Inquiry: Under what conditions may the Fabricator receive and accept a Certificate of Analysis prepared by the manufacturer as a means of satisfying the requirements of RTP-1 Mandatory Appendix M-2, M2-100 and Articles A, B, C, D & E in lieu of inspections and tests being performed by the Fabricator personnel or an independent testing laboratory on resins and curing agents?

Reply: It is the opinion of the Committee that the Fabricator may use a Certificate of Analysis prepared by the manufacturer as a means of satisfying the requirements of RTP-1 Mandatory Appendix M-2, M2-100 and Articles A, B, C, D & E in lieu of inspections and tests being performed by the Fabricator personnel or an independent testing laboratory on resins and curing agents, under the following conditions,

1. The product is accompanied by a manufacturer’s prepared Certificate of Analysis which states the test methods and procedures were followed to obtain the results,
2. The Fabricator accepts the Certificate of Analysis,
3. Fabricator determines the product are the products that were ordered and the product meets the labeling requirements of Mandatory Appendix M-2 Article A with the following exceptions;
   a. M2A-200 (a) (3) – the appearance, (color, clarity, absence of solids, gels and dirt) may be determined by the manufacturer,
   b. M2A-200 (a) (4) - specific gravity, viscosity, and room temperature gel time may be determined by the test methods established and performed by the manufacturer,
   c. M2A-200 (a) (5) – results of specific tests need not be recorded on the Resin Log Sheet (Table M2F-1) provided the Certificate of Analysis is noted in the Log Sheet by a traceable identification and is available for review by concerned parties,
   d. M2A-200 (b) (6) – testing of proper curing activity need not be performed on curing agents by the Fabricator nor recorded on the Curing Agents Log Sheet (Table M2F-2) provided the Certificate of Analysis is noted in the Log Sheet by a traceable identification and is available for review by concerned parties,
4. Use of this Case is documented in the UBRS under “Additional requirements” and,
5. The Case number shall be shown in the Fabricator’s Data Report, line 5 with the ASME RTP-1 edition.
RTP-1 CASE 3
Ultraviolet Light Inhibitors in the Corrosion Barrier of an RTP-1 Tank or Component

Approval Date: November 2, 2017

Inquiry: Under what conditions can ultraviolet light absorbers be added to the inner surface and inner layers of an RTP-1 Liner?

Reply: It is the opinion of the Committee that ultraviolet light absorbers can be added to the inner surface and inner layers to minimize ultraviolet degradation of the laminate when the resin manufacturer confirms that the addition of the absorber would not affect the performance of the corrosion barrier in the specified service.

This Case number shall be shown on the Fabricator’s Data Report.
Inquiry: May lap joint flanges be permitted for flanged nozzles, manways and body flanges on equipment constructed and marked in accordance with RTP-1?

Reply: It is the opinion of the Standards Committee that lap joint flanges may be permitted on nozzles, manways and body flanges on equipment constructed and marked in accordance with RTP-1 provided the following requirements are met.

