

CRN NEWS





Welcome to the Newsletter!





Welcome to the first issue of CRN NEWS, and thank you for reading. We kick off this first newsletter with a request of our readers to take a survey to help us improve the Canadian Registration Number (CRN) system for industry. If you manufacture pressure-retaining equipment and you have considered entering the Canadian market, or you are already in the Canadian market and have applied for a CRN, this survey is relevant to you. Please take 3 minutes to complete our brief survey: www.surveymonkey.com/r/WFJPLSP

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Our newsletter is designed to share our know-how

Let's face it, most pressure retaining products, anywhere in the world are designed from materials derived from the same planet earth, and designed & manufactured using the same basic engineering processes. However, each country has its own standards, and global manufacturers do their best to respect the current diversity of international standards in this age of globalization. It can seem daunting to enter some markets, and Canada doesn't make it easy for manufacturers of pressure retaining equipment to enter its markets..

Because Canada regulates almost exclusively ASME code, and each province & territory have their own regulations, the Canadian Registration Number (CRN) system acts as a kind of non-tariff trade barrier to suppliers of pressure equipment who are not familiar with ASME code, or the CRN system.

A common misunderstanding is compliance to ASME requires re-design of pressure equipment. However, in most international code can be correlated to ASME without re-design. For over a decade TRG has helped global manufacturers of pressure equipment originally built to standards & codes other than ASME successfully obtain CRNs.

There is alot of information about CRN on the Internet. The fact is that CRN regulators have broad discretionary authority and individually interpret regulations, Codes & standards. Trying to document all interpretations on a webpage is a fool's errand.

That is why TRG provides tailored advice that hones in on the best solution to reduce the risk to entering, or remaining in the Canadian market!



Popular Questions answered about Canadian Registration Numbers (CRNs)

Why is a CRN required?

Licensed professional engineers experienced in the field of pressure equipment design who are not directly employed or authorized by a Canadian regulator may not approve the construction of regulated pressure equipment designs for use in Canada. In Canada non-exempt pressure equipment designs must have a valid Canadian Registration Number (CRN) in the province or territory of intended use to be legal for construction.

Who makes pressure equipment legal?

CRNs are issued exclusively by authorized safety authorities (regulators), or their designates, and are specific to a province & territory & consist of alphanumeric digits that are specific to whether the CRN is for a pressure vessel, boiler, piping system, or fitting. Prior to constructing any piping system design, all fittings relevant to the regulated pressure boundary that are intended for use in the design must also have

a CRN issued to the original equipment manufacturer (OEM).

What is a fitting?

In Canada a fitting is defined as a wide array of pressure appurtenances from elbows and tees, to sight glass, level and pressure measurement devices, strainers, small vessels, and the like.

Can anybody obtain a CRN?

Obtaining a CRN is not necessarily trivial. First, all the manufacturer requires, at minimum, a valid QA system that has been audited by a 3rd party acceptable to the safety authority in the province of application. Not all safety authorities accept all QA systems. ASME & ISO 9001 is the most widely accepted QA systems. In addition, depending upon

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...Can anybody obtain a CRN?

the code or standard to which a design is made, the application process can involve extensive destructive burst testing, finite element analysis, and/or code calculations in order to establish the pressure design safety. Responsibility for establishing pressure design safety rests with the applicant and regulators do not (and should not) conduct testing or calculation work. Notwithstanding regulatory specific guidelines, newsletters, director's orders, minister's orders etc, the *Technical Standards and Safety Act 2000*, province and territory specific Acts and regulations, and the *CSA B51 Boiler, Pressure Vessel and Pressure Piping Code* outline numerous details and exemptions from registration.

After obtaining a CRN for a design, are there other requirements?


After a CRN is obtained, the registered pressure equipment design may be constructed/supplied. A valid CRN on pressure equipment designs such as fittings, pressure vessels, piping systems or boiler design does not relieve the owner of the piping system, boiler or vessel construction from inspection requirements by the regulator in the province of use prior to commissioning. Where applicable, be sure that all CRNs are valid and that a fitting CRN will not expire prior to inspection, as fitting CRNs have a 10 year validity period, and only OEMs may register designs of piping system components. Furthermore, CRNs are not transferable to other provinces or territories, as each jurisdiction has its own regulation and therefore requires its own CRN specific to the province or territory of intended use.

Who are the regulators?

Although there are 13 distinct provinces and territories (regions) in Canada, there are 6 authorized safety authorities (regulators) covering all regions. These safety authorities include:

www.tssa.org (Ontario), www.absa.ca (Alberta), www.safetyauthority.ca (British Columbia), www.acicrn.com (Newfoundland, Nova Scotia, New Brunswick, Nunavut, Yukon, North West Territories, Prince Edward Island), www.firecomm.gov.mb.ca (Manitoba), www.csagroup.org (Saskatchewan, Quebec).

