

Compressed Natural Gas (CNG) Refuelling Station Application Supporting Documents

- 1) Provide P&ID and PFD that is stamped by an Ontario Professional Engineer.

- 2) Provide Bill of Materials for all pressure carrying piping and components that is stamped by an Ontario Professional Engineer that includes the following:
 - a. Component name
 - b. Make
 - c. Manufacturer
 - d. Model
 - e. Material Specifications
 - f. Pressure rating
 - g. Temperature rating range for the pressure rating
 - h. Service fluid
 - i. Certification and CRN for all components, fittings, valves, and equipment

- 3) Describe the scope of this application. This should show the start and end points. Please show this in a diagram.

- 4) Confirm that all fittings, components, and valves have CRN.

- 5) Is the piping within the scope of this application above ground or buried?

- 6) Is the piping within the scope of this application located outdoors or indoors?

- 7) Describe how all the above ground piping are protected from external corrosion by a suitable coating.

- 8) Describe how all the above ground piping are protected from damage from external sources.

- 9) Describe how all the above ground piping are supported and anchored as required by ASME B31.1, ASME B31.3, CSA Standard Z662 or by other code acceptable to TSSA.

- 10) Describe how all buried piping are coated, cathodically protected, and monitored in accordance with CSA Standard Z662.

- 11) Where is the over pressure protection device located and does it have category G CRN as required by section 2.4 (f) of the High Pressure Piping Code TSSA-HPP-2020?
- 12) What is the set point of the over pressure protection devices?
- 13) What are the lines sizes of the piping system within the scope of this application?
- 14) What is the approximate length of each line in the piping system?
- 15) What fuel is carried in the piping system within the scope of this application?
- 16) What are the design codes for the piping system within the scope of this application?
- 17) What is the design pressure of the piping system within the scope of this application?
- 18) What is the design temperature range of the piping system where the design pressure and test pressure fall within?
- 19) What is the lowest temperature of the fuel carried by this high pressure piping system during service?
- 20) What is the highest temperature of the fuel carried by this high pressure piping during service?
- 21) Is any piping within the scope of this application insulated?
- 22) What is the ambient temperature of the environment where the high-pressure piping within the scope of this application operates?
- 23) What is the test pressure of the piping system within the scope of this application?
- 24) What is the test medium of the piping system within the scope of this application?
- 25) What is the test duration of the piping system within the scope of this application?
- 26) Describe what the joint types are.

- 27) Confirm that all above ground connections are welded, threaded, compression fitting joined or flanged.
- 28) Confirm that there are no flared connections for above ground joints.
- 29) Are there any butt welded joints within the scope of this application?
- 30) Confirm that all buried piping connections are welded.
- 31) Confirm that all buried stainless steel tubing shall comply with the following:
- a) Buried stainless steel tubing shall be run inside at least one layer of casing. The casing used shall be watertight, joined to provide a continuous moisture barrier, and approved for direct burial.
 - b) Stainless steel tubing shall be of one continuous run or joined by welding.
 - c) The casing shall:
 - i) be vented at both ends, in a manner that prevents the ingress of dirt, moisture, insects, and vermin;
and
 - ii) allow for the passage of the stainless-steel tube in a manner that prevents the ingress of dirt and moisture.
- 32) What non-destructive examination methods will be used for all the joints?
- 33) Is the entire piping system being pressure tested together as one assembly or are sections tested separately?
- 34) Hydrostatic pressure testing is preferred to pneumatic pressure testing. If you cannot conduct hydrostatic testing, please provide a rationale why you cannot conduct the pressure test hydrostatically.
- 35) If you plan to conduct pneumatic pressure testing, please review the attached documents, and provide a pressure test procedure based on these documents.
- 36) Are there sections of the piping that is not accessible during the pressure testing and daily operation?
- 37) Is all the piping within the scope of this application accessible for inspection during the pressure test?
- 38) If there are any welded joints within the scope of this application, please pay attention to the following parts as our inspector will require them:
- a) Contractor doing the welding needs to have C of A (certificate of authorization) on B31.1 or B31.3 from TSSA BPV (boiler and pressure vessel).

- b) Welding procedure needs to be approved by TSSA BPV.
 - c) Welder needs to have a ticket from TSSA BPV on the welding procedure used.
- 39) Provide a declaration of the professional engineer in Ontario stating that the design complies with all applicable requirements of the **O. Reg. 214/01: COMPRESSED GAS, CSA B108.1:23 Compressed natural gas refuelling stations installation code** and **B51-19, Part 3 Compressed natural gas and hydrogen refuelling station pressure piping systems and ground storage vessels** and [FS-143-24 Compressed Gas Code Adoption Document Amendment](#).
- 40) Provide site plans complete with emergency shutdown station locations, traffic patterns, entry and exit point, and storage locations and their protection from vehicular traffic.
- 41) Provide electrical wiring drawings. The electrical drawings need to show the Estops and other limits/interlocks external to the package.
- 42) Provide confirmation that the fire service responsible for the area in which the facility is located is aware of the facility location, operation, and its emergency response plans.
- 43) Provide a statement from the municipality where the refuelling station is located indicating that the use of the station for its intended purpose does not contravene the zoning by-laws of the municipality.
- 44) Provide ESA approval for all electrical equipment within the scope of this application.
- 45) Provide emergency response plans for the CNG refuelling station.