIATIONS FROM NUREG 1431 TITLED "STANDARD TECHNICAL SPECIFICATIONS FOR WESTINGHOUSE PLANTS."

The following is a discussion on why certain aspects of this proposed change do not reflect the wording contained in NUREG 1431.

To reflect the wording contained in NUREG 1431 for LCO 3.6.1, titled "Containment," it would be necessary to re-write at least four LCOs. NUREG 1431 does not contain any reference to the words "Containment Integrity." To remove this wording from our technical specifications would require at least four LCO revisions and many plant procedural changes. Therefore, we have elected to not revise our LCO 3.6.1.1 to reflect NUREG 1431 at this time.

The wording contained in LCO 3.6.2 titled "Containment Air Locks" in NUREG 1431 is reflected in the proposed changes to our containment air lock specification with the following exceptions: Note (1) contained under "Required Actions" was not incorporated into our specification. Action statements "a" and "b" reflect specific conditions that the operator is trained to understand and correct within the allowable time. When two air lock doors in the same air lock are inoperable, the operators are trained to apply the correct action statement which, in this case, is action "c"; no other action statements apply. Therefore, since we feel this note does not enhance this LCO, it was not added to the proposed wording. The bracketed portion of Note (2) contained under "Required Action" was not included since entry and exit via our emergency air lock involves personnel safety and ALARA concerns. Therefore, we do not want to limit access to containment, for the 7 day period, through only the emergency air lock when the personnel air lock is locked closed.

Our SR 4.6.1.3 contains details on the requirements of Appendix J testing. We have elected to retain these details so that the plant operators have the requisite 10 CFR 50 Appendix J details available within the SR each time they are performing air lock operability testing. In addition, the installed leakage detection system, used to test the door o-ring seals, cannot quantify door seal leakage. This system can only be used to verify that no seal leakage is present. Therefore, the present wording in SR 4.6.1.3 needs to be retained. If door seal leakage needs to be quantified, special test equipment will be used to accomplish this task.

SR 3.6.2.2 in NUREG 1431 states that the verification of the door interlock operability is to be performed on a 184 day frequency. Due to the subatmospheric design of our containment, performing this verification during plant operation would pose a substantial safety risk to plant personnel. Therefore, the 18 month frequency was retained in our proposed wording.

E. SAFETY ANALYSIS

The revisions to Definition 1.8.3 and SR 4.6.1.1.b will continue to ensure that containment integrity is maintained or action is taken to place the plant in a safe condition. Compliance with requirements of Specification 3.6.1.3 will ensure at least one

operable door is maintained or, as stated in action statement "c," at least one door is maintained closed and an immediate evaluation of the combined containment leakage rate is initiated. If containment integrity cannot be maintained due to air lock leakage resulting in exceeding the combined containment leakage rate, the action statement of LCO 3.6.1.1 will be entered which will result in correcting the leakage condition or a plant shutdown within 36 hours. General Note (3) reflects this course of action. The addition of Definition 1.8.5 (to BVPS Unit No. 1 only) will ensure that the sealing mechanism associated with each penetration is operable and therefore capable of providing a fission product barrier to prevent a release to the environment. The new SR 4.6.1.1.c will ensure that any penetration, subject to Type B leak testing, except the containment air locks, will be retested if opened, and the new leakage added to the combined containment leakage rate. This action will ensure that the containment leakage rate remains at a value which is less than that assumed in our offsite dose calculations during a DBA.

The proposed revisions to LCO 3.6.1.3 will continue to ensure that each containment air lock will perform its safety function as part of the containment pressure boundary to limit offsite radiation exposures resulting from a DBA. The structural integrity and leak tightness will not be changed as a result of this proposed revision. The addition of the wording "in one or more containment air locks" is administrative in nature and does not affect plant safety. The addition of the general Note (1) and footnote (4) to allow entry and exit through the inoperable air lock door will not significantly reduce the level of plant safety. During the period of time when the operable air lock door is open, for entry or exit, the remaining inoperable door may not provide the degree of leak tightness as required by technical specifications. Due to the subatmospheric design of BVPS containment building(s), the inoperable air lock door must be closed and in-leakage limited in order to allow the operable door to be opened. A differential pressure of approximately 5 psid exists between the containment and outside plant areas. Also, the design of the inner door is such that the containment pressure resulting from a DBA will tend to improve the door leak tightness during the period of time when an inner air lock door is inoperable due to leakage past the seals and the outer door is open. The probability for an event requiring containment integrity occurring during the limited time when at least one operable door is not closed is sufficiently low to justify limited access for short durations when required. Therefore, based on the above, the addition of these footnotes will not significantly affect the ability of the air lock to perform its intended function.

The addition of proposed action statement "b" will ensure that at least one operable door is maintained closed should the air lock interlock mechanism be inoperable. This action compensates for

the interlock mechanism being inoperable by precluding any situation where the interlock would be required to operate. Administrative controls are substituted for the design feature of the interlock. Therefore, the compensatory measures provided by the proposed action statement "b" will continue to ensure that containment integrity is being maintained while the air lock is being used. With one operable door maintained closed, the containment will function, as assumed, to limit the release of radioactive materials under the maximum post accident containment pressure.

The proposed revision to SR 4.6.1.3.a, to allow door seal leakage to be quantified, will allow for minor door seal leakage. The current SR 4.6.1.3.a requires that the door seals exhibit zero leakage to demonstrate their operability. By adding the ability to quantify door seal leakage, the door seals can be considered operable with a measured leak rate of 0.0005 L_a. This leak rate is sufficiently small to ensure the continued ability of the door seals to restrict the release of fission products to the environment.

The proposed addition of footnote (8), which states an inoperable door does not invalidate the previous successful performance of the overall air lock leakage testing does not affect the ability of the air lock to restrict the release of fission products to the environment. The remaining operable door is still capable of performing this function. The overall air lock leakage test takes into account the leakage of both air lock doors due to the manner in which the test is conducted. If the remaining operable air lock door has had maintenance performed on it which could affect its sealing capability, since the last performance of the overall air lock leakage test, proper post-maintenance testing, such as the testing required by the proposed SR 4.6.1.3.b.3, will continue to ensure that it will restrict the release of fission products to the environment. Therefore, the leakage rate of the air lock with one door inoperable is bounded by the previous overall test conducted with both doors operable.

