Introduction

The following Standard Operating Procedure shall be utilized by employees when dealing with overfilled propane cylinders to ensure that the liquid propane within the cylinder is safely evacuated and the correct fill level achieved.

Regulatory References

1. CSA-B149.2 Propane Storage & Handling Code

Clause 5.2.6	The person filling any container shall be responsible for ensuring that the maximum permitted filling density is not exceeded.
Clause 5.2.9	When a container is repaired, requalified, or scrapped, its liquid contents shall only be removed by flaring or by transferring to another container.
Note:	While Clause 5.2.9 does not mention evacuating liquid propane from an overfilled propane cylinder, it does establish a safe work practice and standard to be followed when one is removing liquid propane from a propane cylinder.

2. CSA- B340 Selection and Use of Cylinders, Spheres, and Tubes and other Containers for the Transportation of Dangerous Goods Class 2

Clause 5.3.1.3	Filling a liquefied gas shall be by mass measurement using an approved scale or by volume measurement of liquid.
Clause 5.3.1.4	After being disconnected from the filling line, filled containers shall have their mass verified. Any overfill shall be removed in a safe manner.

Training Requirements

Prior to handling or evacuating an overfilled propane cylinder, an employee must complete all required safety training related to the handling of an overfilled propane cylinder, hold the appropriate provincial Record of Training (ROT) or certificate, and have been approved by their manager for the task being performed. Refresher training is required every three years.

General Guidelines

- When handling overfilled propane cylinders, employees are required to wear appropriate personal protective equipment;
- Always handle propane cylinders with caution to prevent impacts to the valve and stem assembly. Even though the propane cylinder is overfilled, it must be kept in the upright position;
- Propane cylinders are not to be Offered for Transport or given back to the customer when in an overfilled state;
- Overfilled propane cylinders shall not be vented to atmosphere;
- The area where the transfer is to take place shall be outdoors, away from all sources of ignition.

Equipment Required

- An empty purged or vacuum-purged propane cylinder;
- Certified propane hose with end fittings to connect to both propane cylinders;
- An accurate weight scale. For cylinders filled by weight, it is used to verify the overfilled propane cylinder liquid level has been drawn down to the maximum permitted filling density. The weigh scale is also used to determine the quantity of propane liquid transferred to the receiving cylinder is within its permitted filling density. Cylinders filled by volume are to be either weighed ***or*** by use of the fixed liquid level gauge to determine that the cylinder in question is no longer overfilled.

NOTE: While we have attempted make this document as complete as possible, the step by step "how to" may include more or less steps which dependent on the particular circumstance of the overfill and your company's operating procedures.

Procedures

The following are the step-by-step procedures for evacuating an overfilled propane cylinder into another propane cylinder:

1. Conduct a prefill inspection of the receiving propane cylinder to ensure that it meets the criteria for filling;
2. Ensure the service valves on both propane cylinders are in the closed position by turning the valve wheel in a clockwise turn until the valve stem seats;
3. Connect the transfer hose to each propane cylinder service valve by turning the hose end fitting clockwise for QCC1 style and forklift cylinders, ***OR*** counter-clockwise for a standard POL service valve equipped with internal threads, to tighten the hose end fittings.
4. Place the overfilled propane cylinder on a weigh scale and set the balance weight to the appropriate weight for the cylinder's maximum filled density;
5. Slowly open the service valve by turning the hand wheel counter-clockwise on the receiving propane cylinder;
6. Slowly open the service valve by turning the hand wheel counter-clockwise on the cylinder being evacuated. You should hear the propane liquid and vapour being transferred into the receiving propane cylinder. Depending on temperatures and quantity of overfill, this may take time, be patient;
7. Centering of the balance beam will indicate that the overfilled propane cylinder is now filled to its maximum permitted filling density;
8. Close the service valve on the evacuated propane cylinder clockwise until the valve stem seats, tighten by hand only.
9. Close the service valve on the receiving propane cylinder clockwise until the valve stem seats, tighten by hand only
10. When using the fixed liquid level gauge to determine that the liquid propane level in the overfilled cylinder is at the appropriate level, wait for 15 minutes, and then slowly open the fixed liquid level gauge to allow for the liquid and vapour propane to settle. If liquid propane does not vent from the fixed liquid level gauge, then the liquid propane within the cylinder has been drawn down to safe level. If liquid propane vents, then close and wait an additional 15 minutes before opening the fixed liquid level gauge. Once the liquid level is correct, follow steps 8 & 9 to close the service valves on each propane cylinder;
11. Cautiously and slowly disconnect the transfer hose from each of the service valves, slowly bleeding off any liquid or vapour propane trapped within the hose;
12. The overfilled propane cylinder may now be put back into service;
13. Replace the receiving propane cylinder with another empty purged cylinder, fill the receiving cylinder to its maximum filling density and put into service.

Follow-Up Procedure

To prevent further overfills the reason for the overfill must be determined and corrective action taken:

- If caused by human error, the person responsible for the overfill must take a refresher training course and successfully pass a hands on Skills Evaluation to demonstrate their ability to correctly fill a propane cylinder.
- If caused by equipment calibration or equipment failure, equipment-related issues must be repaired prior to the filling of propane cylinders at the dispenser site.

SOP Document Control		
Document Name: Handling of Over-Filled Propane Cylinders		**Document#** FLC-104
Controlled by: Safety Department	**Effective Date:** 2014-Jan-01	**Expiry Date:** 2016-Jun-30
Approved by:	**Revision #** 3	**Next Revision Date:** 2016-May-01