III. Documentation

A. Filing Notice of Proposed Regulatory Action

1. Transmittal memorandum to OAL, August 14, 1984

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State of California

Memorandum

To : Ms. Linda Stockdale Brewer, Director
Office of Administrative Law
1414 K Street, Suite 600
Sacramento, CA 95814

Date :

From : **STATE WATER RESOURCES CONTROL BOARD**

Subject: NOTICE OF 45-DAY COMMENT PERIOD FOR PROPOSED REGULATIONS GOVERNING UNDERGROUND STORAGE OF HAZARDOUS SUBSTANCES -- TO BE CODIFIED IN SUBCHAPTER 16 OF CHAPTER 3 OF TITLE 23 OF THE CALIFORNIA ADMINISTRATIVE CODE

The State Water Resources Control Board has drafted the attached regulations in response to the requirements of Health and Safety Code Section 25288.2(a). The regulations essentially contain the standards and procedures for counties and/or cities to develop and implement permit programs for underground storage tanks storing hazardous substances.

We are submitting the attached Face Sheet for Filing Notice of Proposed Regulatory Action for Publication in the California Administrative Notice Register. In addition, we are transmitting four copies of the Notice, one copy of the Initial Statement of Reasons and one copy of the proposed text of the regulations. In accord with Section 3.2202 of your regulations, please notify us within three working days of our submittal if the notice fails to meet statutory requirements.

If you have any questions regarding this submittal, please call Harold Singer at (916) 322-0202.

Michael A. Campos
Executive Director

RECEIVED FOR FILING PUBLICATION DATE

AUG 1 4 1984 -- AUG 2 4 1984

Office of Administrative Law

Attachments

2. Face Sheet for Filing Administrative Regulations

Index to Rulemaking File Underground Storage Tank Regulations Title 23, Waters Division 3, Water Resources Control Board Chapter 16, Underground Storage Tank Regulations 1985

STATE OF CALIFORNIA
STD 400 (7-82)

(See instructions on reverse)

850713

FACE SHEET
(OAL-4)

FOR FILING ADMINISTRATIVE REGULATIONS WITH THE OFFICE OF ADMINISTRATIVE LAW

RECEIVED FOR FILING
JUL 11 12 25 AM '85
OFFICE OF ADMINISTRATIVE LAW

ENDORSED
APPROVED FOR FILING
AUG 13 1985
Office of Administrative Law

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1. The attached are true and correct copies of regulations adopted, amended or repealed by:

State Water Resources Control Board
(Agency)

By: [signature]
(Agency Officer with Rule-making Authority)

Michael A. Campos, Executive Director

JUL 11 1985
(Date)

ENDORSED FILED
IN THE OFFICE OF
AUG 13 4 20 PM 1985
MARCH FONG EU
SECRETARY OF STATE
OF CALIFORNIA

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AGENCY CONTACT PERSON AND POSITION: John W. Richards, Staff Counsel

TELEPHONE: 322-7732

2. Indicate California Administrative Code Title and specify sections to be amended, adopted, and/or repealed:

Title: 23

SECTIONS AMENDED

SECTIONS ADOPTED: 2610-2714

SECTIONS REPEALED

3. Type of Order:

a. [X] Regular b. [ ] Emergency (Attach Finding of Emergency)

c. Other Regulatory Actions:
[ ] Certificate of Compliance [ ] Procedural and Organizational Changes [ ] Editorial Correction [ ] Authority and Reference Citation Changes

d. How many of the regulatory changes in this order are the result of the agency's review of existing regulations? (See instructions in Part 3 on reverse.)
[ ] All [ ] Some [X] None

e. Is this order a resubmittal of previously disapproved or withdrawn regulations?
[X] Yes [ ] No

f. Do these regulations contain building standards as defined in Section 18909 of the Health and Safety Code?
[ ] Yes [X] No

g. Are these fire and panic safety regulations requiring state Fire Marshal approval?
[ ] Yes [X] No (If yes, attach State Fire Marshal approval)

h. For Conflict of Interest Regulations only
[ ] Contains FPPC approval stamp

4. Effective date of regulatory changes: (See Government Code Section 11346.2 and instructions on reverse)

a. [ ] Effective on the 30th day after filing with the Secretary of State.

b. [ ] Effective on _____ as required by statutes: (list) _____

c. [X] Effective on Approval (Designate effective date *earlier than* 30 days after filing with the Secretary of State pursuant to Government Code Section 11346.2(d).)
[X] Required statement attached (See cover letter)

d. [ ] Effective on _____ (Designate effective date *later than* 30 days after filing with the Secretary of State.)

3. Notice of Proposed Rulemaking, Public Hearing scheduled for 10/8/1984, later changed to 10/23/84 (see III.A.9)

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD
PAUL R. BONDERSON BUILDING
901 P STREET
P.O. BOX 100
SACRAMENTO, CALIFORNIA 95801

GEORGE DEUKMEJIAN, Governor

STATE WATER RESOURCES CONTROL BOARD

NOTICE OF PROPOSED RULEMAKING

PUBLIC HEARING

October 8, 1984 (Monday) at 9:00 a.m.,
Resources Building, First Floor Auditorium
1416 Ninth Street, Sacramento, California

DEADLINE FOR COMMENTS

October 8, 1984 (Monday) at 5:00 p.m.
P. O. Box 100
Sacramento, CA 958010
Attn: Harold Singer
Division of Technical Services

ADOPTION OF PROPOSED REGULATIONS GOVERNING UNDERGROUND STORAGE OF HAZARDOUS SUBSTANCES, TO BE CODIFIED IN SUBCHAPTER 16 OF CHAPTER 3, TITLE 23, CALIFORNIA ADMINISTRATIVE CODE (23 CAC SECTION 2610-2704)

NOTICE OF PUBLIC HEARING

The State Water Resources Control Board (State Board) is going to hold a hearing relating to regulations which would establish the standards and procedures for counties and/or sites to develop and implement permit programs for underground storage tanks storing hazardous substances. All interested persons are invited to attend.

