Alberta Municipal Affairs

ABSA
the pressure equipment safety authority

Information Bulletin No. IB15-013 (**WITHDRAWN** - 2016 July) November 10, 2015

Fuel Gas Pressure Piping in Plants

This information bulletin is a notification that Alberta Municipal Affairs, Safety Services has issued an updated STANDATA, *G-03-11-ABSA [Rev1]*, *Fuel Gas Pressure Piping in Plants* (**see a full copy at the end of this Information Bulletin**). The STANDATA clarifies the roles of the authorities having jurisdiction. There is a difference in requirements for plants that operate with an Integrity Management System Certificate of Authorization Permit (Owner-User) under PESR Section 11(3) versus plants that are not managed under a Certificate of Authorization Permit.

Gas piping used for fuel purposes is regulated under the *Gas Code Regulation* and is exempt from the *Pressure Equipment Safety Regulation*. Gas Safety administers the *Gas Code Regulation* and ABSA administers the *Pressure Equipment Safety Regulation* (PESR). In plants, gas piping may supply both process and fuel burning purposes. The portion of the gas piping that conveys fuel gas to fuel burning appliances is regulated by the *Gas Code Regulation*. The gas piping for process is regulated by the PESR.

The STANDATA establishes that for Owner-User plants, fuel gas piping for pressure exceeding 15 psi (103 kPa) shall be designed and constructed as pressure piping in accordance with the PESR. Design registration, construction, modification, and repair or alteration must be in compliance with the PESR.

The STANDATA establishes that for non Owner-User plants, all of the gas piping that conveys fuel gas to fuel burning appliances must be constructed in accordance with the *Gas Code Regulation*.

Refer to STANDATA G-03-11-ABSA [Rev1] for specific details.

Superseded by IB16-011 Rev.1

<original signed by>

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Administrator, Province of Alberta Pressure Equipment Safety
Chief Inspector, ABSA the pressure equipment safety authority

GAS SAFETY
Information Bulletin

STANDATA

October 2015

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SUBJECT: Fuel Gas Pressure Piping in Plants

TO: All Accredited Inspection Authorities, Safety Codes Council, Gas Utilities, Federation of Alberta Gas Co-ops, Canadian Propane Association (CPA) Members, Propane Suppliers, Commercial and Industrial facilities as well as Gasfitters/installers.

This bulletin has been jointly developed by Safety Services, the Pressure Equipment Sub-Council, the Alberta Boilers Safety Association (ABSA) and the Gas Sub-Council to inform industry of the requirements associated with the installation of fuel gas pressure piping in Alberta.

The purpose of this Information Bulletin is to ensure that **Designers** and **Installers** are aware of the provisions for fuel gas service pressure piping above and below **15 psi (103 kPa)** and of the necessary engagement with the authorities having jurisdiction before designs are finalized and the work proceeds.

This STANDATA establishes 15 psi (103 kPa) pressure as the specification break point between the *Gas Code Regulation (AR 111/2010)* and the *Pressure Equipment Safety Regulation* (*AR 49/2006)* for piping in fuel gas service installed at **Owner-user** facilities:

- Fuel gas piping for pressure not exceeding 15 psi (103 kPa) shall be designed and constructed in accordance with the *Gas Code Regulation*
- Fuel gas piping for pressure exceeding 15 psi (103 kPa) shall be designed and constructed as "pressure piping" in accordance with the *Pressure Equipment Safety Regulation.*

All fuel gas piping systems shall be permitted and meet the requirements of the Gas Code Regulation, except the portion of the Fuel gas piping that is approved as part of the process piping at an Owner-user facility.

The CSA B149.1 *Natural Gas and Propane Installation Code* addresses all piping systems that conveys fuel gas to fuel burning appliances, at all pressure levels.

