

Information Bulletin No. IB07-007

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VARIANCE

(VA07-007)

**Use of 2007 Edition ASME Section VIII Division 2 Code
Variance to Section 6(d) of the Pressure Equipment Safety Regulation
(AR 49/2006)**

In accordance with Section 38 of the Safety Codes Act, a variance is hereby issued with respect to the use of the 2007 edition of the ASME Boiler and Pressure Vessel Code Section VIII Division 2 (hereunder referred to as "the Code") in Alberta.

Until further notice otherwise, pressure vessels constructed in accordance with the Code may be operated in Alberta provided the following conditions are met:

1. In general, use of Part 5¹ of the Code "Design by Analysis Requirements" to over-ride provisions under Part 4 "Design by Rule Requirements" will not be allowed².
2. A professional engineer who submits a pressure vessel design to the Code or subsequent design submissions, including for alterations, major repairs or change of ownership, must have a track record as a pressure vessel designer and the design submission documents must provide supporting evidence (e.g., curriculum vitae with a list of previous pressure vessel designs).
3. As part of the design registration submission, the User's Design Specification shall include a program for lifetime monitoring of the pressure vessel constructed to the Code.
4. As part of the User's Design Specification of the pressure vessel, specific limits or conditions, including cyclic and other conditions of individual components or parts of the pressure vessel, shall be defined to allow proper monitoring of the pressure vessel to take place during operation of the pressure vessel.

¹ "Part" refers to the different parts of the Code and the annexes to the respective Parts of the Code. In this case, Part 5 refers to "Design by Analysis Requirements" and all associated annexes including Annex Part 5A to Annex Part 5F of the Code.

² Use of Part 5 for fatigue analysis when required in accordance with an User's Design Specification is not considered as using Part 5 to over-ride requirements of Part 4 which references Part 5 for fatigue analysis.

Note A: Two significantly different fatigue analysis methodologies are included in Part 5 of the Code with one being the alternative to another. Until such time that it can be ascertained that one method will provide more accurate results consistently. Should fatigue loading be expected, analyses should be carried out using both methods and the more conservative result will be accepted.

Note B: Notwithstanding this provision, for exceptional and fully justified circumstances, a design submission may be made utilizing Part 5 and, if found acceptable, a site- and situation-specific Variance may be issued under the Safety Codes Act.

5. A Professional Engineer who certifies the User's Design Specification, on behalf of the owner, shall be independent of the pressure vessel manufacturer.
6. A Professional Engineer involved in the application of the Code in the Province of Alberta, including but not limited to the certification of the User's Design Specification or Manufacturer's Design Report, shall meet the requirement of Section 1(2) of the Pressure Equipment Safety Regulation³
7. An owner of a pressure vessel constructed to the Code shall have in place a Pressure Equipment Integrity Management program accepted and registered by ABSA as provided under the Pressure Equipment Safety Regulation. The Pressure Equipment Integrity Management program shall specifically address the use of the pressure vessel including:
 - a. operation personnel certification and training system in place and, as part of the system, a procedure in place to verify that the operators of the pressure vessel have sufficient knowledge of the User's Design Specification and the Manufacturer's Design Report for the pressure vessel;
 - b. verification that the operators having a clear understanding of how cyclic service is defined and monitored
 - c. documentation and reporting of incidents when operation of the vessel deviates from the User's Design Specification limits as non-conformances and continual operation of the pressure vessel shall be properly justified and may be subject to regulatory approval;
 - d. provisions for accurate and continual operation monitoring and record keeping to comply with the User's Design Specification and Manufacturer's Design Report limitations which need to be clearly stated and specified in the first place;
 - e. maintenance of information and documentation affecting the safe use of the pressure vessel, for the life of the pressure vessel, and the records shall include documentation such as the User's Design Specification, Manufacturer's Design Report, fabrication documents, operation monitoring results and other records that are required to be maintained by the vessel owner⁴; and
 - f. the media and system used for record keeping must be in a form that will allow the information to be retrievable and legible and the record keeping system shall be subject to internal audit.
8. An owner of a pressure vessel built to the Code shall, in the case of change of ownership of the plant, transfer to the new owner all records as required under Section 36(3) of the Pressure Equipment Safety Regulation.
9. On a change of ownership of a pressure vessel constructed to the Code, the new owner shall have a Professional Engineer verify and certify the acceptability of the original User's Design Specification as well as the condition of the pressure vessel or prepare a new User's Design Specification within the limitations of the Manufacturer's Design Report and the condition of the pressure vessel. The new owner shall submit the certified document to

³ Section 1(2) of the Pressure Equipment Safety Regulation states that a "Professional Engineer means a person who is registered as a professional engineer and authorized to practice engineering in any province or territory of Canada or in any state of the United States of America".

⁴ Note: Sections 41 & 42 of the Pressure Equipment Safety Regulation require that the owner must maintain "equipment records" and Section 1(1)(k) of the Regulation states that "equipment record includes design information, data reports, inspection plans, and integrity assessment, repair and alteration records".

ABSA and retain a copy as part of the owner's Pressure Equipment Integrity Management program record.

10. In the case of a pressure vessel which is built to the Code and which is sold individually, not as part of a plant, the User's Design Specification and the Design Registration will be rendered void since the pressure vessel will no longer be operated as originally intended. The design of the vessel shall have to be resubmitted for registration.

Background

The ASME Boiler and Pressure Vessel Code Section VIII Division 2 has been revised significantly with the publication of the 2007 edition of Code. A taskforce of the Boilers and Pressure Vessels Technical Council of the Safety Codes Council was formed to review and propose a position for the utilization of this Code in Alberta to allow the use of the latest pressure technology embodied in the Code while ensuring that an equivalent level, if not better level, of safety may be maintained if the new Code is used in Alberta.

The taskforce included individuals who represent owner-users, manufacturers, contractors, designers, Alberta Municipal Affairs and Housing and ABSA. A report of the taskforce was submitted to the Boilers and Pressure Vessels Technical Council which, in the meeting of June 8, 2007, approved the acceptance of the report with the provisions and conditions stated therein providing the direction to the Administrator in the issuance of this Variance.

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