Chapter 6.7 of the Health and Safety Code (Section 25280 et seq.) prohibits any person from owning or operating an underground storage tank used for the storage of hazardous substances without a permit issued to the owner by a local

agency which is defined as a county or a city, if the city assumes responsibility for the implementation of the program within its jurisdiction. The State Water Resources Control Board is directed by Health and Safety Code Section 25288.2 to develop regulations to implement the standards for this permit program.

These proposed regulations will be the subject of a hearing which will begin at 9:00 a.m. on October 8, 1984. The hearing will be held in the auditorium of the Resources Building, 1416 Ninth Street, Sacramento, California. The auditorium, which is accessible to persons with mobility impairments, is reached by using the east entrance of the Resources Building and located on Ninth Street.

Written comments on the proposed regulations must be submitted no later than 5:00 p.m. on October 8, 1984.

Presentation of Written and Oral Testimony and Written Comments

Any person interested may present statements relevant to the State Board's proposed rulemaking at the hearing. Statements, arguments, or contentions, may be presented orally or in writing, or both. As there may be many persons wishing to speak at the hearing, the State Board advises that everyone who wishes all of their comments to be received by the State Board should prepare written comments. Then, if time for each person to speak is limited, the complete views of each person will be part of the hearing record. Any person wishing to testify at the hearing, including any person who requires an interpreter to present testimony, is requested to notify the State Board as

early as possible. Written comments must be submitted no later than the close of the hearing, or received by the State Board no later than 5:00 p.m. on October 8, 1984.

Adoption of Proposed Regulations

At a State Board meeting following the public hearing the State Board may adopt regulations substantially as proposed. Alternatively, the State Board may adopt modified regulations if such regulations are sufficiently related to the text made available to the public so that the public was adequately placed on notice that modified regulations could result from the proposed regulations. Items which will be on the State Board's agenda at the meeting are normally discussed at a workshop approximately two weeks before each meeting.

The text of proposed regulations, if modified, will be made available to the public at least 15 days prior to the date of the State Board workshop at which the proposed regulations as modified will be discussed. A request for a copy of any proposed regulations as modified should be addressed to the State Board's Division of Technical Services. The State Board will accept written comments on the regulations as modified for 15 days after the date on which they are made available.

If, after the hearing, the State Board intends to modify the proposed regulations in such a way that the proposed regulations, as modified, are not sufficiently related to the original text as to place the public on notice that such modification could result from the proposed regulations, the modified text will not be adopted without complying anew with the notice and hearing requirements of the Administrative Procedure Act.

Authority to Adopt Regulations and Reference to Statutes Implemented

The State Board has authority to adopt the proposed regulations pursuant to Health and Safety Code Section 25288.2(a). The purpose of this regulation is to implement, interpret and make specific Chapter 6.7 of the Health and Safety Code (Section 25280 et seq.).

Initial Statement of Reasons

An initial statement of reasons for the proposed regulations has been prepared. The statement includes the specific purpose of each regulatory interpretation, requirement, or prohibition, and the factual basis for determining that each regulatory interpretation, requirement, or prohibition is necessary. The statement is available, on request, along with the full text of proposed regulations.

Submission of Comments; Receipt of Documents and Additional Information

Request for copies of proposed regulations or the initial statement of reasons should be addressed to: Division of Technical Services, State Water Resources Control Board, P. O. Box 100, Sacramento, California 95801-0100, (916) 324-1262.

All other questions should be directed to Harold Singer, Division of Technical Services, State Water Resources Control Board, P. O. Box 100, Sacramento, California 95801, (916) 322-0202.

Local Agency and School Mandate Statement

The staff of the State Board has determined that there will be annual costs to local agencies and school districts which are reimbursable by the State

pursuant to Section 2231 of the Revenue and Taxation Code. Funding for this reimbursement will be requested in the 1985-86 Governor's Budget for appropriation in the Budget Act of 1985.

The Fiscal Impact Statement estimates the initial cost of compliance with the program for local government owned underground tanks at $41 million and an ongoing (annual) cost of $16 million per year. The Board estimates that even though program compliance is mandated by January 1, 1985, it will probably take five years before all monitoring systems are in place and the program is fully operational. Based on these figures local government should spend about $11.4 million the first year of implementation, increasing to $24.2 million during the fifth year. These figures may need to be adjusted on a year-by-year basis upon determination of the actual implementation rate.

	INITIAL COST		PER YEAR		ANNUAL COST		PERCENTAGE OF PROGRAM ONBOARD		
1st year	($41 million	x	1/5)	+	($16 million	x	1/5)	=	$11.4 million
2nd year	($41 million	x	1/5)	+	($16 million	x	2/5)	=	$14.6 million
3rd year	($41 million	x	1/5)	+	($16 million	x	3/5)	=	$17.8 million
4th year	($41 million	x	1/5)	+	($16 million	x	4/5)	=	$21.0 million
5th year	($41 million	x	1/5)	+	($16 million	x	5/5)	=	$24.2 million
Annually thereafter								=	$16.0 million

The Fiscal Impact Statement estimates the initial cost of compliance with the program for school district owned tanks at $11 million and an ongoing (annual) cost of $5 million per year. Based on these figures school districts should spend about $3.2 million the first year of implementation, increasing to

$7.2 million during the fifth year. These figures may need to be adjusted on a year-by-year basis upon determination of the actual implementation rate.