The Pressure Equipment Safety Regulation under the *Safety Codes Act* adopts certain *ASME B31 Piping Codes and the CSA B51* Boiler, pressure vessel, and pressure piping code. The *Pressure Equipment Safety Regulation* addresses "pressure piping" (as defined below). However, fuel gas piping used for fuel purposes regulated under the *Gas Code Regulation* is specifically exempt from the *Pressure Equipment Safety Regulation.*

The *Pressure Equipment Safety Regulation* does not apply to:

(a) a pressure piping system operating at and with relief valves set at 103 kPa (15 psig) or less;
(b) piping systems used to convey gas exclusively for fuel purposes and that is subject to the Gas Code Regulation.

Administration of the *Pressure Equipment Safety Regulation* has been delegated to ABSA. In the *Pressure Equipment Safety Regulation*, the following definitions apply to the design and construction of a pressure piping system:

"Pressure Piping System" means pipe, tubes, conduits, fittings, gaskets, bolting and other components that make up a system for the conveyance of an expansible fluid under pressure and may also control the flow of that fluid.

"Expansible Fluid" means

(i) a vapour or gaseous fluid, or
(ii) a liquid under pressure and at a temperature at which the liquid changes to a gas or vapour when the pressure is reduced to atmospheric pressure or when the temperature is increased to ambient temperature.

In this document the term

"Owner-user" means an owner of pressure equipment that has provided an Integrity Management System in accordance with the *Pressure Equipment Safety Regulation* and has been issued a quality management system Certificate of Authorization Permit under PESR section 11(3).

"***Fuel Gas"*** means any of the following gases or mixtures of gases; natural gas, manufactured gas, or mixtures of propane gas and air, propane, propylene, butanes (normal butane or isobutane), and butylene. And includes manufactured gas such as hydrogen, raw gas, well head gas, process generated gas and may include sweet, sour or wet applications.

The *Gas Code Regulation* adopted the CSA-B149.1-2010, *Natural Gas and Propane Installation Code*. This code applies to the installation of piping and tubing systems, appliances, equipment, components, venting and accessories where **gas** is to be used for **fuel purposes**, but does not cover piping or tubing where the gas is used as feedstock or process gas.

Installations using manufactured gas (as defined above) shall meet the intent of the Gas Code Regulation by utilizing appliances that are certified or approved as indicated under the options within the Gas Code Regulation and through the Province-wide variance (Var-Gas-01-13). Hydrogen gas as a fuel is currently addressed as an extension of a B149.1 permitted installation that would address the installation of the piping. Such installations may be considered for compliance under complex project provisions requiring the engineer of record to integrate the CAN/BNQ 1784-000 Canadian hydrogen code into the design package.

Permitting requirements under both Gas & Pressure Equipment Disciplines

The Permit Regulation, (*AR 204/2007)*, under the *Safety Codes Act*, indicates that a permit, for a gas installation that is under the gas discipline, is required:

"12(1) A permit in the gas discipline is required to install, alter or add to a gas system."

Work performed on piping under the jurisdiction of the *Gas Code Regulation* must be done by certified gas fitters.

Work performed under the jurisdiction of the *Pressure Equipment Safety Regulation* shall follow the requirements outlined therein and in accordance with ABSA document AB-518.

Fuel gas piping systems at owner-user plant sites.

1. Fuel gas piping systems installed at owner-user facilities having a design pressure in excess of 15 psi(103 kPa) shall be deemed pressure piping and subject to the *Pressure Equipment Safety Regulation* and shall be included in the design registration of the pressure piping system for the facility.
2. The construction, modification, repair or alteration of a fuel piping system referenced in point 1 above shall be performed by the holder of a quality management system certificate of authorization permit and in full compliance with the *Pressure Equipment Safety Regulation*.
3. The construction inspection of the piping upstream of the appliance isolation valve and/or the pressure regulator shall be carried out by an owner's inspector in accordance with the code of construction and documented on an ABSA form AB-83 *Piping Construction and Test Data Report.*
4. The installation inspection of the piping system appliance isolation valve and/or pressure regulator will be carried out by a gas safety codes officer under the *Gas Code Regulation*. The required gas permit will also cover the installation of the gas-fired appliance and the final piping where gas is used for fuel purposes.

