



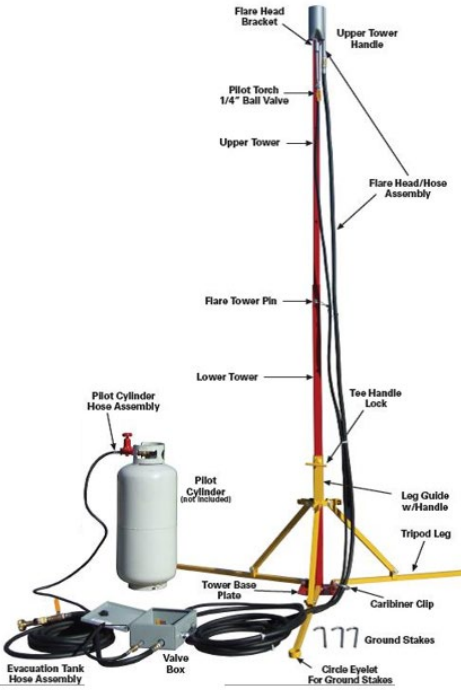
# SAN DIEGO HAZARDOUS INCIDENT RESPONSE TEAM

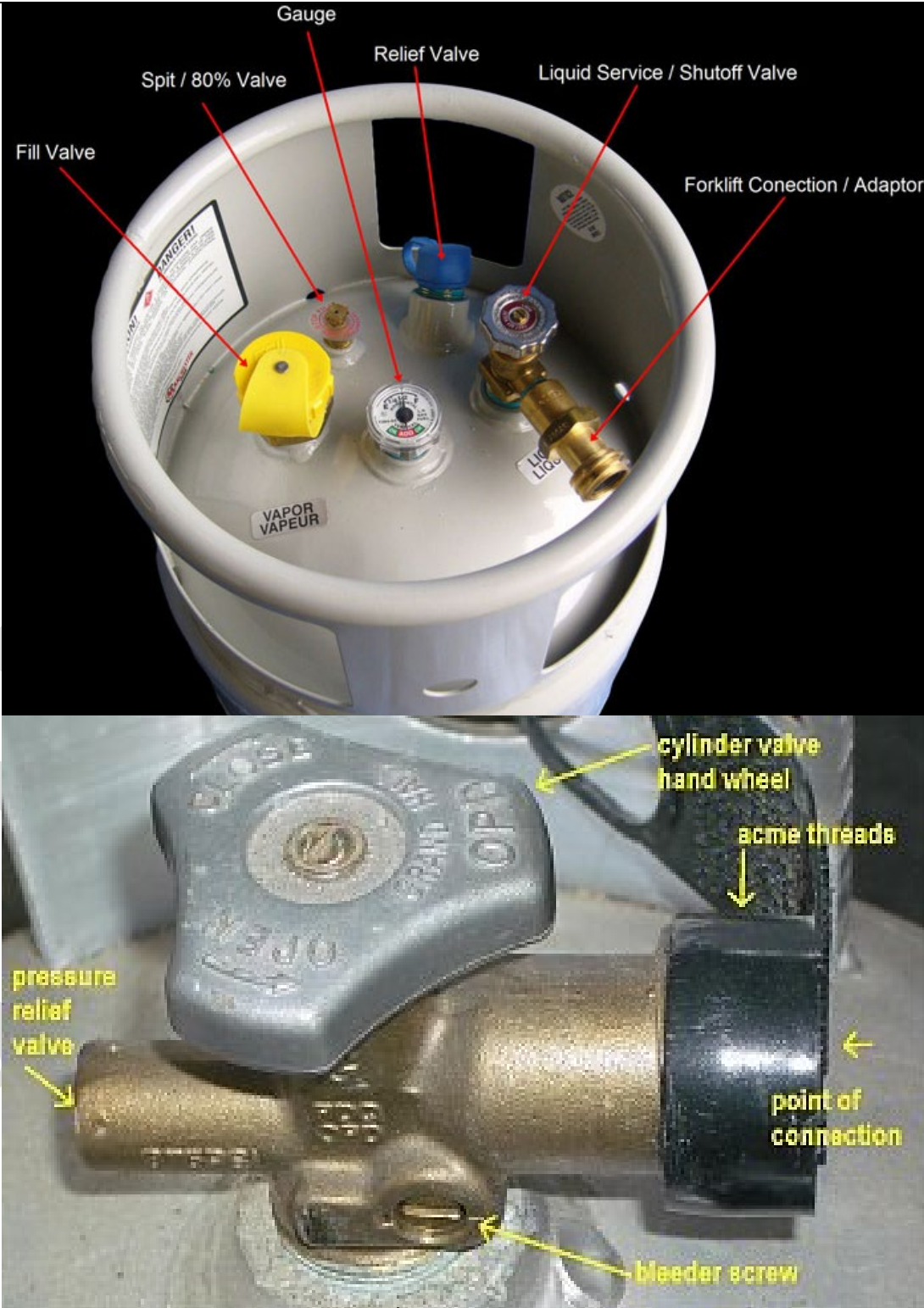


## STANDARD OPERATING GUIDELINES

### Propane (LP) UN 1075; UN 1978

	ITEM	DESCRIPTION
<input type="checkbox"/>	<b>BACKGROUND INFORMATION</b>	<ul style="list-style-type: none"> <li>ERG 115.</li> <li>Cylinders fall into two groups of propane service, liquid and vapor. Cylinders in liquid service are commonly found on forklifts while bottles in vapor service are easily spotted fueling a gas grill. Commercially available "propane" fuel, or LPG, is not pure. Propane contains odorants including ethyl mercaptan. Prolonged exposure to odorant may prevent you from smelling the leak.</li> <li>Be aware of BLEVE potential if it has fire contact</li> <li>For facility contacts, chemical inventory, and site map info, login to the California Environmental Reporting System (CERS) <a href="https://cers.calepa.ca.gov/">https://cers.calepa.ca.gov/</a></li> </ul>
<input type="checkbox"/>	<b>INITIAL SIZE UP</b>	<ul style="list-style-type: none"> <li>For leaking cylinders, approach upwind, establish safe distances up to 330 feet, isolate/remove ignition sources, stop flow of gas if possible, using spark proof tools.</li> <li>Some leaks occur from overfilling, especially during warmer weather, check bleeder valves and spit valves for source of leak. See pictures below.</li> <li>Contact propane dealer if possible. See useful contacts below.</li> <li>Do not stop leak in a way that eliminates the pressure relief device, such as using a wet cloth in poor location. Best solution may be to allow slow venting. Be advised auto-refrigeration may occur and leak may stop and restart.</li> <li>Monitor the area for flammable gases with a 4-gas (apply correction factors as needed).</li> <li>Propane gas is normally heavier than air.</li> </ul>