	INITIAL COST		PER YEAR		ANNUAL COST		PERCENTAGE OF PROGRAM ONBOARD		
1st year	($11 million	x	1/5)	+	($5 million	x	1/5)	=	$3.2 million
2nd year	($11 million	x	1/5)	+	($5 million	x	2/5)	=	$4.2 million
3rd year	($11 million	x	1/5)	+	($5 million	x	3/5)	=	$5.2 million
4th year	($11 million	x	1/5)	+	($5 million	x	4/5)	=	$6.2 million
5th year	($11 million	x	1/5)	+	($5 million	x	5/5)	=	$7.2 million
Annually thereafter								=	$5.0 million

Cost Impact on State Agencies

The Fiscal Impact Statement estimates the initial cost of compliance with the program for State owned underground tanks at $19 million and an ongoing (annual) cost of $7 million per year. Funding for these costs can be addressed during the normal budget process as it is not critical to the regulation approval process.

	INITIAL COST		PER YEAR		ANNUAL COST		PERCENTAGE OF PROGRAM ONBOARD		
1st year	($19 million	x	1/5)	+	($7 million	x	1/5)	=	$5.2 million
2nd year	($19 million	x	1/5)	+	($7 million	x	2/5)	=	$6.6 million
3rd year	($19 million	x	1/5)	+	($7 million	x	3/5)	=	$7.8 million
4th year	($19 million	x	1/5)	+	($7 million	x	4/5)	=	$9.0 million
5th year	($19 million	x	1/5)	+	($7 million	x	5/5)	=	$10.2 million
Annually thereafter								=	$7.0 million

Cost Statement

The staff of the State Board has prepared a fiscal impact statement which contains estimates of the increased costs to state agencies and local governments, as a result of the proposed regulations. The fiscal impact statement is attached to the initial statement of reasons and is available to interested persons on request.

Housing Cost Statement

The proposed regulations will have no effect on housing costs.

Cost Impact on Private Persons or Businesses

The staff of the State Board has found that the adoption of these regulations will have a significant economic impact on private persons and businesses. An estimate was made in the fiscal impact statement for the initial and annual costs required for implementing the regulations by private persons and/or businesses. Based on these figures, private persons and businesses should spend about $420 million the first year of implementation, increasing to $935 million during the fifth year. These figures may need to be adjusted on a year-by-year basis upon determination of the actual implementation rate.

	INITIAL COST	PER YEAR		ANNUAL COST	PERCENTAGE OF PROGRAM ONBOARD		
1st year	($1.46 billion	x 1/5)	+	($643 million	x 1/5)	=	$420 million
2nd year	($1.46 billion	x 1/5)	+	($643 million	x 2/5)	=	$549 million
3rd year	($1.46 billion	x 1/5)	+	($643 million	x 3/5)	=	$678 million
4th year	($1.46 billion	x 1/5)	+	($643 million	x 4/5)	=	$806 million
5th year	($1.46 billion	x 1/5)	+	($643 million	x 5/5)	=	$935 million
Annually thereafter						=	$643 million

Small Business Impact Statement

The staff of the State Board finds that the adoption of this regulation may have a significant adverse economic impact on small businesses which have underground storage tanks storing hazardous substances. The staff of the State

Board has not considered proposed alternatives and invites you to submit such proposals. Submission may include the following considerations:

1. The establishment of differing compliance or reporting requirements or timetables which take into account the resources available to small business;

2. Consolidation or simplication of complince and reporting requirements for small business;

3. The use of performance standards rather than design standards, and/or;

4. Exemption or partial exemption from regulatory requirements for small businesses.

INFORMATIVE DIGEST

Existing Provision of Law which Regulations Implement

Health and Safety Code Section 25288.2(a) directs the State Board to develop regulations implementing the standards for underground storage tanks storing hazardous substances which are installed after January 1, 1984 for tanks installed before January 1, 1984, for recording and reporting of unauthorized releases from tanks; for repair of tanks which have had unauthorized releases; for closing a tank; for issuing categorical and site specific variances from the standards established for both new and old tanks, and for State Board approval of local design and construction standards which are more stringent than those set forth in the Health and Safety Code.

In addition, Health and Safety Code Section 25288.2(a) states that the State Board may adopt regulations implementing standards for an initial application form for a permit to operate a tank and for an annual report form; for fees to

be paid to the local agency including a purcharge to cover costs to the State Board, and for procedures to ensure that trade secrets are apppropriately protected.

Summary of Proposed Regulations

Article 1. General

The proposed regulations in this subchapter are intended to protect waters of the State from dischargers of hazardous substances from underground tanks. Owners or operators of underground storage tank(s) are required to monitor the tank, maintain appropriate records; reporat unauthorized releases and properly close the tank as required by the permit. Counties shall implement these regulations within both the incorporated and unincorporated areas. Cities may by ordinance, implement these regulations within their boundaries.

Under specific situations some underground tanks are exempt from these proposed regulations. Counties and cities which enacted an ordinance meeting certain minimum requirements prior to January 1, 1984 are exempt from the proposed regulations except for some administrative reporting requirements. Underground storage tanks used for certain agricultural purposes are exempt from the proposed regulations. Underground storage tanks which operate under hazardous waste facilities permit or have been granted interum status by the Department of Health Services are exempt from these proposed regulations. Specific structures such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation sumps, lined and unlined pits, sumps and lagoons are exempt from the proposed regulations.

Article 2. Definition of Terms

The proposed regulations include definitions, arranged in alphabetical order for technical terms in the proposed regulations.

Article 3. New Tank Construction and Montoring Standards

Statewide minimum standards for the construction of new underground storage tanks and the associated monitoring systems are develooed in Article 3. All new underground storage tanks must provide primary and secondary levels of containment for the hazardous substances stored in them. The primary container must be product-tight under all circumstances (i.e. impervious to the substance contained within it).