One complication to applying for a CRN is the formidable bureaucratic process, which differs with each regulator. Furthermore, within and between regulators, the interpretation of regulated code can vary, which increased the uncertainty of the success of an application and therefore increased the risk of doing business in Canada.

It is strongly recommended to seek the advice of TRG to ensure that the first application or renewal is done correctly (info@titanresearch.ca). Regular attendance of ASME codes and standards committees can also help to keep abreast of applicable code developments. 

ASME COMMITTEES



Attendance of code and standards committee meetings is one way to stay abreast of applicable code developments. Code committee meetings offer the opportunity to meet other industry players to discuss important technical issues or simply to clarify meaning behind code publications.

ASME Events:
<http://calendar.asme.org>

Participation in code committee and standards committee meetings is a fine way to meet leading industry experts, and to make a positive contribution to code and standards improvement. Furthermore, committees typically work on a consensus basis, requiring full agreement among members. This process is an excellent model in and outside of committee participation.

Some Safety Authority News

www.ABSA.ca – Alberta's pressure equipment regulator

In 2016 ABSA announced the launch of a web-based directory that allows anyone to look up the status of a vessel or fitting CRN online. We believe this to be a unilateral effort by ABSA to address communication backlogs on application status updates that have arisen due to high workloads within ABSA. The directory tool is in its infancy however certain data can be ascertained regarding status of an application including: searches for the ABSA tracking number, manufacturer name, CRN, fitting description and expiry, equipment category, registration type, drawing number and the like. Previously much of this information was confidential between the CRN applicant and ABSA where a 3rd party would typically require an

authorization by the applicant before ABSA released such data. The affects of this data being released to the public are not yet ascertainable, however this system is being touted as a positive development by ABSA. At the time of release of this newsletter, the current database field length limitations truncated information regarding scope of registration and other data that could lead to misinterpretation of the scope of registration of a particular CRN or CRN application. Time will tell how widely its reliability will be perceived by industry. The ABSA database can be found at www.absa.ca, under the Directories tab. It is recommended to examine the contents of the database and to notify ABSA of any errors or omissions. Currently the only other online database of its kind is

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ABSA (Alberta Boiler Safety Authority) is Alberta's pressure regulator responsible, among other things, for reviewing, accepting, and registering pressure equipment designs for Alberta

TRG TIPS: What is a *nationally recognized standard*?



It is easier to obtain a CRN for listed fittings; however, the standard must have pressure-temperature ratings

CSA B51-2014 "general requirements for boilers, pressure vessels, and pressure piping code" provides two paths to apply for a new fitting registration. One path is easier than the other. The *easier* path appears to be paragraph 4.2.8(a) that accepts registration applications for fittings built to a *nationally recognized standard* with no further requirement to submit justification of MAWP. Whereas paragraph 4.2.8 (b) addresses fittings not built to a *nationally recognized standard* and thus requires demonstration, either through calculation or testing, of the MAWP of the fittings intended for registration. But what is a *nationally recognized standard* interpreted to mean by the Canadian regulators who issue CRNs?

CSA B51-2014 doesn't really define what *nationally recognized standard* means. This has left it up to the regulators who issue CRNs to arrive at their own

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definition, which can vary from one regulator to another. As a result, paragraph 4.2.8 (a) definition of *nationally recognized standard* is generally interpreted to incorporate the applicable ASME Code definitions of acceptable standards, and is widely regarded, albeit not uniformly regarded, as synonymous with “Listed” standards. To avoid unpleasant surprises, prior to making a CRN application for a fitting designed to a *nationally recognized standard* under paragraph 4.2.8 (a) it is important to understand how ASME B31.3, ASME B31.1 and ASME section VIII, div. 1 code define “Listed” and “Unlisted” standards.

Generally a pressure component built to a “listed” standard is found in a tabular reference within the applicable Code, such as ASME B31.3 table 326.1, ASME B31.1 table 126.1 or ASME Section VIII, Div. 1 UG-44. For example, ASME B31.3 paragraph 303 states: “Components manufactured in accordance with standards listed in Table 326.1 shall be considered suitable for use at pressure-temperature ratings in accordance with para. 302.2.1...” where paragraph 302.2.1 states: “Listed components having established ratings. Except as limited elsewhere in the Code, pressure-temperature ratings contained in standards for piping components listed in Table 326.1 are acceptable for design pressures and temperatures in accordance with this Code”. The above wording is more or less the same in Section VIII, Div. 1, UG-44 and in B31.1 para. 104.7.1 where B31.1 instead places more emphasis on the governance of restrictions of B31.1 requirements of pressure components listed in table 126.1, and do not use the terminology of “listed” vs. “unlisted”, referring to “unlisted” components as “specially designed components”.

