



RAE

PRESSURE EQUIPMENT
REGULATION IN
WESTERN CANADA –
Practice, Tips and Tricks

Overview

- Talking about Pressure Vessels, Pressure Pipe, Pipelines and Tanks
- Pressure equipment laws in Western Canada
- Who the regulators are by province and their personalities
- What you need to do to satisfy the regulators.

HISTORY

- **Boiler safety laws from 1897 predating the Province of Alberta**
- **Among the first public safety laws**
- **Laws are reverse onus**
 - **Owner must prove compliance**
 - **Owners have ultimate responsibility you cannot pass this responsibility to the regulators**
- **Before 911 the biggest peacetime loss of life accident in the U.S. was a boiler accident**
- **Laws work so well accidents are rare but significant**

Pressure Equipment is anything that contains an expansible fluid above 15 psi

- **Pressure Vessels - ASME Code**
- **Pressure Pipe – ASME B31.3 Code**
- **Pipelines – CSA Z662**
- **Tanks – below 15 psi, not pressure equipment but included because they are treated similarly**

This is the law!

Provincial Acts

Regulations Under the Acts

**Powers delegated to Regulators
ASBA, ERCB
Directives and requirements**

**Technical Publications
API, NB etc.**

Adopted
Codes and
Standards
CSA,
ASME

Codes and standards

- **ASME** American standard referred to in regs
 - Sections 1 and 4 boilers
 - Section 8 Pressure vessels
 - B31.3 pressure piping
- **CSA** Above ASME in Canadian regs
 - Usually says this is what is different in Canada, go look in ASME for the rest
 - Z662 Pipeline Code
 -
- **API** Not usually quoted in the regs, sometimes used by regulators

Trick

- **Regulators must follow the law. They cannot change the law and they cannot issue get out of jail free cards**
- **Generally the law allows regulators to choose to adopt non-mandatory appendices and code cases**

When Codes and Standards overlap

- Codes are stand alone and there is lots of overlap
- Sometimes an owner has choices
- Sometimes the regulator decides for you
- ERCB and ABSA defined limits of jurisdiction between Z662 pipelines and B31.3 Pressure piping. Located on both websites are diagrams about where code starts and stops

Trick

- Use the ABSA / ERCB guidelines in other provinces.
- The make sense and are a defensible position
- BC is making its own guidelines but Alberta took 2 years, and they got along. Result should be similar.

Who are the regulators In Alberta?

- **ABSA**
- **Success story from '80's privatization. Respected around the world as one of the best jurisdictions**
- **No one is perfect but recognized as a leader among pressure equipment regulators**

What does ABSA Want?

- The most of all these regulators.
- ALL, owners of pressure equipment are required to have an Integrity Management system.
- A defined and functioning system of how the owner will meet the responsibilities defined under the law.

Integrity Management Systems

- ABSA is the leader in requiring Integrity Management Systems but all these regulators are moving towards the ABSA model
- Part of ASME code and Part of Z662 Pipeline code
- Just having a manual is not longer good enough
- Small owner small plan. Big owner = Owner User Programs

Integrity management systems ensure

- ALL pressure systems are **designed by qualified persons** and **registered** with the regulator
- ALL pressure systems are **protected** by proper devices
- ALL pressure systems are **built** by approved contractors
- ALL pressure systems are **operated** by competent operating personnel
- ALL pressure systems are **modified** according to set process
- All required records are kept
- Owner must understand and demonstrate compliance

Integrity Management Systems for Pipelines and Tanks

- **Required for Pipelines in Z662, in force in all provinces. Saskatchewan defines pipeline differently.**
- **Tanks do not have a code requirement for an Integrity management System. But ERCB is rewriting directive 55.**

Who are the regulators in Alberta?

- **ERCB**
- **Well run jurisdiction**
- **What does the ERCB want from you?**
- **10 years ago they wanted a manual**
- **Now they want to see records of your Integrity activities**
- **Presently making plans to begin ABSA style auditing of your program**

Who are the regulators In Saskatchewan?