The requirements for the secondary container differ depending on the type of hazardous substance stored in the primary container. For hazardous substances other than motor vehicle fuels, the secondary container has volumetric requirements and protects groundwater by storing an unauthorized release during both the detection and clean up and removal programs. An access casing(s) is required in the secondary container for installation of a continuous monitoring system to detect unauthorized releases and provide a conduit for removal of the hazardous substance.

The secondary container for motor vehicle fuel tanks is referred to as a leak interception and removal system. The secondary container has no volumetric requirements except that which is required to activate a continuous monitoring system installed in an access casing. The secondary container must direct the unauthorized release to the access casing for detection and removal. In itself the leak detection and removal system (secondary container) provides minimal protection against groundwater contamination. A response plan must be

developed for the motor vehicle fuel tanks to insure that any unauthorized release from the primary container will be cleaned up before reaching ground water if the secondary container is overtopped.

Article 4. Existing Underground and Storage Tank Monitoring Criteria

The proposed regulations establish statewide standards for water quality monitoring at underground storage tanks that store hazardous substances. The objectives of the monitoring program are to determine if unauthorized releases are occurring or have occurred in the past, to equip existing tanks with a monitoring system that will give early warning of future unauthorized releases before groundwater is affected, and to monitor groundwater quality directly to confirm that groundwater degradation is not taking place. To achieve these monitoring objectives four or more monitoring methods must be used. These methods are tank testing, inventory control, soils monitoring, visual monitoring, vadose zone monitoring, groundwater detection monitoring, and groundwater (verification) monitoring.

Pressure testing of tanks will be used to determine if the tank leaks at rates of 0.05 gallons per hour. Soil testing will be used to detect whether unauthorized releases have occurred in the past and whether long-term, slow leaks are occurring. Vadose zone monitoring will be used primarily to provide early warning of future leaks at those locations where the vadose zone is of substantial thickness and groundwater detection monitoring will be used at those locations where groundwater is shallow. Groundwater verification monitoring will be used on a periodic basis for all tanks exept visually monitored tanks to verify that groundwater is not being degraded.

In the event monitoring indicates an apparent unauthorized release has occurred, the actions to be taken for monitoring and corrective action will be governed by the provisions of Subchapter 15 of Chapter 3 of Title 23, California Administrative Code, governing the discharge of waste to land.

The proposed regulations include standards for obtaining, transporting, storing, and analyzing samples and for well construction.

Article 5. Release Reporting Requirements

The proposed regulations describe the specific procedures for reporting unauthorized releases. All unauthoried releases must be reported by tank owners or operators to local agencies. Two types of reporting procedures (one requiring immediate reporting and one requiring only initial recording with reporting as part of normal operating reports) are proposed depending on the threat of contamination to soil and water as a result of the unauthorized release. The reporting procedures include what information must be reported, how and when to report an unauthorized release, local agency responsibilities, and how to determine the integrety of the underground tank after a release.

Article 6. Repair Methodology

The proposed regulations would allow a one time repair of a tank that has failed. The tank owner proposing to repair a tank must demonstrate to the local agency that all of the failure mechanisms affecting the tank have been identified and that the proposed repair will correct the problems. If the tank to be repaired is steel, a test to determine if a corrosion problem exists is required. Repairs are required to be performed using accepted engineering practices with materials that are compatible with the tank and with

the hazardous substance(s) being stored. Following the repair, the tank owner must demonstrate that the repair was successful and that the tank will provide containment.

Article 7. Closure Requirements

The proposed regulations specify certain actions and evaluations which must be completed by the tank owner when the tank is either temporarily or permanently taken out-of-service. Temporary closure allows a tank to be taken out-of-service for up to two years without implementing permanent closure. A formal closure plan is required to be submitted to the local agency at least 45 days prior to closure. Leaking tanks must be repaired or permanently closed.

The regulations for both temporary and permanent closure require that all residual hazardous substances be removed from the tank and legally stored or disposed. Also, flammable vapors must be purged from the tank. Temporary storage requires the sealing of all tank openings and the disconnection of electrical supplies to pumps. Monitoring during the temporary closure period is required.

The tank owner has two options under the proposed regulations for permanent closure: either removal of the tank or closure in-place. Removal requires proper disposal or cleaning prior to reuse or sale as scrap. Closure in-place requires the removal of all piping, filling of the tank with inert material and placing a notice in the property deed regarding the location of the closed tank and its prior uses.

At closure, the tank owner must demonstrate that soil or groundwater contamination has not occurred as a result of prior use of the tank. This can

be accomplished by analysing prior monitoring date or collecting and analyzing samples of soil under the tank on closure.

Article 8. Categorical and Site Specific Variance Procedures

The proposed regulations establish procedures for categorical and site-specific variances from the construction and monitoring standards of Article 3 and monitoring standards of Article 4. A categorical variance is applicable to more than one site and is obtained by application to the State Board. A site-specific variance is applicable at one facility and is obtained by application to the appropriate Regional Board. The proposed procedures includes defining categorical and site-specific variance, identifying needed information, establishing notification and review procedures, allowing conditions to be placed on the variance, defining local agency responsibilities and allowing the variance to be modified or revoked.

Article 9. Local Agency Additional Standards Request Procedures

Health and Safety Code Section 25288.3(b) allows local agencies to request State Board authorization for implementing more stringent standards than those set by Articles 3 and 4. The proposed regulations describe request procedures which include identifying information needed to evaluate the request, review and public hearing procedures and scheduling, effective dates and allowing the State Board to modify or revoke additional standards.