The proposed addition of the words "Prior to establishing containment integrity when" does not affect the ability of the air lock to perform its intended function. This change is a clarification of our current exemption to 10 CFR 50 Appendix J. Appendix J requires air lock testing prior to plant operation when the air lock has been opened during periods when containment integrity is not required. We are exempted from this testing if no maintenance has been performed on the air lock which could affect its sealing capability.

The remaining proposed changes are administrative in nature and do not affect the ability of the containment air lock(s) to restrict the release of fission products to the environment.

Therefore, this change is considered safe based on 1) the continued ability of the containment air locks to provide a barrier to the release of radioactive materials from a DBA, under maximum post accident containment pressure, thereby ensuring the limits established by 10 CFR 100 are not exceeded, or 2) the low probability of a DBA occurring during momentary opening of the remaining operable air lock door to allow containment entry and exit.

F. 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?

   The probability of occurrence of a previously evaluated accident is not increased because the containment air locks do not effect the initiation of any design basis accident. The consequences of an accident are also not significantly increased because the proposed revisions to the action statements will continue to ensure that at least one door in each air lock is maintained closed. A single door in each air lock is capable of withstanding a pressure in excess of the maximum expected pressure following a DBA. The structural integrity and leak tightness of the containment will not be changed by this proposed revision. For the brief period of time that the operable air lock door is open and the inoperable door is providing the single containment barrier, the consequences of accident may be increased.

However, the probability of an event occurring requiring containment integrity is sufficiently remote to justify limited access when required.

Therefore, based on the continued ability of the containment air locks to provide a barrier to limit leakage from containment during a DBA, this proposed 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?

   Air lock operation does not interface with the reactor coolant pressure boundary or any other mechanical or electrical controls which could impact the operations of the reactor or its direct support systems.

   Containment air locks are designed for the purpose of containment entry and exit. During this operation, the air lock maintains containment integrity by providing at least one door which is capable of providing a leak tight barrier during a DBA.

   The proposed changes will continue to ensure that air lock operation is performed as assumed in the original design of the plant. During the period when the operable door is open and the other door inoperable, at least one door is being maintained closed as designed. This condition is ensured due to the subatmospheric conditions that exists during plant operation. The operable air lock door can not be safely opened unless the inoperable door is closed due to the approximately 5 psi pressure differential that exists. The operable air lock door would only be opened long enough to allow personnel to enter the air lock.

   Therefore, this 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 applicable margin of safety consists of maintaining the primary containment leak rates within the assumptions of the DBA analysis. These leak rates are maintained provided at least one operable air lock door remains closed during the event.

   The proposed revisions will continue to ensure that at least one air lock door is maintained closed. During the brief period of time that an operable air lock door is open and

the inoperable door is providing the single containment barrier, the margin of safety is decreased. The inoperable door may not limit containment leak rates within the assumptions of the DBA analysis. However, the probability of an event requiring the inoperable air lock door to limit containment leakage occurring during this time period is sufficiently low and the overall margin of safety would not be decreased by a significant amount. The proposed increase in allowable door seal leakage will not affect the overall ability of the containment air locks to restrict the release of fission products to the environment. The overall air lock leakage limit of less than or equal to .05 L_a remain unchanged. The amount of leakage which the air lock(s) are permitted to contribute to the combined containment leakage limit of 0.60 L_a remain unchanged. Therefore, the margin of safety due to increasing the door seal leakage limit remains unchanged.

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

G. 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. 199, Revision 1

Applicable Typed Pages

ATTACHMENT TO LICENSE AMENDMENT NO. _____

FACILITY OPERATING LICENSE NO. DPR-66

DOCKET NO. 50-334

Replace the following pages of Appendix A, Technical Specifications, with the enclosed pages as indicated. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

Remove	Insert
XIV	XIV
1-2	1-2
3/4 6-1	3/4 6-1
3/4 6-5	3/4 6-5
3/4 6-5a	3/4 6-5a
----	3/4 6-5b
----	3/4 6-5c
B 3/4 6-1	B 3/4 6-1
B 3/4 6-2	B 3/4 6-2
B 3/4 6-3	B 3/4 6-3
----	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
----	B 3/4 6-10
----	B 3/4 6-11

(Proposed Wording)

INDEX

BASES

REPORTABLE EVENT

1.7 A REPORTABLE EVENT shall be any of those conditions specified in Section 50.73 to 10 CFR Part 50.

CONTAINMENT INTEGRITY

1.8 CONTAINMENT INTEGRITY shall exist when:

1.8.1 All penetrations required to be closed during accident conditions are either:

a. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except as provided in Table 3.6-1 of Specification 3.6.3.1.

1.8.2 All equipment hatches are closed and sealed,

1.8.3 Each air lock is in compliance with the requirements of Specification 3.6.1.3,

1.8.4 The containment leakage rates are within the limits of Specification 3.6.1.2, and

1.8.5 The sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is OPERABLE.

CHANNEL CALIBRATION

1.9 A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is calibrated.

CHANNEL CHECK

1.10 A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels measuring the same parameter.

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:

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 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 as provided in Table 3.6-1 of 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.

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.

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(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.

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, when air lock leakage results in exceeding the combined containment leakage rate.

- -

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.

LIMITING CONDITION FOR OPERATION

ACTION: (Continued)

b. With the containment air lock interlock mechanism inoperable in one or more containment air locks:(6)

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

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

3. Verify an 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.

c. With one or more containment air locks inoperable, except as the result of an inoperable air lock door and/or inoperable interlock mechanism:

1. Immediately initiate action to evaluate the combined containment leakage rate per LCO 3.6.1.2, and

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

3. Restore the air lock to OPERABLE status within 24 hours.

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

---

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

(6) Entry and exit of containment is permissible under control of a dedicated individual.