   Installation inspection carried out under *Gas Safety Regulation* shall include:
   - Verification from the owner or contractor that the upstream pressure piping system has been registered with ABSA;
   - Verification the AB-83 form has been completed and signed off by the owner's inspector.
   - Installer qualifications (gasfitter) respecting the type of installation permitted;
   - Piping and tubing systems (verifying size, schedule, capacity, supports, etc.);
   - Pressure regulators and line relief devices (verifying working pressures, capacities, venting to a safe location outdoors);
   - Appliances (verifying certification, approvals for Alberta, clearances, protection, venting systems and air supply);
   - For underground piping and tubing (verifying burial depth, routings away from buildings, sleeves on riser passing through concrete/pavement, use of swing joint on entry to buildings, etc.)
   - Odorization as required in CSA Z662 (when process gas is utilized for fuel purposes); and
   - Other inspection items associated with B149 Codes and referenced standards.

Fuel gas piping systems at all other plant sites not managed by an Owner-user.

1. Fuel gas piping systems installed at all design pressures shall be deemed fuel gas piping and subject to the *Gas Code Regulation*.

2. The construction, modification, repair or alteration of a fuel gas piping system reference in point 1 above shall be performed by a holder of an appropriate trade certificate of competency and in full compliance with the trade regulations under *Alberta Innovation and Advanced Education / Apprenticeship and Industry Training (AIT).*
3. The installation inspection of the piping system including appliances, isolation valve and/or pressure regulator will be carried out by a gas safety codes officer under the *Gas Code Regulation*. The required gas permit will cover the installation of the gas-fired appliance and the final piping where gas is used for fuel purposes.

   Installation inspection carried out under *Gas Safety Regulation* shall include:
   - Verification from the owner or contractor that the pressure piping system (if applicable) has been registered with ABSA;
   - Installer qualifications (gasfitter) respecting the type of installation permitted;
   - Piping and tubing systems (size, schedule, capacity, supports, etc.);
   - Pressure regulators and line relief devices (working pressures, capacities, venting to a safe location outdoors);
   - Appliances (certification, approvals for Alberta, clearances, protection, venting systems and air supply);
   - For underground piping and tubing (burial depth, not permitted under building, sleeves on riser passing through concrete/pavement, swing joint on entry to buildings, etc.)
   - Odorization or equivalent (when process gas is utilized for fuel purposes); and
   - Other inspection items associated with B149 Codes and referenced standards

A natural gas service and meter upstream of a gas distribution system on a plant site shall be in accordance with the *Pipeline Act,* or the *Oil and Gas Conservation Act* as appropriate including regulations and referenced codes/standards.

Anyone concerned about the status of a fuel gas piping system or a pressure piping system could contact Alberta Municipal Affairs, Safety Services office, visit the Web site, www.municipalaffairs.alberta.ca/cp_index.cfm, contact the local ABSA office or visit ABSA Web site, http://www.absa.ca for further information.