Article 10. Permit Application, Annual Report and Trade Secret Requirements

The proposed regulations establish permit procedures and conditions; procedures for updating permit information through the annual report and trade secret provisions. The proposed regulations require tank owners to obtain a permit, identify what information is required in the permit application, reguire fees to cover local agency and State Board costs, and identify local agency responsibilities for issuing permits and reporting permit changes and unauthorized releases. The proposed regulations also establish procedures to evaluate requests for confidentiality of information and to ensure that the trade secrets are utilized only in connection with protecting water quality.

Dated:

STATE WATER RESOURCES CONTROL BOARD

M A Campos

Michael A. Campos
Executive Director

4. Draft text of proposed regulations dated 10/23/1984

Underground Tank Storage of Hazardous Substances

California Administrative Code
Title 23 Waters
Chapter 3 Water Resources Control Board
Subchapter 16 Regulations for Storage of Hazardous Substances

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Article 1 General

Adopt new section to read

2610 Applicability

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

(b) Persons who own one or more underground tanks storing hazardous substances shall comply with these regulations except as provided in Section 2611 of this Article. If the operator of the tank is not the owner, then the owner shall enter into a written contract with the operator requiring the operator to: monitor the tank; maintain appropriate records; implement reporting procedures as required by the permit; and properly close the tank as required by the permit.

(c) Counties shall implement the regulations in this subchapter within both the incorporated and unincorporated areas of the County except as provided in Section 2611(a) of this Article or Article 8 and 9 of this subchapter, through the issuance of permits to underground tank owners. A permit may be issued for each underground tank, several tanks or for a facility. A city may, by ordinance, assume the responsibility for implementing the provisions of this subchapter within its boundaries.

(d) All owners of underground tanks subject to these regulations must comply with the construction and monitoring standards of Article 3 (new tanks) or

the monitoring standards of Article 4 (existing tanks) of this subchapter However, owners of existing underground tanks which meet the construction and monitoring standards of Article 3 of this subchapter may be issued permits pursuant to those standards in lieu of the standards of Article 4 of this subchapter. In addition, all owners and/or operators of underground tanks subject to this subchapter must comply with the release reporting requirements of Article 5, the repair requirements of Article 6, the closure requirements of Article 7, and the permit application requirements of Article 10.

Authority Health and Safety Code (H&SC) 25288.2

Reference. Health and Safety Code (H&SC) 25282, 25283, 25288, 25288.2

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Adopt new section to read:

2611. Exemptions

(a) The owners of underground storage tanks that meet any of the following conditions shall be exempt from the provisions of this subchapter.

(1) Underground storage tanks that are located within the jurisdictions of counties or cities where the county or city had, prior to January 1, 1984, adopted an ordinance which, at a minimum, meets the requirements of Article 3 and Article 4 of this subchapter or implements the requirements of Health and Safety Code Sections 25284 and 25284.1 provided that:

(A) The ordinance, as it may be amended, continues to meet at a minimum the requirements of Article 3 and Article 4 of this subchapter or implements the requirements of Health and Safety Code Sections 25284 and 25284.1; and

(B) The county or city issues permits for underground tanks pursuant to the ordinance and submits a copy of the permit application to the State Board as specified in Article 10 of this subchapter.

(C) The county or city submits information on all unauthorized releases as specified in Article 5 of this subchapter.

(D) The county or city submits information on any permit changes or renewals as specified in Section 2703 of Article 10 of this subchapter.

(2) Underground storage tanks that are used for the storage of hazardous substances used for the control of external parasites of cattle and subject to the supervision of the county agricultural commissioner if the

county agricultural commissioner determines, by inspection prior to use, that the tank provides a level of protection equivalent to that required by Section 25284 of the Health and Safety Code, if the tank was installed after June 30, 1984, or protection equivalent to that provided by Section 25284.1 of the Health and Safety Code if the tank was installed on or before June 30, 1984.

(3) Underground storage tanks that are located on a farm and only store motor vehicle fuel which is used only to propel vehicles used primarily for agricultural purposes. Vehicles used primarily for agricultural purposes is meant to include non-licensed vehicles and vehicles utilized in the production of agriculture at the farm site.

(4) Underground storage tanks that are used for aviation or motor vehicle fuel storage and are located within one mile of a farm and the tank is used by a licensed pest control operator, as defined in Section 11705 of the Food and Agricultural Code, who is primarily involved in agricultural pest control activities.

(5) Underground storage tanks containing hazardous wastes as defined in Section 25316 of the Health and Safety Code if the person owning or operating the tank has been issued a hazardous waste facilities permit by the Department of Health Services pursuant to Section 25200 of the Health and Safety Code or granted interim status under Section 25200.5 of the Health and Safety Code.

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(b) Structures such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation sumps, lined and unlined pits, sumps and lagoons are not considered underground tanks for the purpose of these regulations. Sumps which are a part of a monitoring system required under Article 3 of this subchapter are not exempted by this section, however, these sumps would be considered part of the secondary container or leak detection system of the primary container and would be required to meet the appropriate construction criteria.

Authority H&SC 25288.2

Reference H&SC 25280, 25288

DRAFT

DRAFT

Article 2. Definition of Terms

Adopt new section to read:

2620. Definitions

The following definitions shall apply to terms used in this subchapter.

"Board" means the State Water Resources Control Board.

"Existing underground tank" means any underground tank that is not a new underground tank. The term includes any underground tank which has contained a hazardous substance in the past and as of January 1, 1984 had the physical capability of being used again (i.e., it had not been removed or completely filled with an inert substance).

"Facility" means any one, or combination of, underground storage tanks used by a single business entity at a single location or site.

