



INTERPRETATION: IIAR SC 2019-2

SUBJECT: Leak Testing After Routine Maintenance

BACKGROUND: IIAR 6, Section 5.5.3 requires that leak tests are to be performed after ITM tasks that require opening the system. A.5.5.3 references IIAR 4 and IIAR 5 for guidance on test and leak pressures. IIAR 5 specifies that leak tests must be performed at “design pressure or a pressure specified in the engineering design” (ASME B 31.5 also indicates this). However, leak testing at design pressure after routine maintenance is impractical. Examples of such routine maintenance activities might include:

- Changing an oil filter(s) or coalescing element(s) on a compressor
- Replacing a strainer basket within a strainer on a valve group
- Replacing an atmospheric relief valve that doesn’t have a 3-way valve
- Replacing a hydrostatic/internal relief valve or a control valve within a valve group

In some cases, leak test pressure at design pressure might be applied to relief valves which would not hold that pressure and is also impractical.

QUESTION 1: Please clarify the appropriate leak test pressures for leak testing after routine maintenance activities that do not involve repair, modification or expansion of the system. Would using the design operating pressure be sufficient to be compliant with “a pressure specified in the engineering design” for such maintenance activities?

ANSWER 1: For parts of the system operating at 15 psig or greater, leak testing should be performed using the highest pressure that the tested portion of the system will experience during a normal operational cycle, which may include defrost cycles, standby (off cycle) or other



conditions. For portions of the system that operate at less than 15 psig, the test should be performed at the greater of 15 psig or the highest pressure that the tested part of the system will have during a normal operational cycle, which may include defrost cycles, standby (off cycle), or other conditions.

QUESTION 2: Please also clarify the time frame required for proving system tightness.

ANSWER 2: The time frame for proving system tightness during leak testing after routine maintenance tasks need not be extensive, but should be sufficient for all mating surfaces (e.g. seals, joints, gaskets and etc.) to be checked using conventional methods (e.g., bubble test, leak detectors, sulfur sticks).

COMMITTEE ACTION: Add informative appendix statements to IIAR 6 indicating that leak testing at the worst-case (highest) operating pressure, but not less than 15 psig, is acceptable for leak testing after ITM tasks that do not involve repair or modification to the system. Indicate an acceptable time frame for proving system tightness during leak testing.