

# Bulk Storage

**Disclaimer:** This checklist is not intended to be a definitive or exhaustive listing of all statutes, safety rules, regulations or codes that may be applicable. It is intended as a general guideline for assisting licensees and stakeholders in complying with state statutes, the Commission's safety rules and adopted national and federal codes that are specific to a BULK STORAGE installation. The officially published statute, rule or code shall prevail in the event of a conflict with those referenced in the checklist. The checklist may be used to verify compliance prior to placing a facility in service or for routine maintenance audits to ensure continued compliance with applicable safety requirements.

| <b>CONTAINER</b>               |  |                  |
|--------------------------------|--|------------------|
| <input type="checkbox"/>       | Painting of container  | 9.141(a)(1)      |
| <input type="checkbox"/>       | Lettering of container   | 9.140(g)         |
| <input type="checkbox"/>       | Container inlet and outlet connections labeled vapor or liquid   | 5.7.8.5          |
| <input type="checkbox"/>       | Manufacturer's nameplate condition   | 9.129            |
| <input type="checkbox"/>       | AG container(s) installation (horizontal)  | 6.6.3            |
| <input type="checkbox"/>       | (Horizontal with attached supports)  | 6.6.3.3(a)       |
| <input type="checkbox"/>       | (Vertical)   | 6.6.4            |
| <input type="checkbox"/>       | UG container installation  | 6.6.6            |
| <input type="checkbox"/>       | Mounded container installation   | 6.6.6.3          |
| <input type="checkbox"/>       | Container distance requirements  | 6.3.1            |
| <input type="checkbox"/>       | Container protection (tampering/vehicular)   | 9.140(a)         |
| <input type="checkbox"/>       | (Fencing specification)  | 9.140(b)         |
| <input type="checkbox"/>       | (Guardrail specification)  | 9.140(d)         |
| <input type="checkbox"/>       | No covering over container or over transport loading or unloading areas  | 9.141(f)         |
| <b>CONTAINER APPURTENANCES</b> |  |                  |
| <input type="checkbox"/>       | All container appurtenances accessible   | 6.6.1.5          |
| <input type="checkbox"/>       | Pressure relief valve installation   | 6.7.2            |
| <input type="checkbox"/>       | Pressure gauge requirement > 2000 gal.   | 5.7.8.6          |
| <input type="checkbox"/>       | Temperature gauge requirement > 400 gal.   | 5.7.4.4          |
| <input type="checkbox"/>       | Liquid level gauging devices   | 5.7.5            |
| <input type="checkbox"/>       | Container openings 1¼" or greater shall be equipped with pneumatic internal valve or double back check filler valve or positive shutoff valve in combination with back flow check valve or pneumatic ESV within 4 feet of existing positive shutoff valve on individual containers >4,000 gal and on all sites installed after Feb 1, 2006, with aggregate capacities > 4,001 gal. Exception: container openings exclusively serving stationary appliances or equipment may have excess flow valve and shutoff valve as close as practical to the container. | 5.7.4.2-9.403(a) |
| <input type="checkbox"/>       | Container openings less than 1¼" shall be equipped with pneumatic internal valve or double back flow check filler valve or positive shutoff with excess flow valve or a back flow check valve  | 5.7.4.2-9.403(a) |
| <input type="checkbox"/>       | All internal valves pneumatically controlled   | 9.143(a)         |
| <input type="checkbox"/>       | Bulkhead guardrail protection installation   | 9.140(d)         |
| <input type="checkbox"/>       | 3 feet between bulkhead and guardrail  | 9.140(d)(5)      |
| <input type="checkbox"/>       | The two guardrail end posts protecting the bulkhead shall be located 24" to 36" from, and at 45° angles to, the nearest corner of the bulkhead.  | 9.140(d)(5)      |
| <input type="checkbox"/>       | Stainless steel flex connectors between bulkhead and ESV's, maximum length 36"   | 9.143(a)(1)      |

