

**THE SASKATCHEWAN  
CODES OF PRACTICE  
GAS INSTALLATION SUPPLEMENT  
CSA-B149.3 - 15  
CODE FOR THE FIELD APPROVAL  
OF FUEL-RELATED COMPONENTS  
ON APPLIANCES AND EQUIPMENT**



January 1, 2016



# CONTENTS

The following clauses have been amended, noted, explained or added and is a supplement to the B149.3 Field Approval of Fuel-Related Components on Appliances and Equipment

	<u>PAGE</u>
<b>SECTION 4 Pilot gas valve train</b>	
4.5.4.1 Safety shut-off valves ( <i>oilfield</i> ).....	Added 1
4.8.1 Safety flare pilots (Annex E mandatory).....	Added 1
<b>SECTION 5 Main gas valve train</b>	
5.3.1 Safety shut-off valves ( <i>combination controls</i> ) ..	Amended 1
5.3.4 Safety shut-off valves ( <i>combination controls</i> ) ..	Amended 1
5.3.5 Safety shut-off valves ( <i>combination controls</i> ) ..	Amended 1
5.7.2.1 Overpressure Protection Devices ( <i>regulation</i> ) ..	Added 2
5.7.3.1 Overpressure Protection Devices ( <i>token</i> ) .....	Added 2
<b>SECTION 6 Additional requirements for liquid propane valve trains</b>	
6.1.1 Schedule 80 piping fittings .....	Added 2
<b>SECTION 7 Applications</b>	
7.2.1 Unions and flanges.....	Added 2
7.6.10.1 Bleed vents for valves, combination controls, pressure regulators, relief vents and other control devices. ( <i>by-passing safety devices</i> ) .....	Added 2
9.4.1.1 Temperature & pressure safety limit controls....	Added 2
9.5.1.1 High Gas pressure safety limit control.....	Added 3
9.5.1.2 High Gas pressure safety limit control.....	Added 3
9.5.2.1 Low Gas pressure safety limit control.....	Added 3
9.5.2.2 Low Gas pressure safety limit control.....	Added 3
9.5.3.1 Multi-fuel pilot protection.....	Added 3
9.5.3.2 Low Gas pressure pilot protection.....	Added 3

## **4 Pilot gas valve train**

### **4.5 Safety shut-off valves**

**4.5.4.1** All oilfield appliances approved under the Saskatchewan Field Approvals Program having a pilot train with an input up to and including 20 000 Btuh (120 kW) shall be equipped with safety shut-off valves in accordance with clause 4.5.3 (b), or clause 4.5.4.

### **4.8 Safety flare pilots**

**4.8.1** Annex E is adopted in Saskatchewan as mandatory requirements for flare pilot systems in accordance with clause 4.8.

## **5 Main gas valve train**

### **5.3 Safety shut-off valves**

**5.3.1** In order for clause 5.3.1 to align with clause 8.3.2, clause 5.3.1 is amended to read:

A safety shut-off valve shall

(a) for capacities up to and including **400 000** Btuh, be certified in accordance with ANSI Z21.78/CSA 6.20, CGA 3.9, or ANSI Z21.21/CSA 6.5 or CSA CAN1-6.4 or ANSI Z21.20/CAN/CSA-C22.2 No. 60730-2-5;

(b) for capacities in excess of **400 000** Btuh, be certified in accordance with CGA 3.9 or ANSI Z21.21/CSA 6.5;

**5.3.4** In order for clause 5.3.4 to align with clause 8.3.2, clause 5.3.4 is amended to read:

A single burner appliance that has a rated input up to and including **400 000** Btuh (60 kW) and having an inlet pressure not in excess of 0.5 psig (3.5 kPa) shall

(a) be equipped with two safety shut-off valves piped in series and wired in parallel and certified in accordance with ANSI Z21.21/CSA 6.5;

(b) be equipped with one safety shut-off valve certified in accordance with ANSI Z21.21/CSA 6.5 and marked C/I, or certified in accordance with CGA 3.9; or

(c) be part of a circuit controlled by either a combination control certified to ANSI Z21.78/CSA 6.20 or by a thermocouple-type combustion safeguard certified to CSA CAN1-6.4 or ANSI Z21.20/CAN/CSA-C22.2 No. 60730-2-5, or both.

