ARTICLE RIM-4
REPAIR/REPLACEMENT ACTIVITIES

RIM-4.1 SCOPE

If an SSC falls within the scope of the RIM Program, repair/replacement activities shall be done in accordance with Division 1, IWA-4000, except for the following:

(a) In lieu of the preservice inspection requirements of Division 1, IWA-4530, the preservice examination requirements of RIM-2.7.3 shall apply.

(b) In lieu of the pressure testing requirements of Division 1, IWA-4540(a), the system leakage requirements of RIM-4.2 shall apply.

RIM-4.2 LEAK TEST REQUIREMENTS AFTER A REPAIR/REPLACEMENT ACTIVITY

Leak testing shall be performed following repair/replacement activities in accordance with the requirements of RIM-4.2.2 or RIM-4.2.3, regardless of the fluid normally contained in the system during operation.

RIM-4.2.1 Test Boundaries

(a) Only the pressure boundary affected by the repair/replacement activity must be tested.

(b) Open ended portions of a non-closed system extending to the first shutoff valve may be exempted from the test requirements.

RIM-4.2.2 Gas Leak Test

(a) Test Description. The leak test shall be performed in accordance with ASME Section V, Article 10, Mandatory Appendix IV.

(b) Test Medium. The gas used as the test medium shall be nonflammable when a test is made on a gas system.

(c) Pressure and Temperature

(1) Leakage tests shall be conducted at normal operating system pressure.

(2) The test pressure shall be verified by normal system instrumentation (such as control room instruments) or test instrumentation.

(3) The test conditions shall be maintained essentially constant during the course of the test.

(4) The test pressure and temperature may be obtained by using any means that comply with the plant Technical Specifications.

(d) Test Condition Holding Time. For leak tests, a 10-minute holding time is required after attaining test pressure.

(e) Visual Examination. The VT-2 visual examination shall be conducted by examining the accessible external exposed surfaces of pressure-retaining components for evidence of leakage.

RIM-4.2.3 Liquid Leak Test

(a) Test Description. The leak test shall be performed in accordance with Section V, Article 10, Mandatory Appendix IV or Mandatory Appendix VI.

(b) Test Medium. The contained fluid in the system shall serve as the pressurizing medium.

(c) Pressure and Temperature

(1) Leakage tests shall be conducted at normal operating system pressure.

(2) The test pressure shall be verified by normal system instrumentation such as control room instruments or test instrumentation.

(3) The test conditions shall be maintained essentially constant during the course of the test.

(4) When portions of a system are subject to system leak tests associated with two different system functions, the visual examination need only be performed during the test conducted at the higher of the test pressures of the respective system functions.

(5) The test pressure and temperature may be obtained by using any means that comply with the plant Technical Specifications.

(d) Test Condition Holding Time

(1) For leak tests, a 10-minute holding time for non-insulated components, or 4 hours for insulated components, is required after attaining test pressure.

(2) For components not required to operate during normal plant operations, a 10-minute holding time is required after attaining test pressure.

(e) Visual Examination. The VT-2 visual examination shall be conducted by examining the accessible external exposed surfaces of pressure-retaining components for evidence of leakage.

RIM-4.2.4 Volumetric and Surface Examination

In lieu of the leak testing requirements of RIM-4.2.2 or RIM-4.2.3, the area affected by the repair/replacement activity may be examined using a volumetric and
surface examination method and shall meet the requirements of Article RIM-3. The requirements of RIM-5.2 shall apply.

RIM-4.2.5 Exemptions

The following are exempt from any leak test:
(a) cladding  
(b) heat exchanger tube plugging and sleeving  
(c) welding or brazing that does not penetrate through the pressure boundary  
(d) flange seating surface when less than half the flange axial thickness is removed and replaced  
(e) tube-to-tubesheet welds when such welds are made on the cladding  
(f) seal welds  
(g) welded or brazed joints between nonpressure-retaining items and the pressure-retaining portion of the components  
(h) valve discs or seats  
(i) bolts, studs, nuts or washers  
For additional exemptions, refer to the applicable reactor-type supplement in Mandatory Appendix VII.

RIM-4.3 RESPONSIBILITIES

The Owner shall prepare the Owner’s Repair/Replacement Certification Record, Form NIS-2 in accordance with Mandatory Appendix III, upon completion of all required activities associated with the Repair/Replacement Plan necessary to place the item in service.

RIM-4.4 CORRECTIVE ACTION

(a) The sources of leakage detected by a leak test shall be located and evaluated by the Owner for corrective action as follows:
   (1) Leaks such as from seals, seats, and gasket joints in components may be permitted when specifically allowed by the Owner’s Design Specification.
   (2) An evaluation of the effect of any degraded area upon the structural integrity of the pressure boundary shall be performed in accordance with the provisions of Article RIM-3.

(b) Components requiring corrective action shall have repair/replacement activities performed in accordance with Article RIM-4 or corrective measures performed where the relevant condition can be corrected without a repair/replacement activity. All pressure testing required by repair replacement activities shall be completed before returning an SSC to service.

RIM-4.5 RECORDS

The results of the leakage tests performed to complete a repair/replacement activity shall be documented.