## Bulk Storage *(continued)*

| <b>EMERGENCY CONTROLS</b> |   |                          |
|---------------------------|---|--------------------------|
| <input type="checkbox"/>  | 24 hour emergency contact number  | 9.140(g)                 |
| <input type="checkbox"/>  | 18 lb B-C fire extinguisher required  | 6.25.4.2                 |
| <input type="checkbox"/>  | Sites installed after 2/1/01 shall have the ESVs and internal valves interconnected into one emergency shutoff location   | 9.143(a)(5)              |
| <input type="checkbox"/>  | Emergency shutoff location 25-100 feet from ESV in the path of egress from the ESV  | 9.143(e)                 |
| <input type="checkbox"/>  | Emergency shutoff location labeled (Propane Emergency Shutoff) and visible from point of transfer   | 9.140(g)                 |
| <input type="checkbox"/>  | ESVs and internal valves shall be kept in working order   | 9.143(f)                 |
| <input type="checkbox"/>  | Thermal (fire) actuation of internal valves where thermal element is within 5 feet of internal valve  | 5.7.4.2.(d)(1)-<br>9.403 |
| <b>HOSES</b>              |   |                          |
| <input type="checkbox"/>  | Leaking or damaged hose shall be immediately repaired or removed from service   | 7.2.4                    |
| <input type="checkbox"/>  | Hose continuously marked LP-GAS, PROPANE, 350 PSI WORKING PRESSURE and manufacturer's name or trademark   | 5.9.6.4(a)               |
| <input type="checkbox"/>  | All internal valves equipped for remote closure and automatic shutoff using thermal actuation with thermal element within 5 feet of internal valve                    | 9.143(a)(3)              |
| <b>PIPING SYSTEM</b>      |   |                          |
| <input type="checkbox"/>  | Liquid LP gas piping design pressure  | 5.9.1.4                  |
| <input type="checkbox"/>  | Piping materials  | 5.9.3                    |
| <input type="checkbox"/>  | Tubing materials  | 5.9.3                    |
| <input type="checkbox"/>  | Pipe fittings material  | 5.9.4                    |
| <input type="checkbox"/>  | Pipe and fittings minimum design rating   | 5.9.4.1                  |
| <input type="checkbox"/>  | Metallic pipe joining method requirements   | 6.9.3.5                  |
| <input type="checkbox"/>  | Minimize the number of fittings used  | 6.9.3.7                  |
| <input type="checkbox"/>  | Piping system protected with flexible connectors from expansion, contraction, jarring, vibration and settling.  | 6.9.3.9                  |
| <input type="checkbox"/>  | Aboveground piping supported/protected  | 6.9.3.10                 |
| <input type="checkbox"/>  | Flexible connectors > ¾" stainless steel flex, maximum length 36"   | 9.143(g) or<br>6.9.6.2   |
| <input type="checkbox"/>  | Excess flow valve in in pipe opening when piping size is reduced  | 5.7.8.1(h)               |
| <input type="checkbox"/>  | Hydrostatic relief valve in closed sections of liquid piping (400-500 psig rating)  | 6.13                     |
| <b>BULKHEAD/ESVS</b>      |   |                          |
| <input type="checkbox"/>  | Vertical bulkhead required on all new sites installed after 2/1/01, and shall include pneumatic ESVs or back check flow valve on aggregate capacities > 4,001 gallons | 9.143(a)                 |
| <input type="checkbox"/>  | Pneumatic ESVs within 4 feet of bulkhead and stainless steel connector < 36" installed between bulkhead and ESVs  | 9.143(a)(1)              |
| <input type="checkbox"/>  | ESVs activate in the event of a pull-away   | 9.143(a)(2)              |
| <input type="checkbox"/>  | Vertical bulkhead required on all old sites by 2/1/03, and shall include pneumatic ESVs or back check flow valve on aggregate capacities > 4,001 gallons              | 9.143(b)                 |
| <input type="checkbox"/>  | Vertical bulkhead and ESV exception   | 9.143(c)                 |

## Bulk Storage *(continued)*

|                            |   |                 |
|----------------------------|---|-----------------|
| <input type="checkbox"/>   | Bulkhead requirements   | 9.143(d)        |
| <input type="checkbox"/>   | Maximum of two transfer hoses per pipe riser  | 9.143(d)(2)     |
| <input type="checkbox"/>   | Liquid and vapor transfer hose ends capped  | 9.143(d)(3)     |
| <input type="checkbox"/>   | Bulkhead 10 feet from containers  | 9.143(d)(4)     |
| <input type="checkbox"/>   | Bulkhead construction requirements  | 9.143(d)(7)     |
| <input type="checkbox"/>   | 12" pipe risers on bulkhead   | 9.143(d)(7)(E)i |
| <input type="checkbox"/>   | Breakaway loading arm in lieu of 12" riser  | 9.143(d)(8)     |
| <input type="checkbox"/>   | Bulkhead exemption for sites > 4,001 gal pump/compressors   | 9.143(i)        |
| <b>PUMP / COMPRESSORS</b>  |   |                 |
| <input type="checkbox"/>   | Pump installation   | 6.17.2          |
| <input type="checkbox"/>   | Stainless steel flex connectors connected to a pump, maximum length 36"   | 6.17.2.2        |
| <input type="checkbox"/>   | Compressor installation   | 6.17.3          |
| <input type="checkbox"/>   | Stainless steel flex connectors connected to a compressor, maximum length 36"   | 6.17.3.2        |
| <input type="checkbox"/>   | Electrical/lighting   |                 |
| <b>ELECTRICAL/LIGHTING</b> |   |                 |
| <input type="checkbox"/>   | Electrical requirements   | 6.22.2          |
| <input type="checkbox"/>   | Lighting required for night operations  | 6.18.5          |
| <b>POINT OF TRANSFER</b>   |   |                 |
| <input type="checkbox"/>   | Distance requirements from the point of transfer  | 6.5.4           |
| <b>MISCELLANEOUS</b>       |   |                 |
| <input type="checkbox"/>   | Form 500 required for installations that are > 10,000 gal aggregate capacity  | 9.101(c)(1)(a)  |
| <input type="checkbox"/>   | Documented annual testing of internal valves, ESVs, and backflow check valves   | 9.143(a)(4)     |
| <input type="checkbox"/>   | Corrosion protection of all metallic equipment and components that are buried or mounded                              | 6.16.1          |
| <input type="checkbox"/>   | Combustible material (10 feet clearance)  | 6.4.5.2         |
| <input type="checkbox"/>   | 20 feet from liquids with flash point < 200 degrees F   | 6.4.5.5         |
| <input type="checkbox"/>   | System piping designed to prevent debris from impeding action of valves and other components. Retroactive by 7/1/2011 | 6.18.5          |
| <input type="checkbox"/>   | Locks for valves on unfenced installations  | 9.140(d)(1)     |
| <input type="checkbox"/>   | Maintenance   | 9.113           |