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

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

1. Personnel air lock greater than or equal to 40.0 psig

2. Emergency air lock greater than or equal to 10.0 psig

or, by quantifying[8] 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 0.0005 L_a at 10.C psig for the emergency air lock.

b. By conducting overall air lock leakage tests,[9] at not less than P_a (40.0 psig), and verifying the overall air lock leakage rate is less than or equal to 0.05 L_a at P_a (40.0 psig):

1. At least once per 6 months,[7] and

2. Prior to establishing CONTAINMENT INTEGRITY when maintenance has been performed on the air lock that could affect the air lock sealing capability,[10] and

---

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

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

(9) 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.

SURVEILLANCE REQUIREMENTS (Continued)

3. 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.

c. At least once per 18 months during shutdown by verifying:

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

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 less than or equal to 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.

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 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

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.

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.

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

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.

Each air lock is required to be OPERABLE. For the air lock to be considered OPERABLE, the air lock interlock mechanism must be OPERABLE, the air lock must be in compliance with the Type B air lock leakage test, and both air lock doors must be OPERABLE. The interlock allows only one air lock door of an air lock to be opened at one time. This provision ensures that a gross breach of containment does not exist when containment is required to be OPERABLE. Closure of a single door in each air lock is sufficient to provide a leak tight barrier following postulated events. Nevertheless, both doors are kept closed when the air lock is not being used for normal entry into and exit from containment.

APPLICABILITY

In Modes 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment air locks are not required in MODE 5 to prevent leakage of radioactive material from containment. The requirements for the containment air locks during MODE 6 are addressed in LCO 3.9.4, "Containment Building Penetrations."

ACTIONS

The ACTIONS are modified by a General Note (1) that allows entry and exit to perform repairs on the affected air lock component. If the outer door is inoperable, then it may be easily accessed to repair.

If the inner door is the one that is inoperable, however, then a short time exists when the containment boundary may not be intact (during access through the outer door). The ability to open the OPERABLE door, even if it means the containment boundary is temporarily not intact, is acceptable due to the low probability of an event that could pressurize the containment during the short time

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 such that it could inadvertently open while the OPERABLE door is opened. 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 statement entry is allowed for each air lock.

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

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.

   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.

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.

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

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.

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

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).

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.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. 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

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 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)

The SR has been modified by two additional Notes. Note (8) 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 (9) 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.

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.

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 and 3/4.6.2.2 CONTAINMENT QUENCH AND RECIRCULATION SPRAY SYSTEMS

The OPERABILITY of the containment spray systems ensures that containment depressurization and subsequent return to subatmospheric pressure will occur in the event of a LOCA. The pressure reduction and resultant termination of containment leakage are consistent with the assumptions used in the accident analyses.

The recirculation spray system consists of four 50 percent capacity subsystems each composed of a spray pump, associated heat exchanger and flow path. Two of the recirculation spray pumps and motors are located outside containment (RS-P-2A and RS-P-2B) and two pumps and motors are located inside containment (RS-P-1A and RS-P-1B). The flow path from each pump is piped to an individual 180° recirculation spray header inside containment. Train "A" electrical power and river water is supplied to the subsystems containing recirculation spray pumps RS-P-1A and RS-P-2A. Train "B" electrical power and river water is supplied to the subsystems containing recirculation spray pumps RS-P-1B and RS-P-2B.

3/4.6.2.3 CHEMICAL ADDITION SYSTEM

The OPERABILITY of the chemical addition system ensures that sufficient NaOH is added to the containment spray in the event of a LOCA. The limits on NaOH minimum volume and concentration, ensure that 1) the iodine removal efficiency of the spray water is maintained because of the increase in pH value, and 2) corrosion effects on components within containment are minimized. These assumptions are consistent with the iodine removal efficiency assumed in the accident analyses.

3/4.6.3 CONTAINMENT ISOLATION VALVES

The OPERABILITY of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment. Containment isolation within the time limits specified ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analysis for a LOCA.

3/4.6.4 COMBUSTIBLE GAS CONTROL

The OPERABILITY of the equipment and systems required for the detection and control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within containment below its flammable limit during post-LOCA conditions. Either recombiner unit is capable of controlling the expected hydrogen generation associated with 1) zirconium-water reactions, 2) radiolytic decomposition of water 3) corrosion of metals within containment. These hydrogen control systems are consistent with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA."

3/4.6.5 SUBATMOSPHERIC PRESSURE CONTROL SYSTEM

3/4.6.5.1 STEAM JET AIR EJECTOR

The closure of the manual isolation valves in the suction of the steam jet air ejector ensures that 1) the containment internal pressure may be maintained within its operation limits by the mechanical vacuum pumps and 2) the containment atmosphere is isolated from the outside environment in the event of a LOCA. These valves are required to be closed for containment isolation.

ATTACHMENT C-2

Beaver Valley Power Station, Unit No. 2
Proposed Technical Specification Change No. 66, Revision 1

Applicable Typed Pages

ATTACHMENT TO LICENSE AMENDMENT NO. _____

FACILITY OPERATING LICENSE NO. NPF-73

DOCKET NO. 50-412

Replace the following pages of Appendix A, Technical Specifications, with the enclosed pages as indicated. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

Remove	Insert
I	I
II	II
XI	XI
1-2	1-2
1-3	1-3
1-4	1-4
1-5	1-5
1-6	1-6
1-7	1-7
1-8	1-8
----	1-9
3/4 6-1	3/4 6-1
3/4 6-4	3/4 6-4
3/4 6-5	3/4 6-5
----	3/4 6-5a
----	3/4 6-5b
B 3/4 6-1	B 3/4 6-1
B 3/4 6-2	B 3/4 6-2
B 3/4 6-3	B 3/4 6-3
----	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
----	B 3/4 6-10
----	B 3/4 6-11

(Proposed Wording)

INDEX

DEFINITIONS

INDEX

DEFINITIONS

INDEX

BASES

CONTAINMENT INTEGRITY (Continued)

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except as provided in Table 3.6-1 of Specification 3.6.3.1.

1.8.2 All equipment hatches are closed and sealed,

1.8.3 Each air lock is in compliance with the requirements of Specification 3.6.1.3,

1.8.4 The containment leakage rates are within the limits of Specification 3.6.1.2, and

1.8.5 The sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is OPERABLE.

CHANNEL CALIBRATION

1.9 A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping, or total channel steps such that the entire channel is calibrated.

