STATE WATER RESOURCES CONTROL BOARD

Underground Storage Tank Regulations

Title 23, California Code of Regulations, Chapter 16.

Effective October 13, 2005

NOTE: This working document was developed for ease of reference. SWRCB staff have taken every effort to ensure that the text of this document matches the language of the regulations filed with the Secretary of State. We recommend that this document be used in conjunction with the California Code of Regulations (CCR). In the event of a conflict between this document and the CCR, the CCR controls. You may access the CCR electronically at http://ccr.oal.ca.gov/. Anyone who finds an error is requested to send written notification to: UST Program, Division of Water Quality, State Water Resources Control Board, 1001 I Street, Sacramento, CA 95814.

CALIFORNIA CODE OF REGULATIONS
October 13, 2005
Title 23. Waters
Division 3. State Water Resources Control Board and Regional Water QualityControl Boards
Chapter 16. Underground Tank Regulations

Article 1. Definition of Terms
§ 2610. Definitions/Applicability of Definitions.
§ 2611. Additional Definitions.

Article 2. General Provisions
§ 2620. General Intent, Content, Applicability and Implementation of Regulations.
§ 2621. Exemptions to the Regulations.

Article 3. New Underground Storage Tank Design, Construction, and Monitoring Requirements
§ 2630. General Applicability of Article.
§ 2631. Design and Construction Requirements for New Underground Storage Tanks.
§ 2631.1. Compatibility and Permeability Testing Requirements for All New Underground Storage Tanks.
§ 2632. Monitoring and Response Plan Requirements for New Underground Storage Tanks Constructed Pursuant to Section 2631.
§ 2633. Alternate Construction Requirements for New Underground Storage Tanks Containing Motor Vehicle Fuel.
§ 2634. Monitoring and Response Plan Requirements for New Underground Storage Tanks Containing Motor Vehicle Fuel and Constructed Pursuant to Section 2633.
§ 2635. Installation and Testing Requirements for All New Underground Storage Tanks.
§ 2636. Design, Construction, Installation, Testing, and Monitoring Requirements for Piping.
§ 2636.1. Final Division Decisions Regarding Under-Dispenser Containment or Control Systems.
§ 2636.2. Petition for Board Review Regarding Under-Dispenser Spill Containment or Control Systems.
§ 2636.3. Defective Petitions.
§ 2636.4. Action by the Board Regaring Under-Dispenser Spill Containment or Control Systems.
§ 2637. Secondary Containment Testing.
§ 2638. Annual Certification of Monitoring Equipment.

Article 4. Existing Underground Storage Tank Monitoring Requirements
§ 2640. General Applicability of Article.
§ 2641. Monitoring Program Requirements.
§ 2642. Visual Monitoring.
§ 2643. Non-Visual Monitoring/Quantitative Release Detection Methods.
§ 2643.1. Tank Integrity Testing Requirements.
§ 2644. Non-Visual Monitoring/Qualitative Release Detection Methods.
§2644.1. Enhanced Leak Detection.
§ 2645. Manual Tank Gauging and Testing for Small Tanks.
§ 2646. Manual Inventory Reconciliation.
§ 2646.1. Statistical Inventory Reconciliation.
§ 2647. Vadose Zone Monitoring Requirements.
§ 2648. Ground Water Monitoring Requirements.
§ 2649. Well Construction and Sampling Requirements.

Article 5. Release Reporting and Initial Abatement Requirements
§ 2650. Reporting and Recording Applicability.
§ 2651. Recording Requirements for Unauthorized Releases.
§ 2652. Reporting, Investigation and Initial Response Requirements for Unauthorized Releases.
§ 2653. Initial Abatement Action Requirements.
§ 2654. Initial Site Characterization Requirements.
§ 2655. Free Product Removal Requirements.

Article 6. Underground Storage Tank Repair and Upgrade Requirements

§ 2660. General Applicability of Article.
§ 2661. Requirements for Repairing Underground Storage Tank.
§ 2662. Requirements for Upgrading Underground Storage Tanks.
§ 2663. Interior Tank Lining Requirements.
§ 2664. Requirements for Using Bladder Systems.
§ 2665. Spill and Overfill Prevention Equipment Upgrade Requirements.
§ 2666. Requirements for Upgrading Underground Piping.

Article 7. Underground Storage Tank Closure Requirements

§ 2670. General Applicability of Article.
§ 2671. Temporary Closure Requirements.
§ 2672. Permanent Closure Requirements.

Article 8. Site-Specific Variance Procedures

§ 2680. General Applicability of Article.
§ 2681. Site-Specific Variances.

Article 9. Local Agency Requests for Additional Design and Construction Standards

§ 2690. General Applicability of Article.
§ 2691. Procedures for Requesting Additional Standards.

Article 10. Permit Application, Quarterly Report and Trade Secret Request Requirements

§ 2710. General Applicability of Article.
§ 2711. Information and Application for Permit to Operate an Underground Storage Tank.
§ 2712. Permit Conditions.
- **§ 2712.1. Content of Upgrade Compliance Certificates.**
- **§ 2712.2. Issuing Upgrade Compliance Certificates.**
- **§ 2712.3. Displaying Upgrade Compliance Certificates.**
- **§ 2712.4. Replacing Upgrade Compliance Certificates.**
- **§ 2712.5. Lists of Underground Storage Tank Facilities.**
- **§ 2712.6. Prohibitions.**
- **§ 2712.7. Sunset Provisions.**

§ 2713. Local Agency Reporting Requirements.
§ 2714. Trade Secret Provisions.
§ 2715. Certification, Licensing, and Training Requirements for Underground Storage Tank Owners, Operators, Installers, Service Technicians, and Inspectors.

Article 10.5. Red Tag Authority

§ 2717. Additional Definitions.
- **§ 2717.1. Affixing Red Tags.**
- **§ 2717.2. Removing Red Tags.**
- **§ 2717.3. Removal of Red Tag from Emergency Generator Tank Systems Prior to Correction of Significant Violation.**
- **§ 2717.4. Notice of Correction of Significant Violation.**
- **§ 2717.5. Significant Violations Exempt From Red Tags.**
- **§ 2717.6. Content of Red Tags.**
- **§2717.7. Enforcement Scope of Article.**

Article 11. Corrective Action Requirements

§ 2720. Additional Definitions.
§ 2721. General Applicability of Article.
§ 2722. Scope of Corrective Action.
§ 2723. Preliminary Site Assessment Phase.
§ 2724. Conditions That Require Soil and Water Investigation.
§ 2725. Soil and Water Investigation Phase.
§ 2726. Corrective Action Plan Implementation Phase.
§ 2727. Verification Monitoring Phase.
§ 2728. Public Participation.

Article 12. Electronic Submission of Laboratory Data for UST Reports
§ 2729. Definitions.
§ 2729.1. Electronic Submission of Laboratory Reports.

Appendix I Table A Suggested Test Methods Applicable to Regulatory Requirements
Table B Organizations That Adopt Voluntary Consensus Standards
Table C
Appendix II Suction Piping Monitoring
Appendix III Examples of Quantitative Release Detection Methods for Existing Tanks
Examples of Quantitative Release Detection Methods for Single-Walled Pressure Piping
Examples of Qualitative Release Detection Methods for Single-Walled Suction Piping
Example of Qualitative Release Detection Methods for Single-Walled Gravity Flow Piping
Examples of Qualitative Release Detection Methods for Existing Tanks and Piping
Appendix IV Evaluation Procedure for Leak Detection Equipment
Appendix V Certificate of Tank and Pipe Installations
Appendix VI Monitoring System Certification Form

CALIFORNIA CODE OF REGULATIONS

Title 23. Waters
Division 3. State Water Resources Control Board and Regional Water QualityControl Boards
Chapter 16. Underground Tank Regulations

Article 1. Definition of Terms

§ 2610. Definitions/Applicability of Definitions.

(a) Unless the context requires otherwise, the terms used in this chapter shall have the definitions provided by the appropriate section of Chapter 6.7 of Division 20 of the Health and Safety Code, or by section 2611 of this article.

(b) Except as otherwise specifically provided herein, the following terms are defined in section 25281 of Chapter 6.7 of Division 20 of the Health and Safety Code:

Automatic Line Leak Detector
Board
Department
Facility
Federal Act
Local Agency
Owner
Pipe
Primary Containment
Product-Tight
Release
Secondary Containment
Single-Walled
Special Inspector
Storage/Store
SWEEPS
Tank
Tank Integrity Test
Tank Tester
Unauthorized Release
Underground Storage Tank
Underground Tank System/Tank System

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25281, Health and Safety Code.

§ 2611. Additional Definitions.

Unless the context requires otherwise, the following definitions shall apply to terms used in this chapter.

"Bladder system" means a flexible or rigid material which provides primary containment including an interstitial monitoring system designed to be installed inside an existing underground storage tank.

"Best management practice" means any underground storage tank system management and operation practice that is the most effective and practicable method of preventing or reducing the probability of a release.

"Cathodic protection tester" means any individual who can demonstrate an understanding of the principles and measurements of all common types of cathodic protection systems as applied to buried or submerged metallic piping and underground storage tank

systems. Such an individual shall possess a current certificate from the National Association of Corrosion Engineers or the International Code Council, demonstrating education and experience in soil resistivity, stray current, structure-to-soil potential, and component electrical isolation measurements of buried or submerged metallic piping and underground storage tank systems.

"Coatings expert" means a person who, by reason of thorough training, knowledge and experience in the coating of metal surfaces, is qualified to engage in the practice of internal tank lining inspections. The term includes only those persons who are independent of any lining manufacturer or applicator and have no financial interest in the tank or tanks being monitored.

"Compatible" means the ability of two or more substances to maintain their respective physical and chemical properties upon contact with one another for the design life of the tank system under conditions likely to be encountered in the underground storage tank.

"Connected piping" means all underground piping including valves, elbows, joints, flanges, and flexible connectors attached to a tank system through which hazardous substances flow. For the purpose of determining how much piping is connected to any individual underground storage tank system, the piping that joins two underground storage tank systems should be allocated equally between them.

"Continuous monitoring" means a system using equipment which routinely performs the required monitoring on a periodic or cyclic basis throughout each day.

"Corrosion specialist" means any individual who, by reason of thorough knowledge of the physical sciences and the principles of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metallic piping and underground storage tank systems. Such an individual shall possess a current certificate from the National Association of Corrosion Engineers as a corrosion specialist, or be a registered professional engineer with a current certificate or license requiring education and experience in corrosion control of buried or submerged metallic piping and underground storage tank systems.

"Decommissioned tank" means an underground storage tank which cannot be used for one or more of the following reasons: 1) the tank has been filled with an inert solid; 2) the fill pipes have been sealed; or, 3) the piping has been removed.

"Designated underground storage tank operator" or "designated UST operator" means one or more individuals designated by the owner to have responsibility for training facility employees and conducting monthly visual inspections at an underground storage tank facility. A "designated UST operator" is not considered the "operator" as defined in Chapter 6.7 of Division 20 of the Health and Safety Code, although the same individual may hold both positions.

"Dispenser" means an aboveground or underground device that is used for the delivery of a hazardous substance from an underground storage tank. Dispenser includes metering and delivery devices, and fabricated assemblies located therein.

"Emergency containment" means a containment system for accidental spills which are infrequent and unpredictable.

"Excavation zone" means the volume containing the tank system and backfill material bounded by the ground surface, walls, and floor of the pit and trenches into which the underground storage tank system is placed at the time of installation.

"Existing underground storage tank" means an underground storage tank installed prior to January 1, 1984. The term also includes an underground storage tank installed before January 1, 1987 and which is located on a farm, has a capacity greater than 1,100 gallons, and stores motor vehicle fuel used primarily for agricultural purposes and not for resale.

"Facility employee" means an individual who is employed on-site at an underground storage tank facility, and who may be called upon to respond to spills, overfills, or other problems associated with the operation of the underground storage tank system. A "facility employee" is not considered the "operator" as defined in Chapter 6.7 of Division 20 of the Health and Safety Code, although the same individual may hold both positions.

"Fail safe" means that a monitoring system will shut down the turbine pump in the event of a power outage, or when the monitoring system fails or is disconnected.

"Farm tank" means any one tank or a combination of manifolded tanks that: 1) are located on a farm; and, 2) holds no more than 1,100 gallons of motor vehicle fuel which is used primarily for agricultural purposes and is not held for resale.

"First ground water" means the uppermost saturated horizon encountered in a bore hole.

"Free product" refers to a hazardous substance that is present as a non- aqueous phase liquid (e.g., liquid not dissolved in water).

"Ground water" means subsurface water which will flow into a well.

"Hazardous substance" means a substance which meets the criteria of either subsection (1) or subsection (2) of section 25281(f) of the Health and Safety Code.

"Heating oil tank" means a tank located on a farm or at a personal residence and which holds no more than 1,100 gallons of home heating oil which is used consumptively at the premises where the tank is located.

"Holiday," when used with respect to underground storage tank coating or cladding, means a pinhole or void in a protective coating or cladding.

"Hydraulic lift tank" means a tank holding hydraulic fluid for a closed loop mechanical system that uses compressed air or hydraulic fluid to operate lifts, elevators, and other similar devices.

"Inconclusive" means the conclusion of a statistical inventory reconciliation report that is not decisive as to whether a release has been detected.

"Independent testing organization" means an organization which tests products or systems for compliance with voluntary consensus standards. To be acceptable as an independent testing organization, the organization shall not be owned or controlled by any client, industrial organization, or any other person or institution with a financial interest in the product or system being tested. For an organization to certify, list, or label products or systems in compliance with voluntary consensus standards, it shall maintain formal periodic inspections of production of products or systems to ensure that a listed, certified, or labeled product or system continues to meet the appropriate standards.

"Independent third party" means independent testing organizations, consulting firms, test laboratories, not-for-profit research organizations and educational institutions with no financial interest in the matters under consideration. The term includes only those organizations which are not owned or controlled by any client, industrial organization, or any other institution with a financial interest in the matter under consideration.

"Integral secondary containment" means a secondary containment system manufactured as part of the underground storage tank.

“Interstitial Liquid Level Measurement” Method (as the term is used in section 25290.1 of the Health and Safety Code) or “Hydrostatic Monitoring” Method means a release detection method that continuously monitors the liquid level within a liquid-filled interstitial space of an underground storage tank. The term includes only those release detection systems that are capable of detecting a breach in the primary or secondary containment of the underground storage tank component(s) being monitored before the hazardous substance stored is released to the environment. To accomplish this, the liquid in the interstitial space shall be maintained at a pressure greater than the operating pressure found within the component(s) being monitored. This pressure may be achieved, for example, by adequately elevating the liquid reservoir or by pressurizing the liquid-filled interstice. Hydrostatic monitoring methods shall meet the requirements of section 2643, subdivision (f).

"Interstitial space" means the space between the primary and secondary containment systems.

"Leak threshold" means the value against which test measurements are compared and which serves as the basis for declaring the presence of a leak. The leak threshold is set by the manufacturer in order to meet state and federal requirements. Leak threshold is not an allowable leak rate.

"Liquid asphalt tank" means an underground storage tank which contains steam-refined asphalts.

"Liquefied petroleum gas tank" means an underground storage tank which contains normal butane, isobutane, propane, or butylene (including isomers) or mixtures composed predominantly thereof in a liquid or gaseous state having a vapor pressure in excess of 40 pounds per square inch absolute at a temperature of 100 degrees Fahrenheit.

"Maintenance" means the normal operational upkeep to prevent an underground storage tank system from releasing hazardous substances.

"Manufacturer" means any business which produces any item discussed in these regulations.

"Manual inventory reconciliation" means a procedure for determining whether an underground tank system is leaking based on

bookkeeping calculations, using measured throughput and a series of daily inventory records taken manually by the tank owner or operator or recorded electronically. This terms does not include procedures which are based on statistical inventory reconciliation.

"Membrane liner" means any membrane sheet material used in a secondary containment system. A membrane liner shall be compatible with the substance stored.

"Membrane liner fabricator" means any company which converts a membrane liner into a system for secondary containment.

"Membrane manufacturer" means any company which processes the constituent polymers into membrane sheeting from which the membrane liner is fabricated into a system for secondary containment.

"Motor vehicle" means a self-propelled device by which any person or property may be propelled, moved, or drawn.

"Motor vehicle fuel tank" means an underground storage tank that contains a petroleum product. The definition does not include underground storage tanks that contain used oil.

"New underground storage tank" means an underground storage tank which is not an existing underground storage tank.

"Non-volumetric test" means a tank integrity test method that ascertains the physical integrity of an underground storage tank through review and consideration of circumstances and physical phenomena internal or external to the tank.

"Operational life" means the period beginning when installation of the tank system has begun until the time the tank system should be properly closed.

"Operator" means any person in control of, or having responsibility for, the daily operation of an underground storage tank system.

"Person", as defined in Chapter 6.7 of Division 20 of the Health and Safety Code includes any entity defined as a person under the Federal Act.

"Perennial ground water" means ground water that is present throughout the year.

"Petroleum" means petroleum including crude oil, or any fraction thereof, which is liquid at standard conditions of temperature and pressure, which means at 60 degrees Fahrenheit and 14.7 pounds per square inch absolute.

"Pipeline leak detector" means a continuous monitoring system for underground piping capable of detecting at any pressure, a leak rate equivalent to a specified leak rate and pressure, with a probability of detection of 95 percent or greater and a probability of false alarm of 5 percent or less.

"Probability of detection" means the likelihood, expressed as a percentage, that a test method will correctly identify a leaking underground storage tank.

"Probability of false alarm" means the likelihood, expressed as a percentage, that a test method will incorrectly identify a "tight" tank as a leaking underground storage tank.

"Qualitative release detection method" means a method which detects the presence of a hazardous substance or suitable tracer outside the underground storage tank being tested.

"Quantitative release detection method" means a method which determines the integrity of an underground storage tank by measuring a release rate or by determining if a release exceeds a specific rate.

"Release detection method or system" means a method or system used to determine whether a release of a hazardous substance has occurred from an underground tank system into the environment or into the interstitial space between an underground tank system and its secondary containment.

"Repair" means to restore a tank or underground storage tank system component that has caused a release of a hazardous substance from the underground storage tank system.

"Septic tank" means a tank designed and used to receive and process biological waste and storage.

"Service technician" means any individual who installs or tests monitoring equipment, or provides maintenance, service, system programming or diagnostics, calibration, or trouble-shooting for underground storage tank system components.

"Statistical inventory reconciliation" means a procedure to determine whether a tank is leaking based on the statistical analysis of measured throughput and a series of daily inventory records taken manually by the tank owner or operator or recorded electronically.

"Statistical inventory reconciliation provider" means the developer of a statistical inventory reconciliation method that meets federal and state standards as evidenced by a third-party evaluation conducted according to section 2643(f), or an entity that has been trained and certified by the developer of the method to be used. In either case, the provider shall have no direct or indirect financial interest in the underground storage tank being monitored.

"Storm water or wastewater collection system" means piping, pumps, conduits and any other equipment necessary to collect and transport the flow of surface water run-off resulting from precipitation, or domestic, commercial, or industrial wastewater to and from retention areas or any areas where treatment is designated to occur. The collection of storm water and wastewater does not include treatment except where incidental to conveyance.

"Substantially beneath the surface of the ground" means that at least 10 percent of the underground tank system volume, including the volume of any connected piping, is below the ground surface or enclosed below earthen materials.

"Sump," "pit," "pond," or "lagoon" means a depression in the ground which lacks independent structural integrity and depends on surrounding earthen material for structural support of fluid containment.

"Tank integrity test" means a test method that can ascertain the physical integrity of any underground storage tank. The term includes only test methods which are able to detect a leak of 0.1 gallons per hour with a probability of detection of at least 95 percent and a probability of false alarm of 5 percent or less. The test method may be either volumetric or non-volumetric in nature. A leak rate is reported using a volumetric test method, whereas, a non- volumetric test method reports whether a substance or physical phenomenon is detected which may indicate the presence of a leak.

"Unauthorized release" as defined in Chapter 6.7 of Division 20 of the Health and Safety Code does not include intentional withdrawals of hazardous substances for the purpose of legitimate sale, use, or disposal.
"Under-Dispenser Containment" means secondary containment that is located under a dispenser.

"Under-Dispenser spill containment or control system" means a device that is capable of preventing an unauthorized release from under the dispenser from entering the soil or groundwater or both.

"Upgrade" means the addition or retrofit of some systems such as cathodic protection, lining, secondary containment, or spill and overfill controls to improve the ability of an underground storage tank system to prevent the release of hazardous substances.

"Volumetric test" means a tank integrity test method that ascertains the physical integrity of any underground storage tank through review and comparison of tank volume.

"Voluntary consensus standards" means standards that shall be developed after all persons with a direct and material interest have had a right to express a viewpoint and, if dissatisfied, to appeal at any point (a partial list of the organizations that adopt voluntary consensus standards are shown in Appendix I, Table B).

"Wastewater treatment tank" means a tank designed to treat influent wastewater through physical, chemical, or biological methods and which is located inside a public or private wastewater treatment facility. The term includes untreated wastewater holding tanks, oil water separators, clarifies, sludge holding tanks, filtration tanks, and clarified water tanks that do not continuously contain hazardous substances.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25281, 25282 and 25283, 25284, 25284.1, 25292.3 and 25299.5(a), Health and Safety Code; 40 CFR 280.10 and 280.12.

Article 2. General Provisions

§ 2620. General Intent, Content, Applicability and Implementation of Regulations.

(a) The regulations in this chapter are intended to protect waters of the state from discharges of hazardous substances from underground storage tanks. These regulations establish construction requirements for new underground storage tanks; establish separate monitoring requirements for new and existing underground storage tanks; establish uniform requirements for unauthorized release reporting, and for repair, upgrade, and closure of underground storage tanks; and specify variance request procedures.

(b) Owners and operators shall comply with these regulations except as otherwise specifically provided herein. If the operator is not the owner, then the owner shall enter into a written contract with the operator requiring the operator to monitor the underground storage tank; maintain appropriate records; and implement reporting procedures as required by any applicable permit. Both the owner and operator are responsible for assuring that the underground storage tank system is repaired or upgraded in accordance with Article 6, or closed in accordance with Article 7, as appropriate.

(c) Counties shall implement the regulations in this chapter within both the incorporated and unincorporated areas of the county through the issuance of underground storage tank operating permits to underground storage tank owners. A city may, by ordinance, assume the responsibility for implementing the provisions of this chapter within its boundaries in accordance with section 25283 of the Health and Safety Code. Local agencies shall issue an operating permit for each underground storage tank, for several underground storage tanks, or for each facility, as appropriate, within their jurisdiction.

(d) Owners and operators shall comply with the construction and monitoring requirements of Article 3 (new underground storage tanks) or the monitoring requirements of Article 4 (existing underground storage tanks). However, owners of existing underground storage tanks which meet the construction and monitoring requirements of Article 3 may be issued operating permits pursuant to the requirements of Article 3 in lieu of the requirements of Article 4. In addition, owners or operators of underground storage tanks shall comply with the release reporting requirements of Article 5, the repair and upgrade requirements of Article 6, the closure requirements of Article 7, the underground storage tank operating permit requirements of Article 10 and the corrective action requirements of Article 11.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25283, 25284, 25299.1 and 25299.3, Health and Safety Code; 40 CFR 280.

§ 2621. Exemptions to the Regulations.

(a) The term "underground storage tank" excludes the following, except those of the following included in the definition of an underground storage tank in 40 CFR, part 280.12 as modified by paragraphs (b), (c), (d), of 40 CFR, part 280.10.

(1) A farm tank.
(2) A heating oil tank.
(3) A hydraulic lift tank in accordance with section 25281(x) of the Health and Safety Code.
(4) A liquefied petroleum gas tank.
(5) A liquid asphalt tank.
(6) A septic tank.
(7) A sump, pit, pond, or lagoon.
(8) A wastewater treatment tank except a tank which is part of an underground storage tank system.
(9) A pipeline located in a refinery or in an oil field unless the pipeline is connected to an underground storage tank.
(10) Storm water or wastewater collection systems.
(11) Tanks containing radioactive material such as spent fuel pools, radioactive waste storage tanks, and similar tanks under the Atomic Energy Act of 1954 (42 USC 2011) and following.
(12) An emergency containment tank kept empty to receive accidental spills and approved for such use by the appropriate local agency.
(13) Drums located in basements and which contain 55 gallons or less of a hazardous substance.
(14) Underground storage tanks containing hazardous wastes as defined in Section 25316 of the Health and Safety Code if the person owning or operating the underground storage tank has been issued a hazardous waste facilities permit for the underground storage tank by the Department of Toxic Substances Control pursuant to section 25200 of the Health and Safety Code or granted interim status under section 25200.5 of the Health and Safety Code.

(15) A tank and associated piping located in a vault or basement and which meets the requirements of section 25283.5 of the Health and Safety Code.
(16) Any structure specifically exempted by section 25281(x) of the Health and Safety Code.

(b) Sumps which are a part of a monitoring system required under Article 3 are considered part of the secondary containment or leak detection system of the primary containment and are required to meet the appropriate construction criteria.

(c) The owner of a farm or heating oil tank or any tank which is exempt from regulation as an underground storage tank by virtue of its use shall, prior to any change which results in the tank becoming subject to regulation, obtain a valid operating permit.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25281, 25283.5 and 25299.1, Health and Safety Code; 40 CFR 280.10, 280.12.

Article 3. New Underground Storage Tank Design, Construction, and Monitoring Requirements

§ 2630. General Applicability of Article.

(a) The requirements in this article apply to owners of new underground storage tanks. In addition, the applicable repair and upgrade requirements in Article 6 shall be complied with.

(b) Sections 2631 and 2632 specify design, construction, and monitoring requirements for all new underground storage tanks. Sections 2633 and 2634 specify alternate design, construction, and monitoring requirements, in lieu of those specified in sections 2631 and 2632, for underground storage tanks installed before January 1, 1997 which store only motor vehicle fuel. Underground storage tanks constructed pursuant to the requirements specified in section 2633 in lieu of those specified in section 2631shall be monitored in accordance with section 2634.

(c) All new underground storage tanks, piping, and secondary containment systems shall comply with sections 2635 and 2636.

(d) All monitoring equipment used to satisfy the requirements of this article shall meet the requirements of section 2643(f) and shall be installed and maintained such that the equipment is capable of detecting a leak at the earliest possible opportunity. Additionally, all monitoring equipment used to satisfy the requirements of this article shall be installed, calibrated, operated, and maintained in accordance with section 2638.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25281, 25284.1, 25291 and 25292.3, Health and Safety Code; 40 CFR 280.20.

§ 2631. Design and Construction Requirements for New Underground Storage Tanks.

(a) All new underground storage tanks including associated piping used for the storage of hazardous substances shall have primary and secondary containment. Primary containment shall be product-tight. Secondary containment may be manufactured as an integral part of the primary containment or it may be constructed as a separate containment system. Secondary containment systems shall be designed and constructed such that the secondary containment system can be periodically tested in accordance with section 2637(a).