[Original Signed]
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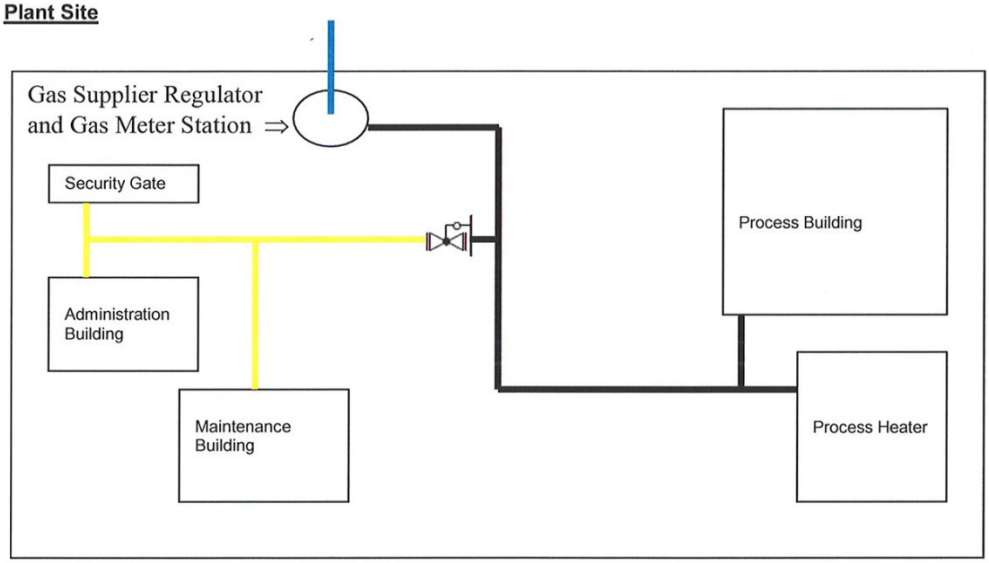
Administrator and Chief Inspector
Pressure Equipment Safety (ABSA)

[Original Signed]
Sidney Manning
Chief Administrator/Inspector
Plumbing and Gas (AMA)

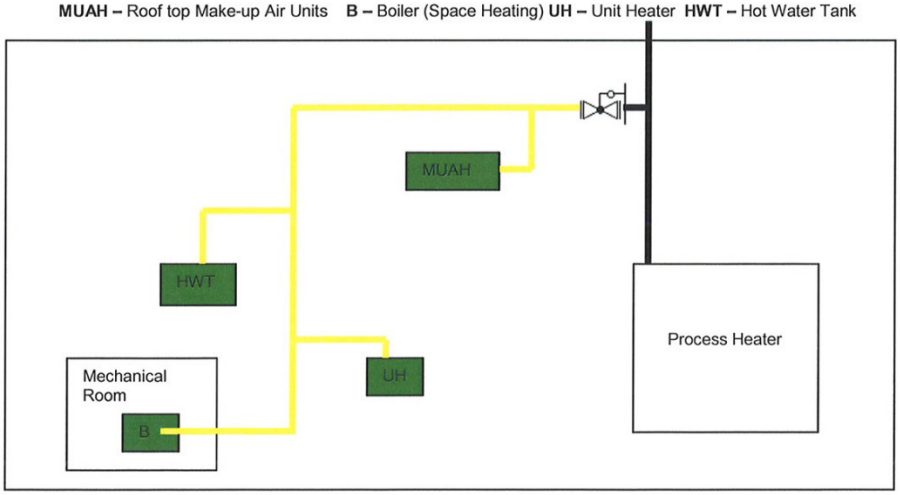
Gas Supplier Distribution line		(Alberta Resource Development, Rural Utilities Branch)
Process Distribution		ABSA – Registered Pressure piping system
Fuel Distribution		Gas Safety / ABSA Registered for Owner-User if pressure >15psi
Appliance (Certified / Uncertified)		Gas Safety