CHANNEL CHECK

1.10 A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels measuring the same parameter.

CHANNEL FUNCTIONAL TEST

1.11 A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated signal into the channel as close to the primary sensor as practicable to verify OPERABILITY including alarm and/or trip functions.

CORE ALTERATION

1.12 CORE ALTERATION shall be the movement or manipulation of any component within the reactor pressure vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe conservative position.

SHUTDOWN MARGIN

1.13 SHUTDOWN MARGIN shall be the instantaneous amount of reactivity by which the reactor is or would be subcritical from its present condition assuming all full length rod cluster assemblies (shutdown and control) are fully inserted except for the single rod cluster assembly of highest reactivity worth which is assumed to be fully withdrawn.

IDENTIFIED LEAKAGE

1.14 IDENTIFIED LEAKAGE shall be:

a. Leakage (except CONTROLLED LEAKAGE) into closed systems, such as pump seal or valve packing leaks that are captured and conducted to a sump or collecting tank, or

b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be PRESSURE BOUNDARY LEAKAGE, or

c. Reactor Coolant System leakage through a steam generator to the secondary system.

UNIDENTIFIED LEAKAGE

1.15 UNIDENTIFIED LEAKAGE shall be all leakage which is not IDENTIFIED LEAKAGE or CONTROLLED LEAKAGE.

PRESSURE BOUNDARY LEAKAGE

1.16 PRESSURE BOUNDARY LEAKAGE shall be leakage (except steam generator tube leakage) through a non-isolable fault in a Reactor Coolant System component body, pipe wall or vessel wall.

CONTROLLED LEAKAGE

1.17 CONTROLLED LEAKAGE shall be that seal water flow supplied to the reactor coolant pump seals.

QUADRANT POWER TILT RATIO

1.18 QUADRANT POWER TILT RATIO shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater. With one (1) excore detector inoperable, the remaining three (3) detectors shall be used for computing the average.

DOSE EQUIVALENT I-131

1.19 DOSE EQUIVALENT I-131 shall be that concentration of I-131 (1Ci/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid-dose conversion factors used for this calculation shall be those listed in Regulatory Guide 1.109, 1977 or TID 14844.

STAGGERED TEST BASIS

1.20 A STAGGERED TEST BASIS shall consist of:

a. A test schedule for n systems, subsystems, trains or other designated components obtained by dividing the specified test interval into n equal subintervals;

b. The testing of one (1) system, subsystem, train or other designated component at the beginning of each subinterval.

FREQUENCY NOTATION

1.21 The FREQUENCY NOTATION specified for the performance of Surveillance Requirements shall correspond to the intervals defined in Table 1.2.

REACTOR TRIP SYSTEM RESPONSE TIME

1.22 The REACTOR TRIP SYSTEM RESPONSE TIME shall be the time interval from when the monitored parameter exceeds its trip setpoint at the channel sensor until loss of stationary gripper coil voltage.

ENGINEERED SAFETY FEATURE RESPONSE TIME

1.23 The ENGINEERED SAFETY FEATURE RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays where applicable.

AXIAL FLUX DIFFERENCE

1.24 AXIAL FLUX DIFFERENCE shall be the difference in normalized flux signals between the top and bottom halves of a two-section excore neutron detector.

PHYSICS TESTS

1.25 PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation and 1) described in Chapter 14.0 of the FSAR, 2) authorized under the provisions of 10 CFR 50.59, or 3) otherwise approved by the Commission.

$\bar{E}$ - AVERAGE DISINTEGRATION ENERGY

1.26 $\bar{E}$ shall be the average sum (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

SOURCE CHECK

1.27 A SOURCE CHECK shall be the qualitative assessment of channel response when the channel sensor is exposed to a radioactive source.

PROCESS CONTROL PROGRAM

1.28 A PROCESS CONTROL PROGRAM (PCP) shall be the manual or set of operating parameters detailing the program of sampling, analysis, and evaluation by which SOLIDIFICATION of wet radioactive wastes is assured. Requirements of the PCP are provided in Specification 6.14.

SOLIDIFICATION

1.29 SOLIDIFICATION shall be the conversion of wet radioactive wastes into a form that meets shipping and burial ground requirements.

OFFSITE DOSE CALCULATION MANUAL (ODCM)

1.30 An OFFSITE DOSE CALCULATION MANUAL (ODCM) shall be a manual containing the methodology and parameters to be used in the calculation of offsite doses due to radioactive gaseous and liquid effluents and in the calculation of gaseous and liquid effluent monitoring instrumentation alarm/trip setpoints. Requirements of the ODCM are provided in Specification 6.15.

GASEOUS RADWASTE TREATMENT SYSTEM

1.31 A GASEOUS RADWASTE TREATMENT SYSTEM is any system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system offgases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

VENTILATION EXHAUST TREATMENT SYSTEM

1.32 VENTILATION EXHAUST TREATMENT SYSTEM is any system designed and installed to reduce gaseous radioiodine or radioactive material in particulate form in effluents by passing ventilation or vent exhaust gases through charcoal adsorbers and/or HEPA filters for the purpose of removing iodines or particulates from the gaseous exhaust stream prior to the release to the environment (such a system is not considered to have any effect on noble gas effluents). Engineered Safety Feature (ESF) atmospheric cleanup systems are not considered to be VENTILATION EXHAUST TREATMENT SYSTEM components.

PURGE-PURGING

1.33 PURGE or PURGING is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating conditions, in such a manner that replacement air or gas is required to purify the confinement.

VENTING

1.34 VENTING is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating conditions, in such a manner that replacement air or gas is not provided or required during VENTING. Vent, used in system names, does not imply a VENTING process.

MAJOR CHANGES

1.35 MAJOR CHANGES to radioactive waste systems, as addressed in Paragraph 6.16.2, (liquid, gaseous and solid) shall include the following:

1) Major changes in process equipment, components, structures, and effluent monitoring instrumentation from those described in the Final Safety Analysis Report (FSAR) or the Hazards Summary Report and evaluated in the staff's Safety Evaluation Report (SER) (e.g., deletion of evaporators and installation of demineralizers; use of fluidized bed calciner/incineration in place of cement solidification systems);

2) Major changes in the design of radwaste treatment systems (liquid, gaseous, and solid) that could significantly increase the quantities or activity of effluents released or volumes of solid waste stored or shipped offsite from those previously considered in the FSAR and SER (e.g., use of asphalt system in place of cement);

MAJOR CHANGES (Continued)

3) Changes in system design which may invalidate the accident analysis as described in the SER (e.g., changes in tank capacity that would alter the curies released); and

4) Changes in system design that could potentially result in a significant increase in occupational exposure of operating personnel (e.g., use of temporary equipment without adequate shielding provisions).