"Hazardous substance" means all of the following liquid and solid substances on the Department of Health Services' comprehensive master list which includes:

1. Substances on the list prepared by the Director of the Department of Industrial Relations pursuant to Section 5382 of the Labor Code.
2. Hazardous substances as defined in Section 25316 of the Health and Safety Code.
3. Any substance or material which is classified by the National Fire Protection Association (NFPA) as a flammable liquid, a class II combustible liquid, or a class III-A combustible liquid. This classification is contained in the Flammable

and Combustible Liquids Code 1981 (NFPA 30).

"Installed" means the point in time when all necessary permits have been issued allowing the implacement of the underground tank or, if no permits are necessary, the point in time when actual implacement of the tank begins.

"Local agency" means the county or city that is implementing the permit program. The local agency may also mean the department within the county or city designated to implement the program.

"Motor vehicle" means a self-propelled device by which any person or property may be propelled, moved, or drawn upon a highway, excepting a device moved exclusively by human power or used exclusively upon stationary rails or tracks.

"Motor vehicle fuel tank" means a tank that contains a product which is intended to be used primarily to fuel motor vehicles.

"New underground tank" means any underground tank installed after the effective date of these regulations or, if prior to adoption of these regulations, installed within a county, city and county or city where the county, city and county or city has adopted an ordinance implementing the provisions of Section 25284 of the Health and Safety Code and the tank was installed after the date of adoption of said ordinance.

"Operator" means the operator of an underground storage tank.

"Owner" means the owner of an underground storage tank.

"Person" means an individual, trust, firm, joint stock company, corporation, including a government corporation, partnership, and association.

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"Person" also includes any city, county, district, the state, or any department or agency thereof. "Person" includes the United States, to the extent authorized by federal law.

"Pipe" means any pipeline or system of pipelines which is used in connection with the hazardous substances and which are not intended to transport hazardous substances in interstate or intrastate commerce or to transfer hazardous materials in bulk to or from a marine vessel.

"Primary containment" means the first level of containment, such as the portion of a tank which comes into immediate contact on its inner surface with the hazardous substance being contained.

"Product-tight" means impervious to the substance which is contained, or is to be contained, so as to prevent the passage of the substance from the primary containment. To be product-tight, the tank shall not be subject to physical or chemical deterioration by the substance which it contains over the useful life of the tank.

"Secondary containment" means the level of containment external to, and separate from, the primary containment.

"Single-walled" means construction with walls made of only one thickness of material. For the purpose of this subchapter, laminated, coated, or clad materials shall be considered single-walled.

"Special inspectors" means a professional engineer, registered pursuant to Chapter 7 (commencing with Section 6700) of Division 3 of the Business and Professions Code, who is qualified to attest, at a minimum, to

structural soundness, seismic safety, the compatibility of construction materials with contents, cathodic protection, and the mechanical compatibility of the structural elements.

"Storage" or "store" means the containment, handling or treatment of hazardous substances, either on a temporary basis or for a period of years.

"Substantially beneath the surface of the ground" means that at least 50 percent of the surface area of the tank that can be in contact with the stored material is below the ground surface.

"Tank" means any single container including connecting piping which is used for the storage of hazardous substances and which is substantially or totally beneath the surface of the ground.

"Tank system" means any one or more tanks and is used synonymously with "underground storage tank".

"Unauthorized release" means any release or emission of any hazardous substance unless this release is authorized by the State Water Resources Control Board pursuant to Division 7 (commencing with Section 13000) of the Water Code. "Unauthorized release" does not include withdrawals of hazardous substances for the purpose of legitimate sale or use

"Underground storage tank" means any one or combination of tanks, including pipes connected thereto, which is used for the storage of hazardous substances and which is substantially or totally beneath the surface of the ground.

Authority: H&SC 25288.2

Reference: H&SC 25280, 25281, 25284

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Article 3. New Tank Construction and Monitoring Standards

Adopt new section to read:

2630. Applicability

(a) This article contains statewide minimum standards for the construction, installation, and monitoring of new underground tanks that contain hazardous substances.

(b) Sections 2631 and 2632 specify construction and monitoring standards for all new tank systems. New tank systems that only store motor vehicle fuels may be constructed and monitored pursuant to the standards specified in Sections 2633 and 2634 in lieu of those specified in Sections 2631 and 2632, respectively. However, if the construction standards in Section 2633 are used, then the monitoring standards of Section 2634 must also be used.

(c) All new tank systems must comply with Section 2635.

Authority: H&SC 25285.2

Reference: H&SC 25280, 25284

Adopt new section to read:

2631. Construction Standards for New Underground Storage Tanks

(a) Primary and secondary levels of containment shall be required for all new underground tanks used for the storage of hazardous substances as defined in Article 2.

(b) All primary containers shall be product-tight.

(c) All secondary containers shall be constructed of materials of sufficient thickness, density, and composition to contain the hazardous substance for a period of at least twice the maximum anticipated time sufficient to allow detection and recovery of leakage from the primary container.

(d) The secondary container shall have the ability to contain the following volumes:

(1) at least 100 percent of the volume of the primary container where only one primary container is within the secondary container;

(2) in the case of multiple primary containers within a single secondary container, the secondary container shall be large enough to contain 150 percent of the volume of the largest primary container placed in it, or 10 percent of the aggregate internal volume of all primary containers in the storage facility, whichever is greater.

(e) If the storage facility is open to rainfall, then the secondary container must be able to accommodate the volume of the twenty-four (24) hour-one hundred (100) year storm in addition to that required in Subsections (d) and (e) of this section.

(f) Volume requirements for a secondary container which consists of the pore space in backfill placed around the primary container shall be 110 percent of that required in Sections 2631(d) and (e). The available pore space in the secondary container backfill shall be determined using appropriate engineering methods.

(g) Laminated, coated, or clad materials shall be considered single walled and shall not be construed to fulfill the requirements of both primary and secondary containment.