1. The design of an RTP backing ring and stub end shall be in accordance with Part 3. Metallic backing rings shall be designed in accordance with ASME Boiler and Pressure Vessel Code Section VIII Div.1.
2. Nozzles shall have a maximum inside diameter of 24 in. (610 mm) when the flange drilling is in accordance with ASME B16.5 Class 150. Larger sizes may use ASME B16.47 Series A Class 150 drilling patterns. Custom drilling patterns are allowed on all sizes.
3. Minimum pressure rating of the stub end and backing ring flange shall be in accordance with paragraphs 1, 2, and 3 below. Maximum pressure rating for any size or type lap joint nozzle or flange shall be 150 psig (1.03 MPa).
   a. Nozzles up to 24 in. (610 mm) inside diameter shall have a minimum pressure rating of 50 psig (345 kPa).
   b. Side manways, nozzle flanges larger than 24 in. (610 mm) and body flanges shall have a minimum pressure rating of 15 psig (103 kPa).
   c. Top manways shall be designed for the worst condition of gasket seating loading or total pressure loading.
4. The backing ring shall be either of metallic or RTP construction. RTP backing rings shall be designed per para a.
5. Metallic materials shall be listed in the ASME Boiler and Pressure Vessel Code Section VIII, Div. 1 Parts UCS, UHA, UNF or UDI.
6. Allowable stress for metallic backing rings shall not exceed those listed in the ASME Boiler and Pressure Vessel Code Section II Part D with allowable stresses as per Section VIII, Div. 1.
7. RTP backing rings shall be constructed of laminates with material properties established per 2A-300 and shall be designed per para a.
8. RTP backing rings shall not be split into two or more ring segments. Metal backing rings may be split in accordance with the ASME Boiler and Pressure Vessel Code Section VIII, Div.1 Mandatory Appendix 2 per para. 2-9.
   Note: Making split backing rings twice as thick as an unsplit ring normally satisfies the criteria of para. 2-9.
9. Flange stops or retainers shall be provided for all nozzles 8 in (203 mm) and larger with metallic backing rings and all nozzle 16 in. (406 mm) and larger with RTP backing rings whose axis is vertical or within 45 degrees of vertical where the backing ring flange is facing upward. Nozzle necks may need to be longer than 6 in (150 mm) to allow for attachment laminates, gussets, hub layups, and nozzle end lap and backing ring thicknesses.
10. Stub ends on nozzles 4 in (102 mm) ID and under shall have gussets extending to within 1 in. (25 mm) of the back side of the backing ring.
11. The end lap on the stub end shall be molded integrally with the nozzle neck with a minimum inside radius of 1/8 in. (3 mm) where it joins the hub. See Figure 1.
12. The backing ring ID shall be chamfered or radiused sufficiently to clear the radius where the nozzle end lap (the ring attached integrally to the end of the stub end or nozzle neck) meets the outside of the hub. See Figure 1.

13. The rigidity factor of a metallic backing ring shall be less than or equal to 1.0 when calculated per the ASME Boiler and Pressure Vessel Code Section VIII, Div. 1 Mandatory Appendix 2 para. 2-14. The axial rotation of RTP backing rings shall be calculated per 3B and shall be limited to 1.5 degrees. The rotation of the RTP lap ring shall not exceed the rotation of the metallic or RTP backing ring.

14. The backing ring shall have a maximum nominal radial clearance with the OD of the hub of 1/16 in. (1.5 mm) on nozzles up to 16 in (406 mm) and a maximum radial clearance of 1/8 in (3 mm) on larger size nozzles, manways and body flanges. Machining may be used to achieve these tolerances, but the machining shall not breach any woven roving layers and shall be resin coated afterwards.

15. The bearing stress between the backing ring and the back surface of the end lap shall not exceed 5000 psi (34.5 MPa).

16. The design of the reinforcing pad of the shell for lap joint stub ends shall take into consideration the extra loading due to weight of the backing ring plus all other applicable loadings.

17. The OD of the lap ring shall be within 1/16 in. (1.5 mm) radially of the backing ring bolt hole opening on nozzles up to 16 in. (406 mm) and within 1/8 in. (3 mm) radially on larger size nozzles.

18. This case number shall be indicated on the Fabricator’s Data Report.
FIGURE 1.

LAP JOINT FLANGE

Hub clearance with backing ring. See para. o.

Max. rotation of the backing ring is limited. See para. n.

Integral lap ring

1/8" (3mm) radius min. See para. l.

Hub length shall be 3 times $T_L$ (Thickness of lap ring) minimum

Hub to have 4:1 min. taper to stub end

Nozzle centerline

Bolt hole centerline

Stub End

Backing Ring (Flange)
**RTP-1 CASE 5**

*Over-thickness Tolerance on RTP-1 Equipment*

Approval Date: July 30, 2020

*Inquiry:* Under what conditions may the over-thickness tolerance be increased over that stated in RTP-1 Subpart 2C?

*Reply:* It is the opinion of the Standards Committee that the over-thickness tolerance may be increased over that stated in RTP-1 Subpart 2C provided the following requirements are met.

1. The tolerance of average thickness shall be ≥ 100% to 135% of the thickness stated in the Design Report.
2. The tolerance for a corrosion barrier ≤ 0.200” shall be 140% of design. Thickness > 140% shall be permitted with acceptance from the Qualified Designer and User and is reflected in the Design Report.
3. Average Spot thicknesses > 135% of design (as determined by the method described in 6-920(f)(2)(-a)), shall be permitted with acceptance from the Qualified Designer and User and is reflected in the Design Report.
4. Average thickness of Major Parts > 135% of design (as determined by the method described in 6-920(f)(2)(-b)) shall be permitted with acceptance from the Qualified Designer and User and is reflected in the Design Report.
5. This case number shall be indicated on the Fabricator’s Data Report.