(b) The design and construction of all primary containment including any integral secondary containment system, shall be approved by an independent testing organization in accordance with industry codes, voluntary consensus standards, or engineering standards. All other components used to construct the primary containment system, such as special accessories, fittings, coatings or linings, monitoring systems and level controls shall also be approved by an independent testing organization. This requirement became effective on July 1, 1991 for underground storage tanks; January 1, 1992 for piping; and shall be effective on January 1, 1995 for all other components. The exterior surface of underground storage tanks shall bear a marking, code stamp, or label showing the following minimum information:

(1) Engineering standard used;
(2) Nominal diameter in feet;
(3) Nominal capacity in gallons;
(4) Degree of secondary containment;
(5) Useable capacity in gallons;
(6) Design pressure in psig;
(7) Maximum operating temperature in degrees Fahrenheit;
(8) Construction materials;
(9) Year manufactured; and
(10) Identity of manufacturer.

(c) A primary containment system with or without an integral secondary containment system shall have wear plates (striker plates) installed, center to center, below all accessible openings. The plates shall be made of steel or other appropriate material if steel is not compatible with the hazardous substance stored. The width of the plate shall be at least eight inches on each side, or shall be equal to the area of the accessible opening or guide tube, whichever is larger. The thickness of the steel plate shall be at least 1/8 inch and those made of other materials shall be of sufficient thickness to provide equivalent protection. The plate, if under 1/4 inch thick, shall be rolled to the contours of the underground storage tank and all plates shall be bonded or tack welded in place. A drop tube-mounted bottom protector may fulfill this requirement.

(d) A secondary containment system which is not an integral part of primary containment shall be designed and constructed according to an engineering specification approved by a state registered professional engineer or according to a nationally recognized industry code or engineering standard. The engineering specification shall include the construction procedures. Materials used to construct the secondary containment system shall have sufficient thickness, density, and corrosion resistance to prevent structural weakening or damage to the secondary containment system as a result of contact with any released hazardous substance. The following requirements apply to these secondary containment systems:

(1) The secondary containment system shall be constructed to contain at least the following volumes:

(A) One hundred percent of the usable capacity of the primary containment system where only one primary container is within the secondary containment system.

(B) In the case of multiple primary containers within a single secondary containment system, the secondary containment system shall be large enough to contain 150 percent of the volume of the largest primary container within it, or 10 percent of the aggregate internal volume of all primary containers within the secondary containment system, whichever is greater. When all primary containers are completely enclosed within the secondary containment system, the restrictions of this subsection do not apply.

(2) If the secondary containment system is open to rainfall, it shall be constructed to accommodate the volume of precipitation which could enter the secondary containment system during a 24-hour, 25-year storm in addition to the volume specified in subsection (d)(1).

(3) If backfill material is placed in the secondary containment system, the volumetric requirements for the pore space shall be equal to the requirement in subsection (d)(1). The available pore space in the secondary containment system backfill shall be determined using standard engineering methods and safety factors. The specific retention and specific yield of the backfill material, the location of any primary container within the secondary containment, and the proposed method of operation for the secondary containment system shall be considered in determining the available pore space.

(4) The secondary containment system shall be equipped with a collection system to accumulate, temporarily store, and permit removal of any liquid within the system.

(5) The floor of the secondary containment system shall be constructed on a firm base and, if necessary for monitoring, shall be sloped to a collection sump. One or more access casings shall be installed in the sump and sized to allow removal of collected liquid. The access casing shall extend to the ground surface, be perforated in the region of the sump, and be covered with a locked waterproof cap or enclosed in a surface security structure that will protect the access casing(s) from entry of surface water, accidental damage, unauthorized access, and vandalism. A facility with locked gates will satisfy the requirements for protection against unauthorized access and vandalism. The casing shall have sufficient thickness to withstand all anticipated stresses with appropriate engineering safety factors and constructed of materials that will not be structurally weakened by the stored hazardous substance and will not donate, capture, or mask constituents for which analyses will be made.

(6) Secondary containment systems using membrane liners shall be approved by an independent testing organization in accordance with industry codes, voluntary consensus standards, or engineering standards. A membrane liner shall contain no primary nutrients or food-like substances attractive to rodents and shall meet the requirements in Table 3.1 after a 30-day immersion in the stored hazardous substance.

Table 3.1
Standards for Membrane Liners

Some Acceptable Test Methods
(See Appendix I, Table A)

Property	*Unsupported Liners*	*Supported Liners*	*Requirement*
(A) Tensile strength Tensile strength at yield Tensile strength at break	ASTM D638	ASTM D751 Procedure B (Cut Strip Method)	 >300 lbs/in. of width >200 lbs/in. of width
(B) Permeability	ASTM E96	ASTM E96	<0.65 gram/meter²-hr
(C) Seam Strength	ASTM D413	ASTM D751	= Parent material
(D) Solubility	ASTM D471	ASTM D471	<0.10% by weight
(E) Puncture	 FTMS 101C Method 2065	FTMS 101C Method 2065	350 lbs. 80 lbs.
(F) Tear	 ASTM D1004 DIEC	ASTM D751	125 lbs. 50 lbs.

(7) A membrane liner, if used, shall be installed under the direct supervision of a representative of the membrane liner fabricator or a contractor certified by the fabricator.

(8) The excavation base and walls for a membrane liner shall be prepared to the membrane liner fabricator's specifications and shall be firm, smooth, and free of any sharp objects or protrusions.

(9) The site shall be assessed to ensure that the secondary containment is always above the ground water and not in a 25-year flood plain, unless the containment and monitoring designs are for use under such conditions.

(e) Laminated, coated, or clad materials shall be considered a single wall and do not fulfill the requirements of both primary and secondary containment.

(f) Underground storage tanks with integral secondary containment systems, which satisfy the construction requirements of subsection (b), fulfill the volumetric requirements for secondary containment specified in subsection (d)(1).

(g) Underground storage tanks with secondary containment systems shall be so designed and installed so that any loss of a hazardous substance from the primary containment will be detected by an interstitial monitoring device or method.

(h) An underground storage tank which contains motor vehicle fuel and which is designed with an integral secondary containment system shall provide 100 percent secondary containment unless it is equipped with the overfill prevention system in accordance with section 2635(b)(2)(C). In this case, the top portion of the tank, no greater than two feet wide along the length of the tank, may be single-walled.

(i) Tanks designed and constructed pursuant to the provisions of this section shall be monitored according to the provisions of section 2632.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25281, 25284.1 and 25291, Health and Safety Code; 40 CFR 280.20.

§ 2631.1. Compatibility and Permeability Testing Requirements for All New Underground Storage Tanks.

(a) Owners and operators must use an underground storage tank system made of or lined with materials that are compatible with the substance stored in the underground storage tank system.

(b) For underground storage tank system components installed on or after July 1, 2004, the applicable approvals required in subsections 2631(b) and (d) shall include a list of the compatible products tested and the measured product permeation rates, if such testing is required by the industry code or engineering standard used to evaluate the component. These results shall be provided to the local agency upon request.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25281, 25284.1, 25286, 25291 and 25299, Health and Safety Code; and 40 CFR 280.20, 280.32 and 280.40-280.45.

§ 2632. Monitoring and Response Plan Requirements for New Underground Storage Tanks Constructed Pursuant to Section 2631.

(a) This section is applicable only to underground storage tanks constructed pursuant to the requirements of section 2631.

(b) Owners or operators of underground storage tanks subject to this section shall implement a monitoring program approved by the local agency and specified in the underground storage tank operating permit. The program shall include interstitial space monitoring as described in subsection (c) and shall include the items listed in subsection (d).

(c) Monitoring of the interstitial space shall include either visual monitoring of the primary containment system as described in subsection (c)(1) or one or more of the methods listed in subsection (c)(2).

(1) A visual monitoring program shall incorporate all of the following:

(A) All exterior surfaces of the underground storage tanks and the surface of the floor directly beneath the underground storage tanks shall be capable of being monitored by direct viewing.

(B) Visual inspections shall be performed daily, except on weekends and recognized state and/or federal holidays. Inspections may be more frequent if required by the local agency or the local agency may reduce the frequency of visual monitoring at facilities where personnel are not normally present and inputs to and withdrawals from the underground storage tanks are very infrequent. In these instances, visual inspection shall be made weekly. The inspection schedule shall take into account the minimum anticipated time during which the secondary containment system is capable of containing any unauthorized release and the maximum length of time any hazardous substance released from the primary containment system will remain observable on the surface of the secondary containment system. The inspection schedule shall be such that inspections will occur on a routine basis when the liquid level in the tanks is at its highest. The inspection frequency shall be such that any unauthorized release will remain observable on the exterior of or the surface immediately beneath the underground storage tanks between visual inspections. The evaluation of the length of time the hazardous substance remains observable shall consider the volatility of the hazardous substance and the porosity and slope of the surface immediately beneath the tanks.

(C) The liquid level in the tank shall be recorded at the time of each inspection.

(D) If any liquid is observed around or beneath the primary containment system, the owner or operator shall, if necessary, have the liquid analyzed in the field using a method approved by the local agency or in a laboratory to determine if an unauthorized release has occurred. The owner or operator shall have a tank integrity test conducted, if necessary, to determine whether the primary containment system is leaking. If a leak is confirmed, the owner or operator shall comply with the applicable provisions of Article 5, Article 6, and Article 7.

(2) A monitoring program which relies on the mechanical or electronic detection of the hazardous substance in the interstitial space shall include one or more of the methods in Table 3.2. The following requirements shall apply when appropriate:

(A) The interstitial space of the tank shall be monitored using a continuous monitoring system which meets the requirements of section 2643(f).

(B) The continuous monitoring system shall be connected to an audible and visual alarm system approved by the local agency.

(C) For methods of monitoring where the presence of the hazardous substance is not determined directly, for example, where liquid level measurements in the interstitial space are used as the basis for determination, the monitoring program shall specify the proposed method(s) for determining the presence or absence of the hazardous substance in the interstitial space if the indirect methods indicate a possible unauthorized release.

(d) All monitoring programs shall include the following:

(1) A written procedure for monitoring which establishes:

(A) The frequency of performing the monitoring;

(B) The methods and equipment, identified by name and model, to be used for performing the monitoring;
(C) The location(s), as identified on a plot plan, where the monitoring will be performed;

(D) The name(s) and title(s) of the person(s) responsible for performing the monitoring and/or maintaining the equipment;

(E) The reporting format;

(F) The preventive maintenance schedule for the monitoring equipment. The maintenance schedule shall be in accordance with the manufacturer's instructions, and;

(G) A description of the training necessary for the operation of both the tank system and the monitoring equipment.

(2) A response plan which demonstrates, to the satisfaction of the local agency, that any unauthorized release will be removed from the secondary containment system within the time consistent with the ability of the secondary containment system to contain the hazardous substance, but not more than 30 calendar days or a longer period of time as approved by the local agency. The response plan shall include, but is not limited to, the following:

(A) A description of the proposed methods and equipment to be used for removing and properly disposing of any hazardous substances, including the location and availability of the required equipment if not permanently on- site, and an equipment maintenance schedule for the equipment located on-site.

(B) The name(s) and title(s) of the person(s) responsible for authorizing any work necessary under the response plan.

(e) When implementation of a monitoring program or any other condition indicates that an unauthorized release may have occurred, the owner or operator shall comply with the release reporting requirements of Article 5. If the release came from the tank system, the owner or operator shall replace, repair, or close the tank in accordance with Articles 3, 6, or 7, respectively.

Table 3.2
Methods of Monitoring for Hazardous Substances in the InterstitialSpace of an Underground Storage Tank System

Methods of Monitoring

Condition of the Secondary System [1]	*Type of Substance Stored*	*Liquid Level Indicator[2]*	*Hazardous Substance Sensor[3]*	*Vapor Monitor*	*Pressure or Vacuum Loss Detector[4]*
Dry	Volatile	X	X	X	X
Dry	Nonvolatile	X	X		X
Wet	Volatile	X	X		X
Wet	Nonvolatile	X	X		X

[1] A "dry" system does not contain liquid within the secondary containment during normal operating conditions while a "wet" system does.
[2] Includes continuously operated mechanical or electronic devices.
[3] Includes either qualitative or quantitative determinations of the presence of the hazardous substance.
[4] Detects changes in pressure or vacuum in the interstitial space of an underground storage tank with secondary containment.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25281 and 25291, Health and Safety Code; 40 CFR 280.43.

§ 2633. Alternate Construction Requirements for New Underground Storage Tanks Containing Motor Vehicle Fuel.

(a) This section sets forth alternate construction requirements for new underground storage tanks which contain only motor vehicle fuels. Owners or operators of new underground storage tanks which contain only motor vehicle fuels may comply with this section in lieu of section 2631. If the tanks are constructed in accordance with the requirements of this section, they shall be monitored in accordance with section 2634.

(b) Underground storage tanks used for storage of motor vehicle fuel and constructed in accordance with this section shall be composed of fiberglass-reinforced plastic, cathodically protected steel, or steel clad with fiberglass-reinforced plastic. These tanks shall be installed with the leak interception and detection system constructed in accordance with the requirements of subsections (d) through (f). The primary containment system shall meet the requirements of sections 2631(b) and 2631(c).

(c) Underground storage tanks used for storage of motor vehicle fuel that are constructed of materials other than those specified in subsection (b) shall be constructed in accordance with section 2631 and monitored in accordance with section 2631 and monitored in accordance with section 2632.

(d) The floor of a leak interception and detection system shall be constructed on a firm base and sloped to a collection sump. Methods of construction for a leak interception and detection system using membrane liners shall comply with the requirement of section 2631(d)(6).

(e) Access casings shall be installed in the collection sump of a secondary containment system which has backfill in the interstitial space. The access casing shall be:

(1) Designed and installed to allow the liquid to flow into the casing;

(2) Sized to allow efficient removal of collected liquid and to withstand all anticipated applied stresses using appropriate engineering safety factors;

(3) Constructed of materials that will not be structurally weakened by the stored hazardous substances or donate, capture, or mask constituents for which analyses will be made;

(4) Screened along the entire vertical zone of permeable material which may be installed between the primary container and

the leak interception and detection system;

(5) Capable of preventing leakage of any hazardous substance from the casing to areas outside the leak interception and detection system;

(6) Extended to the ground surface and covered with a locked waterproof cap or enclosed in a secured surface structure that will protect the access casing(s) from entry of surface water, accidental damage, unauthorized access, and vandalism. A facility with locked gates will satisfy the requirements for protection against unauthorized access and vandalism; and

(7) Capable of meeting requirements of local well-permitting agencies.

(f) The leak interception and detection system shall prevent the leaked hazardous substance from entering ground water. The leak interception and detection system shall be situated above the highest anticipated ground water elevation. Proof that the leak interception and detection system will protect ground water shall be demonstrated by the owner or operator of the underground storage tank to the satisfaction of the local agency. In determining whether the leak interception and detection system will adequately protect ground water, the local agency shall consider the following:

(1) The containment volume of the leak interception and detection system;

(2) The maximum leak which could go undetected under the monitoring method required in section 2634 and the maximum period during which the leak will go undetected;

(3) The frequency and accuracy of the proposed method of monitoring the leak interception and detection system;

(4) The depth from the bottom of the leak interception and detection system to the highest anticipated level of ground water;

(5) The nature of the unsaturated soils under the leak interception and detection system and their ability to absorb contaminants or to allow movement of contaminants;
(6) The effect of any precipitation or subsurface infiltration on the movement of any leak of hazardous substance and the available volume of the leak interception and detection system; and

(7) The nature and timing of the response plan required by section 2634 to clean up any hazardous substances which have been discharged from the primary container.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25281 and 25291, Health and Safety Code; 40 CFR 280.20.

§ 2634. Monitoring and Response Plan Requirements for New Underground Storage Tanks Containing Motor Vehicle Fuel and Constructed Pursuant to Section 2633.

(a) This section applies only to underground storage tanks containing motor vehicle fuel and which are constructed in accordance with section 2633.

(b) Owners or operators of tanks which are constructed pursuant to section 2633 and which contain motor vehicle fuel shall implement a monitoring program approved by the local agency and specified in the tank operating permit.

(c) New tanks which contain motor vehicle fuel and which are constructed in accordance with section 2633 shall be monitored as follows:

(1) The leak interception and detection system shall be monitored in accordance with subsection (d) of this section;

(2) The motor vehicle fuel inventory shall be reconciled according to the performance requirements in section 2646; and,

(3) All underground piping shall be tested and monitored in accordance with section 2636.

(d) Before implementing a monitoring program, the owner or operator shall demonstrate to the satisfaction of the local agency that the program is effective in detecting an unauthorized release from the primary container before it can escape from the leak interception and detection system. A monitoring program for leak interception and detection systems shall meet the following requirements:

(1) The system shall detect any unauthorized release of the motor vehicle fuel using either:

(A) One or more of the continuous monitoring methods provided in Table 3.2. The system shall be connected to an audible and visual alarm system approved by the local agency; or,

(B) Manual monitoring. If this method is used, it shall be performed daily, except on weekends and recognized state and/or federal holidays, but no less than once in any 72 hour period. Manual monitoring may be required on a more frequent basis as specified by the local agency.

(2) The owner or operator shall prepare a written procedure for routine monitoring which establishes:

(A) The frequency of performing the monitoring;

(B) The methods and equipment to be used for performing the monitoring;

(C) The location(s) where the monitoring will be performed;

(D) The name(s) and title(s) of the person(s) responsible for performing the monitoring and/or maintaining the equipment;

(E) The reporting format;

(F) The preventive maintenance schedule for the monitoring equipment. The maintenance schedule shall be in accordance with the manufacturer's instructions; and

(G) A description of the training necessary for the operation of both the tank system and the monitoring equipment.

(3) For methods of monitoring where the presence of the hazardous substance is not determined directly, for example, where liquid level measurements are used as the basis for determination (i.e., liquid level measurements), the monitoring program shall specify the proposed method(s) for determining the presence or absence of the hazardous substance if the indirect method indicates a possible unauthorized release of motor vehicle fuel.

(e) A response plan for an unauthorized release shall be developed before the underground storage tank system is put into service. If the leak interception and detection system meets the volumetric requirement of section 2631(d), the local agency shall require the owner to develop a response plan pursuant to the requirements of subsection 2632(d)(2). If the leak interception and detection system does not meet the volumetric requirements of section 2631(d)(1) through (5), the response plan shall consider the following:

(1) The volume of the leak interception and detection system in relation to the volume of the primary container;

(2) The amount of time the leak interception and detection system shall provide containment in relation to the period of time between detection of an unauthorized release and cleanup of the leaked substance;

(3) The depth from the bottom of the leak interception and detection system to the highest anticipated level of ground water;

(4) The nature of the unsaturated soils under the leak interception and detection system and their ability to absorb contaminants or to allow movement of contaminants; and

(5) The methods and scheduling for removal all of the hazardous substances which may have been discharged from the primary container and are located in the unsaturated soils between the primary container and ground water, including the leak interception and detection system sump.

Authority cited: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25281, 25291 and 25292, Health and Safety Code; 40 CFR 280.41.

§ 2635. Installation and Testing Requirements for All New Underground Storage Tanks.

(a) Primary and secondary containment systems shall be designed, constructed, tested, and certified to comply, as applicable, with all of the following requirements:

(1) All underground storage tanks shall be tested at the factory before being transported. The tests shall determine whether the tanks were constructed in accordance with the applicable sections of the industry code or engineering standard under which they were built.

(2) The outer surface of underground storage tanks constructed of steel shall be protected from corrosion as follows, except that primary containment systems installed in a secondary containment system and not backfilled do not need cathodic protection:

(A) Field-installed cathodic protection systems shall be designed and certified as adequate by a corrosion specialist. The cathodic protection systems shall be tested by a cathodic protection tester within six months of installation and at least every three years thereafter. The criteria that are used to determine that cathodic protection is adequate as required by this section shall be in accordance with a code of practice developed in accordance with voluntary consensus standards. Impressed-current cathodic protection systems shall also be inspected no less than every 60 calendar days to ensure that they are in proper working order.

(B) Underground storage tanks protected with fiberglass-reinforced plastic coatings, composites, or equivalent non-metallic exterior coatings or coverings, including coating/sacrificial anode systems, shall be tested at the installation site using an electric resistance holiday detector. All holidays detected shall be repaired and checked by a factory authorized repair service before installation. During and after installation, care shall be taken to prevent damage to the protective coating or cladding. Preengineered corrosion protection systems with sacrificial anodes shall be checked once every three years in accordance with the manufacturer's instructions.

(3) Before installation, the tank shall be tested for tightness at the installation site in accordance with the manufacturer's written guidelines. If there are no guidelines, the primary and secondary containment shall be tested for tightness with air pressure at not less than 3 pounds per square-inch (20.68 k Pa) and not more than 5 pounds per square-inch (34.48 k Pa). In lieu of the above, an equivalent differential pressure test, expressed in inches of mercury vacuum, in the interstitial space of the secondary containment, is acceptable. The pressure (or vacuum in the interstitial space) shall be maintained for a minimum of 30 minutes to determine if the tank is tight. If a tank fails the tightness test, as evidenced by soap bubbles, or water droplets, installation shall be suspended until the tank is replaced or repaired by a factory authorized repair service. Following repair or replacement, the tank shall pass a tightness test.

(4) All secondary containment systems shall pass a post- installation test which meets the approval of the local agency.

(5) After installation, but before the underground storage tank is placed in service, a tank integrity test shall be conducted to ensure that no damage occurred during installation. The tank integrity test is not required if the tank is equipped with an interstitial monitor certified by a third-party evaluator to meet the performance standards of a "tank integrity test" as defined in section 2611, or if the tank is tested using another method deemed by the State Water Resources Control Board to be equivalent.

(6) All underground storage tanks shall be installed according to a code of practice developed in accordance with voluntary consensus standards and the manufacturer's written installation instructions. The owner or operator shall certify that the underground storage tank was installed in accordance with the above requirements as required by subsection (d) of this section.

(7) All underground storage tanks subject to flotation shall be anchored using methods specified by the manufacturer or, if none exist, shall be anchored according to the best engineering judgment.

(b) All underground storage tanks shall be equipped with a spill container and an overfill prevention system as follows:

(1) The spill container shall collect any hazardous substances spilled during product delivery operations to prevent the hazardous substance from entering the subsurface environment. The spill container shall meet the following requirements:

(A) If it is made of metal, the exterior wall shall be protected from galvanic corrosion.

(B) It shall have a minimum capacity of five gallons (19 liters).

(C) It shall have a drain valve which allows drainage of the collected spill into the primary container or provide a means to keep the spill container empty.

(2) The overfill prevention system shall not allow for manual override and shall meet one of the following requirements:

(A) Alert the transfer operator when the tank is 90 percent full by restricting the flow into the tank or triggering an audible and visual alarm; or

(B) Restrict delivery of flow to the tank at least 30 minutes before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95 percent of capacity; and activate an audible alarm at least five minutes before the tank overfills; or

(C) Provide positive shut-off of flow to the tank when the tank is filled to no more than 95 percent of capacity; or,

(D) Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling.

(3) The local agency may waive the requirement for overfill prevention equipment where the tank inlet exists in an observable area, the spill container is adequate to collect any overfill, and the tank system is filled by transfers of no more than 25 gallons at one time.

(c) Secondary containment systems including leak interception and detection systems installed pursuant to section 2633 shall comply with all of the following:

(1) The secondary containment system shall encompass the area within the system of vertical planes surrounding the exterior of the primary containment system. If backfill is placed between the primary and secondary containment systems, an evaluation shall be made of the maximum lateral spread of a point leak from the primary containment system over the vertical distance between the primary and secondary containment systems. The secondary containment system shall extend an additional distance beyond the vertical planes described above equal to the radius of the lateral spread plus one foot.

(2) The secondary containment system shall be capable of preventing the inflow of the highest ground water anticipated into the interstitial space during the life of the tank.

(3) If the interstitial space is backfilled, the backfill material shall not prevent the vertical movement of leakage from any part of the primary containment system.

(4) The secondary containment system with backfill material shall be designed and constructed to promote gravity drainage of an unauthorized release of hazardous substances from any part of the primary containment system to the monitoring location(s).

(5) Two or more primary containment systems shall not use the same secondary containment system if the primary containment systems store materials that in combination may cause a fire or explosion, or the production of a flammable, toxic, or poisonous gas, or the deterioration of any part of the primary or secondary containment system.

(6) Drainage of liquid from within a secondary containment system shall be controlled in a manner approved by the local agency to prevent hazardous materials from being discharged into the environment. The liquid shall be analyzed to determine the presence of any of the hazardous substance(s) stored in the primary containment system prior to initial removal, and monthly thereafter, for any continuous discharge (removal) to determine the appropriate method for final disposal. The liquid shall be sampled and analyzed immediately upon any indication of an unauthorized release from the primary containment system.

(7) For primary containment systems installed completely beneath the ground surface, the original excavation for the secondary containment system shall have a water-tight cover which extends at least one foot beyond each boundary of the original excavation. This cover shall be asphalt, reinforced concrete, or equivalent material which is sloped to drainways leading away from the excavation. Access openings shall be constructed as water-tight as practical. Primary containment systems with integral secondary containment and open vaults are exempt from the requirements of this subsection.

(8) The actual location and orientation of the tanks and appurtenant piping systems shall be indicated on as-built drawings of the facility. Copies of all drawings, photographs, and plans shall be submitted to the local agency for approval.

(d) Owners or their agents shall certify that the installation of the tanks and piping, meets the conditions in subdivision (1) through (4) below. The certification shall be made on a "Certificate of Compliance for Underground Storage Tank Installation Form C" (see Appendix V).

(1) The installer has met the requirements set forth in section 2715, subdivisions (g) and (h);

(2) The underground storage tank, any primary piping, and any secondary containment, was installed according to applicable voluntary consensus standards and any manufacturer' s written installation instructions;

(3) All work listed in the manufacturer' s installation checklist has been completed; and

(4) The installation has been inspected and approved by the local agency, or, if required by the local agency, inspected and certified by a registered professional engineer who has education and experience with underground storage tank system installations.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25281, 25284.1, 25291 and 25299, Health and Safety Code; 40 CFR 280.20, 280.40-280.45.

§ 2636. Design, Construction, Installation, Testing, and Monitoring Requirements for Piping.

(a) Except as provided below, piping connected to tanks which were installed after July 1, 1987, shall have secondary containment that complies with the requirements of section 2631 for new underground storage tanks. This requirement does not apply to piping described as follows:

(1) vent or tank riser piping, provided the primary containment system is equipped with an overfill prevention system meeting the requirements specified in sections 2635(b)(2)(B) or (C); or,

(2) vapor recovery piping if designed so that it cannot contain liquid-phase product; or,

(3) suction piping if the piping is designed, constructed, and installed as follows:

(A) The below-grade piping operates at less than atmospheric pressure (suction piping);

(B) The below-grade piping is sloped so that the contents of the pipe will drain back into the storage tank if the suction is released (gravity-flow piping);

(C) No valves or pumps are installed below grade in the suction line. Only one check valve is located directly below and as close as practical to the suction pump;

(D) An inspection method is provided which readily demonstrates compliance with subdivisions (A) through (C) above.