(h) Double walled tanks which satisfy the requirements of Sections 2631(b) and (c) shall be considered to fulfill the volumetric requirements for secondary containment specified in Sections 2631(d).

Authority: H&SC 25280.2

Reference: H&SC 25280, 25284

Adopt new section to read:

2632. Monitoring Standards for New Underground Storage Tanks

(a) This section is applicable only to those underground storage tanks constructed pursuant to the standards of Section 2631 of this article.

(b) Secondary containers shall be equipped with a collection system capable of removing any precipitation, subsurface infiltration, or hazardous substance and liquid leakage from the primary containment.

(c) The floor of the secondary containment shall be constructed on a firm base and sloped to a collection sump. The sump and the access casing shall be sized to allow removal of the collected liquid. The access casing shall be extended to the ground surface, perforated in the region of the sump, and capped with a locked waterproof cap.

(d) The casing shall be of thick enough to withstand all anticipated applied stresses with a 1.5 safety factor and constructed of materials that will not be structurally weakened by the stored product nor donate, capture, or mask product constituents for which analyses will be made.

(e) The sump shall be monitored with a continuous sensor, which is removable on a semi-annual basis for calibration and maintenance if needed. The continuous sensor shall be capable of either:

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(1) Detecting within the sump 0.5 inches of standing liquid and activating a strategically-located, above-ground alarm system when any combination of a hazardous substance or water is present. All standing liquid shall be immediately sampled and analyzed within a time specified by the local agency to best detection limits to determine the presence of hazardous substances. This system cannot be used when water is normally expected to be present within the secondary containment, or

(2) Detecting within the sump 0.5 inches of the hazardous substance stored in the primary container(s) and activating a strategically-located, above-ground alarm system.

(f) The interstitial space between the walls of a double-walled tank may be monitored continuously using a pressure sensor. The sensing devices shall be capable of activating a strategically located above-ground alarm system. Double-walled tanks which utilize this leak detection system are exempt from the requirements of Sections 2632(c) through (e).

Authority: H&SC 25288.2

Reference: H&SC 25280, 25284

Adopt new section to read:

2633. Construction Standards for New Motor Vehicle Fuel Tanks

(a) This section specifies alternate construction standards for new tanks which only contain motor vehicle fuels. This section may be utilized by permit applicants in lieu of Section 2631. If this section is used in lieu of Section 2631, then the monitoring standards specified in Section 2634 shall be used in lieu of those specified in Section 2632.

(b) Primary containers for the underground storage of motor vehicle fuel shall consist of product-tight tanks constructed of fiberglass reinforced plastic, cathodically protected steel, or steel clad with glass fibre reinforced plastic and installed in conjunction with the secondary containment system described in Section 2633(d) and (e).

(c) Primary containers used for the underground storage of motor vehicle fuel and constructed of materials other than those specified in Section 2633(b) shall be subject to the requirements of Section 2631.

(d) The secondary container shall be demonstrated to achieve the integrity and compatibility criteria of Section 2631(c) of this article.

(e) The leak interception and detection system (secondary container) and the response plan shall preclude the contact of any leaked hazardous substance with ground water. At a minimum the leak interception and detection system shall be above the highest anticipated ground water. Proof that the secondary container and response plan will protect ground waters must be demonstrated by the permit applicant to the satisfaction of the local agency. The demonstration shall consider the following:

(1) The volume of the secondary container,

(2) The depth from the bottom of the secondary container to the highest anticipated level of ground water;

(3) The nature of the unsaturated soils under the secondary container and their ability to adsorb contaminants or allow vertical movement of contaminants;

(4) The effect of any infiltration on the movement of any leak of hazardous substance; and,

(5) The nature and timing of the response plan to clean up the hazardous substances which have been discharged from the primary container.

(f) Pressurized piping systems that include an automatic, continuously operating pressure loss detector and flow restriction device are exempt from the secondary container requirements of the article. This detector shall be connected to a visual or audible alarm system unless it provides at least a 50 percent reduction from normal flow rates.

Authority: H&SC 25200.2

Reference: H&SC 25280, 25284

Adopt new section to read:

2634. Monitoring Standards for New Motor Vehicle Fuel Tanks

(a) Monitoring of underground tanks used for the storage of motor vehicle fuel and constructed pursuant to the standards of Section 2633 of this article shall consist of all of the following:

(1) Monitoring of the secondary containment system pursuant to subsections (b), (c) and (d) of this section.

(2) Daily gauging and inventory reconciliation by the operator pursuant to Section 2643 of Article 4.

(3) Hydrostatic testing of the tank every two years according to the criteria specified in Section 2642 of Article 4, and

(4) All pressurized piping systems shall be monitored utilizing an on-line pressure loss detector and flow reduction device. The detector shall be connected to a visual or audible alarm system unless it provides for at least a 50 percent reduction from normal flow rates.

(b) An access casing shall be installed at each monitoring location. The casing shall be:

(1) Capable of allowing any liquid that may be moving along the upper surface of the secondary container to enter the casing;

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(2) Sized to allow efficient removal of collected liquid and to withstand all anticipated applied stresses with a safety factor of 1.5;

(3) Constructed of materials that will not be structurally weakened by the stored product nor donate, capture, or mask product constituents for which analyses will be made;

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

(5) Capable of precluding leakage of any hazardous substance to areas outside of the secondary container; and

(6) Extended to the ground surface and covered with a locked water-proof cap.

(c) Monitoring of each casing described in Section 2634(b) shall utilize a continuous sensor which is removable on a semi-annual basis for calibration and maintenance, if needed, and capable of detecting within the casing 0.5 inches of the hazardous substance stored in the primary container(s) and activating a strategically located above-ground alarm system.

