Department of Planning and Development
TOXICS MANAGEMENT DIVISION
A Certified Unified Program Agency (CUPA)
2118 Milvia Street, Suite 300, Berkeley, California 94704
TEL: (510) 981-7460 ● TDD: (510) 981-6903 ● FAX: (510) 981-7470

Permit #:		
Address:		
City:		
Facility:		
Scope of Work:	Installation of new tank system	
Permit Type:	Underground Storage Tank (UST) INSTALLATION	
Date first Reviewed:		**Reviewed by:**

Permit Plan Check Requirements

Inspector Note	#	CONDITIONS / COMMENTS / CORRECTIVE ACTION NECESSARY
	1.	**Application** – Complete and submit attached application and pay the appropriate fees. Note - An approved/stamped set of plans, applications, and Plan Check Permit comments shall be on-site at all times.
	2.	**Department Inspections** Hazardous Materials Specialists shall inspect the UST System (tank, piping, sumps, dispensers, etc.) during installation activities. Hazardous Materials Specialists must be scheduled 48 hours in advance (call 510-981-7460). All tank inspections require an inspection by a Fire Inspector. Cal 510-981-5585 to schedule an appointment at least two working days in advance. Final inspection after all other agencies have signed off is required by Building and Safety. Call 510-981-7444 before 5 pm to schedule your inspection for the next working day on the 24-hour automated inspection line.
	3.	**Installation Time Lines** – Submit schedule indicating projected start and completion dates.
	4.	**Other Permits** Check with other local agencies (e.g. Building and/or Public Works Departments) regarding requirements for additional permits (e.g. electrical, plumbing, excavation, compaction and grading, etc.) and any work impacting public streets, walkways, and rights-of-way.
	5.	**Groundwater Wells** - Being removed or destroyed require a separate permit from the Toxics Management Division. Please call 510-981-7460 for more information.

	6.	**Underground Service Alert** - Must be contacted at 800-642-2444 prior to the start of any excavation.
	7.	**Subsurface Contamination** - Ensure subsurface is not contaminated prior to beginning work.
	8.	**Site Security** If the excavation is to remain open after the contractor leaves the site, the site and/or excavation perimeter shall be fenced 6' high or posted with a 24-hour guard or other means to prevent unauthorized entry.
	9.	**Training** All personnel handling hazardous materials or hazardous waste and working at construction activity sites must be properly trained which may include excavation, shoring, confined space entry, hot work, hazardous waste management, hazardous communication, injury illness prevention, etc.
	10.	**Site Safety Plan** - Must be available on-site prior to the start of any work, and available for inspection at any time during installation.
	11.	**Fire Extinguisher During Construction** Provide at least one 40BC-rated portable fire extinguisher onsite and readily accessible within 50 feet of work area for UST Systems. Hot work or spark-producing operations shall not be conducted if UST System previously contained flammable/combustible liquids unless UST System is decontaminated and free of hazardous vapors.
	12.	**Terminate and Lock Out All Electrical Service** - To UST System when necessary prior to starting work.
	13.	**Contractor's License** Provide copies of contractor's license. Note: C61-D40 licenses issued before 1/18/2001 can install and calibrate leak detection equipment. C61-D40 licenses issued after 1/18/2001 cannot install, remove, or replace equipment.
	14.	**Manufacturers Installation Certifications** Provide copies of certifications from manufacturers that install contractors are trained and certified to install their equipment (USTs, piping, sumps, under dispenser containment, and monitoring systems). Install contractors must be re-certified as required by the equipment manufacturers or every 3 years.
	15.	**Certified CA UST System INSTALLER** All UST installers must be certified by the International Code Council (ICC) by passing the "UST Installation/Retrofitting" exam. The certification is required to be re-certified every 24 months. Information regarding the ICC exams can be found at http://www.iccsafe.org/certification/ust.html or 866-422-3426.
	16.	**Certified CA UST System SERVICE TECHNICIANS** All UST SERVICE TECHNICIANS must be certified by the International Code Council (ICC) by passing the "California UST Service Technician" exam. The certification is required to be re-certified every 24 months. Information regarding the ICC exams can be found at http://www.iccsafe.org/certification/ust.html or 866-422-3426
	17.	**Scaled Drawing** - showing the location and details of all USTs, piping, monitoring system, sensors, fill pipes, overfill prevention, spill containment, pumps, sumps, anchoring, distances to the property lines, distance from buildings, distance from streets, etc.

