

SAN BERNARDINO COUNTY
FIRE DEPARTMENT
Office of the Fire Marshal
Hazardous Materials Division
620 South “E” Street, San Bernardino, CA 92415-0153



**INSTALLATION, MODIFICATION & MONITORING
REQUIREMENTS FOR NEW AND EXISTING
UNDERGROUND STORAGE TANKS**

Revised April 2015



INSTALLATION AND MODIFICATION REQUIREMENTS FOR NEW AND EXISTING UNDERGROUND STORAGE TANKS

Underground Storage Tank (UST) systems storing hazardous substances in the County of San Bernardino shall conform to standards issued by the San Bernardino County Fire Department, Office of the Fire Marshal, Hazardous Materials Division, hereinafter referred to as the Department. Written approval shall be obtained from this Department prior to the installation of any new UST system(s) and/or modifications to existing UST systems.

GENERAL REQUIREMENTS

1. A UST construction permit shall be obtained from the Department for any construction, installation or modification project that requires breaking concrete, disconnection or reconnection of any monitoring system, or disconnection or reconnection of any piping. This includes enhanced vapor recovery and in-station diagnostics installations and upgrades. Cold starts of the monitoring system that require re-programming of sensors also require a permit and a witnessed re-certification.
2. Facilities applying for a UST construction permit must have a current operating permit from this Department. If an existing facility does not have a current operating permit, **all permit fees and any delinquent charges must be brought up to date prior to the issuance of a UST construction permit.**
3. Failure to obtain all necessary permits will result in a 100% penalty fee. Failure to obtain local permits (i.e., building, local fire department, land use, or planning permits) will result in cancellation of the inspection and a re-inspection fee will be charged.
4. Facilities applying for a UST construction permit must be in compliance with all UST statutes, regulations, and codes.

DESIGN REQUIREMENTS FOR NEW AND EXISTING UNDERGROUND STORAGE TANKS

UST Construction Plans Submitted Shall:

1. Have a minimum of two (2) sets of plans submitted for review and approval. The Department will retain one set of plans as a file copy. **WORK ON THE INSTALLATION OF THESE TANKS MAY NOT BEGIN UNTIL THE PLANS HAVE BEEN APPROVED BY THIS DEPARTMENT AND ALL OTHER APPLICABLE REGULATORY AGENCIES.**
2. Be drawn to scale (20-100 feet to the inch) for the plot plan. This will depend on the area covered and must be a suitable scale to show details of the tank system to be installed.

3. UST Construction Plans must include the following as a minimum:
 - a. Vicinity/Plot plan and key map with UST system overview and associated buildings
 - b. Details of the proposed tank installation/modification/repair. Show tank and piping in plan cross sections with elevation views
 - c. Include a parts list identifying the manufacturer, model/part numbers and quantities
 - d. Provide cut-out sheets for all proposed components
 - e. Identify Shut-Off switch location(s)
 - f. Elevation of highest groundwater level on record and source of data.
 - g. Any surface waters within two hundred (200) feet of the tank(s)
 - h. Leak detection/monitoring systems
 - i. Overfill protection provisions
 - j. Enhanced Vapor Recovery – Phase II Vapor Processing Unit and 2-hour firewall if unit is within 10 feet of the property lines or any building

If structural or physical features of the installation are determined to require special considerations, the Department may require plans prepared by a registered professional engineer.

Note: Plan check approval may take from **six to eight weeks**. Allow for the maximum time when submitting your plans.

Upon review of the completed application (plans, specifications, fees, etc.), approval of acceptable plans will be issued by the placement of an approval stamp on the site plan. An approval letter will be issued by mail to the UST owner/operator identified on the permit application. A copy of the approval letter will be issued to the UST contractor along with the project job card once the contractor qualifications have been submitted, reviewed and deemed appropriate for the proposed project. **Approval will be valid for the period of time indicated on the approval letter and/or job card.**