MEMBER(S) OF THE PUBLIC

1.36 MEMBER(S) OF THE PUBLIC shall include all persons who are not occupationally associated with the plant. This category does not include employees of the utility, its contractors, or its vendors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries and persons who traverse portions of the site as the consequence of a public highway, railway, or waterway located within the confines of the site boundary. This category does include persons who use portions of the site for recreational, occupational, or other purposes not associated with the plant.

CORE OPERATING LIMITS REPORT

1.37 The CORE OPERATING LIMITS REPORT (COLR) is the unit-specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 6.9.1.14. Plant operation within these operating limits is addressed in individual specifications.

TABLE 1.1

OPERATIONAL MODES

MODE	REACTIVITY CONDITION, K_{eff}	% RATED THERMAL POWER*	AVERAGE COOLANT TEMPERATURE
1. POWER OP ATION	≥0.99	>5%	≥350°F
2. STARTUP	≥0.99	≤5%	≥350°F
3. HOT STANDBY	<0.99	0	≥350°F
4. HOT SHUTDOWN	<0.99	0	350°F >T_{avg} >200°F
5. COLD SHUTDOWN	<0.99	0	≤200°F
6. REFUELING**	≤0.95	0	≤140°F

* Excluding decay heat.

**Reactor vessel head unbolted or removed and fuel in the vessel.

TABLE 1.2

FREQUENCY NOTATION

NOTATION	FREQUENCY
S	At least once per 12 hours.
D	At least once per 24 hours.
W	At least once per 7 days.
M	At least once per 31 days.
Q	At least once per 92 days.
SA	At least once per 184 days.
R	At least once per 18 months.
S/U	Prior to each reactor startup.
P	Completed prior to each release.
N.A.	Not applicable.

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:

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 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 as provided in Table 3.6-1 of 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.

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.

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(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.

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, when air lock leakage results in exceeding the combined containment leakage rate.

- -

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.

LIMITING CONDITION FOR OPERATION

ACTION: (Continued)

b. With the containment air lock interlock mechanism inoperable in one or more containment air locks:(6)

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

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

3. Verify an 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.

c. With one or more containment air locks inoperable, except as the result of an inoperable air lock door and/or inoperable interlock mechanism:

1. Immediately initiate action to evaluate the combined containment leakage rate per LCO 3.6.1.2, and

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

3. Restore the air lock to OPERABLE status within 24 hours.

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

---

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

(6) Entry and exit of containment is permissible under control of a dedicated individual.

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

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

1. Personnel air lock greater than or equal to 44.7 psig

2. Emergency air lock greater than or equal to 10.0 psig

or, by quantifying[8] 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 0.0005 L_a at 10.0 psig for the emergency air lock.

b. By conducting overall air lock leakage tests,[9] at not less than P_a (44.7 psig), and verifying the overall air lock leakage rate is less than or equal to 0.05 L_a at P_a (44.7 psig):

1. At least once per 6 months,[7] and

2. Prior to establishing CONTAINMENT INTEGRITY when maintenance has been performed on the air lock that could affect the air lock sealing capability,[10] and

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

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

(9) Results shall be evaluated against the acceptance criteria of LCO 3.6.1.2.

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

SURVEILLANCE REQUIREMENTS (Continued)

3. 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.

c. At least once per 18 months during shutdown by verifying:

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

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 less than or equal to 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.

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 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 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

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.

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.

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.

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

LCO (Continued)

Each air lock is required to be OPERABLE. For the air lock to be considered OPERABLE, the air lock interlock mechanism must be OPERABLE, the air lock must be in compliance with the Type B air lock leakage test, and both air lock doors must be OPERABLE. The interlock allows only one air lock door of an air lock to be opened at one time. This provision ensures that a gross breach of containment does not exist when containment is required to be OPERABLE. Closure of a single door in each air lock is sufficient to provide a leak tight barrier following postulated events. Nevertheless, both doors are kept closed when the air lock is not being used for normal entry into and exit from containment.

APPLICABILITY

In Modes 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment air locks are not required in MODE 5 to prevent leakage of radioactive material from containment. The requirements for the containment air locks during MODE 6 are addressed in LCO 3.9.4, "Containment Building Penetrations."

ACTIONS

The ACTIONS are modified by a General Note (1) that allows entry and exit to perform repairs on the affected air lock component. If the outer door is inoperable, then it may be easily accessed to repair.

If the inner door is the one that is inoperable, however, then a short time exists when the containment boundary may not be intact (during access through the outer door). The ability to open the OPERABLE door, even if it means the containment boundary is temporarily not intact, is acceptable due to the low probability of an event that could pressurize the containment during the short time 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 such that it could inadvertently open while the OPERABLE door is opened. After each entry and exit, the OPERABLE door must be immediately closed.

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 statement entry is allowed for each air lock.

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

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.

   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.

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.

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.

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

ACTIONS (Continued)

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.

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

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).

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.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. 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

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 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)

The SR has been modified by two additional Notes. Note (8) 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 (9) 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.

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.

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.

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 and 3/4.6.2.2 CONTAINMENT QUENCH AND RECIRCULATION SPRAY SYSTEMS

The OPERABILITY of the containment spray systems ensures that containment depressurization and subsequent return to subatmospheric pressure will occur in the event of a LOCA. The pressure reduction and resultant termination of containment leakage are consistent with the assumptions used in the accident analyses.

The recirculation spray system consists of four 50 percent capacity subsystems each composed of a spray pump, associated heat exchanger and flow path. All recirculation spray pumps and motors are located outside containment and supply flow to two 360° recirculation spray ring headers located in containment. One spray ring is supplied by the "A" train subsystem containing recirculation spray pump 2RSS-P21A and the "B" train subsystem containing recirculation spray pump 2RSS-P21D with the other spray ring being supplied by the "A" train subsystem containing recirculation spray pump 2RSS-P21C and the "B" train subsystem containing recirculation spray pump 2RSS-P21B. When the water in the refueling water storage tank has reached a predetermined extreme low level, the C and D subsystems are automatically switched to the cold leg recirculation mode of emfergency core cooling system operation.