Plant Site

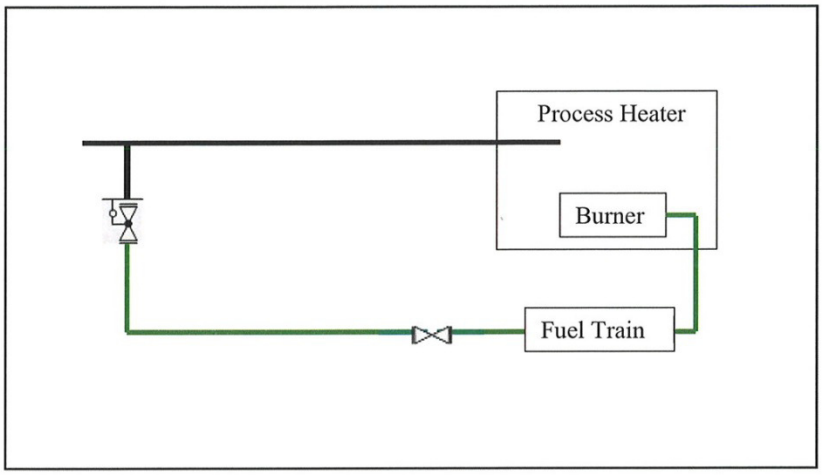


Process Building

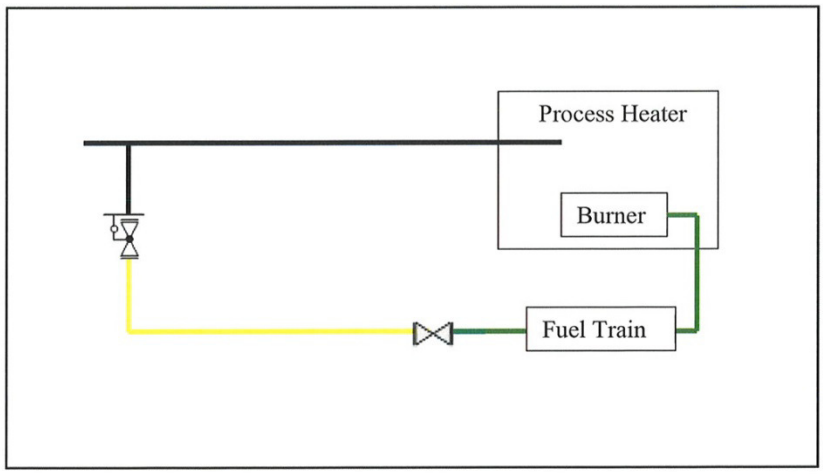
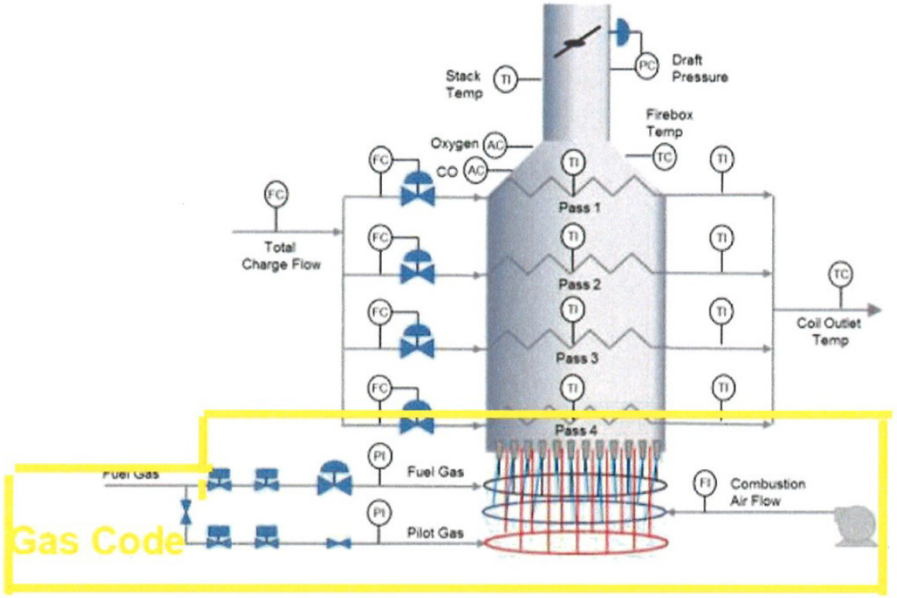
MUAH – Roof top Make-up Air Units **B –** Boiler (Space Heating) **UH –** Unit Heater **HWT –** Hot Water Tank



Process Equipment



Process Equipment Owner-User Over 15 PSI



Process Heater