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Planning to cash in on ASME VIII-2?

A fitting manufacturer may look eagerly at the ASME VIII-2 FEA rules and its higher allowable stress limits as the perfect way satiate Sales & Marketing's hunger for higher operating pressures without raising the fabrication cost. However, what at first looks like a relatively straightforward engineering exercise that can be presented in a splashy colour-FEA report, actually has more wrinkles than a sharpei dog.

The common approach when seeking to obtain a CRN is to interpret the FEA results within the confines either of VIII-1, B31.3, or B31.1 (depending on which Code of Construction is being used). However, setting ASME VIII-2 as the code of construction unfolds a whole series of additional requirements that go beyond what we are accustomed to under some of the other codes.

These are a few of the additional requirements, taken from VIII-2, 2007 edition, 2008a:

1) Per 2.4.3.1 & Annex 7.A (Table 7.A.4) the manufacturer must obtain a Certificate of Authorization from ASME, in addition to having a valid quality control system. A fitting manufacturer can build to B31.3 under an approved quality program such as ISO 9000, but they would need to obtain the CofA to certify components under ASME VIII-2 in order to obtain a Canadian Registration Number (CRN).
2) Notice some of the additional paperwork that is required:

- Per 2.2, a User's design report needs to be completed and signed off by an engineer (as defined by Annex 2.A), under User Responsibilities. It can't be the same engineer who approves the Manufacturer's reports below.
- Per 2.3, A Manufacturer's Design report must be completed and signed off, and also a Manufacturer's Data Report, such as is presented in Annex 2.D needs to be completed.
- An Authorized Inspector is required to do the final sign-off that all these three aforementioned reports are in order, per 2.4.3. Under B31.3 construction of fittings, an Authorized Inspector (certified by NB) is not required.

3) There is additional NDE required for all castings:

- Per 3.8.2.2(a): complete radiography, regardless of thickness required.
- Per 3.8.2.2(d): surface magnetic Particle Examination required for all surfaces.

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4) Materials must comply with Annex 3.A of Code. In other words, the certified material test report must also show the ASME designation. A material that is only listed in B31.3, but not in Annex 3.A, will not be accepted.

Please remember that this has been supplied for information purposes only and that ASME alone can interpret the Code rules. Furthermore, each Canadian Jurisdiction may have additional requirements. For example, ABSA doesn't allow the Part 5 (FEA rules) to replace the Part 4 rules, even though the ASME Code would allow it:

"*1. In general, use of Part 5 of the Code Design by Analysis Requirements to over-ride provisions under Part 4 Design by Rule Requirements will be prohibited…*" *http://www.absa.ca/IBIndex/IB09-003.pdf*

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