**5.3.5** In order for clause 5.3.1 to align with clause 8.3.2, clause 5.3.1 is amended to read:

A single burner appliance that has a rated input in excess of **400 000** Btuh (60 kW) and up to and including 5 000 000 Btuh (1500 kW) or having an inlet pressure of greater than 0.5 psig (3.5 kPa) shall be equipped with at least

(a) two safety shut-off valves in series; or

(b) one safety shut-off valve equipped with a proof of closure switch that is connected into the start-up circuit of the combustion safety control.

## **5.7 Overpressure protection devices**

**5.7.2.1** Overpressure protection on an unmanned oilfield installation shall be provided by any one of the following:

- (a) pressure relief valve;
- (b) overpressure cut-off device.

**5.7.3.1** A token relief valve shall not be used as a full capacity relief valve.

## **6 Additional requirements for liquid propane valve train**

**6.1.1** All fittings on schedule 80 valve train systems shall be minimum Class 300.

## **7.2 Unions and flanges**

**7.2.1** A raised-face flange shall connect to a raised-face flange. A flat-faced flange shall connect to a flat-faced flange.

## **7.6 Bleed vents for valves, combination controls, pressure regulators, relief vents and other control devices**

**7.6.10.1** An exception to clause 7.6.10 is where burners are required to operate constantly, then lock-off type manual valves to isolate safety limits may be installed for servicing, maintenance or testing purposes. A documented work procedure acceptable to the SaskPower Gas Inspections shall be followed during use of such isolation valves. Under no circumstances are relief valves to be isolated.

## **9.4 Temperature and pressure safety limit controls**

**9.4.1.1** In oilfield facility applications, tank heaters that are mounted in tanks which are not equipped with a visual tank level indicator, shall be controlled with an operational low liquid safety device, the function of which is to shut off the fuel supply upon low level and enable the fuel supply when the level is regained. This operational low liquid safety device shall be installed at a level above the low liquid level safety device required in 9.4.1(a) which requires a manual-reset before resuming operation.

## **9.5 Gas pressure safety limit control**

**9.5.1.1** In oilfield applications, the high gas pressure safety device required in 9.5.1 shall be installed and shall initiate shut-off of the supply of gas if the pressure at the point of connection exceeds the highest normal operating pressure by more than 25%. The device shall be installed

- (a) downstream of the safety shut-off valve(s); or
- (b) downstream of the multifunctional control.

**9.5.1.2** In oilfield applications, where all components on the manifold are rated above the working gas pressure, tank heaters rated up to 1 million btuh, at remote single wellhead battery sites only, a high gas pressure safety device is not required.

**9.5.2.1** In oilfield applications, the low gas pressure safety device required in 9.5.2 shall be installed per 9.5.2 (a), or

- (b) upstream of the multifunctional control.

**9.5.2.2** In oilfield applications, once confirmed through a combustion analysis that the burner design at full turndown does not result in the formation of carbon, tank heaters rated up to 1 million btuh, at remote single wellhead battery sites only, do not require a low gas pressure safety device.

**9.5.3.1** When propane is one of the fuels used on a multi-fuel appliance, a check valve shall be installed to restrict the flow of any other gas into the propane piping from the propane container.

**9.5.3.2** In oilfield applications, tank heaters rated up to 1 million btuh, at remote single wellhead battery sites only, which do not require a low gas pressure safety device on the main burner per Saskatchewan Code of Practice 9.5.2.2, do not require a low gas pressure safety device on a multi-fuel pilot.