(b) All corrodible underground piping, if in direct contact with backfill material, shall be protected against corrosion. Piping constructed of fiberglass-reinforced plastic, steel with cathodic protection, or steel isolated from direct contact with backfill, fulfills this corrosion protection requirement. Cathodic protection shall meet the requirements of section 2635(a)(2).

(c) Underground primary piping shall meet all of the following requirements:

(1) Primary piping in contact with hazardous substances under normal operating conditions shall be installed inside a secondary containment system which may be a secondary pipe, vault, or a lined trench. All secondary containment systems shall be sloped so that all releases will flow to a collection sump located at the low point of the underground piping.

(2) Primary piping and secondary containment systems shall be installed in accordance with an industry code of practice developed in accordance with voluntary consensus standards. The owner or operator shall certify that the piping was installed in accordance with the above requirements of section 2635(d). The certification shall be made on the "Certificate of Compliance for Underground Storage Tank Installation Form C" (see Appendix V).

(d) Lined trench systems used as part of a secondary containment system shall be designed and constructed according to a code

of practice or engineering standard approved by a state registered professional engineer. The following requirements shall also apply:

(1) All trench materials shall be compatible with the substance stored and evaluated by an independent testing organization for their compatibility or adequacy of the trench design, construction, and application.

(2) The trench shall be covered and capable of supporting any expected vehicular traffic.

(e) All new primary piping and secondary containments systems shall be tested for tightness after installation in accordance with manufacturer' s guidelines. Primary pressurized piping shall be tested for tightness hydrostatically at 150 percent of design operating pressure or pneumatically at 110 percent of design operating pressure. If the calculated test pressure for pressurized piping is less than 40 psi, 40 psi shall be used as the test pressure. The pressure shall be maintained for a minimum of 30 minutes and all joints shall be soap tested. A failed test, as evidenced by the presence of bubbles, shall require appropriate repairs and retesting. if there are no manufacturer' s guidelines, secondary containment systems shall be tested using an applicable method specified in an industry code or engineering standard. Suction piping and gravity flow piping which cannot be isolated from the tank shall be tested after installation in conjunction with an overfilled volumetric tank integrity test or other test method meeting the requirements of section 2643(f), if approved by the local agency.

(f) Underground piping with secondary containment, including under-dispenser piping with secondary containment, shall be equipped and monitored with monitoring systems as follows:

(1) All secondary containment, including under-dispenser containment, and under-dispenser spill control or containment systems shall be equipped with a continuous monitoring system that either activates an audible and visual alarm or stops the flow of product at the dispenser when it detects a leak.

(2) Automatic line leak detectors shall be installed on underground pressurized piping and shall be capable of detecting a 3-gallon per hour leak rate at 10 psi within 1 hour with a probability of detection of at least 95 percent and a probability of false alarm no greater than 5 percent, and shall restrict or shut off the flow of product through the piping when a leak is detected.

(3) Until November 9, 2004, other monitoring methods may be used in lieu of the requirement in subdivision (2) if it is demonstrated to the satisfaction of the local agency that the alternate method is as effective as the methods otherwise required by this section. Continuous monitoring systems as described in subdivision (1), which shut down the pump in addition to either activating the audible and visual alarm or stopping the flow of product at the dispenser, satisfy the automatic line leak detector requirement of subdivision (2).

(4) Monitoring shall be conducted on all underground pressurized piping with secondary containment at least annually at a pressure designated by the equipment manufacturer, provided that the method is capable of detecting a minimum release equivalent to 0.1 gallon per hour defined at 150 percent of the normal operating pressure of the product piping system at the test pressure with at least a 95 percent probability of detection and not more than a 5 percent probability of false alarm.

(5) Continuous monitoring systems as described in subdivision (f)(1) satisfy the annual tightness testing requirement of subdivision (f)(4) if both of the following conditions are met:

(A) The monitoring system shuts down the pump or stops the flow of product at the dispenser when a leak is detected in the under- dispenser containment.

(B) The monitoring system for all product piping other than that contained in the under-dispenser containment is fail safe, and shuts down the pump when a leak is detected.

(6) For emergency generator tank systems, continuous monitoring systems as described in subdivision (1), which activate an audible and visual alarm in the event of a leak or a malfunction of the monitoring system satisfy the automatic line leak detector requirement of subdivision (2), provided that the monitoring system is checked at least daily by either remote electronic access or on-site visual inspections. A log of daily checks shall be available for local agency review upon request.

(g) Under-dispenser containment shall be designed, constructed, and installed in accordance with the following:

(1) Owners or Operators of a UST system shall have the system fitted with under-dispenser containment, or an approved under-dispenser spill containment or control system according to the following schedule:

(A) At the time of installation for systems installed after January 1, 2000.

(B) By July 1, 2001, for systems installed after July 1, 1987 that are located within 1,000 feet of a public drinking water well, as identified pursuant to the state Geographic Information System mapping database.

(C) By December 31, 2003, for systems not subject to subsection 2636(g)(1)(A) or (B).

(2) Under-dispenser containment shall be designed, constructed, installed, and monitored in accordance with section 2631, 2636(c)(2), 2636(e), and 2636(f).

(3) A manufacturer of an under-dispenser spill containment or control system may apply to the Division of Water Quality Underground Storage Tank Program Manager for approval of the system. Owners or operators shall not install an under-dispenser spill containment or control system that has not been approved.

(A) Applications for approval shall be submitted in writing and include the following:

(i) A description of the proposed system.

(ii) Clear and convincing evidence that the system will protect the soil and beneficial uses of the waters of the state from unauthorized releases.

(B) The Program Manager shall review the application to determine if the proposed system adequately protects the soil and beneficial uses of groundwater before determining whether to approve the proposed system.

(C) The Program Manager may modify or revoke a previously issued approval if it finds that, based on new evidence, the approved system does not adequately protect the soil and beneficial uses of groundwater from unauthorized releases.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25281, 25284.1 25291 and 25299, Health and Safety Code; and 40 CFR 280.20 and 280.40-280.45.

§ 2636.1. Final Division Decisions Regarding Under-Dispenser Containment or Control Systems.

(a) A manufacturer of an under-dispenser spill containment or control system who disagrees with a determination by the Program Manager not to approve the manufacturer's system under section 2636(g)(3)(B) or to modify or revoke a previously issued approval of the manufacturer's system under section 2636(g)(3)(C) may ask for a review by the Division Chief.

(b) An appeal to the Division Chief must be in writing and must be accompanied by all material that the manufacturer wishes to be considered by the Division Chief, and by the Board in any subsequent review by the Board. The appeal must contain an explanation why the manufacturer believes the Program Manager's determination is erroneous, inappropriate, or improper.

(c) The Division Chief shall render a Final Division Decision within 30 days of receipt of the appeal. A Final Division Decision is final and conclusive unless the manufacturer files a petition for review with the Board that is received by the Board within 30 days from the date of the Final Division Decision.

(d) The Division Chief may at any time, on the Division Chief's own motion, issue a Final Division Decision.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25284.1, Health and Safety Code.

§ 2636.2. Petition for Board Review Regarding Under-Dispenser Spill Containment or Control Systems.

(a) A manufacturer may petition the Board for review of a Final Division Decision.

(b) A petition for Board review shall contain the following:

(1) The name and address of the petitioner;

(2) A statement of the date on which the petitioner received the Division's final decision;

(3) A copy of the Final Division Decision that the Board is requested to review;

(4) An explanation why the petitioner believes the Final Division Decision is erroneous, inappropriate, or improper;

(5) A statement describing how the petitioner is damaged by the Final Division Decision; and

(6) A description of the remedy or outcome desired.

(c) The petition shall be sent to the Board Chairperson, with copies sent to the Chief Counsel of the Board, and the Division Chief.

(d) The petitioner may request a hearing for the purpose of presenting factual material not presented to the Division Chief or for oral argument or both. The request to present material that was not presented to the Division Chief must include a description of the factual material that the petitioner wishes to submit, the facts that the petitioner expects to establish, and an explanation of the reasons why the petitioner could not previously submit the new material to the Division Chief. The petitioner must include with the petition a copy of any new documentary material that the petitioner wishes to present to the Board.

(e) The Division Chief may file a response to the petition with the Board within 30 days of the Board's notification to the petitioner that the petition is complete. The Division must provide a copy of any response to the petitioner. The Board may extend the time for filing a response by the Division Chief.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25284.1, Health and Safety Code.

§ 2636.3. Defective Petitions.

Upon the Board's receipt of a petition which does not comply with section 2636.2 of this chapter, the Board, through its Chief Counsel, will advise the petitioner of the manner in which the petition is defective and allow a reasonable time within which an amended petition may be filed. If the Board does not receive a properly amended petition within the time allowed, the petition shall be dismissed.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25284.1, Health and Safety Code.

§ 2636.4. Action by the Board Regaring Under-Dispenser Spill Containment or Control Systems.

(a) In response to the petition, the Board may:

(1) Refuse to review the petition if it is late or fails to raise substantial issues that are appropriate for Board review;

(2) Affirm the final decision that the Board has been requested to review;

(3) Set aside or modify the final decision that the Board has been requested to review; or

(4) Take such other action as the Board deems appropriate.

(b) Before taking action, the Board may, at its discretion, hold a hearing, or provide for an informal meeting between the petitioner, the Division Chief, a member of the Board, and such other persons as the Board deems appropriate for the purpose of attempting to resolve the dispute.

(c) If an evidentiary hearing is held, it shall be conducted in accordance with the California Code of Regulations, title 23, division 3, Chapter 1.5, article 2.

(d) The Board reserves the right, at its discretion, to consider a petition upon its own motion.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.

Reference: Section 25284.1, Health and Safety Code.

§ 2637. Secondary Containment Testing.

(a) Secondary containment systems installed on or after January 1, 2001 shall be tested upon installation, 6 months after installation, and every 36 months thereafter. Secondary containment systems installed prior to January 1, 2001 shall be tested by January 1, 2003 and every 36 months thereafter.

(b) By December 31, 2002, the owner or operator of any secondary containment system that the owner or operator determines cannot be tested in accordance with this section shall replace the secondary containment system with a system that can be tested in accordance with this section. As an alternative, the owner or operator may submit a proposal and workplan for enhanced leak detection to the local agency in accordance with subdivisions 2644.1(a)(1), (2), (4), and (5) by July 1, 2002; complete the program of enhanced leak detection by December 31, 2002; and replace the secondary containment system with a system that can be tested in accordance with this section by July 1, 2005. The local agency shall review the proposed program of enhanced leak detection within 45 days of submittal or re-submittal.

(c) Periodic testing of secondary containment systems shall be conducted using a test procedure that demonstrates that the system performs at least as well as it did upon installation. For example, if the secondary containment system was tested upon installation by using a test method that applied a pressure of 5 psi, then the periodic test must be conducted using a method that tests the system at an equivalent pressure. These tests shall be performed in accordance with manufacturer' s guidelines or standards. If there are no manufacturer' s guidelines or standards, secondary containment systems must be tested using an applicable method specified in an industry code or engineering standard. If there are no applicable manufacturers guidelines, industry codes, or engineering standards a test method approved by a state registered professional engineer shall be used.

(d) Secondary containment testing shall be performed by either a service technician or a licensed tank tester, both of which must meet the requirements of section 2715, subdivision (i).

(e) Underground storage tank owners and operators shall submit a copy of the test report to the local agency within 30 days of the completion of the test.

(f) Owners and operators of underground storage tanks must notify the local agency at least 48 hours prior to conducting the test, unless this notification requirement is waived by the local agency.

(g) Secondary containment systems where the continuous monitoring automatically monitors both primary and secondary containment, such as systems that are hydrostatically monitored or under constant vacuum, are exempt from periodic secondary containment testing.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25281, 25284.1, 25291 and 25292, Health and Safety Code; 40 CFR 280.41.

§ 2638. Annual Certification of Monitoring Equipment.

(a) All monitoring equipment used to satisfy the requirements of this article shall be installed, calibrated, operated and maintained in accordance with manufacturer' s instructions, and certified every 12 months for operability, proper operating condition, and proper calibration. Written records shall be maintained as required in section 2712.

(b) Persons performing installation, repair, maintenance, calibration, or annual certification of monitoring equipment shall meet the requirements set forth in section 2715, subdivision (i).

(c) Annual monitoring equipment certification shall be made on a "Monitoring System Certification" form (see Appendix VI).

(d) UST owners and operators shall submit a completed "Monitoring System Certification" form to the local agency within 30 days after completion of the inspection.

(e) The UST owner or operator shall notify the local agency at least 48 hours prior to conducting the installation, repair, replacement, calibration, or certification of monitoring equipment unless the notification requirement is waived by the local agency.

(f) A person conducting UST monitoring equipment certification shall affix a tag/sticker on each monitoring equipment component that is being certified, repaired, or replaced. The tag/sticker shall be placed in a readily visible location and shall include the date the UST component was certified, repaired, or replaced, and the contractor' s license number.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25281, 25284.1, 25291 and 25292, Health and Safety Code; 40 CFR 280.41.

Article 4. Existing Underground Storage Tank Monitoring Requirements

§ 2640. General Applicability of Article.

(a) The requirements of this article apply to owners or operators of existing underground storage tanks.

(b) The requirements of this article apply during the following periods:

(1) Any operating period, including any period during which the tank is empty as a result of withdrawal of all stored substances before input of additional hazardous substances;

(2) Any period during which hazardous substances are stored in the tank, and no filling or withdrawal is conducted; and

(3) Any period between cessation of the storage of hazardous substances and the actual completion of closure, pursuant to Article 7, unless otherwise specified by local agency, pursuant to section 2671(b), during a temporary closure period.

(c) This article shall not apply to underground storage tanks that are designed, constructed, installed, and monitored in accordance with Article 3.

(d) Owners or operators of tanks monitored pursuant to section 25292(b)(5)(A) of the Health and Safety Code shall comply with the requirements of section 2645. Tank systems having a capacity of more than 2,000 gallons shall not be monitored pursuant to section 25292(b)(5)(A) of the Health and Safety Code.

(e) An owner or operator of an underground storage tank system with a single-walled component that is located within 1,000 feet of a public drinking water well, as notified by the board according to its Geographic Information System mapping database, shall implement a program of enhanced leak detection or monitoring for that tank system in accordance with section 2644.1. Additionally, the following conditions for enhanced leak detection shall apply:

(1) For the purpose of section 2644.1, vent or tank riser piping, vapor recovery piping, and suction piping that meet the definitions of section 2636(a)(1), (2), or (3), are not considered single-walled components.

(2) Owners or operators notified by the board who believe that their facility is not subject to this requirement may request reconsideration by the Division of Clean Water Programs Underground Storage Tank Program Manager. The request shall be in writing and received by the Underground Storage Tank Program Manager within 60 calendar days of the date the notification was mailed. The Program Manager shall make a decision on the request, and notify the applicable local agency of this decision, within 90 calendar days of receipt of the request.

(3) The request for reconsideration must include the name and address of the subject facility, the name and address of the owner or operator submitting the request, and the reason(s) why the requester believes the board notification was in error. If the request is based on evidence that the UST system in question is greater than 1,000 feet from a public drinking water well, the request shall include a demonstration that the center of the well head is more than 1,000 ft from the closest component of the UST system. If the request is based on evidence that the subject UST system does not have a single-walled component, the request shall include supporting documentation. A copy of the request shall be concurrently submitted to the local agency.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25292 and 25292.4, Health and Safety Code; 40 CFR 280.40, 280.42 and 280.43(b).

§ 2641. Monitoring Program Requirements.

(a) Owners or operators of existing underground storage tanks subject to this article shall implement a monitoring program which is capable of detecting an unauthorized release from any portion of the underground storage tank system at the earliest possible opportunity.

(b) Underground piping shall be exempt from monitoring requirements if the local agency determines that the piping has been designed and constructed in accordance with section 2636(a)(3).

(c) All underground piping that operates at less than atmospheric pressure, unless it is exempt from monitoring under subsection (b), shall comply with the monitoring requirements of section 2643(d) and shall also include daily monitoring as described in Appendix II.

(d) All portions of the underground storage tank system shall be visually monitored in accordance with section 2642. A portion of the underground storage tank shall be exempt from visual monitoring if the owner demonstrates to the satisfaction of the local agency that one or more of the following conditions apply to that portion:

(1) It is not accessible for direct viewing;

(2) Visual inspection would be hazardous or would require the use of extraordinary personal protection equipment other than normal protective equipment such as steel-toed shoes, hard hat, or ear protection; or

(3) The underground storage tank is located at a facility which is not staffed on a daily basis.

(e) Non-visual monitoring shall be implemented for all portions of the underground storage tank which are exempt under subsection (d) and, for the underground storage tank, during periods when visual monitoring required under subsection (d) is not conducted. This non-visual monitoring shall include a quantitative release detection method as specified in section 2643 or a qualitative release detection method as specified in section 2644 or a combination of these methods as approved by the local agency.

(f) Non-visual monitoring for underground pressurized piping shall include a quantitative release detection method that complies with the performance requirements in section 2643(c)(1).

(g) The monitoring program shall be approved by the local agency and shall be in compliance with the requirements of this article and with the underground storage tank operating permit. The local agency may require additional monitoring methods specified in the operating permit or more frequent monitoring as necessary to satisfy the objective in subsection (a). In deciding whether to approve a proposed monitoring program, or to require additional methods or more frequent monitoring, the local agency shall consider the following factors:

(1) The volume and physical and chemical characteristics of the hazardous substance(s) stored in the underground storage tank;

(2) The compatibility of the stored hazardous substance(s) and any chemical reaction product(s) with the function of monitoring equipment or devices;

(3) The reliability and consistency of the proposed monitoring equipment and systems under site-specific conditions;

(4) The depth and quantity of ground water and the direction of ground water flow;

(5) The patterns of precipitation in the region and any ground water recharge which occurs as a result of precipitation;

(6) The existing quality of ground water in the area, including other sources of contamination and their cumulative impacts;

(7) The current and potential future uses (e.g., domestic, municipal, agricultural, industrial supply) of ground water in the area;

(8) The proximity and withdrawal rates of ground water users in the area;

(9) The type, homogeneity, and range of moisture content of the backfill material and native soils and their probable effects on contaminant migration and detection;

(10) The presence of contamination in the excavation zone or surrounding soils;

(11) The proximity of the underground storage tank to surface waters; and

(12) Additional hydrogeologic characteristics of the zone surrounding the underground storage tank.

(h) The monitoring program shall include written monitoring procedures and a response plan as set forth in section 2632(d).

(i) If the local agency does not approve the monitoring program, the owner or operator shall replace, repair, upgrade, or close the tank in accordance with the applicable provisions of this chapter and local agency approval.

(j) Equipment and devices used to monitor underground storage tanks shall be installed, calibrated, operated, and maintained in accordance with section 2638.

(k) When an unauthorized release is indicated during the installation of a release detection system, the owner or operator shall comply with the release reporting requirements of Article 5 and, if the release came from the existing tank, shall cease the installation process until the tank system is replaced, repaired, upgraded, or closed in accordance with the applicable provisions of this chapter.

(l) When implementation of the monitoring program, or any condition, indicates that an unauthorized release may have occurred, the owner or operator shall comply with the release reporting requirements of Article 5 and shall replace, repair, or close the underground storage tank in accordance with the applicable provisions of this chapter.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25283, 25284.1, 25291 and 25292, Health and Safety Code; 40 CFR 280.40 and 280.41.

§ 2642. Visual Monitoring.

(a) An owner or operator who is required pursuant to section 2641(d) to implement a visual monitoring program shall comply with all of the following requirements:

(1) All visible exterior surfaces of an underground storage tank, including any visible horizontal surface directly beneath the underground storage tank, shall be inspected at least daily by direct viewing. The inspection schedule shall be established so that some inspections are conducted when the substance in the underground storage tank is at its highest level;

(2) A written statement of the routine monitoring procedure shall be available at the facility and the record shall include the frequency of visual inspections, the location(s) from which inspections will be made, the name(s) and title(s) of the person(s) responsible for inspections, and the reporting format;

(3) Written records shall be maintained according to section 2712 of Article 10 and shall specify the liquid level in the underground storage tank at the time of each inspection. These records shall also include a description of any sampling, analyses, and testing procedures conducted to satisfy subsection (b) of this section, including any minimum levels of detection used.

(b) If any liquid is observed around or beneath the underground storage tank system, the owner or operator shall determine if an unauthorized release has occurred. An underground storage tank integrity test shall be conducted, if necessary, to determine whether the underground storage tank system is leaking. If a leak is confirmed, the owner or operator shall comply with the release reporting requirements in Article 5 and shall replace, repair, upgrade, or close the tank in accordance with the applicable provisions of this chapter.

(c) Visual monitoring of the exposed portion of a partially concealed underground storage tank shall not relieve an owner or operator from monitoring the concealed portion of the tank using a non-visual monitoring method as specified in section 2641.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25292 and 25293, Health and Safety Code.

§ 2643. Non-Visual Monitoring/Quantitative Release Detection Methods.

(a) Non-visual quantitative release detection methods shall comply with the requirements of this section. Subsection (b) contains monitoring requirements for underground storage tanks; subsection (c) for pressurized piping; subsection (d) for suction piping; and subsection (e) for gravity-flow piping. Examples of release detection methods that may be used to meet the requirements of this section are in Appendix III.

(b) Quantitative release detection method used to monitor underground storage tanks shall be conducted according to one of the methods listed in subdivisions (1) through (5) below. These quantitative monitoring methods shall meet the requirements of section 2643(f) and shall be capable of detecting release rates specified in this section with at least a 95 percent probability of

detection and not more than a 5 percent probability of false alarm.

(1) Automatic tank gauge -

The automatic tank gauge shall test the tank at least once per month after product delivery or when the tank is filled to within 10 percent of the highest operating level during the previous month and shall be capable of detecting a release of 0.2 gallon per hour. The automatic tank gauge shall generate a hard copy of all data reported including time and date, tank identification, fuel depth, water depth, temperature, liquid volume, and the duration of the test. Automatic tank gauge systems installed on or after January 1, 1995, shall also generate a hard copy of the calculated leak rate and leak threshold.

(2) Automatic tank gauge plus manual inventory reconciliation -

The automatic tank gauge shall test the tank at least once per month when the product level in the tank is at least three feet and shall be capable of detecting a release of 0.1 gallon per hour. The automatic tank gauge shall generate hard copies of data as specified in subdivision (b)(1) above. In addition, manual inventory reconciliation shall be conducted in accordance with section 2646 (except for subsection [b]).

(3) Statistical inventory reconciliation plus tank integrity testing -

Statistical inventory reconciliation shall be conducted at least once per month in accordance with section 2646.1 and shall be capable of detecting a release of 0.2 gallon per hour. In addition, a tank integrity test shall be conducted once every two years in accordance with section 2643.1.

(4) Manual inventory reconciliation plus tank integrity testing -

Manual inventory reconciliation shall be conducted at least once per month in accordance with section 2646 and shall be capable of detecting a release of 1.0 gallon per hour. In addition, a tank integrity test shall be conducted once per year in accordance with section 2643.1.

(5) Other test methods -

Other equivalent test methods may be used following review by the State Water Board for compliance with this section and section 2643(f).

(c) Piping that conveys hazardous substances under pressure shall be monitored in accordance with subdivision (c)(1), and either subdivision (2) or (3).

(1) Monitoring shall be conducted at least hourly at any pressure. The monitoring method shall be capable of detecting a release equivalent to 3.0 gallons per hour defined at 10 pounds per square inch pressure within one hour of its occurrence with at least a 95 percent probability of detection and not more than a 5 percent probability of false alarm. The leak detection method shall restrict or shut off the flow of product through the piping or trigger a visual and audible alarm if an unauthorized release occurs. If the use of piping is intermittent, leak detection monitoring is required only at the beginning or end of the period during which the piping is under pressure, but in any event there shall not be more than one hour between the time the equipment initiates the test and detection of an unauthorized release; and

(2) Monitoring shall be conducted at least monthly at any pressure. The monitoring method shall be capable of detecting a minimum release equivalent to 0.2 gallon per hour defined at normal operating pressure; or,

(3) Monitoring shall be conducted at least annually (once per calendar year) at a pressure designated by the equipment manufacturer. The monitoring method shall be capable of detecting a minimum release equivalent to 0.1 gallon per hour defined at 150 percent (one and one half times) the normal operating pressure.

(d) Piping that conveys hazardous substances under less than atmospheric pressure (suction piping) shall be tested at least every three years at a pressure designated by the test equipment manufacturer. The test method shall by capable of detecting a minimum release equivalent to 0.1 gallon per hour defined at a minimum of 40 psi with at least a 95 percent probability of detection and not more than a 5 percent probability of false alarm. If the piping cannot be isolated from the tank for testing purposes, the piping shall be tested using an overfilled volumetric tank integrity test or other test method meeting the requirements of section 2643(f) if approved by the local agency. Daily monitoring shall be performed as described in Appendix II except for emergency generator systems, which may be monitored less often, but at least monthly. Written records describing the results of the monitoring shall be maintained in accordance with section 2712(b).

(e) Piping that conveys hazardous substances by the force of gravity (excluding vertical drops) shall be monitored at least once every two years at a pressure designated by the test equipment manufacturer. The method shall be capable of detecting a minimum release equivalent to 0.1 gallon per hour defined at 40 psi. If the piping cannot be isolated from the tank for testing purposes, the piping shall be tested using an overfilled volumetric tank integrity test or other test method meeting the requirements of section 2643(f) if approved by the local agency.

(f) Each quantitative release detection method, with the exception of manual inventory reconciliation and manual tank gauging, shall be certified to comply with the performance standard(s) specified in this section and shall be subject to limitations specified in the certification. This certification shall be obtained by the equipment manufacturer following one of the evaluation procedures in subdivisions (1) through (3) below:

(1) An independent third party testing laboratory shall evaluate and approve the method using the appropriate "EPA Standard Test Procedure" for leak detection equipment in Appendix IV; or,

(2) An independent third party testing laboratory shall evaluate and approve the method using a voluntary consensus standard that is intended for the method being evaluated; or,

(3) An independent third party testing laboratory shall evaluate and approve the method using a procedure deemed equivalent to an EPA procedure. Any resultant certification shall include a statement by the association or laboratory that the conditions under which the test was conducted were at least as rigorous as those used in the EPA standard test procedure. This certification shall include statements that:

(A) The method was tested under various conditions that simulate interferences likely to be encountered in actual field conditions (no fewer nor less rigorous than the environmental conditions used in the corresponding EPA test procedure);

(B) Each condition under which the method was tested was varied over a range expected to be encountered in 75 percent of the normal test cases;

(C) All portions of the equipment or method evaluated received the same evaluation;

(D) The amount of data collected and the statistical analysis are at least as extensive and rigorous as the data collected and statistical analysis used in the corresponding EPA test procedure and are sufficient to draw reasonable conclusions about the equipment or method being evaluated;

(E) The full-sized version of the leak detection equipment was physically tested; and

(F) The experimental conditions under which the evaluation was performed and the conditions under which the method was recommended for use have been fully disclosed and that the evaluation was not based solely on theory or calculation.