- **Saskatchewan boilers branch for pressure equipment**
 - Recognize the success of the ABSA model and are moving in a similar, not exact direction
 - Have optional owner user programs
 - Hampered by outside political philosophies

Trick

- Saskatchewan is heading to about where Alberta is in pressure vessel regulation. Extend your Alberta program across the border and deal with the differences. Their Inspectors are busy and if you can demonstrate a well run program to them they will put their attention elsewhere.

Who are the regulators In Saskatchewan?

- **Pipelines. Ministry of Energy and Resources. Not regulating flow lines as pipelines has created a mess. I believe the Public will demand accountability from owners.**

Trick

- **Extend your Alberta Pipeline Integrity Program into Saskatchewan. Z662 is a Canadian code and eventually it will prevail in Saskatchewan.**
- **Public opinion will drive change**

Who are the regulators In British Columbia?

- **British Columbia Safety Authority
BCSA for Pressure Equipment**
 - Recognize the success of the ABSA model and are trying to move in a similar, not exact direction. Privatization has hurt them when dealing with other regulators.

Trick

- BCSA is trying to head to about where Alberta is in pressure vessel regulation. Extend your Alberta program across the border and deal with the differences. Their inspectors are busy and if you can demonstrate a well run program to them they will put their attention elsewhere.

Who are the regulators In British Columbia?

- **OGC.**
- **Regulator has grown quickly in size and importance.**
- **Characteristics of a young regulator.**
- **Have begun Auditing Pipeline Integrity Management Systems.**

Trick

- For Pipelines and Tanks OGC is heading to about where Alberta is. Extend your Alberta program across the border and deal with the differences.

Who are the regulators In British Columbia?

- **Workplace B.C. – enforcing Pressure relief regulations.**
- **Pressure relief devices required on all pressurized vessels and systems**
- **Requiring flare PSV's on flare systems**

Trick

- **Avoid the cost of adding PSV's to you flare knock out drums by changing designs and seeking variances.**

British Columbia regulatory climate

- **An industry integrity group tried to get BCSC and OGC to talk. Could not even get them in a room together.**
- **Letters sent without response.**
- **Now there is a letter of agreement so that OGC inspectors are enforcing BCSC regs**

Design

- Pressure Vessels designers must be competent.
- Designs must be registered by Province. New or used.
- Proven by a CRN Canadian Registration Number. Stamped on Nameplate.
- Pressure Piping designers must be Engineers.
- You must submit designs over 0.5 M3 New or used.

Trick

- **Common expensive mistake is buying used or new out of Province equipment without investigating if it can be used in the jurisdiction**
- **Watch out for bargains in the USA or overseas.**
- **Can be done but requires expert diligence. Check with Jurisdiction before hand.**
- **Get CRN's for all 3 provinces**

Trick – Made in the USA

- **New Compressor coolers and plant air skids commonly come from the U.S. without proper design registration. Then us Integrity guys spend a whack of your time and money getting the paperwork right before you can start your plant.**
- **Make CRN's and registration in all three Provinces part of the contract.**

Trick

- **Employing third party inspectors in pressure vessel shops helps ensure quality on your vessel.**
- **Also gives you independent estimates of completion**

Trick – Boilers and Power Engineers

- A power boiler requires continuous 24 hour coverage by a ticketed operator.
- If you boil Amine you have a power boiler.
- There are lots of these running grey. Don't take ABSA there for a site audit.
- Laws are changing . Wait.

Trick

- **Low Temperature Pipe is regular pipe with extra testing. It is chemically exact and comes from the same heats at the mill. In the '70 when made in Texas vessels shattered in Alaska ASME introduced new code and steel manufactures started making better product. Brittle fracture due to cold atmosphere is now rare and in my opinion the risk does not justify the cost.**

Trick

- Underground tanks
- From an Integrity point of view these are a bad idea. They are still getting built because they are cheaper than raising the flare header.
- I believe the regulatory and environmental climate will not allow these shortly.