	18.	**UST System Setback Distances** USTs and piping shall not be less than 3 feet from any basement wall, pit, cellar or property line.
	19.	**Equipment Specifications** Provide documentation that the equipment is approved by an independent testing organization (e.g., UL Listing, etc.) for its particular use including tanks, piping, pumps, overfill prevention system, over spill containment system, foot valves, swiveling fill pipe adapters, swiveling vapor return pipe adapter, monitoring systems, leak sensors, tank gauges, and other devices. UST tanks and piping must bear appropriate markings. • An independent third party listing is required for piping sumps and under dispenser containment (UDC). • Monitoring equipment must be listed in the CA State Water Resources Control Board LG-113.
	20.	**Flammable or Combustible Product Conveying Piping** All underground piping conveying flammable or combustible liquids must be approved by an independent testing organization (e.g., UL 971 Standard and marked with "UL 971").
	21.	**Compatibility** Provide certification that materials of construction for USTs, piping, and secondary containment systems are compatible with the stored hazardous substances.
	22.	**Ethanol/Methanol Compatible** Submit certification whether UST Systems (UST, piping, pumps, materials, equipment, adhesives, etc.) can store ethanol or methanol-containing gasoline.
	23.	**Fiberglass Pipe Adhesive** Use adhesive provided by the manufacturer for the piping, or provide certification that the adhesive is compatible with the piping and hazardous substances being conveyed in the piping.
	24.	**Sump and Under Dispenser Containment (UDC) Penetration Sealants** ❑ Use sealants provided by the manufacturer for the equipment. ❑ All sump and UDC penetration pipe boots and sealants must be compatible with the hazardous substances being conveyed in the piping in case of a leak.
	25.	**Corrosion Protection** USTs and underground piping shall be properly designed, installed and maintained, and protected from corrosion by cathodic protection and/or corrosion-resistant materials.
	26.	**UST Separation Distances** Distances between USTs must meet manufacturer installation guidelines, which is typically at least 1 foot between steel tanks and at least 1.5 feet between fiberglass tanks.
	27.	**UST Fill Locations** Ensure the placement of the USTs and dispensers allow enough room for tank truck fuel deliveries. All delivery tankers drop their fuel from the passenger side of the truck. Optimal turning radius of tanker truck is 50 feet.

	28.	**UST Foundation** USTs shall be set on firm foundations and surrounded with at least 6 inches of non-corrosive inert material such as clean sand or gravel well tamped in place or in accordance with manufacturer's installation instructions.
	29.	**UST Slope** All USTs shall be sloped in accordance with manufacturer requirements.
	30.	**Excavation, Shoring and Sloping** – Shall be conducted in accordance with the Site Safety Plan. ❑ Use excavation sloping, benching, sheet pile shoring, or trench jacks. ❑ Any excavation depth greater than 4 feet requires a CAL-OSHA Evacuation Permit prior to worker entering the excavation.
	31.	**Excavation Size** The minimum distance between piping and stable soils and/or shored excavations must meet manufacturer installation guidelines, which is typically at least 6 inches. The minimum distances between adjacent piping in an excavation must meet manufacturer installation guidelines, which is typically at least twice the pipe diameter. The minimum distance from end to end and shell to shell between USTs and stable soils and/or shored excavations are according to manufacturer or as follows: ❑ >18 inches for fiberglass USTs; OR ❑ >6 inches for steel USTs; OR ❑ 1/2 tank diameter for unstable or unshored soils.
	32.	**UST Uplift Protection Exception** Provide a registered engineer's stamped certification that flooding will not occur and that groundwater conditions do not warrant additional engineering to counteract UST buoyancy. As an alternative, provide a registered engineer's stamped certification and buoyancy calculations assuming worst case scenario (each UST is completely submerged in water.) This exception is not applicable to USTs in areas that may be subjected to flooding, according to FEMA flood maps and flood zone definitions.
	33.	**UST Uplift Protection** Provide USTs with uplift protection as required by the manufacturer. All USTs in areas that may be subjected to flooding, according to FEMA flood maps and flood zone definitions, must be installed in accordance with the provisions of NFPA 30-2012 (8 CCR section 5605).
	34.	**UST Tie-Downs** - Must be constructed of non-corrosive material or coated steel and wider than the strapping and placed where required by the manufacturer. Tie-down cable saddle clamps must be installed so every other one is facing the opposite direction for greater holding strength.
	35.	**Product Tight** – All UST systems must be designed and installed such that there are no pathways for liquids or vapors to enter the backfill.
	36.	**UST (Tank) Monitoring** ❑ Double-walled tank with continuous monitoring in accordance with 23 CCR 2631(g), 2632(c), 2634; AND ❑ Any leak shall initiate an audible and visual alarm that can immediately be detected by the UST operator; AND