<input type="checkbox"/>	<b>CHEMICAL INFORMATION (if available)</b>	<ul style="list-style-type: none"> <li>Cylinder Operating pressure= 10-200 psig</li> <li>Confined/under pressure= liquid below -44F</li> <li>Vapor Pressure= 109 psi @STP</li> <li>LEL/UEL= 2.1% / 9.5%</li> <li>V.D= 1.6</li> <li>Ionization potential = 11.07 eV</li> <li>Melting/Freezing Point = -306F</li> <li>Boiling Point= -44F</li> <li>Autoignition= 842F</li> <li>Flashpoint= -155F</li> <li>Expansion= 270/1</li> <li>Pressure Relief Device 375/250 psi (cylinder/tank)</li> </ul>
<input type="checkbox"/>	<b>TACTICAL ACTIONS</b>	<ul style="list-style-type: none"> <li>Site Safety / Incident Action Plan, Evacuations up to 330'</li> <li>Determine rescue if applicable (First FD Engine FRO will execute rescue but may consult Hazmat)</li> <li>Stay Upwind/upgrade. Gas is normally heavier than air.</li> <li>Thoroughly ventilate enclosed spaces.</li> <li>Remove all ignition sources -static, motors, cars, flares</li> <li>Determine quantity and location of leak</li> <li>Place hose lines down for personnel protection</li> <li>Monitor the area for flammable gases with 4-gas (Gas density and LEL is needed)</li> <li>If possible, shut off flow of gas in FETO</li> </ul>
<input type="checkbox"/>	<b>MITIGATION AND CONTAINMENT</b>	<ul style="list-style-type: none"> <li>DEH HIRT has a portable flare (Red Dragon) intended use for propane, use with butane is suitable based on HIRT experience.</li> </ul>