REQUIREMENTS FOR INSTALLATION, MODIFICATION & MONITORING FOR NEW AND EXISTING UNDERGROUND STORAGE TANKS

1. **ALL** USTs shall comply with all applicable testing, design and engineering standards as described in the California Code of Regulations Title 23 - Chapter 16 (23 CCR), and Chapter 6.7 of the California Health and Safety Code (CHSC).
2. The manufacturer, construction types and appropriate third-party/UL listing information shall be provided to this Department for approval prior to installation. Acceptable designs for post-2004 UST construction include USTs that meet either: UL 58 & UL 1746 for steel USTs in approved engineered backfill; or UL 1316 for fiberglass reinforced plastic USTs in approved engineered backfill.
3. USTs installed after July 1, 2004 must be continuously monitored. All new underground storage tank installations shall require that all portions of the containment system must have continuous monitoring by Vacuum, Pressure or Hydrostatic (VPH) means. All new monitoring system set-up shall include positive shut down of turbines during any alarm condition (including loss of vacuum or introduction of any liquid into the system). If power is discontinued to the monitor or any of its sensors, then the associated turbine(s) must shutdown.

4. Installation of a Vacuum, Pressure or Hydrostatic (VPH) system does not preempt the required installation of line leak detectors and liquid sensors in all sumps.
5. All pressurized piping systems shall have line leak detectors. Electronic line leak detectors are required for all new installations. Automatic line leak detectors must restrict flow by at least 50% and shall detect a leak at a rate of three (3) gallons per hour at 10 psi. All leak detectors are required to be tested annually. Existing single-walled pressurized piping systems must have an electronic line leak detector that is programmed to meet monitoring requirements set forth in Article 4 of 23 CCR.
6. Manifolding of product piping is not permitted at/in the UDC/dispenser area by this Department.
7. All tanks larger than 2,000 gallons shall be set or removed using an appropriate sized crane. Other equipment will be allowed only with pre-approval from this Department.
8. All manways, access points, and sumps shall be designed to prevent entry of surface waters and shall be tamper-resistant.
9. Secondary containment systems shall be capable of intercepting, containing and directing any leakage from product lines, turbines, suction lines, siphon systems, risers or return lines to a monitoring point. Monitoring equipment shall be placed at the lowest point of the system closest to product piping. Leak detection sensors shall provide both audible and visual alarms.
10. Product, vent and vapor recovery piping shall also be provided with shear valves where they transition above-ground to a dispenser.
11. Secondary containment shall be required on all vent and vapor recovery piping installed after July 1, 2003. Facilities with single-walled systems will be required to upgrade existing piping when significant construction, repair or modification is proposed.
12. Ball float check valves or another approved device shall be installed to prevent any liquids or product from entering the vapor recovery or vent lines.
13. All vent lines shall be provided with a flexible connector and vent box at the point where underground piping has a change of direction to above ground piping. All vent and vapor recovery piping shall be of rigid construction and be made of materials that are corrosion resistant and approved by this Department.
14. The construction type and manufacturer of piping shall be provided to this Department for approval prior to installation.
15. All secondary containments shall be continuously monitored.

16. Existing single-walled piping sumps and fill sumps must be rigidly designed and affixed (bonded) to the tank. All sumps must be watertight and shall pass a hydrostatic test. The test shall include filling each sump with water at a level equal to or greater than 2-inches above the highest product penetration and shall be tested per the Secondary Containment Test Requirements of this Department.
17. New VPH-compliant double-walled sumps and under-dispenser containment (UDC) shall be tested prior to backfill according to manufacturer specifications. Contractor shall demonstrate communication of all double-walled components at inspection upon request.
18. Fill, vent and vapor recovery risers shall be contained in approved sumps.
19. Direct-bury overspill buckets shall be tested annually using precision hydrostatic equipment. If the direct-bury overspill bucket fails, it must be removed and replaced with a double-walled spill bucket. Alternatively, a fill sump may be installed with continuous monitoring equipment.
20. All dispensers shall be designed to contain any unauthorized release, leak or spilled fluids from any portion of the dispensing unit and shall discontinue flow should any leak occur or should any fluid be detected by the monitoring system.
21. All under dispenser containment (UDC) systems shall be designed to have flex lines, and any metal fittings shall be inside the containment system (i.e., deep boxes) and shall be constructed of non-corrosive materials.
22. Plastic UDC's may not be re-used upon SB989 containment failure or with installation of new piping.
23. Sensors located in all secondary containments (including vent boxes) shall be programmed to alarm and cause positive shut down upon detection of any liquid (fuel or water).
24. Sumps shall be rigid and structurally attached to the tank surface. Sumps for non-VPH UST systems shall be watertight; all penetrations shall have approved fittings, and shall be continuously monitored with non-discriminating sensors.
25. Flex connectors shall be installed on all underground liquid, vapor and vent piping where the piping leaves the dispensing island or location and just before the piping connects to underground tank fittings. Flex connectors shall also be installed on piping that is rigidly supported or connected between fixed points and which is subject to thermal expansion or differential movements. Flex connectors shall be provided with containment for cathodic protection.
26. All USTs shall be fitted with a device that will prevent overflow under any circumstances, including the delivery operator's inattention. Ball float check valves alone are not sufficient. The device shall either:
 - a. Alert the transfer operator when the tank is 90 percent full by restricting the flow into the tank **and** triggering audible and visual alarm; **or**