3/4.6.2.3 CHEMICAL ADDITION SYSTEM

The OPERABILITY of the chemical addition system ensures that sufficient NaOH is added to the containment spray in the event of a LOCA. The limits on NaOH minimum volume and concentration, ensure that 1) the iodine removal efficiency of the spray water is maintained because of the increase in pH value, and 2) corrosion effects on components within containment are minimized. These assumptions are consistent with the iodine removal efficiency assumed in the accident analyses.

3/4.6.3 CONTAINMENT ISOLATION VALVES

The OPERABILITY of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment. Containment isolation within the time limits specified ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for both a LOCA and major secondary system breaks.

3/4.6.4 COMBUSTIBLE GAS CONTROL

The OPERABILITY of the equipment and systems required for the detection and control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within containment below its flammable limit during post-LOCA conditions. Either recombiner unit is capable of controlling the expected hydrogen generation associated with 1) zirconium-water reactions, 2) radiolytic decomposition of water 3) corrosion of metals within containment. These hydrogen control systems are consistent with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA."

3/4.6.5 SUBATMOSPHERIC PRESSURE CONTROL SYSTEM

3/4.6.5.1 STEAM JET AIR EJECTOR

The closure of the manual isolation valves in the suction of the steam jet air ejector ensures that 1) the containment internal pressure may be maintained within its operation limits by the mechanical vacuum pumps and 2) the containment atmosphere is isolated from the outside environment in the event of a LOCA. These valves are required to be closed for containment isolation.

ATTACHMENT D-1

Beaver Valley Power Station, Unit No. 1
Proposed Technical Specification Change No. 199, Revision 1

The following is a list of the affected page:

Affected Page: 3/4 6-5b

Note: This page has been retyped to reflect the proposed changes identified in Attachment A-1.

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

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

1. Personnel air lock greater than or equal to 40.0 psig

2. Emergency air lock greater than or equal to 10.0 psig

or, by quantifying[8] 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 0.0005 L_a at 10.0 psig for the emergency air lock.

b. By conducting overall air lock leakage tests,[9] at not less than P_a (40.0 psig), and verifying the overall air lock leakage rate is less than or equal to 0.05 L_a at P_a (40.0 psig):

1. At least once per 6 months,[7] and

2. Prior to establishing CONTAINMENT INTEGRITY when maintenance has been performed on the air lock that could affect the air lock sealing capability,[10] and

Local leak rate testing at a pressure of not less than Pa may be substituted for an overall air lock test where the design permits.

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

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

(9) 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~~.

ATTACHMENT D-2

Beaver Valley Power Station, Unit No. 2
Proposed Technical Specification Change No. 66, Revision 1

The following is a list of the affected pages:

Affected Pages: License Page 6
3/4 6-5a

Local leak rate testing at a pressure of not less than Pa may be substituted for an overall air lock test where the design permits.

safety injection system, and residual heat removal system. This exemption will expire when the current GDC 4 rulemaking changes have been completed.

and on _____.

(2) The facility requires an exemption from the requirements of 10 CFR 50, Appendix J, Section III.D.2(b)(ii). The justification of this exemption is contained in Section 6.2.6 of Supplement 5 to the Safety Evaluation Report. The staff's environmental assessment was published on May 12, 1987 (52 FR 17651). Therefore, pursuant to 10 CFR 50.12(a)(1) and 10 CFR 50.12(a)(2)(ii) and (iii), Beaver Valley Power Station, Unit 2 is exempt from the quoted requirement and instead, is required to perform the overall air lock leak test at pressure P_a before establishing containment integrity if air lock maintenance has been performed that could affect the air lock sealing capability.

and modified by a letter dated _____.

(3) The facility was previously granted an exemption from the criticality alarm requirements of 10 CFR 70.24 (see License No. SNM-1954 dated April 9, 1986, which granted this exemption). Beaver Valley Power Station, Unit 2 is hereby exempted from the criticality alarm system provisions of 10 CFR 70.24 so far as this section applies to the storage of fuel assemblies held under this license.

E. Physical Security

DLCo shall fully implement and maintain in effect all provisions of the physical security, guard training and qualification, and safeguards contingency plans previously approved by the Commission and all amendments and revisions to such plans made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain safeguards information protected under 10 CFR 73.21, are entitled:

"Beaver Valley Power Station Security Plan," with revisions submitted through April 15, 1987; "Beaver Valley Power Station Security Training and Qualification Plan," with revisions submitted through April 15, 1987; and Beaver Valley Power Station Security Contingency Plan," with revisions submitted through February 19, 1987.

F. Fire Protection Program (Section 9.5.1 of SER Supplement 3)

DLCo shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report through Amendment No. 17, and and submittals dated May 18, May 20, May 21, June 24 and July 6, 1987, and as described in the Safety Evaluation Report dated October 1985, and Supplements 1 through 6, subject to the following provision:

(Proposed Wording)

Note: This page has been retyped to reflect the proposed changes identified in Attachment A-2.

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

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

1. Personnel air lock greater than or equal to 44.7 psig

2. Emergency air lock greater than or equal to 10.0 psig

or, by quantifying[8] 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 0.0005 L_a at 10.0 psig for the emergency air lock.

b. By conducting overall air lock leakage tests,[9] at not less than P_a (44.7 psig), and verifying the overall air lock leakage rate is less than or equal to 0.05 L_a at P_a (44.7 psig):

1. At least once per 6 months,[7] and

2. Prior to establishing CONTAINMENT INTEGRITY when maintenance has been performed on the air lock that could affect the air lock sealing capability,[10] and

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;

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

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

(9) Results shall be evaluated against the acceptance criteria of LCO 3.6.1.2.

