Inquiry: What alternative rules to the ASME OM Code leakage rate test frequency specified in Section ISTC-3630(a) may be used to establish the leakage rate test frequency for Category A valves that are not Reactor Coolant System (RCS) Pressure Isolation Valves or Containment Isolation Valves (CIVs)?

Reply: It is the opinion of the Committee that in lieu of the 2-year leakage rate test frequency requirement specified by ASME OM Code Section ISTC-3630(a), the alternative methods provided by this Code Case may be used to establish the leakage rate test frequency for Non-PIV and Non-CIV Category A valves.

1 PURPOSE

This Code Case establishes requirements for implementing and maintaining a Category A valve performance-based leakage test methodology that may be implemented in lieu of the 2-year leakage rate test interval required per subpara. ISTC-3630(a). This Code Case does not apply to Pressure Isolation Valves (PIVs) or Containment Isolation Valves (CIVs).

2 GROUPINGS

Each Category A valve shall be individually tested.

3 ANALYSIS

The Owner shall perform an analysis of the test and maintenance history of each valve to establish the basis for extending leakage test intervals beyond the initial 2-year interval. The analysis shall include the following:

(a) Analyze leakage test results and maintenance history to determine their significance and impact to valve leakage performance.

(b) Determine if periodic preventive maintenance and examination activities would be effective in monitoring for component degradation.

(c) The Owner shall ensure that the impact to plant safety is evaluated prior to extending the leakage test interval.

4 LEAK-RATE MONITORING ACTIVITIES

Category A valve leakage test intervals shall be sufficient to maintain leakage rates within acceptable limits. Trending and evaluation of existing data shall be used as the bases to justify the time interval between tests. As part of the leak-tight integrity monitoring of the valves within the scope of this code case, the Owner shall perform the following activities to support the leakage rate testing intervals allowed by this code case:

(a) Evaluate any applicable preventive maintenance activities including their associated intervals that shall be implemented to maintain the continued acceptable performance of the valve.

(b) Identify the leakage test interval. Interval extensions shall be limited to one refueling cycle or two years per extension, whichever is less. Intervals shall not exceed the maximum interval of 6 years. Each valve shall pass two (2) as-found leakage test before the test interval can be extended. The successful completion of two as-found leakage tests demonstrates that the valve is stable with respect to its leak-tight integrity. If a valve exceeds its leak rate acceptance criteria, it shall be returned to its initial 2-year test interval.

(c) Adequate margin shall exist and be trended such that leakage shall not exceed acceptance criteria prior to the next scheduled leakage test.

(d) Where a valve’s leak rate test result exceeds 75% of its leak rate acceptance criteria, the valve leak test interval shall not be extended and maintenance shall be evaluated.

(e) Extension of leakage test intervals shall evaluate plant safety and be supported by trending and evaluating both generic and plant-specific performance data to ensure the component is capable of performing its intended function(s) over the entire interval.
5 CORRECTIVE MAINTENANCE

The following actions shall be performed when activities are performed on the valve that affect the valve’s leak tightness:

(a) An as-found leakage test shall be performed prior to any maintenance, repair, modification, or adjustment activity that could affect the leak tightness of the valve. An as-left test shall be performed following maintenance, repair, modification, or adjustment activity unless an alternate testing method or analysis is justified and documented to provide reasonable assurance that such work does not affect the leak tightness of the valve and the valve will still perform its intended function.

(b) If the as-found and as-left test results are both below the acceptance criteria, change to the test interval is not required. If as-found or as-left test results are greater than the allowable acceptance criteria, the valve shall be returned to its initial 2-year test interval.

(c) The testing interval shall be returned to the initial 2-year test interval if a valve is replaced or analysis determines that modification of the valve has invalidated the performance history. Testing at the initial 2-year test interval shall continue until the conditions of para. 4 are met to extend the test interval.

(d) If corrective maintenance is performed on a valve due to failure to meet its leakage rate acceptance criteria, the leak test frequency shall return to the initial 2-year interval. In addition, a cause determination shall be performed, and corrective actions identified that focus on those activities that can eliminate the cause of failure. Once the cause determination and corrective actions have been completed, acceptable performance may be reestablished and the testing frequency returned to the extended interval in accordance with para. 4.

6 DOCUMENTATION

The basis for each extension of the leak test interval beyond the initial 2-year frequency shall be documented per ISTA-9000 and shall include the attributes described under para. 3 and para. 4, as applicable.