(4) The evaluation results referred to in subsections (f)(2) and (f)(3) shall contain the same information and shall be reported following the same general format as the EPA standard results sheet as any corresponding EPA test procedure.

(g) The underground storage tank owner or operator shall notify the local agency 48 hours before conducting a tank or piping integrity test unless the notification requirement is waived by the local agency. Within 30 calendar days of completion of an underground storage tank or piping integrity test, the tank owner or operator shall provide the local agency with a report. The results of any underground storage tank tests, other than those required by this article, performed on the underground storage tank or piping to detect an unauthorized release shall be reported by the owner or operator to the local agency within 30 calendar days of completion of the test. The report shall be presented in written and/or tabular format, as appropriate, and shall be at a level of detail appropriate for the release detection method used.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25292, Health and Safety Code; 40 CFR 280.40-280.45.

§ 2643.1. Tank Integrity Testing Requirements.

Tank integrity testing shall meet the requirements of section 2643(f) and shall be conducted using one of the two methods in subsections (a) or (b) below. Tank integrity test methods shall account for the effects of thermal expansion or contraction of the product, vapor pockets, tank deformation, evaporation or condensation, and the presence of water in the backfill:

(a) A volumetric tank integrity test shall be capable of detecting a release of 0.1 gallon per hour from any portion of the tank when the tank is at least 65% full of product or at any product level if the product-filled portion of the tank is tested under pressure equivalent to that of a full tank. If any volumetric tank integrity test is conducted at a product level lower than the overfill protection device set point, a test meeting the requirements of subsection (b) must be used to test the ullage portion of the tank.

(b) A nonvolumetric tank integrity test shall be capable of detecting a release of 0.1 gallon per hour from any portion of the tank at any product level.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25292, Health and Safety Code; and 40 CFR 280.40 - 280.45.

§ 2644. Non-Visual Monitoring/Qualitative Release Detection Methods.

(a) An owner or operator who is required, pursuant to section 2641, to establish a non-visual monitoring program, shall comply with the requirements of this section if a qualitative release detection method is used. Each qualitative release detection method, including interstitial monitors, shall have an independent third-party evaluation to certify accuracy and response time of the detection method in accordance with procedures in Appendix IV. Examples of qualitative release detection methods that may be used are in Appendix III.

(b) If vadose zone monitoring is used as a release detection method, it shall be conducted in accordance with section 2647.

(c) If ground water monitoring is used as a release detection method, it shall be conducted in accordance with section 2648.

(d) A qualitative release detection method which includes the installation of monitoring wells or drilling other borings shall comply with installation, construction, and sampling and analysis procedures in section 2649.

(e) Underground pressurized piping that is monitored at least monthly by a non-visual qualitative release detection method satisfies the annual tightness test requirement of section 25292(e) of the Health and Safety Code.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25292, Health and Safety Code; 40 CFR 280.43.

§2644.1. Enhanced Leak Detection.

(a) An owner or operator who is required, pursuant to section 2640(e), to implement a program of enhanced leak detection or monitoring shall comply with the requirements of this section as follows:

(1) Enhanced leak detection means a test method that ascertains the integrity of an underground tank system by introduction, and external detection, of a substance that is not a component of the fuel formulation that is stored in the tank system.

(2) The enhanced leak detection test method shall be third party certified, in accordance with section 2643(f), for the capability of detecting both vapor and liquid phase releases from the underground storage tank system. The enhanced leak detection test method shall be capable of detecting a leak rate of at least 0.005 gph, with a probability of detection of at least 95% and a probability of false alarm no greater than 5%.

(3) Owners and operators subject to the requirements of this section shall have a program of enhanced leak detection reviewed and approved by the local agency within 6 months following notification by the board The enhanced leak detection shall be implemented no later than 18 months following receipt of notification from the board and repeated every 36 months thereafter.

(4) Owners and operators of underground storage tanks subject to the requirements of this section must notify the local agency at least 48 hours prior to conducting the enhanced leak detection test unless this notification requirement is waived by the local agency.

(5) Owners and operators of underground storage tanks subject to the requirements of this section shall submit a copy of the enhanced leak detection test report to the board and the local agency within 60 days of completion of the test.

Authority: Sections 25299.3, and 25299.7, Health and Safety Code.
Reference: Sections 25283, 25291, 25292 and 25292.4, Health and Safety Code; 40 CFR 280.40 and 280.41.

§ 2645. Manual Tank Gauging and Testing for Small Tanks.

(a) Manual tank gauging may be used as part of a non-visual monitoring program for existing underground storage tanks which have a total system capacity of 2,000 gallons or less and which can be taken out of service for at least 48 or 72 continuous hours each week as indicated in Table 4.1.

(b) Manual tank gauging shall be conducted weekly in accordance with subsection (d). Piping testing shall be conducted in accordance with section 2643(c), (d), or (e). Tanks with a capacity of 1,001 to and including 2,000 gallons shall also receive a tank integrity test each year. Tanks with a capacity of 551 to and including 1,000 gallons shall also have an annual tank integrity test unless the gauging period is 60 hours or more. Requirements of section 2643(b) do not apply to tanks which are monitored in accordance with this section.

(c) Manual tank gauging shall not be used on tanks with secondary containment and shall not be used as a leak detection method after December 22, 1998, for underground storage tanks with a capacity greater than 1,000 gallons.

(d) Owners or operators of existing underground storage tanks who use manual tank gauging as part of a non-visual monitoring program shall conduct weekly gauging according to the following specifications:

(1) Tank liquid level measurements shall be taken at the beginning and end of a gauging period which shall be at least 36 or 60 continuous hours as set forth in Table 4.1 during which no liquid is added to or removed from the tank. The underground storage tank shall be secured to prevent inputs or withdrawals during the gauging period. No product shall be added to the tank within the 12-hour period preceeding the gauging period. The liquid level measurements shall be based on an average of two consecutive stick readings at both the beginning and end of the gauging period; and,

(2) The equipment used shall be capable of measuring the level of the product over the full range of the tank' s height to the nearest one-eighth of an inch; and,

(3) If the variation between beginning and ending measurements exceeds the weekly or monthly standards set forth in Table 4.1, a second 36-hour or 60-hour test shall begin immediately and all measurements and calculations checked for possible errors. If the second test confirms a variation which exceeds the weekly or monthly standards in Table 4.1, a tank integrity test shall be conducted within 72 hours of completion of the second test. The local agency may extend this 72-hour period up to 30 calendar days, if all contents of the underground storage tank are safely and properly removed within the 72- hour period.

(e) If the results of a tank integrity test confirm an unauthorized release, the owner or operator shall comply with the release reporting requirements of Article 5 and shall replace, repair, upgrade, or close the underground storage tank in accordance with the applicable provisions of this chapter.

Table 4.1
Manual Tank Gauging Measurement Standards

Tank Size (in Gallons)	*Weekly Standard* One Test (Gallons)	*Monthly Standard* Average of 4 tests (Gallons)	*Testing Period* *(hours)	*Totoal Time Out of Service* (hours)
550 or less	10	5	36	48
551 to and including 1,000	12	6	60	72
**551 to and including 1,000	13	7	36	48
**1,001 to and including 2,000	26	13	60	72

* The tank must be taken out of service at least 12 hours before the test (gauging) period begins.
** An annual tank integrity test is required.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25292 and 25293, Health and Safety Code; 40 CFR 280.43.

§ 2646. Manual Inventory Reconciliation.

(a) Manual inventory reconciliation may be used as part of a non-visual monitoring program set forth in section 2643(b)(4) for existing underground storage tanks which contain motor vehicle fuels.

(b) After January 1, 1993, manual inventory reconciliation shall not be used to comply with the requirements of this article where the existing ground water level or the highest anticipated ground water level is less than 20 feet below the bottom of the tank. The ground water level shall be determined in accordance with the requirements of section 2649(c). After December 22, 1998, manual inventory reconciliation shall not be used to satisfy underground storage tank monitoring requirements.

(c) Each underground storage tank shall be individually monitored using a method that incorporates the following procedures:

(1) Separate daily measurements shall be taken and recorded for both the motor vehicle fuel and any water layer. For the purpose of this section, "daily" means at least every day that motor vehicle fuel is added to or withdrawn from the tank, but no less than five days per week. The number of days may be reduced by the number of public holidays that occur during the week if there is no input to or withdrawal from the tank on the holiday. Local agencies may reduce the frequency of monitoring to not less than once every three days at facilities that are not staffed on a regular basis, provided that the monitoring is performed every day the facility is staffed. Measurements shall be:

(A) taken when no substance is being added to or withdrawn from the tank;

(B) performed by the owner, operator, or other designated persons who have had appropriate training;

(C) based on the average of two readings if dipstick or tape measurements are used.

(D) determined by equipment capable of measuring the level of the product over the full range of the tank' s height to the nearest one-eighth of an inch. If a dipstick is used to determine the product level, a substance capable of rendering the readings legible shall be applied to the dipstick before use, if necessary to obtain accurate readings;

(E) determined by equipment capable of measuring, to the nearest one-eighth of an inch, water present in the bottom of the tank. If a dipstick is used, water-finding paste shall be applied to the dipstick. If the tank is not level, and the measurements are taken manually, the measurements shall be taken at the lowest end of the tank.

(F) measured at the center of the longitudinal axis of the tank if access is available or measured at the lowest end of the

tank with a calibration measurement at both ends, if possible, to determine if any tank tilt exists, and, if so, its magnitude; and
(G) converted to volume measurements based on a calibration chart for the tank. This chart shall, where feasible, take into account the actual tilt of the tank.

(2) Daily readings shall be taken for input and withdrawals. The amount of product inputs indicated by delivery receipt shall be compared with measurement of the tank inventory volume before and after delivery. Product input shall be determined by a method that introduces the least amount of error in the monthly inventory reconciliation calculations. Underground storage tanks that are connected by a manifold may require time for the level to stabilize before a measurement is taken. Product shall be delivered to the tank through a drop tube that extends to within 12 inches of the bottom of the tank.

(d) The daily variation shall be the difference between the physically measured inventory in storage and the calculated inventory in storage. The physically measured inventory shall be measured daily by taking a liquid level measurement and converting it to gallons using a calibration chart. The calculated inventory shall be determined daily by adding the amount of product added to the tank and subtracting the withdrawals from the inventory measured on the previous day. These variations shall be algebraically summed for a period of one month. If the absolute value of the monthly variations exceeds a variation of 1.0 percent of the total monthly input to or withdrawals from the tank plus 130 gallons, the variation shall be investigated in accordance with subsection (e).

(e) If the monthly manual inventory reconciliation exceeds the allowable variation, the owner or operator shall:

(1) within 24 hours of completing inventory reconciliation which exceeds the allowable variation, notify the local agency of the suspected unauthorized release;

(2) within 24 hours of discovering a variation which exceeds the allowable variation, review the inventory records for the preceding 30 days to determine if an error in calculations was made. If investigation shows that an error in calculations was made and that variations have not been exceeded, no further steps need to be taken;

(3) within 24 hours of discovering a variation which exceeds an allowable variation, have all readily accessible facilities carefully inspected for leakage by appropriately trained persons. If an unauthorized release is detected, the owner or operator shall comply with the requirements of Article 5. If no unauthorized release is detected, the owner or operator shall continue with the following steps:

(4) have dispenser meters, which determine the amount of product withdrawn from the tank, checked and recalibration, if necessary, within 24 hours of completing the procedure required in subdivision (3) above. Dispenser meters shall comply with California Code of Regulations, Title 4, Division 9, "Division of Measurement Standards, Department of Food and Agriculture." Meters shall be inspected by the County Department of Weights and Measures or a device repairman as defined in the California Business and Professions Code, Division 5, Chapter 5.5. This subdivision applies to all meters used for determining withdrawals, including those at non-retail facilities;

(5) continue to conduct inventory reconciliation according to the requirements of this section. If a second 30-day period of data confirms the initial results, the owner or operator shall comply with the requirements of Article 5; and

(6) conduct additional tests or investigations as required by the local agency and, if applicable, replace, repair, upgrade, or close the tank in accordance with the applicable provisions of this chapter.

(f) Whenever any of the steps in subsection (e) of this section are performed, the results shall be documented in the monitoring record required under section 2712. If completion of any of the steps in subsection (e) indicates that the apparent excessive variation is not due to a release or tank failure, the remainder of the steps need not be completed.

(g) On an annual basis, the owner or operator shall submit a written statement to the local agency verifying under penalty of perjury that all monthly reports were summarized and that all data are within allowable variations. If data exceeded allowable variations, the owner or operator shall provide the local agency with a list of times, dates, and corresponding variations which exceeded allowable variations. This information shall be signed by the owner or operator under penalty of perjury.

(h) The transfer of hazardous substances into and out of the underground storage tank may continue while the steps in subsection (e) are being implemented, provided the steps are completed within the specified periods. Daily inventory readings and monthly reconciliation shall continue while the steps are being implemented.

(i) Dispenser meters which determines the amount of product withdrawn from the tank shall comply with the provisions of Title 4, Division 9, "Division of Measurement Standards, Department of Agriculture." Meters shall be inspected and recalibrated by the County Department of Weights and Measures or a device repairman as defined in Division 5, Chapter 5.5 of the Business and Professions Code.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25291 and 25292, Health and Safety Code; 40 CFR 280.43.

§ 2646.1. Statistical Inventory Reconciliation.

(a) When approved by the local agency, statistical inventory reconciliation may be used as part of a non-visual monitoring program, set forth in section 2643(b)(3), for existing underground storage tanks which contain motor vehicle fuel.

(b) Each underground storage tank shall be individually monitored using a method prescribed by section 2646(c).

(c) On a monthly basis, the tank owner must provide the minimum number of data records to the statistical inventory reconciliation provider as required by that provider. The previous month' s data may be included with the current month' s data to total the minimum number of records necessary to complete the statistical inventory reconciliation. Data submissions to the statistical inventory reconciliation provider and subsequent receipt of reports from the provider shall be completed monthly within 20 calendar days of the end of the data collection period. To give the owner or operator an opportunity to become proficient in the use of statistical inventory reconciliation, the requirements in subsection (d) do not apply if any of the first three reports are inconclusive. The owner or operator shall inform the local agency of the results of the first three reports, regardless of the results.

(d) If the results of a report are inconclusive or indicate a possible unauthorized release, the owner or operator shall, within 24 hours of receipt of the report:

(1) notify the local agency of the possible unauthorized release, and within 10 calendar days, submit a copy of the report to the local agency. The local agency may allow up to 10 additional calendar days in which to submit the report;

(2) inspect the inventory records for errors to determine if data were collected properly;

(3) have all accessible portions of the underground storage tank system inspected for leakage by appropriately trained persons. If an unauthorized release is detected, the owner or operator shall comply with the requirements of Article 5. If no unauthorized release is detected, the owner or operator shall continue with the steps in subdivision (4) below:

(4) have dispenser meters, which determine the amount of product withdrawn from the tank, checked and recalibrated if necessary within 48 hours of receipt of the report. Meters shall be recalibrated by the County Department of Weights and Measures or a device repair person as defined in the California Business and Professions Code, Division 5, Chapter 5.5. This subdivision applies to all meters used for determining withdrawals, including those at non-retail facilities. Dispenser meters shall comply with California Code of Regulations, Title 4, Division 9, "Division of Measurement Standards, Department of Food and Agriculture."

(e) Daily readings shall continue to be taken and recorded during the investigation specified in subsection (d) above. If the second statistical inventory reconciliation report does not indicate a tight system, the owner or operator shall comply with the release reporting requirements of Article 5.

(f) The owner or operator who reports a suspected release in accordance with subsection (e) above shall conduct additional tests or investigations as required by the local agency and, if necessary, replace, repair, upgrade, or close the tank in accordance with the applicable provisions of this chapter.

(g) A tank integrity test meeting the requirements of section 2643.1 is also required every two years when statistical inventory reconciliation is used. The first tank integrity test shall be conducted within the first year of implementation of a monitoring program which includes statistical inventory reconciliation.

(h) The owner or operation shall conduct a piping tightness test and, if necessary, a tank integrity test within 15 calendar days of receipt of two successive reports which are inconclusive or which indicate a possible unauthorized release. The local agency may also require a piping tightness test and, if necessary, a tank integrity test if frequent inconclusive results are reported.

(i) Piping connected to a tank which is monitored using statistical inventory reconciliation shall be tested in accordance with section 2643(c), (d), or (e).

(j) On an annual basis, the owner or operator shall submit a written statement to the local agency which indicates the results from the statistical inventory reconciliation reports for the previous 12 months.

(k) Dispenser meters which determine the amount of product withdrawn from the tank shall comply with the provisions of Title 4, Division 9, "Division of Measurement Standards, Department of Agriculture." Meters shall be inspected and recalibrated by the County Department of Weights and Measures or a device repair person as defined in Division 5, Chapter 5.5 of the Business and Professions Code.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25291 and 25292, Health and Safety Code; and 40 CFR 280.43.

§ 2647. Vadose Zone Monitoring Requirements.

(a) Owners or operators of existing underground storage tanks who use vadose zone monitoring as part of a non-visual monitoring program shall comply with the requirements of this section. Vapor monitoring, soil-pore liquid monitoring, or a combination of these or other vadose zone monitoring methods may be used.

(b) Vadose zone monitoring shall not be used as the sole release detection method of non-visual monitoring where the monitoring well cannot be located within the backfill surrounding the tank, or where the existing ground water level or the highest anticipated ground water level, including intermittent perched ground water, is less than ten feet below the bottom of the tank. Ground water levels shall be determined in accordance with section 2649(c).

(c) Vadose zone vapor monitoring shall be conducted continuously. Other vadose zone monitoring shall be conducted at least weekly. All manual sampling in the vadose zone shall be conducted in accordance with section 2649(g).

(d) The number, location, and depths of vadose zone monitoring points shall be selected to achieve the objective specified in section 2641(a). Where possible, monitoring points shall be located within the excavation backfill surrounding the underground storage tank. The owner or operator shall determine the exact location of the underground storage tank and associated piping before attempting to install monitoring wells and/or devices pursuant to local agency approved.

(e) Vadose zone vapor monitoring shall comply with the following minimum requirements:

(1) The vapor characteristics of the stored product, or a tracer compound placed in the underground storage tank system, shall be sufficiently volatile to result in a vapor level that is detectable by the monitoring devices;

(2) Backfill materials and soils surrounding monitoring points shall be sufficiently porous to readily allow diffusion of vapors;

(3) The level of background contamination in the excavation zone and surrounding soils shall not interfere with the method used to detect releases from the underground storage tank;

(4) The monitoring devices shall be designed and operated to detect any significant increase in concentration above the background of the hazardous substance stored in the underground storage tank, a component or components of that substance, or a tracer compound placed in the tank system;

(5) The location and depth of each monitoring point shall be placed according to the most probable movement of vapor through the backfill or surrounding soil;

(6) Vapor monitoring wells located in the backfill shall be constructed so that any unauthorized release that may pond at the horizontal interface between the backfill and natural soils can be detected in the vapor well; and

(7) All vapor monitoring wells shall be installed, constructed, and sampled according to the requirements specified in sections 2649(b), (c), (e) and (f).

(f) Soil-pore liquid monitoring and other forms of vadose zone monitoring shall comply with the following minimum

requirements:

(1) The stored substance shall be susceptible to detection by the proposed release detection method;

(2) The stored substance shall not corrode or otherwise attack the materials from which the detection system is constructed or otherwise render the detection system inoperable or inaccurate; and

(3) Site-specific conditions (e.g., precipitation, ground water, soil- moisture, background contamination) shall not interfere with the operability and accuracy of the release detection method.

(g) Compliance with the requirements of subsections (e) and (f) shall be based on a site-assessment including assessment of the underground storage tank excavation zone.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25292, Health and Safety Code; 40 CFR 280.43.

§ 2648. Ground Water Monitoring Requirements.

(a) Owners or operators of existing underground storage tanks who use ground water monitoring as part of a non-visual monitoring program shall comply with the requirements of this section. Ground water monitoring may be used in combination with other quantitative or qualitative release detection methods or, where permissible under this section, as the sole release detection method.

(b) Ground water monitoring may be used as the sole release detection method of non-visual monitoring for existing underground tanks only where all of the following conditions exist:

(1) The hazardous substance stored is immiscible with water and has a specific gravity of less than one;

(2) Continuous monitoring devices or manual methods are used which are capable of detecting the presence of at least one-eighth of an inch of free product on top of the ground water in the monitoring wells. This capability shall be certified by an independent third party using an appropriate evaluation procedure. Examples of acceptable evaluation procedures are in Appendix IV;

(3) The existing ground water level or the highest anticipated ground water level, including intermittent perched ground water, is less than 20 feet from the ground surface. These ground water levels shall be determined according to the requirements of section 2649(c);

(4) The hydraulic conductivity of the soil(s) between the underground storage tank and the monitoring wells or devices is at least 0.01 cm/sec (e.g., the soil consists of gravels, coarse to medium sands, or other permeable materials);

(5) The ground water proposed for monitoring has no present beneficial uses (e.g., domestic, municipal, industrial, agricultural supply) or is not hydraulically connected to ground or surface water which has actual beneficial uses; and

(6) Monitoring wells or devices are located within the excavation zone or as close to the excavation zone as feasible.

(c) Compliance with the conditions specified in subsection (b) shall be based on a site-assessment, including assessment of the areas within and immediately below the underground storage tank excavation zone. If ground water monitoring is approved as the sole release detection method of a non-visual monitoring program, the number and location of the monitoring wells and/or devices as approved by the local agency shall also be based on this site-assessment with minimum requirements as follows:

(1) Single tank - two wells, one at each end of the tank.

(2) Two or three tanks - three wells equally spaced.

(3) Four or more tanks - four wells, at least two of which shall be downgradient and the remainder equally spaced.

(4) Pipelines - additional wells, if needed, as determined by the local agency.

(d) Ground water monitoring shall be conducted at least monthly or continuously. Any continuous monitoring system shall be

capable of detecting the presence of hazardous substance on top of the ground water in the monitoring well and shall allow periodic collection of samples. Ground water samples shall be analyzed by visual observation or field or laboratory analysis as approved by the local agency depending on the method of monitoring and the constituents being evaluated. The local agency may require periodic laboratory analysis where visual observation or field analysis does not provide an adequate degree of detection as compared to that of laboratory analysis. Sampling conducted which requires field or laboratory analysis shall comply with the minimum requirements of section 2649(g).

(e) The number, location, and depths of ground water monitoring wells shall be selected to achieve the objective specified in section 2641(a). Monitoring wells shall be located as close as possible to the underground storage tank or the perimeter of the underground storage tank cluster, subject to the review and approval of the local agency.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25292, Health and Safety Code; 40 CFR 280.43.

§ 2649. Well Construction and Sampling Requirements.

(a) Owners or operators who use a qualitative release detection method shall comply with the requirements of this section and any applicable requirements of sections 2644, 2647, and 2648.

(b) The installation of all monitoring wells and the drilling of all other borings shall be in accordance with local permitting requirements or, in their absence, with the following requirements:

(1) All monitoring wells and all other borings shall be logged during drilling according to the following requirements:

(A) Soil shall be described in the geologic log according to the Unified Soil Classification System as presented in Geotechnical Branch Training Manual Numbers 4, 5, and 6, published in January of 1986 (available from the Bureau of Reclamation, Engineering and Research Center, Attention: Code D-7923-A, Post Office Box 25007, Denver, Colorado 80225);

(B) Rock shall be described in the geologic log in a manner appropriate for the purpose of the investigation;

(C) All wet zones above the water table shall be noted and accurately logged. Where possible, the depth and thickness of saturated zones shall be recorded in the geologic log; and

(D) Geologic logs shall be prepared by a professional geologist or civil engineer, who is registered or certified by the State of California and who is experienced in the use of the Unified Soil Classification System. The geologic logs may also be prepared by a technician trained and experienced in the use of the Unified Soil Classification System who is working under the direct supervision of one of the aforementioned professionals, provided that the professional reviews the logs and assumes responsibility for the accuracy and completeness of the logs.

(2) All drilling tools shall be thoroughly steam cleaned immediately before each boring is started;

(3) All well casings, casing fittings, screens, and all other components that are installed in a well shall be thoroughly cleaned before installation;

(4) Soil and water sampling equipment and materials used to construct a monitoring well shall be compatible with the stored hazardous substance and shall not donate, capture, mask, or alter the constituents for which analyses will be made. All perforated casings used in the construction of monitoring wells shall be factory perforated;

(5) Drilling fluid additives shall be limited to inorganic, non-hazardous materials which conform to the requirements of subsection (b)(4). All additives used shall be accurately recorded in the boring log;

(6) Representative samples of additives, cement, bentonite, and filter media shall be retained for 90 calendar days for possible analysis for contaminating or interfering constituents;

(7) If evidence of contamination is detected by sight, smell, or field analytical methods, drilling shall be halted until a responsible professional determines if further drilling is advisable;

(8) All borings which are converted to vadose zone monitoring wells shall have the portion of the boring which is below the

monitored interval sealed with approved grout;

(9) All borings which are not used for ground water or vadose zone monitoring shall be sealed from the ground surface to the bottom of the boring with an approved grout. All slurry-type grouts used to seal an abandoned boring or an abandoned well shall be emplaced by the tremie method; and

(10) All monitoring wells shall be clearly marked and secured to avoid unauthorized access and tampering. Surface seals may be required by the local agency.

(c) When installing a vadose zone or ground water monitoring well, the highest anticipated ground water level and existing ground water level shall be determined. Highest anticipated ground water levels shall be determined by reviewing all available water level records for wells within one mile of the site. Existing site ground water levels shall be established either by reviewing all available water level measurements taken within the last two years at all existing wells, within 500 feet of the underground storage tank which are perforated in the zone of interest, or by drilling at least one exploratory boring constructed as follows:

(1) The exploratory boring shall be drilled downgradient, if possible, and as near as possible to the underground storage tank within the boundaries of the property encompassing the facility, but no further than ten feet from the underground storage tank;

(2) The exploratory boring may be of any diameter capable of allowing the detection of first ground water;

(3) The exploratory boring shall be drilled to first perennial ground water, or to a minimum depth of 20 feet for vadose zone monitoring wells, or to a minimum depth of 30 feet for ground water monitoring wells if permitted by site lithology;

(4) If ground water is encountered, and ground water monitoring is the monitoring method, the boring shall be converted to a ground water monitoring well consistent with the provisions of this section; and

(5) If ground water is encountered, but ground water monitoring is not the monitoring method, or if the exploratory boring does not encounter ground water, the boring shall be sealed in accordance with the provisions of subsection (b)(9).

(d) In addition to the requirements of subsection (b), all ground water monitoring wells shall be designed and constructed according to the following minimum requirements:

(1) Ground water monitoring wells shall extend at least 20 feet below the lowest anticipated ground water level and at least 15 feet below the bottom level of the underground storage tank. However, wells shall not extend through laterally extensive impermeable zones that are below the water table and that are at least five feet thick. In these situations, the well shall be terminated one to two feet into the impermeable zone;

(2) Ground water monitoring wells shall be designed and constructed as filter packed wells that will prevent the migration of the natural soil into the well and with factory perforated casing that is sized to prevent migration of filter material into the well;

(3) Ground water monitoring well casings shall extend to the bottom of the boring and shall be factory perforated from a point of one foot above the bottom of the casing to an elevation which is either five feet above the highest anticipated ground water level or to within three feet of the bottom of the surface seal or to the ground surface, whichever is the lowest elevation;

(4) All well casings shall have a bottom cap or plug;

(5) Filter packs shall extend at least two feet above the top of the perforated zone except where the top two feet of the filter pack would provide cross-connection between otherwise isolated zones or where the ground surface is less than ten feet above the highest anticipated ground water level, the local agency may reduce the height of the filter pack so long as the filter pack extends at least to the top of the perforated zone. Under such circumstances, additional precautions shall be taken to prevent plugging of the upper portion of the filter pack by the overlying sealing material;

(6) Ground water monitoring wells shall be constructed with casings having a minimum inside diameter of two inches and shall be installed in a boring whose diameter is at least four inches greater than the outside diameter of the casing;

(7) Ground water monitoring wells shall be sealed in accordance with local permitting requirements or, in their absence, with the Department of Water Resources Standards for Well Construction (Reference Bulletins 74-81 and 74-90 on Water

Well Standards are available from the Department of Water Resources, Sacramento);

(8) Seventy-two or more hours following well construction, all ground water monitoring wells shall be adequately developed and equilibrium shall be established prior to any water sampling;
(9) Well heads shall be provided with a water-tight cap and shall be enclosed in a surface security structure that protects the well from surface water entry, accidental damage, unauthorized access, and vandalism. Traffic lids shall be clearly marked as monitoring wells; and

(10) Pertinent well information including well identification, well type, well depth, well casing diameters (if more than one size is used), and perforated intervals shall be permanently affixed to the interior of the surface security structure and the well identification number and well type shall be affixed on the exterior of the surface security structure.

(e) In addition to the requirements of subsection (b), all vadose zone vapor monitoring wells shall be cased and sealed as follows:

(1) Well casings for vapor monitoring shall be fully perforated except for the portion adjacent to a surface seal and that portion used as a free liquid trap;

(2) Surface seals for vapor wells that are completed no more than five feet below the bottom of the underground storage tank and which are above any free water zones may be required at the discretion of the local agency on a site- specific basis;

(3) If surface seals for vapor wells are completed in or below a potential free water zone, the seal shall not extend below the top of the underground storage tank; and

(4) Vapor wells need not be sealed against infiltration of surface water if constructed wholly within backfill that surrounds the underground storage tank and which extends to the ground surface.

(f) Undisturbed (intact) soil samples shall be obtained from all borings for the installation of monitoring wells and all other borings and analyzed according to the following minimum requirements, unless the local agency waives this requirement under this subsection:

(1) Borings shall be drilled and sampled using accepted techniques which do not introduce liquids into the boring and which will allow the accurate detection of perched and saturated zone ground water. If this cannot be accomplished using acceptable techniques, the requirement for soil sampling may be waived by the local agency provided, however, that installation of the vadose zone or ground water monitoring system shall be completed; and provided further, that once below the water table, borings need not be advanced using the same method that was used in the vadose zone;

(2) Soil samples shall be obtained at intervals of five feet or less and at any significant change in lithology, beginning at the ground surface. Sampling is not required in unweathered bedrock which has little on no permeability;

(3) A soil sample shall be obtained at the termination depth of a dry boring regardless of the spacing interval;

(4) Soil samples shall be of sufficient volume to perform the designated analyses including soil vapor and soil extract analyses and to provide any specified replicate analyses;

(5) Soil samples shall be acquired, prepared, preserved, stored, and transported by methods that are appropriate for the objectives of the investigation which safeguard sample integrity and satisfy the requirements of subsection (g);

(6) Samples shall be analyzed in a State-certified laboratory by methods that provide quantitative or qualitative results. Lower detection limits shall be verified by the laboratory;

(7) Samples shall be analyzed for one or more of the most persistent constituents that have been stored in the underground storage tank. If the use of the underground storage tank has historically changed, samples shall be analyzed for at least one constituent from each period of use. If the hazardous substance is known to degrade or transform to other constituents in the soil environment, the analysis shall include these degradation and/or transformation constituents;

(8) If hazardous substances known or suspected to have been contained in the underground storage tank are detected at concentrations in excess of background concentrations (background concentrations shall be applicable only if the constituent occurs naturally at the site), further soil analysis is not necessary pursuant to this subsection. The hazardous substance(s) shall be assumed to have originated from the underground storage tank. In this situation, the remainder of the soil samples need not be analyzed pursuant to these regulations and the owner or operator shall comply with subdivision (9)

below. A permit shall not be granted unless further detailed investigation clearly establishes that the underground storage tank is not the source of the hazardous substance or that it has been properly repaired since the unauthorized release and that any subsequent unauthorized release from the underground storage tank can be detected despite the presence of the hazardous substance already in the environment; and

(9) If soil analysis indicates that an unauthorized release has occurred, the owner or operator shall comply with the release reporting requirements of Article 5 and shall replace, repair, upgrade, or close the underground storage tank pursuant to the applicable provisions of this chapter.

(g) The qualitative release detection method shall include consistent sampling and analytical procedures, approved by the local agency, that are designed to ensure that monitoring results provide a reliable indication of the quality of the medium (e.g., ground water, soil-pore liquid, soil vapor, or soil) being monitored. Some acceptable procedures are listed as references in Appendix I, Table C. The owner or operator shall provide a written detailed description, to be specified in the permit and to be maintained as part of the records required under section 2712 of Article 10, of the procedures and techniques for:

(1) Sample collection (e.g., purging techniques, water level, sampling equipment, and decontamination of sampling equipment);

(2) Sample preservation and shipment;

(3) Analytical procedures; and

(4) Chain-of-custody control.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25292, Health and Safety Code; 40 CFR 280.43.

Article 5. Release Reporting and Initial Abatement Requirements

§ 2650. Reporting and Recording Applicability.

(a) The requirements of this article apply to all owners or operators of one or more underground storage tanks storing hazardous substances.

(b) The owner or operator shall record or report any unauthorized release from the underground storage tank, and any spill or overfill, in accordance with the appropriate sections of Chapter 6.7 of Division 20 of the Health and Safety Code and this article.

(c) The owner or operator of an underground storage tank with secondary containment shall record any unauthorized release described in section 25294 of the Health and Safety Code in accordance with section 2651.

(d) Owners or operators subject to the requirements of this article shall report all spills and overfills in accordance with section 2652.

(e) The owner or operator of an underground storage tank shall report to the local agency any unauthorized release described in sections 25295 and 25295.5 of the Health and Safety Code, and shall also record and report any of the following conditions in accordance with section 2652:

(1) Any unauthorized release recorded or reported under subsections (c) or (d) which the owner or operator is unable to clean up or which is still under investigation within eight hours of detection;

(2) The discovery by the owner or operator, local agency, or others of released hazardous substances at the site of the underground storage tanks or in the surrounding area. This includes the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface or drinking waters;

(3) Unusual operating conditions observed by the owner or operator including erratic behavior of product dispensing equipment, the sudden loss of product from the underground storage tank, or an unexplained presence of water in the tank, unless system equipment is found to be defective, but has not leaked, and is immediately repaired or replaced; and

(4) Monitoring results from a release detection method required under Article 3 or Article 4 that indicate a release may have occurred, unless the monitoring device is found to be defective, and is immediately repaired, recalibrated or replaced, and additional monitoring does not confirm the initial results.

(f) The reporting requirements of this article are in addition to any reporting requirements in section 13271 of Division 7 of the California Water Code and other laws and regulations.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25294, 29295 and 25295.5, Health and Safety Code; 40 CFR 280.52.

§ 2651. Recording Requirements for Unauthorized Releases.

(a) Owners or operators required by section 2650 to record a release or condition shall comply with the requirements of this section.

(b) The operator' s monitoring records, as required under section 2712 of Article 10, shall include:

(1) The operator' s name and telephone number;

(2) A list of the types, quantities, and concentrations of hazardous substances released;

(3) A description of the actions taken to control and clean up the release;

(4) The method and location of disposal of the released hazardous substances (the monitoring record shall indicate whether a hazardous waste manifest was or will be used);

(5) A description of the actions taken to repair the underground storage tank and to prevent future releases. If this involves a change as described in section 25286 of the Health and Safety Code, notification pursuant to that section shall be made.
(6) A description of the method used to reactivate the interstitial monitoring system after replacement or repair of the primary containment.

(c) The integrity of the secondary containment shall be reviewed for possible deterioration under the following conditions:

(1) Hazardous substance in contact with the secondary containment is not compatible with the material used for secondary containment;

(2) The secondary containment is prone to mechanical damage from the mechanical equipment used to remove or clean up the hazardous substance collected in the secondary containment; or

(3) Hazardous substances, other than those stored in the primary containment system, are added to the secondary containment to treat or neutralize the released hazardous substance and the added substance or resulting substance from such a combination is not compatible with the secondary containment.

(d) If a recordable unauthorized release becomes a reportable unauthorized release due to initially unanticipated facts (e.g., secondary containment is breached due to deterioration), the release shall be reported pursuant to section 2652.

(e) Whenever the local agency reviews the operator' s monitoring reports and finds that one or more recordable unauthorized releases have occurred, the local agency shall review the information included in the monitoring records pursuant to subsection (a), shall review the permit, and may inspect the underground storage tank pursuant to section 2712 (e) and (f) of Article 10. If the local agency finds that the containment and monitoring requirements of Articles 3 or 4 can no longer be met, the local agency shall require the owner or operator to cease operation of the underground storage tank system until appropriate modifications are made to comply with the requirements of Articles 3 or 4, as appropriate.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25291, 25292, 25294 and 29295, Health and Safety Code; 40 CFR 280.52.

§ 2652. Reporting, Investigation and Initial Response Requirements for Unauthorized Releases.

(a) Owners or operators required under section 2650 to report a release or condition, shall comply with the requirements of this section.

(b) Within 24 hours after an unauthorized release or condition has been detected, or should have been detected, the owner or operator shall notify the local agency and shall investigate the condition, and take immediate measures to stop the release. If necessary, or if required by the local agency, the owner or operator shall remove the remaining stored substance from the tank to prevent further releases to the environment or to facilitate corrective action. If an emergency exists, the owner or operator shall also notify the State Office of Emergency Services.

(c) Within five working days of detecting an unauthorized release, the owner or operator shall submit to the local agency a full written report which shall include but not limited to all of the following information to the extent that the information is known at the time of filing the report:

(1) Owner' s or operator' s name and telephone number;

(2) A list of the types, quantities, and concentrations of hazardous substances released;

(3) The approximate date of the release;

(4) The date on which the release was discovered;

(5) The date on which the release was stopped;

(6) A description of the actions taken to control and/or stop the release;

(7) A description of the corrective and remedial actions, including investigations which were undertaken and will be conducted to determine the nature and extent of soil, ground water or surface water contamination due to the release;

(8) The method(s) of cleanup implemented to date, proposed cleanup actions, and a time schedule for implementing the proposed actions;

(9) The method and location of disposal of the released hazardous substance and any contaminated soils or ground water or surface water. Copies of any completed hazardous waste manifests for off-site transport of these media shall be attached to the report;

(10) A description of the proposed method(s) of repair or replacement of the primary and secondary containment. If this involves a change described in section 25286 of the Health and Safety Code, notification pursuant to that section shall be made.

(11) A description of additional actions taken to prevent future releases.

(d) Until investigation and cleanup are complete, the owner or operator shall submit reports to the local agency or Regional Water Quality Board, whichever agency is overseeing the cleanup, every three months or more frequently as specified by the agency. Reports shall include but not be limited to, an update of the required information in subsection (c), and the results of all investigation monitoring or other corrective actions which have occurred during the reporting period. Information required by sections 2653 and 2654 shall be submitted as part of the periodic report to the agency.

(e) The owner or operator shall conduct all necessary initial abatement and site characterization actions as required by sections 2653 and 2654 and shall take additional corrective action as required by Article 11.

(f) If the test results from either an investigation conducted under subsection (e) or from other procedures approved by the agency, fail to confirm that there has been an unauthorized release from the underground storage tank, no further investigation or corrective action is required.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25286, 25288 and 29295, Health and Safety Code; 40 CFR 280.52-280.53.

§ 2653. Initial Abatement Action Requirements.

(a) Owners or operators required to conduct initial abatement in accordance with section 2652(e) shall comply with the following requirements:

(1) Remove as much of the hazardous substance from the underground storage tank as necessary to prevent further release to the environment.

(2) Visually inspect any above ground releases or exposed below ground releases and prevent further migration of the released substance into surrounding soils and ground water.

(3) Continue to monitor and mitigate any additional fire and safety hazards posed by vapors or free product that have migrated from the un derground storage tank excavation zone and entered into subsurface structures, such as sewers or basements.

(4) Remedy hazards posed by contaminated soils that are excavated or exposed as a result of release confirmation, site investigation, or abatement activities. If these remedies include treatment or disposal of soils, the owner or operator shall comply with applicable State and local requirements.

(5) Investigate to determine the possible presence of free product. If free product is present, begin removal thereof in accordance with section 2655.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25295, Health and Safety Code; 40 CFR 280.61 and 280.62.

§ 2654. Initial Site Characterization Requirements.

(a) Owners or operators required to conduct initial site characterization in accordance with section 2652(e), shall comply with the requirements of this section.

(b) The owner or operator shall promptly gather information about the underground storage tank site and the nature of the unauthorized release, including information obtained while confirming the release or completing initial abatement and free product removal. This information shall include, but is not limited to, the following:

(1) Data on the nature and estimated quantity of release;

(2) Data from available sources and/or site investigations concerning the surrounding populations, water quality, use and approximate locations of wells potentially affected by the release, subsurface soil conditions, locations of subsurface utilities, climatological conditions, and land use.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25295, Health and Safety Code; 40 CFR 280.63.

§ 2655. Free Product Removal Requirements.

(a) At sites where investigations made pursuant to section 2652 indicate the presence of free product, the owner or operator shall comply with the requirements of this section. The owner or operator shall remove free product to the maximum extent practicable, as determined by the local agency, while continuing to take any actions required under sections 2652 through 2654.

(b) Free product shall be removed in a manner that minimizes the spread of contamination into previously uncontaminated zones by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site. The free product removal process shall result in proper treatment, discharge or disposal of recovery by products in compliance with applicable local, state and federal regulations.

(c) Abatement of free product migration shall be the predominant objective in the design of the free product removal system.

(d) Flammable products shall be handled in a safe manner consistent with state and local requirements.

(e) A free product removal report shall be submitted to the agency within 45 calendar days of release confirmation and shall include, but not be limited to:

(1) The name of the person(s) responsible for implementing the free product removal measures;

(2) The estimated quantity, type, and thickness of free product observed or measured in wells, boreholes, and excavations;

(3) The type of free product recovery system used;

(4) Whether any discharge will take place on-site or off-site during the recovery operation and, if so, where this discharge will be located;

(5) The type of treatment applied to, and the effluent quality expected in, any discharge;

(6) The steps that have been or are being taken to obtain necessary permits for the discharge; and

(7) The means of disposal and/or proposed disposition of the recovered free product.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25295, Health and Safety Code; 40 CFR 280.64.

Article 6. Underground Storage Tank Repair and Upgrade Requirements

§ 2660. General Applicability of Article.

(a) This article describes the requirements for repairing or upgrading underground storage tank systems. Upgrades and repairs shall be properly conducted in accordance with this article and any additional manufacturer' s specifications.

(b) Section 2661 describes the requirements for repairing underground storage tanks, piping, or other underground storage tank system components that have caused an unauthorized release as defined in sections 25294 and 25295 of the Health and Safety Code.

(c) Section 2662(b) describes upgrade requirements for underground storage tanks containing hazardous substances other than motor vehicle fuel. Sections 2662(c), and (d) describe upgrade requirements for all underground storage tanks containing motor vehicle fuel. Underground storage tanks which contain motor vehicle fuel and which are constructed of fiberglass, other non-corrosive materials, steel clad with fiberglass, or steel clad with other noncorrosive materials, are not required to comply with the requirements of section 2662(c), but are required to meet the requirements of section 2662(d).

(d) Section 2663 describes the requirements for upgrading or repairing tanks using interior lining.

(e) Section 2664 describes the requirements for upgrading tanks using bladder systems.

(f) Section 2665 describes the upgrade requirements for spill and overfill prevention equipment.

(g) Section 2666 describes the upgrade requirements for underground piping.

(h) Upgrade requirements for underground storage tanks, spill and overfill prevention, and underground piping shall be completed no later than December 22, 1998. Requirements for under-dispenser containment, or under-dispenser spill control or containment systems, shall be completed no later than December 31, 2003.

(i) As a preventive measure, an owner or operator may upgrade any underground storage tank constructed of any material which is not under pressure and which contains motor vehicle fuel as specified in sections 2662(a), (c), and (e). Before upgrading in accordance with this subsection, the owner or operator shall prove to the satisfaction of the local agency that the underground storage tank system has not caused an unauthorized release. If soil samples are taken, the owner or operator shall notify the local agency in advance of taking the samples.

(j) Owners or operators shall maintain records of repairs, linings, and upgrades that demonstrate compliance with the requirements of this article for the remaining operating life of the tank.

(k) Local agencies shall not approve a repair or upgrade unless it can be demonstrated that the underground storage tank system is structurally sound and the method of repair or upgrade will prevent unauthorized releases due to structural failure or corrosion during the operating life of the underground storage tank system.

(l) The materials used in the repair or upgrading process shall be applied in accordance with nationally recognized engineering practices.

(m) Materials used in repairs and upgrades shall be compatible with the existing underground storage tank system materials and shall not be subject to deterioration due to contact with the hazardous substances being stored.

(n) Steel underground storage tanks that exhibit corrosion during the course of repair or upgrade shall comply with the cathodic protection requirements of section 2635(a)(2).

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25284.1, 25292, 25292.1 and 25296, Health and Safety Code; 40 CFR 280.21, 280.33 and 281.32(d).

§ 2661. Requirements for Repairing Underground Storage Tank.

(a) Before repairing an underground storage tank system, the owner or operator shall comply with applicable requirements of Article 5.

(b) Before repairing an underground storage tank system, the owner or operator shall demonstrate to the satisfaction of the local agency that the conditions and requirements specified in subsection 2660(k) will be met. When selecting a method of repair, the owner or operator shall take into consideration whether the cause of failure is isolated to the actual failure, is affecting other areas of the underground storage tank, or if any other cause of failure is affecting the primary container.

(c) A tank may be repaired once using the interior lining method specified in section 2663. A previously lined tank may not be required using the interior lining method.

(d) Holes in steel tanks shall be plugged using self-tapping bolts, boiler plugs, water-tight hydraulic cement, or by welding. In addition, holes in steel and fiberglass tanks shall be repaired as follows:

(1) Repair areas shall be covered with epoxy or isophthalic polyester based resin. The resin shall be compatible with the intended use of the tank.

(2) Fiberglass cloth with a minimum weight of 1.5 oz/yd that is silane- treated shall be worked completely into the resin base. The resin base shall be installed a minimum of two inches beyond the fiberglass cloth.

(3) All repairs shall include installation of fiberglass cloth with a minimum dimension of 12 x 12 inches centered over the area to be repaired. Larger repairs shall require the cloth to be large enough to provide cloth coverage of at least five inches of cloth bonded to the tank wall, measured from the outermost edge of the repair to the cloth' s edge.

(4) A second layer of fiberglass cloth of the same weight as specified in subsection (d)(2) above, shall be installed directly over the primary cloth layer and shall be cut to overlap the primary patch by 1.5 inches on all sides.

(5) The repair shall be allowed sufficient cure time, as determined by the resin manufacturer, to provide an acceptable base for tank lining installation.

(e) Metal piping, pipe fittings, or tank fittings that have released product as a result of corrosion or other damage shall be replaced. Non-metal piping, pipe fittings, or tank fittings shall be repaired or replaced in accordance with manufacturer specifications.

(f) Tanks and piping which have been repaired shall be tested for tightness within 30 calendar days following the date of completion of the repair. Tanks or piping that fail this test shall be repaired in accordance with this section or closed in accordance with Article 7.

(g) A vapor or ground water monitoring system shall be installed to continuously monitor a tank repaired by lining for future unauthorized releases, in accordance with section 2647 or 2648, if no secondary containment system exists.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25296, Health and Safety Code; 40 CFR 280.33.

§ 2662. Requirements for Upgrading Underground Storage Tanks.

(a) Before upgrading an underground storage tank system, the owner or operator shall demonstrate to the satisfaction of the local agency that the conditions and requirements specified in subsection 2660(k) will be met.

(b) By December 22, 1998, all underground storage tanks containing hazardous substances other than motor vehicle fuel, shall be retrofitted with secondary containment meeting the requirements of Article 3.

(c) By December 22, 1998, owners of motor vehicle fuel tanks constructed of steel shall retrofit those tanks with secondary containment meeting the requirements of Article 3, or shall upgrade those tanks using one of the following options:

(1) Interior lining and cathodic protection:

(A) Interior lining shall be installed in accordance with section 2663 except those requirements pertaining to non-steel tanks; and

(B) Cathodic protection shall be designed, installed, and inspected as specified in section 2635(a)(2)(A). All cathodic protection wells shall be constructed in accordance with applicable state and local well regulations.

(2) Bladder system, and cathodic protection -

Bladder systems shall be installed in accordance with the requirements of section 2664.

(d) By December 22, 1998, owners shall install a wear plate (striker plate) which meets the criteria in section 2631(c) under all tank openings that could be used for manual dipsticking. A drop tube-mounted bottom protector may fulfill this requirement.

(e) An upgraded underground storage tank shall be closed in accordance with Article 7 at the end of the tank' s operational life.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25291 and 25296, Health and Safety Code; 40 CFR 280.21.

§ 2663. Interior Tank Lining Requirements.

(a) Tank lining may be used to satisfy part of the upgrade requirements of section 2662 or to repair a tank pursuant to section 2661. However, a tank that has been repaired using the interior lining method may not be repaired a second time with the interior lining method. The evaluations described in subsections (b) and (c) of this section shall be completed before the lining of a primary container may be authorized by the local agency. The local agency shall deny the proposed lining if the owner fails to demonstrate that the lined primary container will provide continued containment based on the evaluations described in subsections (b) and (c).

(b) Appropriate tests shall be conducted by a special inspector who shall certify that the shell will provide structural support if the tank is lined. A copy of this certification shall be provided by the owner to the local agency. The special inspector shall make this certification by entering and inspecting the entire interior surface of the tank and shall base this certification upon of the following sets of procedures an criteria:

(1) If a tank is made of non-corrodible material, the following shall be performed:

(A) The tank shall be cleaned so that no residue remains on the tank wall surface;

(B) The special inspector shall take interior diameter measurements and, if the cross-section of the tank has compressed more than one percent of the original diameter, the tank shall neither be certified nor returned to service unless the tank is excavated and repaired to correct the compression;

(C) The special inspector shall conduct an interior inspection to identify any area where compression or tension cracking is occurring and shall determine whether additional fiberglass reinforcing is required for certification before the tank may be lined; and

(D) If the special inspector does not certify the tank as suitable for lining because it failed a test conducted in accordance with subdivisions (1)(A) through (C) of this subsection, the tank shall be closed in accordance with Article

7.

(2) If the tank is constructed of steel or steel clad with a non-corrodible material, the following shall be performed:

(A) The tank interior surface shall be abrasive-blasted completely free of scale, rust, and foreign matter; and,

(B) The entire tank interior shall be tested using a thickness gauge on a one-foot grid pattern with wall thicknesses recorded on a form that identifies the location of each reading. The tank shall be closed in accordance with Article 7 if the tank' s average metal thickness is less than 75 percent of the original wall thickness or if the tank has any of the following defects:

1. An open seam or a split longer than three inches.

2. A perforation larger than one and one half inches in diameter except directly below a gauging opening at the bottom of a tank where the perforation shall be no longer than two and one half inches in diameter.

3. Five or more perforations in any one square-foot area.

4. Multiple perforations of which any single perforation is larger than one half inch in diameter.

(3) A test approved by the State Water Board as comparable to the tests specified in subsections (b)(1) or (2) above.

(c) The owner or operator shall demonstrate to the satisfaction of the local agency, based on the tests conducted in accordance with subsection (b) above, that a serious corrosion or structural problem does not exist. If the local agency or special inspector determines that a serious corrosion or structural problem exists, interior lining may be performed only if it can be demonstrated to the satisfaction of the local agency that new or additional corrosion protection will significantly minimize the corrosion and that the existing corrosion problem does not threaten the structural integrity or containment ability of the underground storage tank.

(d) Before lining a tank, thin areas or other flaws in the tank walls which need additional reinforcing shall be reinforced in accordance with section 2661(d).

(e) On and after August 9, 1992, the lining material and lining process shall be listed or certified by an independent testing organization based on voluntary consensus standards.

(f) Before being returned to service, any tank which has been lined shall be internally inspected by a coatings expert or special inspector for conformance with the standards under which the tank was lined. This inspection shall be conducted in accordance with section 2663(h) except for subdivisions (h)(3) and (h)(5).

(g) Following the lining process and before it is returned to service, the tank shall be given a tank integrity test.

(h) If a steel tank is lined for the purpose of satisfying the requirements of section 2662(c), or if any tank is repaired using the interior lining method, it shall be inspected by a coatings expert or special inspector within ten years of lining and every five years thereafter. Written certification of the inspection shall be provided by the tank owner and the party performing the inspection to the local agency within 30 calendar days of completion of the inspection. The inspection shall include all of the following:

(1) Determining that the tank has been cleaned so that no residue remains on the tank walls.

(2) Determining that the tank has been vacuum tested at a vacuum of 5.3 inches of Hg for no less than one minute. This vacuum test is not required if the tank is constructed of fiberglass and is submerged in groundwater by more than 50% of its depth.

(3) If the tank is constructed of fiberglass, taking interior diameter measurements to verify whether the cross-section has compressed by more than one percent of the original diameter.

(4) Visually checking the tank interior and lining for discontinuity, compression, tension cracking, and corrosion.

(5) For steel tanks, testing the entire tank interior using a thickness gauge on a one-foot grid pattern with metal wall thickness recorded on a form that identifies the location of each reading in order to verify that average metal thickness is

greater than 75 percent of the original wall thickness.

(6) Testing for thickness and hardness of the lining in accordance with nationally recognized industry codes to verify that the lining meets the standards under which the lining was applied.

(7) For steel tanks, testing the lining using an electrical resistance holiday detector in accordance with nationally-recognized industry codes. The owner or operator shall have all holidays repaired and checked in accordance with nationally recognized industry codes.

(8) Certification from the special inspector or coatings expert that:

(A) the tank is suitable for continued use for a minimum of five years.

(B) the tank is suitable for continued use for a minimum of five years only if it is relined or other improvements are made.

(C) the tank is no longer suitable for continued use and shall be closed in accordance with Article 7.

(9) A lined tank shall be closed in accordance with Article 7 at the end of its operational life.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25292, 25292.1 and 25296, Health and Safety Code; 40 CFR 280.21 and 280.33.

§ 2664. Requirements for Using Bladder Systems.

(a) Bladder systems may be installed in tanks which store motor vehicle fuel only, may be used to satisfy part of the upgrade requirements in section 2662, and shall be installed and operated in accordance with this section.

(b) Materials used in the bladder system and in the installation process shall be approved by an independent testing organization based on voluntary consensus standards, an industry code, or engineering standard for the applicable use of the bladder system. Evidence of this approval shall be provided to the local agency before the local agency authorizes the installation. The following conditions shall be met:

(1) The bladder system shall be installed under the direct supervision of a representative of the bladder system fabricator or a contractor certified by the fabricator.

(2) The entire interstitial space between the tank and the bladder shall be monitored in accordance with subsection 2632(c)(2).

(3) Materials used in the bladder system shall be product-tight and compatible with the substance stored.

(4) The bladder system shall include an internal striker plate (wear plate) which meets the requirements of section 2631(c).

(5) If the underground storage tank is constructed of steel, cathodic protection shall be installed in accordance with section 2635(a)(2)(A) and, before installing a bladder system, a special inspector shall certify that the underground storage tank has sufficient structural integrity to seal the interstitial space between the bladder and the underground storage tank and provide secondary containment. The special inspector shall make this certification by entering and inspecting the entire interior surface of the tank and shall base this certification upon the set of procedures and criteria specified in section 2663(b)(2), except that abrasive blasting is only required to the extent deemed necessary by manufacturers' specifications, or the special inspector, to assess the structural integrity of the underground storage tank.

(6) The bladder installer shall certify in writing to the local agency that sufficient measures have been taken to minimize or eliminate the potential for the underground storage tank or interstitial monitoring system components to puncture the bladder.

(7) Before installing a bladder, thin areas or other flaws in the underground storage tank walls that need additional reinforcing shall be reinforced in accordance with section 2661(d).
(8) If required by manufacturers' specifications or the special inspector, the underground storage tank shall be lined in accordance with section 2663 prior to installation of the bladder only to the thickness deemed necessary by the more

stringent requirement of the manufacturers' specifications or the special inspector.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25292 and 25292.1, Health and Safety Code; 40 CFR 280.21, 280.32(d) and 281.33.

§ 2665. Spill and Overfill Prevention Equipment Upgrade Requirements.

By December 22, 1998, all underground storage tank systems shall be retrofitted with an overfill prevention system and a spill container which meet the requirements of section 2635(b). The local agency may waive the requirements for overfill prevention equipment if the conditions specified in section 2635(b)(3) are met.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25292 and 25292.1, Health and Safety Code; 40 CFR 280.21.

§ 2666. Requirements for Upgrading Underground Piping.

(a) By December 22, 1998, all underground piping containing hazardous substances other than motor vehicle fuel shall be retrofitted with secondary containment meeting the requirements of section 2636.

(b) By December 22, 1998, all underground piping containing motor vehicle fuel and connected to an existing tank shall be retrofitted with secondary containment unless the owner or operator demonstrates to the local agency that the piping is constructed of fiberglass reinforced plastic, cathodically protected steel, or other materials compatible with stored products and resistant to corrosion. The secondary containment system shall meet the construction, installation, and monitoring requirements of section 2636.

(c) By December 22, 1998, all automatic line leak detectors for underground pressurized piping which is not secondarily contained shall be capable of shutting off the pump when a release occurs. In addition, the pumping system shall shut down automatically if the automatic line leak detector fails or is disconnected. In lieu of the above, for underground storage tank emergency generator systems, the leak detector must be connected to an audible and visible alarm to indicate a release malfunction of the system.

(d) All underground piping and secondary containment shall be tested for tightness after installation in accordance with section 2636(e).

(e) By December 31, 2003, all existing underground storage tanks shall be retrofitted with under-dispenser containment, or an under-dispenser spill containment or control system. The under-dispenser containment or under-dispenser spill containment or control system shall meet, where applicable, the requirements of 2636(h)(2), or 2636(h)(3).

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25284.1, 25292 and 25292.1, Health and Safety Code; 40 CFR 280.21.

Article 7. Underground Storage Tank Closure Requirements

§ 2670. General Applicability of Article.

(a) This article defines temporary and permanent underground storage tank closure and describes the nature of activities which shall be accomplished in order to protect water quality in each of these situations.

(b) The temporary closure requirements of section 2671 shall apply to those underground storage tanks in which the storage of hazardous substances has ceased but the underground storage tank will again be used for the storage of hazardous substances within the next 12 consecutive months. At the end of 12 consecutive months during which the tank is temporarily closed, the local agency may approve an extension of the temporary closure period for a maximum additional period of up to 12 months. Owners and operators shall complete a site assessment in accordance with section 2672(d) before an extension may be granted by the local agency. The temporary closure requirements of section 2671 do not apply to underground storage tanks that are empty as a result of the withdrawal of all stored substances during normal operating practice prior to the planned input of additional hazardous substances.

(c) The permanent closure requirements of section 2672 shall apply to those underground storage tanks in which the storage of hazardous substances has ceased and the tanks will not be used, or are not intended for use, for the storage of hazardous substances within the next 12 consecutive months.

(d) The requirements of this article do not apply to those underground storage tanks in which hazardous substances continue to be stored but no input or withdrawals are being made. In these cases, the applicable containment and monitoring requirements of Articles 3 or 4 shall continue to apply.

(e) During the period of time between cessation of hazardous substance storage and actual completion of underground storage tank closure pursuant to section 2671 or 2672, the applicable containment and monitoring requirements of Articles 3 or 4 shall continue to apply. The time period between cessation of hazardous substance storage and application for temporary or permanent tank closure shall not exceed 90 calendar days. Closure shall be completed within a reasonable time period as determined by the local agency.

(f) At least 30 calendar days prior to closure, or within a shorter period of time approved by the local agency, the owner or operator who intends to close a tank shall submit to the local agency for approval, a proposal for compliance with section 2671 or 2672, as appropriate.

(g) Underground storage tanks that have had an unauthorized release do not qualify for temporary closure pursuant to section 2671 until the owner or operator demonstrates to the satisfaction of the local agency that appropriate authorized repairs have been made which make the underground storage tank capable of storing hazardous substances in accordance with the permit issued by the local agency.

(h) Underground storage tanks that have emitted an unauthorized release and that cannot be repaired by authorized methods shall be permanently closed pursuant to requirements of section 2672.

(i) Decommissioned tanks and underground storage tanks, permanently closed on-site by cleaning and filling with an inert solid prior to January 1, 1984, need not comply with the closure requirements in this section unless required by the local agency. However, hazardous substances released from such tanks before or after the closure, shall be reported by the owner pursuant to Article 5 and shall be cleaned up pursuant to section 13304 of the Water Code, Article 11 of these regulations, and any other applicable law or regulations.

(j) A regulated tank shall be subject to the requirements of subsections (d) and (e) of section 2672 before the local agency may grant exempt status to the tank.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25298, Health and Safety Code; 40 CFR 280.70, 280.71, 280.73 and 280.74.

§ 2671. Temporary Closure Requirements.

(a) An owner or operator shall comply with all of the following requirements to complete and maintain temporary closure of an underground storage tank:

(1) All residual liquid, solids, or sludges shall be removed and handled in accordance with the applicable provisions of Chapters 6.5 and 6.7 of Division 20 of the Health and Safety Code.

(2) If the underground storage tank contained a hazardous substance that could produce flammable vapors at standard temperature and pressure, it shall be inerted, as often as necessary, to levels that will preclude an explosion or to lower levels as required by the local agency.

(3) The underground storage tank may be filled with a noncorrosive liquid that is not a hazardous substance. This liquid shall be tested and the test results submitted to the local agency prior to removal from the underground storage tank at the end of the temporary closure period.

(4) Except for required venting, all fill and access locations and piping shall be sealed using locking caps or concrete plugs.

(5) Power service shall be disconnected from all pumps associated with the use of the underground storage tank unless the power services some other equipment which is not being closed, such as the impressed-current cathodic protection system.

(b) The monitoring required pursuant to the permit may be modified by the local agency during the temporary closure period. In making a decision to modify monitoring requirements, the local agency shall consider the need to maintain monitoring in order to detect unauthorized releases that may have occurred during the time the underground storage tank was used but that have not yet been detected. In all cases, corrosion protection shall continue to be operated.

(c) The underground storage tank shall be inspected by the owner or operator at least once every three months to verify that the temporary closure measures are still in place. The inspection shall include but is not limited to the following:

(1) Visual inspection of all locked caps and concrete plugs.

(2) If locking caps are used, at least one shall be removed to determine if any liquids or other substances have been added to the underground storage tank or if there has been a change in the quantity or type of liquid added pursuant to subsection (a)(3) of this section.

(d) At the end of a temporary closure period over 12 months, including any extension granted by the local agency, the owner may reuse the underground storage tank only if the tank meets the requirements of Article 3 for new underground storage tanks or is upgraded to meet the requirements of Article 6.

(e) All new and existing underground storage tank systems which have been temporarily closed must continue to comply with repair and recordkeeping requirements, release reporting and investigation requirements, and release response and corrective action requirements specified in this chapter and Chapter 6.7 of the Health and Safety Code.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25298, Health and Safety Code; 40 CFR 280.70 and 281.36(a)(1).

§ 2672. Permanent Closure Requirements.

(a) Owners or operators of underground storage tanks subject to permanent closure shall comply with either subsection (b) for underground storage tank removal or subsection (c) for closure in place. It is not essential that all portions of an underground storage tank be permanently closed in the same manner; however, all closure actions shall be conducted in accordance with this section. Subsections (d) and (e) apply to all underground storage tanks subject to permanent closure.

(b) Owners or operators of underground storage tanks subject to permanent closure shall comply with applicable provisions of Chapter 6.5 of Division 20 of the Health and Safety Code and with the following requirements:

(1) All residual liquid, solids, or sludges shall be removed and handled as hazardous wastes or recyclable materials in accordance with Chapter 6.5 of the Health and Safety Code.

(2) If the underground storage tank contained a hazardous substance that could produce flammable vapors at standard temperature and pressure, it shall be inerted to levels that shall preclude explosion or to lower levels as required by the local agency.

(3) When an underground storage tank or any part thereof is disposed of, the owner or operator shall document to the local agency that proper disposal has been completed. This documentation shall be submitted within the time frame specified by the local agency.

(4) An owner or operator of an underground storage tank or any part thereof that is destined for a specific reuse shall advise the local agency, within the time frame specified by that agency, of:

(A) The name of the new owner and new operator of the underground storage tank;

(B) The location of intended use; and

(C) The nature of intended use.

(c) Owners or operators of underground storage tanks subject to permanent closure where the tanks are approved to be closed in place shall comply with the applicable provisions of Chapters 6.5 and 6.7 of Division 20 of the Health and Safety Code and with the following requirements:

(1) All residual liquid, solids, or sludges shall be removed and handled as a hazardous waste or recyclable materials in accordance with Chapters 6.5 and 6.7 of the Health and Safety Code.

(2) If the underground storage tank contained a hazardous substance that could produce flammable vapors at standard temperature and pressure, it shall be inerted to levels that shall preclude explosion or to lower levels as may be required by the local agency.

(3) All piping associated with the underground storage tank shall be removed and disposed of unless removal might damage structures or other pipes that are being used and that are contained in a common trench, in which case the piping to be closed shall be emptied of all contents and capped.

(4) The underground storage tank, except for piping that is closed in accordance with subdivision (3), shall be completely filled with an inert solid, unless the owner intends to use the underground storage tank for the storage of a nonhazardous substance which is compatible with the previous use and construction of the underground storage tank.

(d) The owner or operator of an underground storage tank being closed pursuant to this section shall demonstrate to the satisfaction of the local agency that no unauthorized release has occurred. This demonstration shall be based on soil sample analysis and/or water analysis if water is present in the excavation. This analysis shall be performed during or immediately after closure activities. If the demonstration is based on soil sample analysis, soil samples shall be taken and analyzed as follows:

(1) If the underground storage tank or any portion thereof is removed, soil samples shall be taken immediately beneath the removed portions of the tank, a minimum of two feet into native material at each end of the tank in accordance with section 2649. A separate sample shall be taken for each 20 linear-feet of trench for piping.

(2) If the underground storage tank or any portion thereof is not removed, at least one boring shall be taken as close as possible to the midpoint beneath the tank using a slant boring (mechanical or manual), or other appropriate method such as vertical borings drilled on each long dimensional side of the tank as approved by the local agency.

(3) Soils shall be analyzed in accordance with section 2649 for all constituents of the previously stored hazardous substances and their breakdown or transformation products. The local agency may waive the requirement for analysis of all constituents, breakdown or transformation products when key constituents that pose a significant threat to water quality or the environment can be identified for analysis.

(e) The detection of any reportable unauthorized release shall require compliance with the applicable requirements of Articles 5 and 11.

Authority: Sections 25299.3, 25299.7 and 25299.77, Health and Safety Code.
Reference: Sections 25298 and 25299.37, Health and Safety Code; 40 CFR 280.60 through 280.67, 280.71 and 281.36.

Article 8. Site-Specific Variance Procedures

§ 2680. General Applicability of Article.

(a) This article sets forth procedures for site-specific variances from the requirements for the construction and monitoring of new and existing underground storage tanks as described in Chapter 6.7 of Division 20 of the Health and Safety Code and Articles 3 and 4 of this chapter. A site-specific variance, if approved, would apply only to the specific site(s) approved for a variance. These procedures are in addition to those established by the appropriate sections of Chapter 6.7 of Division 20 of the Health and Safety Code.

(b) Section 2681 specifies the procedures that shall be followed by the applicant, local agency, and the Regional Water Quality Board for site- specific variance requests.

Authority: Sections 25299.3, Health and Safety Code.
Reference: Section 25299.4, Health and Safety Code.

§ 2681. Site-Specific Variances.

(a) A site-specific variance allows an alternative method of construction or monitoring which would be applicable at one or more sites within a local agency' s jurisdiction. Application for a site-specific variance shall be made to the appropriate Regional Water Quality Board.

(b) Prior to applying to the Regional Water Quality Board for a variance, the applicant shall submit a complete construction and monitoring plan to the local agency. The proposed alternative construction or monitoring methods which may require a variance shall be clearly identified. If the local agency decides that a variance would be necessary to approve the specific methods or if the local agency does not act within 60 calendar days of receipt of a complete construction and monitoring plan from the applicant, the applicant may submit the variance application to the Regional Water Quality Board.

(c) An application for a site-specific variance shall include, but is not limited to:

(1) A description of the provision from which the variance is requested.

(2) A detailed description of the complete construction and monitoring methods to be used. The proposed alternative program, method, device, or process shall be clearly identified.

(3) Any special circumstances on which the applicant relies to justify the findings necessary for the variance, as prescribed by the appropriate section of Chapter 6.7 of Division 20 of the Health and Safety Code.

(4) Clear and convincing evidence that the proposed alternative will adequately protect the soil and the beneficial uses of waters of the state from an unauthorized release.

(5) Any environmental information or documentation requested by the Regional Water Quality Board pursuant to the California Environmental Quality Act (Division 13, commencing with section 21000 of the Public Resources Code).

(6) A list including names and addresses of all persons known to the applicant who may be affected by or may be interested in the variance request.

(7) A fee not to exceed $2,750 for variance requests at one site. A fee not to exceed $5,500 for variance requests at more than one site within one local agency' s jurisdiction.

(d) The Regional Water Quality Board shall review all applications submitted and shall notify the applicant in writing within 30 calendar days of receipt of the application whether the application is complete.

(e) The Regional Water Quality Board shall hold a hearing on the proposed variance as specified in section 25299.4(c) of the Health and Safety Code.

(f) Any site-specific variance shall prescribe appropriate additional conditions and shall describe the specific alternative system for which the variance is being granted. The Regional Water Quality Board shall notify the applicant, the local agency, and the

State Water Board of its decision.

(g) If the variance is approved, the local agency shall issue a permit to the applicant which includes the conditions prescribed by the Regional Water Quality Board. A local agency shall not modify the permit unless it determines that the modification is consistent with the variance that has been granted.

(h) The Regional Water Quality Board shall modify or revoke a variance upon a finding that the proposed alternative does not adequately protect the soil and the beneficial uses of the waters of the state from an unauthorized release. The Regional Water Quality Board shall not modify nor revoke the variance until it has followed procedures comparable to those prescribed in this section and Chapters 1.5 and 6 of Division 3 of Title 23 of the California Code of Regulations. The Regional Water Quality Board shall notify the local agency and the State Water Board of the modification or revocation. The local agency shall modify or revoke the permit for the site.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25299.4, Health and Safety Code.

Article 9. Local Agency Requests for Additional Design and Construction Standards

§ 2690. General Applicability of Article.

This article sets forth procedures by which local agencies may request State Water Board authorization for design and construction standards other than those set by Article 3. These procedures are in addition to those established by Chapter 6.7 of Division 20 of the Health and Safety Code.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25299.2 and 25299.4, Health and Safety Code.

§ 2691. Procedures for Requesting Additional Standards.

(a) A local agency application for additional design and construction standards shall include:

(1) A description of the proposed design and construction standards which are in addition to those described in Article 3 of this chapter.

(2) Clear and convincing evidence that the additional standards are necessary to protect the soil and beneficial uses of the waters of the state from unauthorized releases.

(3) Any documents required by the California Environmental Quality Act (Division 13, commencing with section 21000 of the Public Resources Code).

(4) An initial fee of $5,500.

(b) The applicant shall be required to pay a fee based on the actual costs of considering the application. The State Water Board will bill the applicant for additional costs or refund any unused portion of the initial fee.

(c) The State Water Board shall conduct an investigation and public hearing on the proposed standards and the need to protect the soil and beneficial uses of the water before determining whether to authorize the local agency to implement additional standards.

(d) The State Water Board may modify or revoke a previously issued authorization allowing the implementation of additional standards if it finds that, based on new evidence, the additional standards are not necessary to adequately protect the soil and beneficial uses of the waters of the state from unauthorized releases. The State Water Board shall neither modify nor revoke the authorization until it has followed procedures comparable to those in Chapters 1.5 and 6 of Division 3 of Title 23 of the California Code of Regulation.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25299.4, Health and Safety Code.

Article 10. Permit Application, Quarterly Report and Trade Secret Request Requirements

§ 2710. General Applicability of Article.

(a) This article describes specific administrative actions that shall be undertaken by all underground storage tank owners, local agencies, and the State Water Board relative to issuing permits for underground storage tanks. These steps are in addition to those established by Chapter 6.7 of Division 20 of the Health and Safety Code.

(b) Section 2711 lists the information that shall be submitted by the underground storage tank owner or representative to the local agency as part of the permit application.

(c) Section 2712 describes the conditions associated with a permit for the operation of an underground storage tank and the conditions which local agencies shall meet before issuing permit.

(d) Section 2713 describes the local agency reporting requirements for unauthorized releases.

(e) Section 2714 specifies conditions that shall be met by an underground storage tank owner or operator when requesting trade secret protection for any information submitted to the local agency, State Water Board, or Regional Water Quality Board. The section also specifies how those agencies shall consider the request and how they shall maintain the information if the trade secret request is accepted.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25284, 25285, 25286, 25288, 25289, 25290 and 25293, Health and Safety Code.

§ 2711. Information and Application for Permit to Operate an Underground Storage Tank.

(a) The permit application shall include, but not be limited to, the following information to the extent such information is known to the permit applicant:

(1) The name and address of the person who owns the underground storage tank or tanks.

(2) The name, location, mailing address, and telephone number where the underground storage tank is located, and type of business involved, if any.

(3) The name, address, and telephone numbers of the underground storage tank operator and 24-hour emergency contact person.

(4) The name and telephone number of the person making the application.

(5) A description of the underground storage tank including, but not limited to, the underground storage tank manufacturer, date of installation and tank capacity.

(6) Construction details of the underground storage tank and any auxiliary equipment including, but not limited to, type of primary containment, type of secondary containment (if applicable), spill and overfill prevention equipment, interior lining, and corrosion protection (if applicable).

(7) A description of the piping including, but not limited to, the type of piping system, construction, material, corrosion protection and leak detection.

(8) A scaled diagram or design or as-built drawing which indicates the location of the underground storage tank (underground storage tank, piping, auxiliary equipment) with respect to buildings or other landmarks.

(9) The description of the proposed monitoring program including, but not limited to, the following where applicable:

(A) Visual inspection procedures;

(B) Underground storage tank release detection methods or inspection procedures;

(C) Inventory reconciliation including gauging and reconciliation methods;
(D) Piping leak detection methods;

(E) Vadose zone sampling locations, and methods and analysis procedures;

(F) Ground water well(s) locations construction and development methods, sampling, and analysis procedures; and

(10) A list of all the substances which have been, are currently, or are proposed to be stored in the underground storage tank or tanks.

(11) Documentation to show compliance with state and federal financial responsibility requirements applicable to underground storage tanks containing petroleum.

(12) If the owner or operator of the underground storage tank is a public agency, the application shall include the name of the supervisor of the division, section, or office which operates the underground storage tank.

(13) The permit application shall be signed by:

(A) The owner of the underground storage tank or a duly authorized representative of the owner; or,

(B) If the tank is owned by a corporation, partnership, or public agency, the application shall be signed by:

1. A principal executive officer at the level of vice-president or by an authorized representative. The representative shall be responsible for the overall operation of the facility where the underground storage tank(s) are located; or,

2. A general partner proprietor; or,

3. A principal executive officer, ranking elected official, or authorized representative of a public agency.

(b) The owner or operator shall inform the local agency of any changes to the information provided in accordance with subsection (a) within 30 calendar days unless required to obtain approval before making the change.

(c) The permit applications, "Underground Storage Tank Permit Application- Form A," dated 5-91 and "Underground Storage Tank Permit Application-Form B," dated 12-91 shall be accompanied by the local government and state surcharge fees.

(d) The local agency shall provide the California Association of Environmental Health Administrators with copies of permit applications in accordance with Chapter 6.7 of the Health and Safety Code.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25286 and 25287, Health and Safety Code.

§ 2712. Permit Conditions.

(a) As a condition of any permit to operate an underground storage tank, the owner or operator shall comply with the reporting and recording requirements for unauthorized releases specified in Article 5.

(b) Written monitoring and maintenance records shall be maintained on-site or off-site at a readily available location, if approved by the local agency, for a period of at least 3 years, 6 1/2 years for cathodic protection maintenance records, and 5 years for written performance claims pertaining to release detection systems, and calibration and maintenance records for such systems. Records of repairs, lining, and upgrades shall be maintained on site or at another approved location for the remaining life of the underground storage tank. These records shall be made available, upon request within 36 hours, to the local agency or the State Water Board. Monitoring records shall include:

(1) The date and time of all monitoring or sampling;

(2) Monitoring equipment calibration and maintenance records;

(3) The results of any visual observations;

(4) The results of all sample analysis performed in the laboratory or in the field, including laboratory data sheets and analysis used;
(5) The logs of all readings of gauges or other monitoring equipment, ground water elevations, or other test results; and

(6) The results of inventory readings and reconciliations.

(c) A permit to operate issued by the local agency shall be effective for 5 years. In addition to other information specified by the local agency, the permit shall include the permit expiration date, monitoring requirements, and the state underground storage tank identification number(s) for which the permit was issued. Before a local agency issues a new permit or renewal to operate an underground storage tank the local agency shall inspect the underground storage tank and determine that it complies with the provisions of these regulations.

(d) Permits may be transferred to new underground storage tank owners if: (1) the new underground storage tank owner does not change conditions of the permit, (2) the transfer is registered with the local agency within 30 days of the change in ownership, and (3) state permit application forms are completed to show the changes. Transferred permits shall expire and be renewed on the original expiration date. A local agency may review, modify, or terminate the permit to operate the underground storage tank upon receiving an ownership transfer request.

(e) The local agency shall not renew an underground storage tank permit unless the underground storage tank has been inspected by the local agency or a special inspector within the previous 12 months and the inspection verified that the underground storage tank complied with the provisions of Article 3 or 4, as applicable, and with all existing permit conditions. The inspection shall be conducted as specified in section 25288 of Chapter 6.7 of Division 20 of the Health and Safety Code. If the inspection indicated noncompliance then the local agency shall verify by a follow-up inspection that all required corrections have been implemented before renewing the permit.

(f) Within 30 calendar days of receiving an inspection report from either the local agency or the special inspector, the permit holder shall implement the corrections specified in the inspection report and comply with and the permit conditions. The corrective action shall include all of the recommendations made by the local agency or special inspector. The local agency may waive the implementation of any of the special inspector's recommendations based on a demonstration by the permit holder to the local agency's satisfaction that failure to implement the recommendation will not cause an unauthorized release.

(g) The local agency shall take appropriate enforcement action pursuant to section 25299 of the Health and Safety Code or prohibit the operation of the tank systems if the owner or operator fails to comply with the monitoring requirements in Article 3 or 4 or the reporting requirements of Article 5.

(h) The local agency shall provide the permittee with a written list of all applicable requirements of Chapter 6.7 and 6.75 of the Health and Safety Code and these regulations.

(i) A copy of the permit and all conditions and attachments, including monitoring plans, shall be retained at the facility.

(j) All primary containment shall be product-tight.

(k) Owners and operators shall use care to prevent releases due to spilling or overfilling. Before product is delivered, owners, operator, or their agents shall ensure that the space available in the tank is greater than the volume of product to be transferred to the tank and shall ensure that the transfer operation is monitored constantly to prevent overfilling and spilling.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25284, 25285, 25286, 25288, 25289, 25293 and 25294, Health and Safety Code; 40 CFR 280.31(d), 280.33(f), 280.45 and 281.32(e).

§ 2712.1. Content of Upgrade Compliance Certificates.
(Repealed by operation of law)

§ 2712.2. Issuing Upgrade Compliance Certificates.
(Repealed by operation of law)

§ 2712.3. Displaying Upgrade Compliance Certificates.
(Repealed by operation of law)

§ 2712.4. Replacing Upgrade Compliance Certificates.
(Repealed by operation of law)

§ 2712.5. Lists of Underground Storage Tank Facilities.
(Repealed by operation of law)

§ 2712.6. Prohibitions.
(Repealed by operation of law)

§ 2712.7. Sunset Provisions.
(Repealed by operation of law)

§ 2713. Local Agency Reporting Requirements.

(a) Each local agency shall transmit unauthorized release information, submitted by the owner or operator, to the appropriate regional board.

(b) Local agencies shall transmit unauthorized release update report information, submitted by the owner or operator pursuant to section 2712, to the appropriate regional board for sites where they are overseeing cleanup. Local agencies shall transmit this unauthorized release update information on a quarterly schedule established by the board.

(c) On a quarterly basis, each local agency shall send to the board, information pertaining to local underground storage tank program implementation and enforcement activities. This information shall include, but not be limited to the number of:

(1) tanks subject to regulation

(2) regulated facilities

(3) facility inspections conducted

(4) inspected facilities in compliance with leak detection requirements

(5) facilities that received formal and informal enforcement action

(6) underground storage tank systems that received a red tag pursuant to Article 10.5, including:

(A) the name and address of the facility at which the tank system is located;

(B) the names of the owner and operator of the tank system;

(C) the red tag' s identification number;

(D) the date the red tag was affixed to the tank system;

(E) the specific violation for which the tank system received the red tag;

(F) the date the red tag was removed from the tank system.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Sections 25286 and 25292.3, Health and Safety Code.

§ 2714. Trade Secret Provisions.

(a) Any person making an application for a permit to operate an underground storage tank, for renewal of the permit or application for a site-specific variance, shall identify all information which the person believes is a trade secret and submit a legal justification for the request for confidentiality. The information which shall be submitted includes, but is not limited to:

(1) Identification of those portions of the information which are believed to be trade secrets;

(2) The length of time this information should be treated as confidential;

(3) Measures that have been taken to protect this information as confidential; and

(4) A discussion of why this information is subject to trade secret protection, including references to statutory and case law as appropriate.

(b) If the local agency, the State Water Board, or the Regional Water Quality Board (collectively referred to as "agency" for the purposes of this section) determines that a request for trade secret protection is clearly valid, the material shall be given trade secret protection as discussed in subsection (f) of this section.
(c) If the agency determines that the request for trade secret protection is clearly frivolous, it shall send a letter to the applicant stating that the information will not be treated as a trade secret unless the agency is instructed otherwise by a court within 10 working days of the date of the letter.

(d) If the validity of the request for trade secret protection is unclear, the agency will inform the person claiming trade secrecy that the burden is on him or her to justify the claim. The applicant shall be given a fixed period of time to submit the additional information as the agency may request. The agency shall then evaluate the request on the basis of the definition of "trade secrets" contained in the appropriate section of Chapter 6.7 of Division 20 of the Health and Safety Code and shall issue its decision. If the agency determines that the information is not a trade secret, it shall act in accordance with subsection (c) of this section.

(e) All information received for which trade secrecy status is requested shall be treated as confidential as discussed in subsection (f) of this section until a final determination is made.

(f) Information which has been found to be confidential or which is being reviewed to determine if confidentiality should exist, shall be immediately filed in a separate "confidential" file. If a document or portion of a document is filed in a confidential file, a notation shall be filed with the file document indicating that further information is in the confidential file.

(g) Information contained in confidential files shall only be disclosed to authorized representatives of the applicant or other governmental agencies in connection with the agency's responsibilities pursuant to Chapter 6.7 of the Health and Safety Code or Division 7 of the Water Code.

(h) Nothing contained herein shall limit an applicant's right to prevent disclosure of information pursuant to other provisions of law.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25290, Health and Safety Code.

§ 2715. Certification, Licensing, and Training Requirements for Underground Storage Tank Owners, Operators, Installers, Service Technicians, and Inspectors.

(a) By January 1, 2005, owners of underground storage tank systems shall submit a signed statement to the local agency indicating that the owner understands and is in compliance with all applicable underground storage tank requirements, and identifying the designated UST operator(s) for each facility owned. The owner shall inform the local agency of any change of designated UST operator(s) no later than 30 days after the change.

(b) Effective January 1, 2005, designated UST operators shall possess a current certificate issued by the International Code Council (ICC) indicating he or she has passed the California UST System Operator exam. The individual shall renew the ICC certification, by passing the California UST System Operator exam, every 24 months.

(c) The designated UST operator(s) shall perform monthly visual inspections of all underground storage tank systems for which they are designated. The results of each inspection shall be recorded in a monthly inspection report. The monthly visual

inspection shall include, but is not limited to, the following:

(1) Reviewing the alarm history report or log for the previous month, and checking that each alarm condition was documented and responded to appropriately. A copy of the alarm history report or log, along with documentation describing action taken in response to any alarm(s), shall be attached to the monthly visual inspection record.

(2) Inspecting for the presence of hazardous substance, water, or debris in spill containers.

(3) Inspecting for the presence of hazardous substance, water, or debris in under-dispenser containment areas, and checking that the monitoring equipment in these areas is located in the proper position to detect a leak at the earliest possible opportunity.

(4) Inspecting for the presence of hazardous substance, water, or debris in containment sumps that, in the past month, have had an alarm for which there is no record of a service visit, and checking that the monitoring equipment in these containment sumps is located in the proper position to detect a leak at the earliest possible opportunity.

(5) Checking that all required testing and maintenance for the underground storage tank system have been completed, and documenting the dates these activities occurred.

(6) Verifying that all facility employees have been trained in accordance with subdivision 2715(f).

(d) The designated UST operator(s) shall provide the owner or operator with a copy of each monthly inspection report, and alert the owner or operator of any condition discovered during the monthly visual inspection that may require follow-up actions.

(e) The owner or operator shall maintain a copy of the monthly inspection record and all attachments for the previous twelve months. The records shall be maintained on-site or, if approved by the local agency, off-site at a readily available location.

(f) By July 1, 2005, and every twelve months thereafter, the designated UST operator(s) shall train facility employees for which he or she is responsible in the proper operation and maintenance of the underground storage tank system. For facility employees hired on or after July 1, 2005, the initial training shall be conducted within 30 days of the date of hire.

(1) The training for facility employees must include, but is not limited to:

(A) The operation of the underground storage tank system in a manner consistent with the facility's best management practices.

(B) The facility employee's role with regard to the monitoring equipment as specified in the facility's monitoring plan.

(C) The facility employee's role with regard to spills and overfills as specified in the facility's response plan.

(D) The name of the contact person(s) for emergencies and monitoring equipment alarms.

(2) At least one of the facility employees present during operating hours shall have current training in accordance with subdivision (f)(1). For facilities that are not routinely staffed, the designated UST operator shall implement a facility employee training program approved by the local agency.

(3) A list of facility employees who have been trained by the designated UST operator(s), shall be maintained on-site or off-site at a readily available location, if approved by the local agency. The list shall be provided to the local agency upon request. The list shall include the dates of training for all facility employees, and the hiring dates for all facility employees hired on or after July 1, 2005.

(g) Any person(s) installing underground storage tank systems or components shall be certified or licensed by the Contractors State License Board.

(h) Any individual(s) installing underground storage tank system components shall meet the following requirements, or work under the direct and personal supervision of an individual physically present at the work site who meets the following requirements:

(1) The individual has been adequately trained as evidenced by a certificate of training issued by the manufacturer(s) of the underground storage tank system components. On and after July 1, 2001, this certification shall be renewed by completion

of manufacturer' s refresher training at the time interval recommended by the manufacturer, or every 36 months, whichever is shorter.

(2) Effective January 1, 2005, the individual shall possess a current underground storage tank system installer certificate from the International Code Council (ICC), indicating that the individual has passed the ICC UST Installation/Retrofitting exam. The individual shall renew the ICC certification, by passing the ICC UST Installation/Retrofitting exam, every 24 months.

(i) Any individual performing the work of a service technician must meet all of the following requirements:

(1) Possess or be employed by a person who possesses a current Class "A" General Engineering Contractor License, C-10 Electrical Contractor License, C- 34 Pipeline Contractor License, C-36 Plumbing Contractor License, or a C-61 (D40) Limited Specialty Service Station Equipment and Maintenance Contractor License issued by the Contractors State License Board, as applicable. Individuals who possess a tank testing license issued by the State Water Resources Control Board satisfy the licensing requirement of this paragraph.

(2) Be trained and certified by the manufacturer of the equipment as follows:

(A) For service technicians conducting secondary containment testing pursuant to section 2637(a), this training and certification may be obtained through the developer of the testing equipment or test method being used, or through the manufacturer of the secondary containment system being tested, as applicable.

(B) For service technicians performing work on monitoring equipment, training and certification shall be obtained from the manufacturer of the monitoring equipment.

(C) In the event that no training or certification exists that would satisfy the criteria of subparagraph (i)(2)(A) or (B), the local agency may approve comparable alternate training or certification.

(3) Renew all training and certifications issued by the manufacturer, through completion of a manufacturer' s refresher course, at the time interval recommended by the manufacturer, or every 36 months, whichever is shorter.

(4) Effective July 1, 2005, service technicians shall possess or work under the direct and personal supervision of an individual physically present at the work site who possesses a current certificate from the International Code Council (ICC), indicating he or she has passed the California UST Service Technician exam. If the California UST Service Technician exam is not available by July 1, 2004, this requirement shall be effective twelve months after the date the exam is available. The individual shall renew the ICC certification, by passing the California UST Service Technician exam, every 24 months.

(j) Local agency inspectors or special inspectors conducting underground storage tank inspections must meet the following requirements:

(1) Effective September 1, 2005, these individuals shall possess a current inspector certificate issued by the International Code Council (ICC), indicating he or she has passed the ICC California UST Inspector exam. Local agency inspectors hired on or after September 1, 2005, are subject to this requirement 180 days from the date of hire. If the ICC California UST Inspector exam is not available by September 1, 2004, this requirement shall be effective twelve months after the date the exam is available.

(2) These individuals shall renew the California inspector certificate every 24 months, by either passing the ICC California UST Inspector exam or satisfying equivalent criteria as approved by the Division of Water Quality Underground Storage Tank Program Manager.

Authority: Section 25299.3, Health and Safety Code.
Reference: Section 25281, 25284.1, Health and Safety Code; 40 CFR 280.20.

Article 10.5. Red Tag Authority

§ 2717. Additional Definitions.

(a) "Significant Violation" means the failure of a person to comply with any requirement of Chapter 6.7 of the Health and Safety Code or any regulation adopted pursuant to Chapter 6.7, not including the corrective action requirements in Section 25296.10 of the Health and Safety Code and Article 11 of Chapter 16 of Title 23 of the regulations, that is any of the following:

(1) A violation that is causing, or threatens to cause a liquid release of petroleum from an underground storage tank system, including, but not limited to: the failure of any required overfill prevention system, where the failure is causing or threatens to cause a release; or the failure of a required spill containment structure, where the failure is causing or threatens to cause a release to the environment due to a spill or an overfill.

(2) A violation that impairs the ability of an underground storage tank system to detect a liquid leak or contain a liquid release of petroleum in the manner required by law, including, but not limited to: tampering with leak detection equipment so that the equipment is no longer capable of detecting a leak at the earliest possible opportunity.

(3) A chronic violation or a violation that is committed by a recalcitrant violator. In determining whether a violation is chronic or a violator is recalcitrant, the local agency shall consider whether there is evidence indicating that the violator has engaged in a pattern of neglect or disregard with respect to any requirement of Chapter 6.7 or of any regulation adopted pursuant to Chapter 6.7, not including the corrective action requirements in Section 25296.10 of the Health and Safety Code and Article 11 of Chapter 16 of Title 23 of the regulations.

(b) "Imminent threat to human health or safety or the environment" means a condition that creates a substantial probability of harm, when the probability and potential extent of harm make it reasonably necessary to take immediate action to prevent, reduce, or mitigate the actual or potential damages to human health or safety or the environment.

Authority: Sections 25292.3(g), 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25292.3, Health and Safety Code.

§ 2717.1. Affixing Red Tags.

(a) Upon the discovery of a significant violation that poses an imminent threat to human health or safety or the environment, the local agency may immediately affix a red tag to the fill pipe of the non-compliant underground storage tank system using a tamper-resistant strap or straps, fill pipe bag, or any combination thereof so that the tag is visible to any person attempting to deliver petroleum to the underground storage tank. Immediately after affixing a red tag pursuant to this subdivision, the local agency shall notify the operator, if present on site, of the significant violation(s) for which the red tag was issued. Within 24 hours of affixing a red tag pursuant to this subdivision, the local agency shall notify the owner of the significant violation(s) for which the red tag was issued.

(b) Upon the discovery of a significant violation that does not pose an imminent threat to human health or safety or the environment and that is not otherwise exempt pursuant to Section 2717.4, the local agency may issue a notice of significant violation to the owner and operator identifying the significant violation(s). If the owner or operator fails to correct the significant violation within seven business days from receipt of the notice, the local agency may affix a red tag to the fill pipe of the non-compliant underground storage tank system using a tamper-resistant strap or straps, fill pipe bag, or any combination thereof so that the tag is visible to any person attempting to deliver petroleum to the underground storage tank.

(c) Before affixing a red tag to the fill pipe of an underground storage tank system, the local agency shall document the level of stored product in the tank.

(d) The board shall provide red tags, fill pipe bags, and tamper-resistant straps made of nylon or other durable, damage resistant material to local agencies upon request, and local agencies shall use only red tags, fill pipe bags, and tamper-resistant straps provided by the board.

(e) No owner or operator of a facility may deposit or allow the deposit of petroleum into an underground storage tank system that has a red tag affixed to the system' s fill pipe.

(f) No person may deposit petroleum into an underground storage tank system that has a red tag affixed to its fill pipe.

(g) Except as otherwise provided in Section 2717.2, no person shall remove, deface, alter, or otherwise tamper with a red tag so that the information contained on the tag is not legible.

(h) If a permit is required by the local agency in order to correct one or more significant violations identified pursuant to subdivisions (a) or (b), the local agency shall, to the extent feasible, expedite its review and issuance of such permit(s).

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25292.3, Health and Safety Code.

§ 2717.2. Removing Red Tags.

(a) Upon notification by the owner or operator documenting to the satisfaction of the local agency that the significant violation has been corrected, the local agency may provide written authorization to the owner or operator to remove the red tag. The local agency shall inspect the underground storage tank system within five business days of notification to determine whether the system continues to be in significant violation, regardless of whether it has authorized removal of the red tag by the owner or operator. If, upon inspection, the local agency determines that the system is no longer in significant violation and it has not already authorized removal of the red tag, the local agency shall immediately remove the red tag.

(b) Upon removing a red tag from an underground storage tank system, the local agency shall document the level of stored product in the tank. If the owner or operator removes a red tag pursuant to written authorization by the local agency, the owner or operator shall document the level of stored product in the tank immediately after removing the red tag.

(c) A red tag that has been removed by the owner or operator shall be returned to the local agency within five business days, or sooner if requested by the local agency.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Referenc: Section 25292.3, Health and Safety Code.

§ 2717.3. Removal of Red Tag from Emergency Generator Tank Systems Prior to Correction of Significant Violation.

Notwithstanding any other provision of this Article, a local agency may remove or authorize the removal of a red tag from an emergency generator tank system before a significant violation has been corrected if the local agency determines that an emergency situation exists requiring operation of the system and the delivery of petroleum is necessary for the continued operation of the system during the emergency. For purposes of this section, an "emergency generator tank system" means an underground storage tank system that provides power supply in the event of a commercial power failure, stores petroleum, and is used solely in connection with an emergency system, legally required standby system, or optional standby system, as defined in Articles 700, 701, and 702 of the National Electrical Code of the National Fire Protection Association.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference Sections 25281.5 and 25292.3, Health and Safety Code.

§ 2717.4. Notice of Correction of Significant Violation.

Upon making a determination that a significant violation has been corrected, the local agency shall notify the owner or operator in writing of its determination.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25292.3, Health and Safety Code.

§ 2717.5. Significant Violations Exempt From Red Tags.

(a) If an underground storage tank system component is found to be in significant violation during periodic testing of the component, a local agency may issue a notice of significant violation or affix a red tag only if:

(1) the violation poses an imminent threat to human health or safety or the environment; or

(2) there is evidence the component in violation has been tampered with; or

(3) the owner or operator fails to take appropriate action to correct the violation.

Authority cited: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25292.3, Health and Safety Code.

§ 2717.6. Content of Red Tags.

(a) A red tag shall be red in color and 3 inches wide by 5 inches long and made of plastic or other durable and damage resistant material.

(b) Red tags shall bear the following information on both sides of the tag:

(1) The following wording, printed in white at the top of the tag in all capital letters in at least 36 point bold-faced type: "PETROLEUM DELIVERY PROHIBITED!"

(2) The following wording, printed in white below the wording described in subdivision (b)(1) in at least 16 point type: "Delivering petroleum, or removing, defacing, altering, or otherwise tampering with this tag may result in civil penalties of up to $5000 per day."

(3) Printed below the wording described in subdivision (b)(2), the following wording in at least 16 point type: "If you have questions, please contact:"

(A) Following the wording described in subdivision (b)(3), there shall be a blank area at least 1/2 inch wide by three inches long in which the local agency shall write legibly in permanent ink its name and telephone number.

(4) In the lower left hand corner, a unique identification number imprinted mechanically at the time of production.

(5) In the lower right hand corner, a graphic comprised of a blue background, the letters SWRCB in black, and white wavy lines depicting water.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25292.3, Health and Safety Code.

§ 2717.7. Enforcement Scope of Article.

Nothing in this Article shall be construed as prohibiting the local agency, board, regional board, or any other prosecuting agency from taking any other action as provided for by law, including but not limited to requiring removal of the stored substance from the tank pursuant to Section 2652 or revoking or modifying the operating permit pursuant to Section 25285.1 of the Health and Safety Code.

Authority: Sections 25299.3 and 25299.7, Health and Safety Code.
Reference: Section 25292.3, Health and Safety Code.

Article 11. Corrective Action Requirements

§ 2720. Additional Definitions.

Unless the context clearly requires otherwise, the following definitions shall apply to terms used in this Article.

"Corrective action" means any activity necessary to investigate and analyze the effects of an unauthorized release; propose a cost-effective plan to adequately protect human health, safety, and the environment and to restore or protect current and potential beneficial uses of water; and implement and evaluate the effectiveness of the activity(ies). Corrective action does not include any of the following activities:

(1) Detection, confirmation, or reporting of the unauthorized release; or

(2) Repair, upgrade, replacement or removal of the underground storage tank.

"Cost-effective" means actions that achieve similar or greater water quality benefits at an equal or lesser cost than other corrective actions.

"Federal act" means Subchapter IX (commencing with Section 6991) of Chapter 82 of Title 42 of the United States Code, as added by the Hazardous and Solid Waste Amendments of 1984 (P.L. 98-616), or as it may subsequently be amended or supplemented, and the regulations adopted pursuant thereto.

"Regulatory agency" means the Board, regional board, or any local, state, or federal agency which has responsibility for regulating underground storage tanks or which has responsibility for overseeing cleanup of unauthorized releases from underground storage tanks.

"Responsible party" means one or more of the following:

(1) Any person who owns or operates an underground storage tank used for the storage of any hazardous substance;

(2) In the case of any underground storage tank no longer in use, any person who owned or operated the underground storage tank immediately before the discontinuation of its use;

(3) Any owner of property where an unauthorized release of a hazardous substance from an underground storage tank has occurred; and

(4) Any person who had or has control over a underground storage tank at the time of or following an unauthorized release of a hazardous substance.

Authority: Section 25299.77, Health and Safety Code.
Reference: Section 25299.37, Health and Safety Code and 40 CFR Section 280.12.

§ 2721. General Applicability of Article.

(a) Responsible parties for an underground storage tank shall comply with the requirements of this article whenever there is any reportable unauthorized release pursuant to Section 25295 of Chapter 6.7.

(b) Responsible parties shall take corrective action in compliance with the following requirements:

(1) all applicable waste discharge requirements or other order issued pursuant to Division 7, commencing with Section 13000 of the Porter-Cologne Water Quality Control Act (Water Code);

(2) all applicable state policies for water quality control adopted pursuant to Article 3 (commencing with Section 13140) of Chapter 3 of Division 7 of the Water Code;

(3) all applicable water quality control plans adopted pursuant to Article 3 (commencing with Section 13240) of Chapter 4 of Division 7 of the Water Code;

(4) all applicable requirements of Chapter 6.7 (commencing with Section 25280) and the regulations (Chapter 16, Title 23 CCR) promulgated thereto; and

(5) all applicable requirements of Article 4 of Chapter 6.75 of the Health and Safety Code, the applicable provisions of this Chapter, and the Federal act.

(c) When acting as the regulatory agency, the Board or regional board shall take appropriate action pursuant to Division 7, commencing with Section 13000 of the California Water Code, to ensure that corrective action complies with applicable policies for water quality control and applicable water quality control plans.

(d) The regulatory agency responsible for overseeing corrective action at an underground storage tank site shall comply with the applicable public participation provisions of Section 2728 of this Article.

(e) Upon completion of required corrective action, the regulatory agency shall inform the responsible party in writing that no further work is required at that time, based on available information. This written notice shall constitute agency concurrence on the completed corrective action.

Authority: Section 25299.77, Health and Safety Code.
Reference: Sections 25299.37, 25299.54, 25295 and 25298, Health and Safety Code and 40 CFR Section 280.67.

§ 2722. Scope of Corrective Action.

(a) Corrective action includes one or more of the following phases:

(1) Preliminary Site Assessment Phase

(2) Soil and Water Investigation Phase;

(3) Corrective Action Plan Implementation Phase; and

(4) Verification Monitoring Phase.

(b) The responsible party shall take or contract for interim remedial actions, as necessary, to abate or correct the actual or potential effects of an unauthorized release. Interim remedial actions can occur concurrently with any phase of corrective action. Before taking interim remedial action, the responsible party shall notify the regulatory agency of the proposed action and shall comply with any requirements that the regulatory agency sets. Interim remedial actions include, but are not limited to, the following:

(1) removal of free product. Free product removal must comply with the applicable provisions of Section 2655 of Article 5;

(2) enhanced biodegradation to promote bacterial decomposition of contaminants;

(3) excavation and disposal of contaminated soil;

(4) excavation and treatment of contaminated soil;

(5) vacuum extraction of contaminants from soil or ground water; and

(6) pumping and treatment of ground water to remove dissolved contaminants.

(c) The responsible party shall submit a workplan to the regulatory agency responsible for overseeing corrective action at the underground storage tank site, under the conditions listed below. If no regulatory agency has assumed responsibility for overseeing corrective action, the responsible party shall submit the workplan to the regional board with jurisdiction for the site where the underground storage tank is or was located:

(1) for proposed activities under the Preliminary Site Assessment Phase, if directed by the regulatory agency; and

(2) before initiating any work in accordance with Sections 2725 and 2727 of this Article.

(d) The workplan shall include the proposed actions and a proposed schedule for their completion. The responsible party shall modify the workplan, as necessary, at the direction of the regulatory agency.

(e) In the interest of minimizing environmental contamination and promoting prompt cleanup, the responsible party may begin implementation of the proposed actions after the workplan has been submitted and before it has received agency concurrence. Implementation of the workplan may begin sixty (60) calendar days after submittal, unless the reponsible party is otherwise directed in writing by the regulatory agency. Before beginning these activities, the responsible party shall:

(1) notify the regulatory agency of the intent to initiate the proposed actions included in the workplan submitted; and

(2) comply with any conditions set by the regulatory agency, including mitigation of adverse consequences from cleanup activities.

Authority: Section 25299.77, Health and Safety Code.
Reference: Sections 25295, 25297, 25299.14, 25299.37 and 25299.78, Health and Safety Code and 40 CFR Sections 280.53 and 280.60 through 280.66, and Section 13267 Water Code.

§ 2723. Preliminary Site Assessment Phase.

(a) The Preliminary Site Assessment Phase includes, at a minimum, initial site investigation, initial abatement actions and initial site characterization in accordance with Sections 2652, 2653, and 2654 of Article 5 and any interim remedial actions taken in accordance with Section 2722(b) of this Article.

(b) Implementation of any of the interim remedial actions or any of the activities included in the Preliminary Site Assessment Phase shall constitute initiation of corrective action.

Authority cited: Section 25299.77, Health and Safety Code.
Reference: Sections 25295, 25298 and 25299.37, Health and Safety Code and 40 CFR Sections 280.61 and 280.62.

§ 2724. Conditions That Require Soil and Water Investigation.

The responsible party shall conduct investigations of the unauthorized release, the release site, and the surrounding area possibly affected by the unauthorized release, if any of the following conditions exists:

(1) There is evidence that surface water or ground water has been or may be affected by the unauthorized release;

(2) Free product is found at the site where the unauthorized release occurred or in the surrounding area;

(3) There is evidence that contaminated soils are or may be in contact with surface water or ground water; or

(4) The regulatory agency requests an investigation, based on the actual or potential effects of contaminated soil or ground water on nearby surface water or ground water resources or based on the increased risk of fire or explosion.

Authority: Section 25299.77, Health and Safety Code.
Reference: Section 25299.37, Health and Safety Code and 40 CFR Sections 280.61 through 280.64

§ 2725. Soil and Water Investigation Phase.

(a)The Soil and Water Investigation Phase includes the collection and analysis of data necessary to assess the nature and vertical and lateral extent of the unauthorized release and to determine a cost-effective method of cleanup.

(b) Using information obtained during the investigation, the responsible party shall propose a Corrective Action Plan. The Corrective Action Plan shall consist of those activities determined to be cost-effective.

(c) The responsible party shall submit the Corrective Action Plan to the regulatory agency for review and concurrence. The regulatory agency shall concur with the Corrective Action Plan after determining that implementation of the plan will adequately protect human health, safety and the environment and will restore or protect current or potential beneficial uses of water. The responsible party shall modify the Corrective Action Plan in response to a final regulatory agency directive.
(d) The Corrective Action Plan shall include the following elements:

(1) an assessment of the impacts listed in subsection (e) of this Section;

(2) a feasibility study, in accordance with subsection (f) of this Section; and

(3) applicable cleanup levels, in accordance with subsection (g) of this Section.

(e) An assessment of the impacts shall include, but is not limited to, the following:

(1) The physical and chemical characteristics of the hazardous substance or its constituents, including their toxicity, persistence, and potential for migration in water, soil, and air;

(2) The hydrogeologic characteristics of the site and the surrounding area where the unauthorized release has migrated or may migrate;

(3) The proximity and quality of nearby surface water or ground water, and the current and potential beneficial uses of these waters;

(4) The potential effects of residual contamination on nearby surface water and ground water; and

(f) The responsible party shall conduct a feasibility study to evaluate alternatives for remedying or mitigating the actual or potential adverse effects of the unauthorized release. Each alternative shall be evaluated for cost-effectiveness, and the responsible party shall propose to implement the most cost-effective corrective action.

(1) For all sites, each recommended alternative shall be designed to mitigate nuisance conditions and risk of fire or explosion;

(2) For sites where the unauthorized release affects or threatens waters with current or potential beneficial uses designated in water quality control plans, the feasibility study shall also identify and evaluate at least two alternatives for restoring or protecting these beneficial uses;

(3) For sites where the unauthorized release affects or threatens waters with no current or potential beneficial uses designated in water quality control plans, the feasibility study shall identify and evaluate at least one alternative to satisfy paragraph (1) of this subsection.

(g) Cleanup levels for ground or surface waters, affected or threatened by the unauthorized release, shall comply with the requirements of Section 2721(b) and shall meet the following requirements:

(1) For waters with current or potential beneficial uses for which numerical objectives have been designated in water quality control plans, the responsible party shall propose at least two alternatives to achieve these numerical objectives;

(2) For waters with current or potential beneficial uses for which no numerical objectives have been designated in water quality control plans, the responsible party shall recommend target cleanup levels for long-term corrective actions to the regulatory agency for concurrence. Target cleanup levels shall be based on the impact assessment, prepared in accordance with subsection (e) of this Section.

Authority: Section 25299.77, Health and Safety Code.
Reference: Sections 25299.37 and 25299.57, Health and Safety Code.

§ 2726. Corrective Action Plan Implementation Phase.

(a) The Corrective Action Plan Implementation Phase consists of carrying out the cost-effective alternative selected during the Soil and Water Investigation Phase for remediation or mitigation of the actual or potential adverse effects of the unauthorized release.

(b) Upon concurrence with the Corrective Action Plan or as directed by the regulatory agency, the responsible party shall implement the Corrective Action Plan. The responsible party shall monitor, evaluate, and report the results of implementation of the Corrective Action Plan on a schedule agreed to by the regulatory agency.

(c) In the interest of minimizing environmental contamination and promoting prompt cleanup, the responsible party may begin cleanup of soil and water after the Corrective Action Plan has been submitted and before it has received agency concurrence. Implementation of the Corrective Action Plan may begin sixty (60) calendar days after submittal, unless the responsible party is otherwise directed in writing by the regulatory agency. Before beginning this cleanup, the responsible party shall:

(1) notify the regulatory agency of its intention to begin cleanup; and

(2) comply with any conditions set by the regulatory agency, including mitigation of adverse consequences from cleanup activities.

(d) The responsible party shall modify or suspend cleanup activities when directed to do so by the regulatory agency.

Authority: Section 25299.77, Health and Safety Code.
Reference: Section 25299.37, Health and Safety Code and 40 CFR Sections 280.65 and 280.66.

§ 2727. Verification Monitoring Phase.

(a) The Verification Monitoring Phase includes all activities required to verify implementation of the Corrective Action Plan and evaluate its effectiveness.

(b) The responsible party shall verify completion of the Corrective Action Plan through sampling or other monitoring of soil and/or water for such period of time and intervals agreed to by the regulatory agency. Using the monitoring results obtained pursuant to this Section and any other relevant data obtained pursuant to this Article, the responsible party shall evaluate the effectiveness of the site work.

(c) The responsible party shall submit monitoring data and an evaluation of the results of such monitoring in writing on a schedule and for a duration agreed to by the regulatory agency.

Authority: Section 25299.77, Health and Safety Code.
Reference: Section 25299.37, Health and Safety Code and 40 CFR Section 280.65.

§ 2728. Public Participation.

(a) For each confirmed unauthorized release that requires a Corrective Action Plan, the regulatory agency shall inform the public of the proposed activities contained in the Corrective Action Plan. This notice shall include at least one of the following:

(1) publication in a regulatory agency meeting agenda;

(2) public notice posted in a regulatory agency office;

(3) public notice in a local newspaper;

(4) block advertisements;

(5) a public service announcement;

(6) letters to individual households; or

(7) personal contacts with the affected parties by regulatory agency staff.

(b) The regulatory agency shall ensure that information and decisions concerning the Corrective Action Plan are made available to the public for inspection upon request.

(c) Before concurring with a Corrective Action Plan, the regulatory agency may hold a public meeting when requested by any member of the public, if there is sufficient public interest on the proposed Corrective Action Plan.

(d) Upon completion of corrective action, the regulatory agency shall give public notice that complies with subsection (a) of this Section, if both of the following conditions apply:

(1) Implementation of the Corrective Action Plan does not achieve the cleanup levels established in the Corrective Action Plan; and

(2) The regulatory agency does not intend to require additional corrective action, except for monitoring in accordance with Section 2727.

(e) The regulatory agency shall comply with all applicable provisions of the California Environmental Quality Act, Public Resources Code, commencing with Section 21000.

Authority: Section 25299.77, Health and Safety Code.
Reference: Sections 25299.37 and 25299.78, Health and Safety Code and 40 CFR Sections 280.65 through 280.67.

Article 12. Electronic Submission of Laboratory Data for UST Reports

§ 2729. Definitions.

"COELT" is the Corps of Engineers Loading Tool program. It is a relational database application that is designed to run with the Microsoft Windows operating system. COELT places laboratory data into the standardized Electronic Deliverable Format (EDF). The program can accept Laboratory Information Management System (LIMS) data or manually entered data. COELT is intended to help the user enter data, find errors, and comply with the laboratory data requirements of the EDF data deliverable. COELT includes a report utility that allows hard copy laboratory reports to be printed that match the actual electronic data. For purposes of the requirements of this article, version 1.2a of COELT may be used. Programs (coelt.zip and coeltservicepack.zip) and documents (coeltmanual.zip and coeltsupplement12a.zip) for the version 1.2a of COELT are available at http://www.swrcb.ca.gov or from SWRCB at 1001 I Street, Sacramento, CA 95814.

"EDCC" means the Electronic Deliverable Consistency Checker program, which was developed for the Corps of Engineers. The EDCC program is run upon completion of an EDF report to produce an error report. This error report identifies problems within the given data set based upon the EDF database structure, guidelines and restrictions, and valid values. The error report also indicates the nature of each problem, so that the laboratory can correct it. For purposes of the requirements of this article, version 1.2a of EDCC shall be used. Programs (edcc.zip and edccservicepac1.zip) for the version 1.2a of EDCC are available at http://www.swrcb.ca.gov or from SWRCB at 1001 I Street, Sacramento, CA 95814.

"EDF" means the Electronic Deliverable Format that was developed for the United States Army Corps of Engineers. It is a data standard designed to facilitate the transfer of electronic data files from analytical laboratories to end-users. It is a relational database consisting of five files, related to one another through key fields. Laboratories can produce electronic documents in EDF using the COELT software or with other programs outside of COELT. The data components include the chain-of custody information, laboratory results, and quality assurance information. For purposes of the requirements of this article, version 1.2i of EDF shall be used. Specifications for version 1.2i of EDF (The Electronic Deliverable Format [EDF] Version 1.2i Guidelines & Restrictions dated April 2001 and Data Dictionary dated April 2001) are available at http://www.swrcb.ca.gov or from SWRCB at 1001 I Street, Sacramento, CA 95814.

"Report" means any document or item that is required for submission in order for a person to comply with a regulation, directive, or order issued by the state board, a regional board, or a local agency pursuant to a program administered by the state board, including but not limited to, any analysis of material by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code.

Authority: Section 13197.5, Water Code.
Reference: Section 13195 (b), Water Code.

§ 2729.1. Electronic Submission of Laboratory Reports.

(a) If a report required to be submitted to the state board, a regional board, or a local agency pursuant to Chapter 6.7 (commencing with Section 25280) of Division 20 of the Health and Safety Code or Article 4 (commencing with Section 25299.36) of Chapter 6.75 of Division 20 of the Health and Safety Code contains laboratory data reporting soil or water chemistry analysis, such data shall also be submitted to the SWRCB Geographic Environmental Information Management System database using the EDF.

(b) Beginning January 1, 2002, any person submitting laboratory data in electronic format pursuant to these regulations shall specify for the location where the analyzed sample was collected: 1) the latitude and longitude of groundwater monitoring wells accurate to within one meter, and 2) the surveyed elevation relative to mean sea level of any groundwater monitoring well sampled.

(c) All data shall be checked for errors prior to submittal, using the EDCC software consistency checking tool. Electronic submittal of laboratory data over the Internet shall be in addition to hard-copy laboratory reports generated by either COELT or other laboratory software.

(d) Electronic submission of data generated by analysis of soil or water samples shall be required beginning on September 1, 2001.

Authority: Section 13197.5, Water Code.
Reference: Sections 13196 (a), 13197.5 (a), 13197.5 (c), 13197.5 (d)(2), Water Code.

Appendix I

Table A
Suggested Test Methods
Applicable to Regulatory Requirements

Section Number		
2631(d)(6)	ASTM D-751, (1989)	"Coated Fabrics"
	ASTM D-1004 (1988)	"Initial Tear Resistance of Plastic Film and Sheeting"
2631(d)(6)	ASTM D-413, (1982)	"Rubber Property - Adhesion to Flexible Substrate"
	ASTM D-471 (1979)	"Rubber Property - Effect of Liquids"
	ASTM D-638 (1989)	"Tensile Properties of Plastics"
	ASTM E-96 (1980)	"Water Vapor Transmission of Materials"
2631(d)(6)	FTMS 101C Method 2065 (1980)	"Puncture Resistance and Elongation Test (1/8 inch Radius Probe)"
2631(d)(6)	FTMS 101C Method 203 (1980)	"Puncture Resistance"

Table B
Organizations That Adopt
Voluntary Consensus Standards

ANSI	American National Standards Institute 1430 Broadway New York, NY 10018 (212) 642-4900
API	American Petroleum Institute 1220 L Street, N.W. Washington, D.C. 20005 (202) 682-8000
ASME	The American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017 (212) 705-7800
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103 (215) 299-5400
NACE	National Association of Corrosion Engineers 1440 South Creek Drive Katy, TX 77450 (713) 492-0535
NFPA	National Fire Protection Association Batterymarch Park Quincy, MA 02269 (800) 244-3555
NLPA	National Leak Prevention Association P.O. Box 1643 Boise, ID 83701 (208) 389-2074
NSF	National Sanitation Foundation 3475 Plymouth Road Post Office Box 1468 Ann Arbor, MI 48106 (313) 769-8010
UL	Underwriters Laboratories 333 Pfingsten Road Northbrook, IL 60062 (708) 272-8800
ULC	Underwriters Laboratories of Canada, Inc. 7 Crouse Road Scarborough, Ontario

Table C

"Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act; Final Rule and Interim Final Rule and Proposed Rule," EPA Fed. Reg. Vol. 49, No. 209, October 26, 1984.

"Manual of Methods for the Chemical Analysis of Water and Wastes," EPA 600/4-79-020, March 1979.

"Procedures Manual for Ground Water Monitoring at Solid Waste Disposal Facilities," EPA 530/SW-611, August 1977.

"Soil Sampling Quality Assurance User' s Guide," EPA 600/4-84- 043, May 1984.

"Hazardous Waste Land Treatment," EPA SW-874, April 1983.

"Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater," EPA 600/4-82-057, July 1982.

"Handbook for Sampling and Sample Preservation of Water and Wastewater," EPA 600/4-82-029, September 1982.

"Manual of Analytical Quality Control for Pesticides and Related Compounds in Human and Environmental Samples," EPA 600/2- 81-059, April 1981.

"EPA Test Methods for Evaluating Solid Waste - Physical/Chemical Method," SW-846

"Manual of Analytical Methods for the Analysis of Pesticides in Human and Environmental Samples," EPA 600/8-080-038.

"Standard Methods for the Examination of Water and Wastewater," American Public Health Assoc., American Water Works Assoc., Water Pollution Control Federation, 15th Edition, 1981.

"Selected Analytical Methods Approved and Cited by the United States Environmental Protection Agency," Supplement to the Fifteenth Edition of Standard Methods for the Examination of Water and Wastewater, 1981.

"Guidelines on Sampling and Statistical Methodologies for Ambient Pesticide Monitoring," Federal Working Group on Pest Management, October 1974.

"American Society for Testing and Materials (ASTM) Annual Book of Standards, Part 31, Water," 1982.

"Methods for Analysis of Organic Substances in Water," U.S. Geological Survey, Techniques of Water-Resources Investigations, Book 5, Chapter A3 1972.

"Criteria for Identification of Hazardous and Extremely Hazardous Wastes," Sections 66693 through 66746, Article 11, Chapter 30, Division 4, Title 22, California Code of Regulations.

"American Society for Testing and Materials (ASTM) Annual Book of Standards, Parts 23-25, Petroleum Products and Lubricants, 1981."

Appendix II

Suction Piping Monitoring

Suction piping (piping operating at less than atmospheric pressure) shall be monitored for the presence of air in the pipeline by observing the suction pumping system for the following indicators:

(1) The cost/quantity display wheels on the meter suction pump skip or jump during operation;

(2) The suction pump is operating, but no motor vehicle fuel is being pumped;

(3) The suction pump seems to overspeed when first turned on and then slows down as it begins to pump liquid; and

(4) A rattling sound in the suction pump and erratic flow indicating an air and liquid mixture.

If any of the above indicators are observed during testing of the suction piping system, the pipeline check valve should be inspected to determine if it is seated tightly. If there is any doubt following the inspection that the valve seats tightly, it should be repaired, replaced, or sealed off. Then the suction pumping test should be repeated and, if air is still entering the suction line, it is assumed that the pipe is leaking underground.

Written records of the daily monitoring shall be maintained at the facility site.

Appendix III

Examples of Quantitative Release Detection Methods for Existing Tanks

Detection Method	*Performance Standards*
Automatic Tank Gauging (Monthly)	Section 2643(b)(1)
Automatic Tank Gauging (Monthly) and Manual Inventory Reconciliation (Monthly)	Section 2643(b)(2)
Tank Integrity Test (Annually) and Manual Inventory Reconciliation (Monthly)	Section 2643(b)(4)
Statistical Inventory Reconciliation (Monthly) and Tank Integrity Testing (Biennially)	Section 2643(b)(3)
Manual Tank Gauging (Weekly) and Tank Integrity Testing (Annually)	Section 2645

Examples of Quantitative Release Detection Methods for Single-Walled Pressure Piping

Detection Method	*Performance Standards*
Automatic Line Leak Detector (Hourly) and Automatic Electronic Line Leak Detector (Monthly)	Section 2643(c)(1) Section 2643(c)(2)
Automatic Line Leak Detector (Hourly) and Automatic Electronic Line Leak Detector (Annually)	Section 2643(c)(1) Section 2643(c)(3)
Automatic Line Leak Detector (Hourly) and Line Tightness Test (Annually)	Section 2643(c)(1) Section 2643(c)(3)
Automatic Electronic Line Leak Detectors (Hourly) (meets both 2643(c)(1) and (3) standards)	Section 2643(c)(3)

Examples of Qualitative Release Detection Methods for Single-Walled Suction Piping

Line Tightness Test (Triennially) and Daily Monitoring	Section 2643(d) Appendix II

Example of Qualitative Release Detection Methods for Single-Walled Gravity Flow Piping

Line Tightness Test (Biennially)	Section 2643(e)

Examples of Qualitative Release Detection Methods for Existing Tanks and Piping

Vapor Monitoring	Sections 2644(a) and (b) and 2647
or	
Ground Water Monitoring	Sections 2644(a) and (c)and 2648

Appendix IV

Evaluation Procedure for Leak Detection Equipment

Leak detection equipment can be evaluated for performance in accordance with one of the following three evaluation procedures:

1. EPA Standard Test Procedures

EPA has developed a series of standard test procedures that cover most of the methods commonly used for underground storage tank leak detection. These include:

a. "Standard Test Procedures for Evaluating Leak Detection Methods: Volumetric Tank Tightness Testing Methods"

b. "Standard Test Procedures for Evaluating Leak Detection Methods: Nonvolumetric Tank Tightness Testing Methods"

c. "Standard Test Procedures for Evaluating Leak Detection Methods: Automatic Tank Gauging Systems"

d. "Standard Test Procedures for Evaluating Leak Detection Methods: Statistical Inventory Reconciliation Methods"

e. "Standard Test Procedures for Evaluating Leak Detection Methods: Vapor- Phase Out-of-Tank Product Detectors"

f. "Standard Test Procedures for Evaluating Leak Detection Methods: Liquid- Phase Out-of-Tank Product Detectors"

g. "Standard Test Procedures for Evaluating Leak Detection Methods: Pipeline Leak Detection Systems"

Each test procedure provides an explanation of how to conduct the test, how to perform the required calculations, and how to report the results. The results from each standard test procedure provide the information needed by tank owners and operators to determine if the method meets the regulatory requirements.

EPA standard test procedures must be conducted by an independent third party under contract to the manufacturer in order to prove compliance with the regulations. Independent third-parties may include consulting firms, test laboratories, not-for-profit research organizations, or educational institutions with no organizational conflict of interest. In general, evaluations are more likely to be fair and objective the greater the independence of the evaluating organization.

2. National Consensus Code or Standard

A second way for a manufacturer to prove the performance of leak detection equipment is to have an independent third party evaluate the system following a national voluntary consensus code or standard developed by a nationally recognized association (e.g., ASTM, ASME, ANSI, etc.). Throughout the technical regulations for underground storage tanks, EPA has relied on national voluntary consensus codes to help tank owners decide which brands of equipment are acceptable. Although no such code presently exists for evaluating leak detection equipment, one is under consideration by the ASTM D-34 subcommittee. Guidelines for developing these standards may be found in the U.S. Department of Commerce "Procedures for the Development of Voluntary Product Standards" (FR, Vol. 51, No. 118, June 29, 1986) and OMB Circular No. A-119.

3. Alternative Test Procedures Deemed Equivalent to EPA' s

In some cases, a specific leak detection method may not be adequately covered by EPA standard test procedures or a national voluntary consensus code, or the manufacturer may have access to data that makes it easier to evaluate the system another way. Manufacturers who wish to have their equipment tested according to a different plan (or who have already done so) must have that plan developed or reviewed by a nationally recognized association or independent third-party testing laboratory (e.g. Factory Mutual, National Sanitation Foundation, Underwriters Laboratory, etc.). The results should include an accreditation by the association or laboratory that the conditions under which the test was conducted were at least as rigorous as the EPA standard test procedure. In general, this will require the following:

a. The evaluation tests the system both under the no-leak condition and an induced-leak condition with an induced leak rate as close as possible to (or smaller than) the performance standard. In the case of tank testing, this will mean testing

under both 0.0 gallon per hour and 0.10 gallon per hour leak rates. In the case of ground water monitoring, this will mean testing with 0.0 and 0.125 inch of free product.

b. The evaluation should test the system under at least as many different environmental conditions as the corresponding EPA test procedure.

c. The conditions under which the system is evaluated should be at least as rigorous as the conditions specified in the corresponding EPA test procedure. For example, in the case of volumetric tank tightness testing, the test should include a temperature difference between the delivered product and that already present in the tank, as well as the deformation caused by filling the tank prior to testing.

d. The evaluation results must contain the same information and should be reported following the same general format as the EPA standard results sheet.

e. The evaluation of the leak detection method must include physical testing of a full-sized version of the leak detection equipment, and a full disclosure must be made of the experimental conditions under which: (1) the evaluation was performed, and (2) the method was recommended for use. An evaluation based solely on theory or calculation is not sufficient.

Appendix V

Certificate of Tank and Pipe Installations

The owner or operator shall use the form below to certify that the underground storage tank and piping were installed properly.

(Copies of A, B, and C forms available at http://www.swrcb.ca.gov.)

Appendix VI

(Copies of Monitoring System Certification form and UST Monitoring Plot Plan available at http://www.swrcb.ca.gov.)

MONITORING SYSTEM CERTIFICATION

For Use By All Jurisdictions Within the State of California

Authority Cited: Chapter 6.7, Health and Safety Code; Chapter 16, Division 3, Title 23, California Code of Regulations

This form must be used to document testing and servicing of monitoring equipment. A separate certification or report must be prepared for each monitoring system control panel by the technician who performs the work. A copy of this form must be provided to the tank system owner/operator. The owner/operator must submit a copy of this form to the local agency regulating UST systems within 30 days of test date.

A. General Information

Facility Name: _____ Bldg. No.:_____

Site Address: _____ City: _____ Zip: _____

Facility Contact Person: _____ Contact Phone No.: (_____)_____

Make/Model of Monitoring System: _____ Date of Testing/Servicing: ____/____/_____

B. Inventory of Equipment Tested/Certified

Check the appropriate boxes to indicate specific equipment inspected/serviced:

Tank ID: _____ • In-Tank Gauging Probe. Model: _____ • Annular Space or Vault Sensor. Model: _____ • Piping Sump / Trench Sensor(s). Model: _____ • Fill Sump Sensor(s). Model: _____ • Mechanical Line Leak Detector. Model: _____ • Electronic Line Leak Detector. Model: _____ • Tank Overfill / High-Level Sensor. Model: _____ • Other (specify equipment type and model in Section E on Page 2).	**Tank ID**: _____ • In-Tank Gauging Probe. Model: _____ • Annular Space or Vault Sensor. Model: _____ • Piping Sump / Trench Sensor(s). Model: _____ • Fill Sump Sensor(s). Model: _____ • Mechanical Line Leak Detector. Model: _____ • Electronic Line Leak Detector. Model: _____ • Tank Overfill / High-Level Sensor. Model: _____ • Other (specify equipment type and model in Section E on Page 2).
Tank ID: _____ • In-Tank Gauging Probe. Model: _____ • Annular Space or Vault Sensor. Model: _____ • Piping Sump / Trench Sensor(s). Model: _____ • Fill Sump Sensor(s). Model: _____ • Mechanical Line Leak Detector. Model: _____ • Electronic Line Leak Detector. Model: _____ • Tank Overfill / High-Level Sensor. Model: _____ • Other (specify equipment type and model in Section E on Page 2).	**Tank ID:** _____ • In-Tank Gauging Probe. Model: _____ • Annular Space or Vault Sensor. Model: _____ • Piping Sump / Trench Sensor(s). Model: _____ • Fill Sump Sensor(s). Model: _____ • Mechanical Line Leak Detector. Model: _____ • Electronic Line Leak Detector. Model: _____ • Tank Overfill / High-Level Sensor. Model: _____ • Other (specify equipment type and model in Section E on Page 2).
Dispenser ID: _____ • Dispenser Containment Sensor(s). Model: _____ • Shear Valve(s). • Dispenser Containment Float(s) and Chain(s).	**Dispenser ID**: _____ • Dispenser Containment Sensor(s). Model: _____ • Shear Valve(s). • Dispenser Containment Float(s) and Chain(s).
Dispenser ID: _____ • Dispenser Containment Sensor(s). Model: _____ • Shear Valve(s). • Dispenser Containment Float(s) and Chain(s).	**Dispenser ID**: _____ • Dispenser Containment Sensor(s). Model: _____ • Shear Valve(s). • Dispenser Containment Float(s) and Chain(s).
Dispenser ID: _____ • Dispenser Containment Sensor(s). Model: _____ • Shear Valve(s). • Dispenser Containment Float(s) and Chain(s	**Dispenser ID**: _____ • Dispenser Containment Sensor(s). Model: _____ • Shear Valve(s). • Dispenser Containment Float(s) and Chain(s).

*If the facility contains more tanks or dispensers, copy this form. Include information for every tank and dispenser at the facility.

C. Certification - I certify that the equipment identified in this document was inspected/serviced in accordance with the manufacturers' guidelines. Attached to this Certification is information (e.g. manufacturers' checklists) necessary to verify that this information is correct and a Plot Plan showing the layout of monitoring equipment. For any equipment capable of generating such reports, I have also attached a copy of the report; *(check all that apply)*: • System set-up • Alarm history report

Technician Name (print): _____ Signature: _____

Certification No.: _____ License. No.: _____

Testing Company Name: _____ Phone No.:(_____)_____

Site Address: _____ Date of Testing/Servicing: ____/____/_____

D. Results of Testing/Servicing

Software Version Installed: _____

Complete the following checklist:

• Yes	• No*	Is the audible alarm operational?
• Yes	• No*	Is the visual alarm operational?
• Yes	• No*	Were all sensors visually inspected, functionally tested, and confirmed operational?
• Yes	• No*	Were all sensors installed at lowest point of secondary containment and positioned so that other equipment will not interfere with their proper operation?
• Yes	• No* • N/A	If alarms are relayed to a remote monitoring station, is all communications equipment (e.g. modem) operational?
• Yes	• No* • N/A	For pressurized piping systems, does the turbine automatically shut down if the piping secondary containment monitoring system detects a leak, fails to operate, or is electrically disconnected? If yes: which sensors initiate positive shut-down? *(Check all that apply)* • Sump/Trench Sensors; • Dispenser Containment Sensors. Did you confirm positive shut-down due to leaks and sensor failure/disconnection? • Yes; • No.
• Yes	• No* • N/A	For tank systems that utilize the monitoring system as the primary tank overfill warning device (i.e. no mechanical overfill prevention valve is installed), is the overfill warning alarm visible and audible at the tank fill point(s) and operating properly? If so, at what percent of tank capacity does the alarm trigger? _____%
• Yes*	• No	Was any monitoring equipment replaced? If yes, identify specific sensors, probes, or other equipment replaced and list the manufacturer name and model for all replacement parts in Section E, below.
• Yes*	• No	Was liquid found inside any secondary containment systems designed as dry systems? *(Check all that apply)* • Product; • Water. If yes, describe causes in Section E, below.
• Yes	• No*	Was monitoring system set-up reviewed to ensure proper settings? Attach set up reports, if applicable
• Yes	• No*	Is all monitoring equipment operational per manufacturer's specifications?

*** In Section E below, describe how and when these deficiencies were or will be corrected.**

E. Comments: _____

F. In-Tank Gauging / SIR Equipment:

- Check this box if tank gauging is used only for inventory control.
- Check this box if no tank gauging or SIR equipment is installed.

This section must be completed if in-tank gauging equipment is used to perform leak detection monitoring.

Complete the following checklist:

• Yes	• No*	Has all input wiring been inspected for proper entry and termination, including testing for ground faults?
• Yes	• No*	Were all tank gauging probes visually inspected for damage and residue buildup?
• Yes	• No*	Was accuracy of system product level readings tested?
• Yes	• No*	Was accuracy of system water level readings tested?
• Yes	• No*	Were all probes reinstalled properly?
• Yes	• No*	Were all items on the equipment manufacturer's maintenance checklist completed?

*** In the Section H, below, describe how and when these deficiencies were or will be corrected.**

G. Line Leak Detectors (LLD):

- Check this box if LLDs are not installed.

Complete the following checklist:

• Yes	• No* • N/A	For equipment start-up or annual equipment certification, was a leak simulated to verify LLD performance? *(Check all that apply)* Simulated leak rate: • 3 gph.; • 0.1 gph; • 0.2 gph.
• Yes	• No*	Were all LLDs confirmed operational and accurate within regulatory requirements?
• Yes	• No*	Was the testing apparatus properly calibrated?
• Yes	• No* • N/A	For mechanical LLDs, does the LLD restrict product flow if it detects a leak?
• Yes	• No* • N/A	For electronic LLDs, does the turbine automatically shut off if the LLD detects a leak?
• Yes	• No* • N/A	For electronic LLDs, does the turbine automatically shut off if any portion of the monitoring system is disabled or disconnected?
• Yes	• No* • N/A	For electronic LLDs, does the turbine automatically shut off if any portion of the monitoring system malfunctions or fails a test?
• Yes	• No* • N/A	For electronic LLDs, have all accessible wiring connections been visually inspected?
• Yes	• No*	Were all items on the equipment manufacturer's maintenance checklist completed?

*** In the Section H, below, describe how and when these deficiencies were or will be corrected.**

H. Comments: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Monitoring System Certification

UST Monitoring Site Plan

Site Address: _____

Date map was drawn: ____/____/____.

Instructions

If you already have a diagram that shows all required information, you may include it, rather than this page, with your Monitoring System Certification. On your site plan, show the general layout of tanks and piping. Clearly identify locations of the following equipment, if installed: monitoring system control panels; sensors monitoring tank annular spaces, sumps, dispenser pans, spill containers, or other secondary containment areas; mechanical or electronic line leak detectors; and in-tank liquid level probes (if used for leak detection). In the space provided, note the date this Site Plan was prepared.