		❑ Secondary containment testing is required upon installation, but <u>is not</u> required every 3 years thereafter.
	37.	**<u>UST Piping Monitoring</u>** All UST piping shall be double-walled with continuous monitoring of the secondary containment in accordance with 23 CCR 2636, including product conveying piping, vent piping, and vapor recovery piping. ❑ Any leak shall initiate an audible and visual alarm that can immediately be detected by the UST operator.
	38.	**<u>UST Sump Monitoring for Piping, Riser, and Manways (LG162)</u>** UST sumps shall be continuously monitored by one of the following 3 methods: ❑ All double-walled piping within a single walled sump; or ❑ Single-walled piping within a single-walled sump; or ❑ Single-walled piping within a double-walled sump (monitored from top of tank to bottom of concrete; AND ❑ A leak shall initiate an audible and visual alarm that can immediately be detected by the UST operator; AND ❑ No unmonitored pathway to environment at piping penetrations ❑ Provide lid and conduit seals
	39.	**<u>UST Under Dispenser Containment (UDC) Monitoring (LG162)</u>** ❑ UDCs shall be continuously monitored by one of the following 3 methods: ❑ All double-walled piping within a single walled sump; or ❑ Single-walled piping within a single-walled sump; or ❑ Single-walled piping within a double-walled sump; AND ❑ For double-walled UDC, double-wall portion must extend to surface. No pathway can exist for vapors to move from UDC to backfill.
	40.	**<u>Automatic Line Leak Detectors (LLDs) for Pressurized Piping</u>** ❑ <u>ALL pressurized piping</u> must have automatic LLDs approved by an independent testing organization (e.g., UL Listing, etc.) for its particular use. Must, at a minimum, detect release within 1 hour equivalent to 3.0 gph at 10 psi, with <u>≥</u>95% probability of detection and <u>≤</u>5% probability of false alarm. ❑ Electronic Line Leak Detectors (ELLDs): ❑ Connected to control panels; AND ❑ Can be programmed to respond to simulated 0.2 gph leak monthly AND ❑ Can be programmed to respond to simulated 0.1 gph leak annually AND ❑ Must automatically shut off turbine pump if: ❑ Leak is detected; AND ❑ Any portion of monitoring system is disabled or disconnected; AND ❑ Any portion of monitoring system malfunctions or fails a test.
	41.	**<u>Automatic Line Leak Detector Certification for Pressurized Piping</u>** After testing, Certification must be submitted to the Toxics Management Division and should show: ❑ Date of certification ❑ Software version installed ❑ Manufacturer, model, and serial numbers ❑ Audible and visual alarms were operational, and if printable, a copy attached ❑ If alarms are relayed to remote monitoring station, must show all communications equipment (e.g. modem) were operational ❑ Monitoring system set-up has proper settings, a copy attached ❑ Testing apparatus properly calibrated ❑ All equipment manufacturer's maintenance checklist are completed and