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

ATTACHMENT E

Beaver Valley Power Station, Unit Nos. 1 and 2
Proposed Technical Specification Change No. 199 and 66, Revision 1
PROPOSED EXEMPTION TO 10 CFR 50 APPENDIX J

A. DESCRIPTION OF AMENDMENT REQUEST

For Beaver Valley Power Station (BVPS) Unit No. 1, Surveillance Requirement (SR) 4.6.1.3.b.2 would be modified by the addition of the words "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." Footnote (10) would be modified to reference a new letter date for the exemption to Appendix J of 10 CFR 50. The remaining proposed changes to Technical Specification page 3/4 6-5b are described in Attachment "B" of this document.

For BVPS Unit 2, the license section D.2 would be modified by the addition of the words "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." In addition, license section D.2 would be modified to reference a new letter and publication date which would result if this exemption request is approved. SR 4.6.1.3.b.2 would be modified by the addition of the words "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." The remaining proposed changes to Technical Specification page 3/4 6-5a are described in Attachment "B" of this document.

B. BACKGROUND

On November 19, 1984, BVPS Unit No. 1 was granted an exemption to the requirements of 10 CFR 50 Appendix J, Section III.D.2(b)(ii). BVPS Unit No. 2 was granted the same exemption in 1987 as part of the issuance of the plant's operating license. Our current exemption allows substituting the seal leakage test of Section III.D.2(b)(iii) of Appendix J when no maintenance that could affect sealing capability has been performed on an air lock. This requirement is reflected in our current Technical Specification SR 4.6.1.3.b.2.

C. JUSTIFICATION

The proposed revision would incorporate additional wording to our current exemption to 10 CFR 50 Appendix J, Section III.D.2(b)(ii). Appendix J states that "air locks opened during periods when containment integrity is not required by the plant technical specifications shall be tested at the end of such periods at not less than P_a." Our current exemption to Appendix J requires the overall air lock leakage test be performed, before establishing containment integrity, if air lock maintenance has been performed that could affect the air lock sealing capability.

The proposed additional wording would allow maintenance to be performed on the air lock, that could affect its sealing capability, without directly resulting in the required performance of the overall air lock leakage test. Performance of the overall air lock test is very time consuming (approximately 4 to 6 hours) and results in additional personnel radiation exposure. The performance of this testing during a plant shutdown can result in a delay in plant restart. When the design of the affected air lock component(s) permits local leak testing at not less than P_a, then this type of testing is proposed to be substituted for the overall air lock leakage test. The words "where the design permits" requires that the two criteria for testing be met. The first criteria, is that component, which has had maintenance performed on it, has local leak rate test provisions factored into its design, i.e., some provisions to allow local pressurization of the component. The second criteria, is that by only locally pressurizing the affected component, the leak rate, which is then measured, must be equivalent to or more conservative than the leak rate which would be measured on that component during the performance of the overall air lock leakage test. For example, as discussed in the proposed Bases for the air lock surveillance requirements contained in Attachment B, locally leak testing of the outer personnel air lock door following maintenance which reduces breech ring closure force, may not provide an accurate representation of the door's leak tightness during a DBA. Therefore, the leak rate measured during the local leak testing would not be equivalent or more conservative than the actual leakage rate that the outer door may exhibit during the overall air lock test. In this case, local leakage rate testing cannot be substituted for the overall leakage test since the design, i.e., the door is unseated by DBA containment pressure, of the outer personnel air lock door does not permit conclusive test results to be obtained.

The local leakage test would involve the pressurization of the affected component to at least P_a. A leakage rate would then be measured in accordance with the requirements of Appendix J. The typical air lock components which could be tested in this manner are components such as the o-ring seals on the personnel air lock door(s), the mechanical penetrations for the 18 inch escape hatches, and the equalizing valves located on each of the air lock doors. For each of these components, the design configuration permits local pressurization of the components to at least P_a.

When maintenance is completed on a component which has local leak testing capability, i.e., o-ring replacement on the air lock doors, an overall air lock leakage test does not demonstrate both barrier (o-rings) are functioning as designed. The overall test pressurizes the inside of the air lock which ultimately only demonstrates a sealing capability of one of two o-rings per door. A local leak test where the area between the o-rings is pressurized demonstrates the sealing capability of both o-rings. This method of testing results in a better demonstration of the sealing capability of the doors following replacement of the o-rings where breech ring closure forces are not reduced.

The ability of these components to provide a leak tight barrier, following maintenance activities, can be demonstrated during simulated post-accident conditions, i.e., at P_a pressure. If the component, which is affected by maintenance activities, cannot be locally leak tested at P_a, such as the door seals on the emergency air lock or the sight glasses on the personnel air lock, then the overall air lock leakage test will be performed.

The proposed change will allow local leakage rate testing to be substituted for the overall air lock leakage test when the design of the components permits local leakage rate testing at pressure of at least P_a. This proposed change is sufficient to achieve the underlying purpose of the requirements of 10 CFR 50 Appendix J, Section III.D.2(b)(ii) because it provides adequate assurance of continued leak tight integrity of the air lock(s). The methodology, that a local leak test at P_a on affected air lock components is sufficient to demonstrate continued overall air lock leak tightness, is consistent with the methodology used when another part of the containment pressure boundary is breached. When the containment equipment hatch closure is removed for refueling, for example, the o-ring seals are wiped down and re-greased and/or replaced. The only testing which is performed following this activity is the local Type B test on the o-ring seals at P_a. The overall containment leak rate test is not required when maintenance has been performed on components which make up the containment pressure boundary that affected its sealing capability.

Therefore, based on the current accepted practice of locally leak testing other components in the containment pressure boundary at P_a in lieu of performing an overall containment leak test, we believe it is justified to use this same methodology for maintenance activities on the air lock(s).

D. SAFETY ANALYSIS

The proposed change will continue to ensure that each containment air lock will perform its safety function as part of the containment to control offsite radiation exposures resulting from a design basis accident (DBA). The structural integrity and leak tightness will not be changed as a result of this proposed revision. The proposed change will only involve the substitution of one test method for another test method, i.e., local leak testing for overall leak testing where the design permits. Local leak testing will more effectively demonstrate the sealing capability of redundant seals. The affected air lock components will continue to be leak tested at a test pressure equal to or greater than the calculated peak containment internal pressure related to a DBA. The leak rate determined for an air lock component, during the local leak rate testing, will be factored into the combined containment leak rate to ensure continued compliance with the maximum permissible leak rate of 0.60 L_a for penetrations subject to Type B and C leak rate testing.