In other words, the terminology *nationally recognized standard* is interpreted by many Canadian regulators who issue CRNs as synonymous with “listed” standards per the applicable Code of construction. Generally it could be stated that when a pressure component is built to a *nationally recognized standard*, it is considered “listed”, and

when not built to a *nationally recognized standard* it is considered “unlisted”. Unlisted components are also defined in B31.3, B31 & Section VIII, Div. 1 and within these codes the applicable paragraphs guide the user as to the means of determining the MAWP of an “unlisted” component, which can involve calculations, burst testing, finite element analysis, and the like as applicable.

Be aware that it is important to recognize that where a “listed” standard such as ASME B16.5 lists dimensions, materials of construction, and pressure-temperature ratings, a flange built to B16.5 is “listed” and therefore a CRN application may be made per CSA B51 para. 4.2.8 (a). However, if a pressure component is built to a “listed” standard such as ASME B16.9 or B16.11 (to name only two of several such examples), both of which do not specify pressure-temperature ratings in the standard, relief from providing calculations, and/or test results may not be afforded by the Canadian regulator and the application may be treated identically to that of a pressure component built to an “unlisted” standard per CSA B51 – 2014 para. 4.2.8 (b).

It should finally be noted that in B31.3 (para. 304.7.2 (a)) and B31.1 (para. 104.7.2(A)) pressure design of “unlisted” or specially designed components may be established by extensive, successful service experience under comparable conditions. However, Canadian regulators do not accept this criterion as a means of establishing pressure design to regulated Code. Why? Many reasons have been given, such as the regulator’s desire to ensure Code updates are respected, but the bottom line is that a fitting registration has a 10-year expiry and successful service life does not.

It is also important to note that in Canada, CSA B51 is treated as a Code, despite it referring to itself as a standard in its own text. The difference between a Code and a Standard is that a Code is a standard that is enforceable by law, whereas a standard is voluntary and outlines technical definitions & guidelines that act as instruction to designers, manufacturers, users or operators of equipment.

Contact us at info@titanresearch.ca for more information. 

...TRG TIPS: Some Safety Authority News

maintained by ACI Central at their website (www.acicrn.com). The ACI Central database contains CRN data similar to that of ABSA's database for Maritime provinces and territories.

www.TSSA.org – Ontario's regulator

This summer TSSA moved to a new address:

Technical Standards & Safety Authority, 345 Carlingview Drive, Toronto, ON M9W 6N9

None of TSSA's online CRN application forms have been updated at the time of issue of this newsletter, and many customers found out about the address change by courier parcels being returned when sent to the old address. It is a good idea to check in with www.TSSA.org for form changes in order to avoid rejection at the application phase once TSSA gets around to updating its address on all of its documentation.

www.safetyauthority.ca - BC & <http://tinyurl.com/hwjbwy3> Saskatchewan regulator

In British Columbia and Saskatchewan category A, B, C & G fittings are exempt from registration. However, it is important to note that since 2013 BC further clarified that this exemption pertains only category A, B, C & G fittings that are 'listed' (see discussion in this newsletter about *nationally recognized standards*). Saskatchewan, whose registrar of CRNs is CSA, has not

made such clarification to date.

www.acicrn.com – Maritime and territory regulator

For some time application requirements for a design registration at ACI Central have required that a purchase order be placed before ACI will commence with application review. The amount to put onto the PO is not clear on ACI Central's website, and when ACI Central is asked the amount, it often does not match up with the actual billed amount in the final invoice from ACI Central. This can wreak havoc for applicants who are accustomed to placing a PO against a firm amount. Be sure to consult with ACI Central prior to placing your PO. For insider's information about avoiding unnecessary billing, consult us at

info@titanresearch.ca.

www.firecomm.gov.mb.ca - Manitoba's regulator

Up until 2012 CSA International handled design registrations for Manitoba, however, Manitoba broke away from CSA and began processing its own design registrations in 2012. However, staffing levels at Manitoba do not seem to have ramped up to the demand. As a consequence, Manitoba is currently one of the slowest safety authorities to complete a design review. Allow at least 2 months for a review to be completed.



Canada has 13 provinces + territories who are regulated by 6 safety authorities

www.csagroup.org – Saskatchewan & Quebec regulator

CSA Group registers designs on behalf of Saskatchewan (www.tsask.ca) & Quebec (<https://www.rbq.gouv.qc.ca/en/pressure-vessels/the-rbq-and-pressure-vessels/regulations-and-vessels-covered.html>). CSA has not developed in-house ASME Code review capabilities, and has subcontracted its CRN review authority to a private engineering company. A CSA mark is not a CRN approval! It is important to note that CSA closely follows www.TSSA.org guidelines for registration of fittings in its evaluation of design applications even though it is the review authority for Saskatchewan and Quebec whose requirements differs somewhat from Ontario's. Contact us for more insight into this subject at

info@titanresearch.ca