		attached ❑ All LLDs were operational and accurate within regulatory requirements ❑ If deficiencies were found, how and when they were or would be corrected ❑ Certification signed by technician, and their certification/license number documented (company's name and certification/license number found in LG105).
	42.	**Piping** – All piping shall be installed in accordance with manufacturer's requirements.
	43.	**Piping Slopes** - Product, fill, vent, and vapor piping shall be sloped toward the UST with minimum ¼ inch slope per 1 foot of run.
	44.	**Vents** – Shall have at least 1.25-inch internal diameter and be sized to prevent excessive back pressure on the UST. This is different for manifold piping systems.
	45.	**Fill Pipe and Vapor Return Pipes** – ❑ Sealed with a vapor-tight cap approved by an independent testing organization (e.g., UL Listing, etc.) for its particular use; AND ❑ Equipped with swiveling-type adapters to reduce stress during fuel deliveries equipment is approved by an independent testing organization (e.g., UL Listing, etc.) for its particular use; AND ❑ Labeled with name of hazardous substance stored in UST or "Vapor".
	46.	**Spill Prevention Containers** Each UST fill pipe opening must be equipped with spill prevention container for hose disconnect leakage: ❑ Minimum 5 gallon capacity; AND ❑ Approved by an independent testing organization (e.g., UL Listing, etc.) for its particular use; AND ❑ Equipped with drain valve and secondarily contained pipe to allow spilled hazardous substances to be drained directly into the primary UST through the fill pipe; and ❑ If spill container does not have drain valve owner or operator will have to provide another way to keep spill container empty.
	47.	**Overfill Prevention Equipment** Each UST fill pipe opening must be equipped with overfill prevention ❑ Overfill prevention system must comply with 23 CCR 2365(b)(2) ❑ Equipment is approved by an independent testing organization (e.g., UL Listing, etc.) for its particular use; AND ❑ Approved by Bay Area Air Quality Management District.
	48.	**UST Pre-Installation Testing Witnessed by Hazardous Materials Specialist** Prior to being placed in the excavation: ❑ All NON-Steel USTs will be pressurized and soap tested; AND ❑ Do not pressure test secondary containment tank directly. The primary tank should be pressurized first and then gradually vent/bleed the air into the secondary containment tank. Conduct all pressure testing with dual glycerin-filled gauges; AND ❑ If UST is damaged, it can only be repaired by the tank manufacturer.
	49.	**UST Enhanced Leak Detection (ELD) Testing Witnessed by Hazardous Material Specialist** ❑ UST tank installation after it is backfilled and the concrete is poured and prior to being put into service, the new UST system must be tested with

		Enhanced Leak Detection (ELD). ❑ UST operating permit <u>will not</u> be issued until the UST passes the ELD testing. ❑ UST secondary containment system must be tested separately using hydrostatic, pressure, or vacuum methods.
	50.	**<u>UST Leak Testing Witnessed by Hazardous Materials Specialists</u>** ❑ After installation, but prior to back filling, test primary and secondary tanks according to manufacturer's specification. ❑ Conduct all pressure testing with dual glycerin-filled gauges.
	51.	**<u>Pipe Leak Testing Witnessed by Hazardous Materials Specialists</u>** ❑ After installation, but prior to backfilling, primary and secondary piping conveying flammable or combustible liquid; before being covered, enclosed or placed in use; shall be pneumatically tested to 150 percent of the maximum anticipated of the system. There shall not be any leakage or permanent distortion for a minimum of 30 minutes. ❑ Conduct all pressure testing with dual glycerin-filled gauges.
	52.	**<u>Sump Leak Testing Witnessed by Hazardous Materials Specialist</u>**
	53.	**<u>Fill Bucket Leak Testing Witnessed by Hazardous Materials Specialist</u>**
	54.	**<u>UST Monitoring System Testing Witnessed by Hazardous Materials Specialists</u>** ❑ After installation, but prior to being put in service, demonstrate the operation of the UST Monitoring System and high-level alarm system. ❑ Monitoring system must be protected from its surrounding environment. ❑ The system must be within sight and hearing distance of on-site personnel 24-hours each day or remotely monitored. ❑ The system must be hard-wired to a dedicated circuit.
	55.	**<u>Leak Sensor Location</u>** – Must be positioned at the bottom of the lowest secondary containment point and accessible for inspection and testing.
	56.	**<u>Concrete Cover</u>** ❑ USTs and associated piping shall be protected by at least 3 feet of earth cover, or 18 inches of well tamped earth plus 6 inches of reinforced concrete. The reinforced concrete paving shall extend at least 1 foot horizontally beyond the outline of the UST in all directions. ❑ Ensure piping near the USTs is buried under concrete slab. Concrete around man ways and openings must slope at least 1 inch/foot of run for proper storm water drainage.
	57.	**<u>Bedding and Backfill</u>** For fiberglass USTs: ❑ Pea gravel should be between 1/8 inch to ¾ inch in size. ❑ Crushed rock should be between 1/8 inch to ½ inch in size. Minimum bedding in a dry excavation should be: ❑ >12 inches under the USTs. ❑ >6 inches under the piping When USTs are installed in fine granular soils or high water tables it is required that a filter fiber liner be placed in the excavation to prevent backfill migration. The critical area for backfilling is the lower ¼ of the tank. For fiberglass USTs, the burial depth of the UST measured from the top of the tank to finish grade is based on manufacturer's requirements or maximum of 7 feet. Document tank vertical deflection measurements before and after backfilling.

