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
XI	XI
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
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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

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 for valves that are open under administrative control as permitted by 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.

DPR-66

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

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 for valves that are open under administrative control as permitted by Specification 3.6.3.1.

2. All equipment hatches are closed and sealed.

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

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

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

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 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 less than or equal to 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

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.

BASES

3/4.6.1 PRIMARY CONTAINMENT

3/4.6.1.1 CONTAINMENT INTEGRITY

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

3/4.6.1.2 CONTAINMENT LEAKAGE

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

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

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

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. This verification is necessary to preclude an inadvertent opening of the inoperable door while the OPERABLE door is open. After each entry and exit, the OPERABLE door must be immediately closed. If ALARA conditions permit and personnel safety can be assured, entry and exit should be via an OPERABLE air lock.

General Note (2) has been added to provide clarification that, for this LCO, separate Action 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 lock door, the containment pressure developed during a DBA applies an opening force which is opposing the breech ring closure force. Therefore, upon completion of certain maintenance activities, continued outer door leak tightness during a DBA cannot be assured by performance of SR 4.6.1.3.a alone. Maintenance which may result in a decrease in closure force on any part of the door sealing surface, (decreasing of breech ring travel for example), will require performance of SR 4.6.1.3.b. The performance of this surveillance is necessary to ensure that containment DBA pressure applied against the outer door will not result in the unseating of the air lock door by overcoming of the breech ring closure forces to the point where the leakage becomes excessive. Since SR 4.6.1.3.b duplicates DBA forces on the outer personnel air lock door and also measures the air lock leakage rate, performance of this surveillance requirement demonstrates the continued ability of the outer personnel air lock door to provide a leak tight barrier, during a DBA, following specific maintenance activities.

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

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

SURVEILLANCE REQUIREMENTS (SR) (Continued)

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.

3/4.6.3 CONTAINMENT ISOLATION VALVES (Continued)

The opening of locked or sealed closed containment isolation valves on an intermittent basis under administrative control includes the following considerations: (1) stationing an operator, who is in constant communication with the control room, at the valve controls, (2) instructing this operator to close these valves in an accident situation, and (3) assuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside the containment.

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, and 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."

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

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 (52 FR 17651) and on June 9, 1995 (60 FR 30611). 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:

INDEX

DEFINITIONS

INDEX

BASES

CONTAINMENT INTEGRITY (Continued)

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by 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 rcd 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.

LEAKAGE

1.14 LEAKAGE shall be:

a. Identified Leakage

1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank;

2. 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

3. Reactor coolant system LEAKAGE through a steam generator to the secondary system.

b. Unidentified LEAKAGE

Unidentified LEAKAGE shall be all LEAKAGE (except reactor coolant pump seal water injection or leakoff) that is not Identified LEAKAGE.

c. Pressure Boundary LEAKAGE

Pressure Boundary LEAKAGE shall be LEAKAGE (except steam generator tube LEAKAGE) through a nonisolable fault in a Reactor Coolant System component body, pipe wall or vessel wall.

1.15 THROUGH 1.17 (DELETED)

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.

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 for valves that are open under administrative control as permitted by Specification 3.6.3.1.

2. All equipment hatches are closed and sealed.

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

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.

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(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 less than or equal to 0.0005 L_a at 10.0 psig for the emergency air lock.

b. By conducting overall air lock leakage tests,[8] 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.

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 $\leq$ 0.75 L_a during performance of the periodic test to account for possible degradation of the containment leakage barriers between leakage tests.

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

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. This verification is necessary to preclude an inadvertent opening of the inoperable door while the OPERABLE door is open. After each entry and exit, the OPERABLE door must be immediately closed.

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

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

3/4.6.1.3 CONTAINMENT AIR LOCKS (Continued)

SURVEILLANCE REQUIREMENTS (SR) (Continued)

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. Additional operating margin is provided if the containment average air temperature is maintained above 100°F as shown on Figure 3.6-1.

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

3/4.6.1.6 CONTAINMENT STRUCTURAL INTEGRITY

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

BASES

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 emergency 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.

3/4.6.3 CONTAINMENT ISOLATION VALVES (Continued)

The opening of locked or sealed closed containment isolation valves on an intermittent basis under administrative control includes the following considerations: (1) stationing an operator, who is in constant communication with the control room, at the valve controls, (2) instructing this operator to close these valves in an accident situation, and (3) assuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside the containment.

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, and 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."