Therefore, this change is considered safe based on the continued ability of the containment air locks to provide a leak tight barrier, under maximum post-accident containment pressure, to prevent the release of radioactive materials from a DBA to ensure the limits established by 10 CFR 100 are not exceeded.

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?

   The probability of occurrence of a previously evaluated accident is not increased because the containment air locks do not effect the initiation of any design basis accident. The consequences of an accident are not significantly increased because the containment air locks will continue to provide a barrier to limit leakage from containment during a DBA. The combined containment leakage limit of 0.60 L_a will continue to be met. The performance of a local leak rate test at P_a, in place of the overall air lock leakage test, will provide adequate assurances of the continued integrity of the air locks.

   Therefore, based on the continued ability of the containment air locks to provide a barrier to limit leakage from containment during a DBA, this proposed 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?

   Air lock operation does not interface with the reactor coolant pressure boundary or any other mechanical or electrical controls which could impact the operations of the reactor or its direct support systems.

   Containment air locks are designed for the purpose of containment entry and exit. During this operation, the air lock maintains containment integrity by providing at least one door which is capable of restricting release during a DBA.

   The proposed change will continue to ensure that air lock operation is performed as assumed in the original design of the plant.

   Therefore, this 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 applicable margin of safety consists of maintaining the primary containment leak rates within the assumptions of the DBA analysis. The proposed change continues to ensure that the overall air lock leak rate is maintained within the limits required by the plant's technical specification following maintenance activities which could affect air lock sealing capability. Local leak rate testing, at a pressure of at least P_a, will provide adequate assurance of the continued integrity of the air lock.

   Therefore, since the primary containment leak rates will continue to be maintained within the assumptions of the DBA analysis, this 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 and exemption 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 F-1

Beaver Valley Power Station, Unit No. 1
Proposed Technical Specification Change No. 199, Revision 1

Applicable Typed Page

ATTACHMENT TO LICENSE AMENDMENT NO. _____

FACILITY OPERATING LICENSE NO. DPR-66

DOCKET NO. 50-334

Replace the following page of Appendix A, Technical Specifications, with the enclosed page as indicated. The revised page is identified by amendment number and contains vertical lines indicating the areas of change.

Remove	Insert
3/4 6-5b	3/4 6-5b

(Proposed Wording)

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

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

1. Personnel air lock greater than or equal to 40.0 psig

2. Emergency air lock greater than or equal to 10.0 psig

or, by quantifying[8] 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 0.0005 L_a at 10.0 psig for the emergency air lock.

b. By conducting overall air lock leakage tests,[9] at not less than P_a (40.0 psig), and verifying the overall air lock leakage rate is less than or equal to 0.05 L_a at P_a (40.0 psig):

1. At least once per 6 months,[7] 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

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

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

(9) Results shall be evaluated against the acceptance criteria of LCO 3.6.1.2.

(10) Exemption to Appendix J of 10 CFR 50, dated _____.

ATTACHMENT F-2

Beaver Valley Power Station, Unit No. 2
Proposed Technical Specification Change No. 66, Revision 1

Applicable Typed Pages

ATTACHMENT TO LICENSE AMENDMENT NO. _____

FACILITY OPERATING LICENSE NO. NPF-73

DOCKET NO. 50-412

Replace the following pages of Appendix A, Technical Specifications, with the enclosed pages as indicated. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

Remove	Insert
License Page 6	License Page 6
3/4 6-5a	3/4 6-5a

(Proposed Wording)

safety injection system, and residual heat removal system. This exemption will expire when the current GDC 4 rulemaking changes have been completed.

(2) The facility requires an exemption from the requirements of 10 CFR 50, Appendix J, Section III.D.2(b)(ii). The justification of this exemption is contained in Section 6.2.6 of Supplement 5 to the Safety Evaluation Report and modified by a letter dated _____. The staff's environmental assessment was published on May 13, 1987 (52FR 17651) and on _____. Therefore, pursuant to 10 CFR 50.12(a)(1) and 10 CFR 50.12(a)(2)(ii) and (iii), Beaver Valley Power Station, Unit 2 is exempt from the quoted requirement and instead, is required to perform the overall air lock leak test at pressure P_a before establishing containment integrity if air lock maintenance has been performed 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.

(3) The facility was previously granted an exemption from the criticality alarm requirements of 10 CFR 70.24 (see License No. SNM-1954 dated April 9, 1986, which granted this exemption). Beaver Valley Power Station, Unit 2 is hereby exempted from the criticality alarm system provisions of 10 CFR 70.24 so far as this section applies to the storage of fuel assemblies held under this license.

E. Physical Security

DLCo shall fully implement and maintain in effect all provisions of the physical security, guard training and qualification, and safeguards contingency plans previously approved by the Commission and all amendments and revisions to such plans made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain safeguards information protected under 10 CFR 73.21, are entitled:

"Beaver Valley Power Station Security Plan," with revisions submitted through April 15, 1987; "Beaver Valley Power Station Security Training and Qualification Plan," with revisions submitted through April 15, 1987; and Beaver Valley Power Station Security Contingency Plan," with revisions submitted through February 19, 1987.

F. Fire Protection Program (Section 9.5.1 of SER Supplement 3)

DLCo shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report through Amendment No. 17, and submittals dated May 18, May 20, May 21, June 24 and July 6, 1987, and as described in the Safety Evaluation Report dated October 1985, and Supplements 1 through 6, subject to the following provision:

(Proposed Wording) Amendment No.

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

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

1. Personnel air lock greater than or equal to 44.7 psig

2. Emergency air lock greater than or equal to 10.0 psig

or, by quantifying[8] 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 0.0005 L_a at 10.0 psig for the emergency air lock.

b. By conducting overall air lock leakage tests,[9] at not less than P_a (44.7 psig), and verifying the overall air lock leakage rate is less than or equal to 0.05 L_a at P_a (44.7 psig):

1. At least once per 6 months,[7] 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

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

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

(9) Results shall be evaluated against the acceptance criteria of LCO 3.6.1.2.

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