		<ul style="list-style-type: none"> <li>▪ Flare gas vapor only, not liquids. Despite the manufacture claims the equipment can be used on liquids experience has shown flaring of vapor is most appropriate.</li> <li>▪ The flare should be set up upwind of the flammable tank(s) are located</li> <li>▪ Flaring should be done in a location that provides for adequate control of isolation zones.</li> <li>▪ Setting up the red Dragon LPG flare- Find a location with a minimum 40 foot radius and 50 feet high with no ignition sources in the area.</li> <li>▪ <b>A hose line should be set up by the local engine, be cautious of liquid dripping from the top of the flare and catching fire.</b></li> <li>▪ For flaring operations you will need the following: <ul style="list-style-type: none"> <li>○ At least one combustible gas indicators</li> <li>○ Propane for the pilot light (5 gallons or larger)</li> <li>○ The CGA connection box for tools, extra gas connections and testing soap.</li> <li>○ A water source for emergencies, and for reheating cooled vessels to expedite vapor generation and burn rate.</li> </ul> </li> </ul>
		
<input type="checkbox"/>	ADDITIONAL RESOURCES	<ul style="list-style-type: none"> <li>▪ Fire</li> <li>▪ Law: traffic control</li> <li>▪ EMS</li> <li>▪ DPW</li> </ul>
<input type="checkbox"/>	USEFUL CONTACTS	<ul style="list-style-type: none"> <li>▪ SDGE emergency: (619) 234-6234 or (800) 611-7343</li> <li>▪ Airgas (855) 524-7427 (866) 734-3438 or (800) 224-7427</li> <li>▪ Air Products and Chemicals, Inc. (800) 523-9374 or (760) 931-9555</li> <li>▪ Amerigas (propane emergencies) (858) 578-6513</li> <li>▪ ExpoPropane (858) 715-4617</li> <li>▪ Ferrellgas (858) 271-4400</li> <li>▪ Matheson (760) 744-9353</li> <li>▪ Parsons (858) 278-2050</li> <li>▪ PraxAir (800) 225-8247 or (800) 645-4633 or (619) 232-7341</li> <li>▪ Petrolane (aka Amerigas) (760) 728-1424</li> <li>▪ Stoodly Industrial Welding &amp; Supply Inc. (619) 234-6750</li> <li>▪ Westair Gases &amp; Equipment (619) 239-7571</li> </ul>
<input type="checkbox"/>	PERSONAL PROTECTIVE EQUIPMENT	<ul style="list-style-type: none"> <li>▪ Turnouts with SCBA</li> </ul>

<input type="checkbox"/>	<b>MONITORING &amp; DETECTION</b>	<ul style="list-style-type: none"> <li>CGI (check correction factors for hexane and methane)</li> <li>TIC -Can be used to identify leaking fittings/cylinders</li> <li>Safe Sites – for large scale releases</li> </ul>
<input type="checkbox"/>	<b>DECONTAMINATION</b>	<ul style="list-style-type: none"> <li>Propane is non-polar, use a fan to dissipate residue.</li> <li>Water and detergent for gross contamination with non-polar gases that are adhering to PPE</li> </ul>
<input type="checkbox"/>	<b>INCIDENT TERMINATION</b>	<ul style="list-style-type: none"> <li>Safe to reoccupy -Use monitoring equipment to ensure the space is below the LEL, OSHA PEL or AGEL</li> </ul>
<input type="checkbox"/>	<b>TANK DESIGNS</b>	 <p>The top photograph shows the top of a white propane tank with several components labeled with red arrows: Gauge, Spit / 80% Valve, Relief Valve, Liquid Service / Shutoff Valve, Fill Valve, and Forklift Connection / Adaptor. A warning label is visible on the left side of the tank top.</p> <p>The bottom photograph is a close-up of a valve assembly with several components labeled with yellow arrows: cylinder valve hand wheel, acme threads, point of connection, bleeder screw, and pressure relief valve.</p>