

PROPOSED CHANGE TO TECHNICAL SPECIFICATIONS

INSERTS AND MARKED UP PAGES FOR LCR S98-03

Revise the Actions and Bases for the below listed specifications as indicated:

ACTION:

INSERT 1

NOTES

- (1) Entry and exit is permissible to perform repairs on the affected air lock components.
- (2) Separate condition entry is allowed for each air lock.
- (3) Required ACTIONS a.1, a.2, and a.3 are not applicable if both doors in the same air lock are inoperable and condition c. is entered.
- (4) Required ACTIONS b.1, b.2, and b.3 are not applicable if both doors in the same air lock are inoperable and condition c. is entered.
- (5) Enter applicable Conditions and required Actions of LCO 3.6.1, "Primary Containment," when air lock leakage results in exceeding the overall containment leakage rate.
 - a. One or more containment air locks with one containment air lock door inoperable:
 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 once per 31 days. Entry and exit is permissible for 7 days (from initial LCO entry) under administrative controls if one door is inoperable in each air lock. Air lock doors in high radiation areas may be verified locked closed by administrative means.
 - b. One or more containment air locks with only the containment air lock interlock mechanism inoperable.
 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:

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3. Verify an OPERABLE door is locked closed in the affected air lock once per 31 days. Entry and exit of containment is permissible under the control of a dedicated individual for the duration of the entry to ensure only one door is open at a time. Air lock doors in high radiation areas may be verified locked closed by administrative means.
- c. One or more containment air locks inoperable for reasons other than condition a. or b.
1. Immediately initiate action to evaluate overall containment leakage per LCO 3.6.1, and:
 2. Verify that at least one door is closed in the affected air lock within 1 hour, and:
 3. Restore the air lock to OPERABLE status within 24 hours.
- d. If the ACTIONS and associated completion times of a., b., or c. cannot be met, be in Hot Standby within 6 hours and in Cold Shutdown within the following 30 hours.

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BASES 3/4.6.1.3

Insert 2

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, 10 feet in diameter, with a door at each end. The doors are interlocked during normal operation 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. 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 gasketed seals and local leakage rate testing capability to ensure pressure integrity. To effect a leak tight seal, the air lock design uses pressure-seated doors (i.e., an increase in containment internal pressure results in increased sealing force on each door).

Each personnel air lock is provided with limit switches on both doors that provide control room indication of door position. Additionally, control room indication is provided to alert the operator whenever an air lock door interlock mechanism is defeated.

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 limit 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 analysis.

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% of containment air weight per day. This leakage rate is defined in 10CFR50, Appendix J as $L_a = 0.1\%$ of containment air weight per day, the maximum allowable containment leakage rate at the calculated peak containment internal pressure $P_a = 47.0$ psig following a DBA. The allowable leakage rate forms the basis for the acceptance criteria imposed on the surveillance requirements associated with the air locks.

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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.

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".

The ACTIONS are modified by five notes. Note (1) 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 for most repairs. It is preferred that the air lock be accessed from inside primary containment by entering through the other OPERABLE air lock. However, if this is not practicable, or if repairs on either door must be performed from the barrel side of the door then it is permissible to enter the air lock through the OPERABLE door, which means there is a short time during which the containment boundary is not intact (during access through the OPERABLE 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. After each entry and exit, the OPERABLE door must be immediately closed. If ALARA conditions permit, entry and exit should be via an OPERABLE air lock.

Note (2) adds clarification that separate condition entry is allowed for each air lock. This is acceptable, since the required ACTIONS provide appropriate compensatory measures for each inoperable air lock. Complying with the required ACTIONS may allow for continued operation. A subsequent inoperable air lock is governed by condition entry for that air lock.

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Notes (3) and (4) ensure that only the required ACTIONS and associated completion times of condition c. are required if both doors in the same air lock are inoperable. With both doors in the same air lock inoperable, an OPERABLE door is not available to be closed. Required ACTIONS c.1 and c.2 are the appropriate remedial actions. The exception of these Notes does not affect tracking the completion time from the initial entry into condition a., only the requirement to comply with the required ACTIONS.

In the event the air lock leakage results in exceeding the overall containment leakage rate, Note (5) directs entry into the applicable Conditions and required ACTIONS of LCO 3.6.1, "Primary Containment".

With one air lock door in one or more containment air locks inoperable, the OPERABLE door must be verified closed (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. The specified time period is consistent with the ACTIONS of LCO 3.6.1.1 that requires that containment be restored to OPERABLE status within 1 hour. OPERABILITY of the air lock interlock is not required to support the OPERABILITY of an air lock door.

In addition, the affected air lock penetration must be isolated by locking closed the OPERABLE air lock door within the 24 hour Completion Time (ACTION a.2). 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.

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 judgement and is considered adequate in view of the low likelihood of a locked door being mispositioned and other administrative controls.

ACTION a.3 allows the use of the air lock for entry and exit for 7 days under administrative controls if both air locks have an inoperable door. This 7-day restriction begins when the second air lock is discovered to be inoperable. Containment entry may be required on a periodic basis to perform Technical Specification Surveillances and required ACTIONS, as well as other activities on equipment inside containment that are required by Technical Specifications or activities on equipment that support Technical Specification required equipment. This Note is not intended to preclude performing other activities (i.e., non-Technical Specification required activities) if the containment is entered, using the inoperable air lock, to perform an allowed entry 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.

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Because of ALARA considerations, ACTION a. 3 also allows air lock doors located in high radiation areas 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, the probability of misalignment of the door, once it has been verified to be in the proper position, is small.

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 Condition a. In addition, ACTION b.3 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). In addition, ACTION b.3 allows air lock doors located in high radiation areas to be verified locked closed by use of administrative means.

ACTION c.1 requires that with one or more air locks inoperable for reasons other than those described in condition a. or b., action 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 plant shutdown. In addition, even with both doors failing the seal test, the overall 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 ACTIONS of LCO 3.6.1.1, which requires that containment be restored to OPERABLE status within 1 hour.

Additionally, the affected air lock(s) must be restored to OPERABLE status within the 24 hour completion time. This completion time begins at the time that the air lock is discovered to be inoperable. 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.

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 Hot Standby within 6 hours and to Cold Shutdown 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.

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Maintaining containment airlocks OPERABLE requires compliance with the leakage rate test requirements of 10CFR50, Appendix J, as modified by approved exemptions. This Surveillance Requirement reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). The acceptance criteria were established during initial air lock and containment OPERABILITY testing. 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. Thus, the provision of Specification 4.0.2 (which allows Frequency extensions) does not apply.

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 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. Due to the purely mechanical nature of this interlock, and given that the interlock mechanism is only challenged when the containment air lock door is opened, this test is only required to be performed upon entering or exiting a containment air lock but is not required more frequently than every six months. The six-month frequency is based on engineering judgement and is considered adequate in view of other indications of door and interlock mechanism status available to operations personnel.