- b. Restrict delivery of flow to the tank at least 30 minutes prior to tank overflow, provided the restriction occurs when the tank is filled to no more than 95 percent of capacity, and provide audible alarm sounds at least five minutes prior to overflow; **or**
 - c. Provide positive shut-off of flow to the tank when the tank is filled to no more than 95 percent full.
27. Any tank that is using ball float check valves and an overflow alarm to meet overflow requirements, must also install an external audible and visual alarm. The alarm must be loud enough to be clearly heard from anywhere on the property or within 200 feet. The alarm must remain continuous until an acknowledgement button has been activated.
28. All fill points shall have a 5-gallon overflow bucket to contain any spill or drips during filling operations. The overflow bucket shall be designed to direct any free product into the UST and shall be California Air Resources Board approved.
29. A remote "EMERGENCY FUEL SHUTOFF" device shall be installed within 100 feet of the furthest dispensing unit but no closer than 20 feet from the closest dispensing unit. This device shall be capable of disconnecting power to pumping and dispensing units. Additionally, an "EMERGENCY FUEL SHUTOFF" device shall be installed inside the cashier's booth and must be easily accessible at all times. The "EMERGENCY FUEL SHUTOFF" sign must be clearly visible from the dispensers.
30. Existing tanks, piping and/or dispensers that are to be abandoned, removed or displaced shall be safeguarded and/or disposed of per the procedures approved by this Department. Additionally, appropriate sampling shall be performed in the presence of an inspector from this Department.
31. UST monitoring system software upgrade that will require the monitoring system to restart in conjunction with the addition of any new component to the monitoring system will require that a monitoring system certification be conducted at the final construction permit inspection. (i.e. In Station Diagnostic installation with Veeder Root Software upgrade, ECPU board replacement, cold-start, etc).

CONSTRUCTION INSPECTIONS FOR NEW UST INSTALLATION

The Department requires four onsite construction inspections. *Additional inspections will be billed at the hourly rate.* Inspections shall be scheduled at least ten working days prior to the anticipated inspection time. An approved application must be on file with this Department before an inspection will be scheduled.

1. The first inspection shall be to witness the manufacturer-required pre-installation testing and proper tank set. This inspection will also determine that the excavation is clean and has appropriate backfill.
2. The second inspection is the pressure test of the complete primary product piping, vent and vapor recovery system while the top of the tank(s) and all associated piping are exposed.
3. The third inspection is the pressure test of secondary containment and a communication verification of secondary piping, sumps and UDC.

Note: Prior to receiving the first fuel delivery and scheduling the fourth inspection, all new installations require Enhanced Leak Detection (ELD) testing. Notification of ELD testing is required. The first fuel delivery must be requested in writing.

4. The fourth inspection is the final construction inspection and UST monitoring system certification. It will include a monitoring certification of all leak detection equipment, testing of spill buckets and line leak detectors. It will also include a product shear valve functionality test for each product at the dispensers. All required documentation for UST operation and CUPA disclosure shall be onsite, complete and accurate. All testing and construction requirements shall be met with passing results to obtain approval to operate the new UST system(s).

All UST documentation shall be submitted to the California Environmental Reporting System (CERS) prior to the final inspection. San Bernardino County Fire CERS Help Line is available Monday – Friday from 8 a.m. to 4:30 p.m. at (909) 386-8432.

Contact the UST Program at (909) 386-8464 for any questions regarding the installation, modification, and monitoring requirements.