Authorization to Introduce Hazardous Materials to the UST System and Permit Application Submit the following documents to receive authorization:		
	58.	**UST Permit Applications** Complete or update and submit the Underground Storage Tank Operating Permit Applications, including Facility Information, Tank Information, Monitoring Plan, Response Plan, and Certification of Installation/Modification.
	59.	**UST Owner vs Operator** Submit written agreement between the UST owner and the UST operator, if different individuals.
	60.	**UST Financial Assurance** Submit UST Certification of Financial Responsibility and supporting documents for USTs storing motor vehicle fuels.
	61.	**Hazardous Materials Business Plan** Submit revised forms including "Business Owner/Operator Identification" form, "Business Activities" form, site map, and chemical inventories of UST(s).
	62.	**Certified CA DESIGNATED UST SYSTEM OPERATOR** All operating UST facilities must have a "Designated UST Operator". Designated UST Operators must be certified by the International Code Council (ICC) by passing the "California UST System Operator" exam. Information regarding the ICC exams can be found at http://www.iccsafe.org/certification/ust.html or 866-422-3426 UST owner shall: ❑ Submit signed statement that the owner understands and is in compliance with all regulatory and, statutory UST requirements; AND ❑ Submit name of Designated UST System Operator for the site. Designated UST System Operators must conduct monthly visual inspections of the UST systems.
	63.	**Plot Plan** ❑ Submit a scaled diagram or design or "as built" plans and drawings that accurately show final locations of all USTs, piping, dispensers, auxiliary equipment, and any changes of materials and equipment used in the final construction; AND ❑ If not provided in the "as build" drawings, submit a plot plan, which identifies where monitoring is performed, including locations of sensors, consoles, etc. It must show placement on the site relative to buildings, storm drains, etc. This information may also be incorporated with the HMBP site map requirements.
	64.	**Checklists and Testing Results** ❑ Submit manufacturer tank and piping checklists, including installation checklists ❑ Submit field tank and piping integrity testing results ❑ Submit secondary containment test results ❑ Submit monitoring system certification ❑ Submit spill bucket test results.
Record Keeping for UST Owner and Operator		
	65.	After the final inspection, submit following documents to UST Owner: ❑ "AS BUILT" plans and drawings. ❑ Manufacturer tank and piping checklists, including installation checklists;

		AND ❑ Warranties; AND ❑ Monitoring equipment calibration and maintenance records must be maintained on-site for at least 3 years; AND ❑ Manufacturers recommended maintenance schedules and written performance claims must be maintained on-site for at least 5 years; AND ❑ Cathodic Protection records must be maintained on-site at least 6.5 years. ❑ Records of repairs, lining, and upgrades must be maintained for the remaining life of the UST.

Additional Inspector Notes: