**ASME B31.3\* Other Unlisted High Pressure Component Evaluation**

Use this form for components subject to B31.3 Chapter IX. References are based on the 2016 code; modify as necessary to align with newer editions.

Instructions for use of this form are available with the form on the Ch. 17 website (*ASME, ADMIN-2*); briefly:

Does component fall into the K304.1 Straight Pipe, K304.2 Curved and Mitered Segments of Pipe, K304.3 Branch Connections, K304.4 Closures, K304.5 Pressure Design of Flanges and Blanks, or K304.6 Reducers? If so, evaluate per that paragraph.

Does the component fall into K304.7 Pressure Design of Other Components?

**NOTE: K304.7.2 Unlisted Components** states:

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| Pressure design of unlisted components to which the rules elsewhere in para. K304 do not apply shall be based on the pressure design criteria of this Chapter. The designer shall ensure that the pressure design has been substantiated through one or more of the means stated in (a), (b), and (c) below. |
| Note that designs are also required to be checked for adequacy of mechanical strength as described in para. K302.5. |

Does component fall into K304.7.2? If so evaluate per the following:

| **Item** | **Requirement** | **Completed (attached)** |
| --- | --- | --- |
| A | Extensive, successful service experience under comparable conditions with similarly proportioned components of the same or like material. |  |
| B | Performance testing sufficient to substantiate both the static pressure design and fatigue life at the intended operating conditions. Static pressure design may be substantiated by demonstrating that failure or excessive plastic deformation does not occur at a pressure equivalent to two times the internal design pressure, *P*. The test pressure shall be two times the design pressure multiplied by the ratio of allowable stress at test temperature to the allowable stress at design temperature, and by the ratio of actual yield strength to the specified minimum yield strength at room temperature from Table K-1. |  |
| C | Detailed stress analysis (e.g., finite element method) with results evaluated as described in Section VIII, Division 3, Article KD-2, except that for linear elastic analyses*(1) Sy*/1.5 in Division 3 shall be replaced by *S* from Table K-1, and*(2)* the Division 3 stress intensity limits due to sustained loads may be increased by the same factor applied in para. K302.3.6(a) when wind or earthquake loads are included. However, this limit shall not exceed 90% of *Syt* listed in the BPV Code, Section II, Part D, Table Y-1. |  |

**NOTE:** For (A), (B), and (C) above, interpolations supported by analysis are permitted between sizes, wall thicknesses, and pressure classes, as well as analogies among related materials with supporting material property data. Extrapolation is not permitted.

Evaluated By: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_

CPSO Approval: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_­­­­­­\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_