(d) An underground tank used for the storage of motor vehicle fuels that has a loss or gain of hazardous substance or water as determined by daily gauging and inventory control (as required in Subsection (a)(2) of this section) of greater than any of the following shall be tested according to the procedures specified in subsection (e) of this section:

(1) Daily loss or gain of 50 gallons, or

(2) Seven [7] day loss or gain of five percent of the volume of hazardous substance delivered over the seven days, or

(3) Cumulative (calculated over a period of at least thirty (30) days) loss or gain of one-half percent of the volume of hazardous substance throughput over the period that the cumulative loss or gain is calculated.

(e) If inventory controls indicate a gain or loss of hazardous substances greater than that specified in subsection (d) of this section, then the following steps shall be implemented by the operator or permittee. The steps may be implemented sequentially or concurrently; however, they must be completed within the specified time periods. Reporting as required in Article 5 of this subchapter shall be followed.

If completion of the steps described in subsections (2), (3), or (5) of this subsection indicate inventory reconciliation errors that, when corrected

cause the levels in subsection (d) of this section not to be exceeded, then the remainder of the steps need not be completed. If completion of the steps described in subsections (4) or (6) through (8) of this subsection reveal the source of the loss or gain, then the remainder of the steps need not be completed.

Transfer of hazardous substances into and out of the underground storage tank may continue throughout the steps provided that the steps are completed within the specified time periods and any loss or gain did not exceed two times the levels specified in subsection (d) of this section. Inventory control and daily reconciliation shall continue throughout implementation of the steps.

(1) The operator shall notify the owner verbally or in writing of the fact that inventory controls indicate a gain or loss of hazardous substances or water within 24 hours of the completion of the daily reconciliation which indicates the loss or gain.

(2) The operator shall review the inventory records within two (2) hours to determine if an error exists which would cause the gain or loss to be less than that specified in subsection (d) of this section.

(3) The operator shall have performed by a qualified person a complete review of all inventory records from the last time a zero loss or gain condition existed. This shall be completed within 24 hours of the conclusion of subsection (e)(2).

(4) The readily accessible physical facilities shall be carefully inspected for leakage. This shall be completed by trained personnel within 24 hours of completion of subsection (e) (3).

(5) All dispenser meters associated with hazardous substance withdrawal shall be checked for calibration within 24 hours of completion of subsection (e) (4).

(6) All piping shall be tested using the methods specified in Sections 4-3.6 or 4-3.7 of the National Fire Protection Association (NFPA) publication entitled "Underground Storage of Flammable and Combustible Liquids", 1983 (NFPA 329), within 24 hours of completion of subsection (e) (5). This step may be completed after the step described in subsection (e) (7) if excavation is necessary to perform the tests and if the step described in subsection (e) (7) is completed within 48 hours of the completion of subsection (e) (5). If this occurs, then this subsection shall be completed within 24 hours of the completion of subsection (e) (7).

(7) The tank shall be tested using the tests described in Section 2642 of Article 4 within 48 hours of completion of subsection (e) (6).

(8) Additional tests or investigations as required by the local agency.

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(f) A response plan for an unauthorized release shall be developed prior to installation for any container which does not meet the volumetric requirements of Sections 2631(d) and (e) of this Article. The response plan shall consider the following:

(1) The volume of the secondary container in relation to the volume of the primary container;

(2) The amount of time the secondary container must provide containment in relation to the period of time between detection of an unauthorized release and cleanup of the leaked materials;

(3) The depth from the bottom of the secondary container to the highest anticipated level of ground water;

(4) The nature of the unsaturated soils under the secondary container and their ability to absorb contaminants or allow vertical movement of contaminants; and

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

Authority: H&SC 25288.2

Reference: H&SC 25280, 25288

Adopt new section to read:

2635. General Construction Standards

(a) The following sections shall apply to all primary and secondary containers.

(b) Primary containers and double-walled tanks shall be designed and constructed to comply with all of the following:

(1) A 0.25-inch thick steel wear plate (striker plate) shall be centered under all accessible openings of the underground tank. The plate shall be rolled to the contours of the tank, bonded or seam welded in place, and have a minimum area equal to the opening or a guide tube, whichever is smaller.

(2) All underground tanks shall be guaranteed by the manufacturer to be product tight prior to leaving the factory.

(3) Following installation, all underground tanks shall be tested either hydrostatically or with pressure in accordance with standards and procedures set forth in Article 4.

(4) Cathodically protected steel tanks and steel tanks clad with glass fibre reinforced plastic shall be fabricated and designed by the requirements in Underwriters Laboratories (UL) 58, Standards for Steel Underground Tanks for Flammable and Combustible Liquids October 1976 or the American Society of Mechanical Engineers (ASME) Pressure Vessel Code, Section VIII, Division 1, Boiler and Pressure Vessel Code, 1983, and have a minimum thickness of at least 7 gauge (0.18 inch).

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(5) Fiberglass reinforced plastic tanks shall be UL listed and designed in accordance with UL Standard 1316, Standard for Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum, July 1983, or Underwriter's Laboratory of Canada, Standard ULC-S615-1977, Standard for Reinforced Plastic Underground Tanks for Petroleum Products, March 1977

(6) Fiberglass reinforced plastic tanks shall be designed based on tests by the manufacturer for durability and chemical compatability with the hazardous substances to be stored using applicable sections of American Society for Testing and Materials (ASTM) D4021-81 "Standard Specifications for Glass-FiberReinforced Polyester Underground Storage Tanks", August 1981, and the manufacturer shall provide the owner with written assurance of the compatibility.

(7) The secondary container must be capable of precluding the inflow of the highest ground water anticipated during the life of the underground storage tank into the space between the primary and secondary containers.

(8) If the space between the primary and secondary containers is backfilled, the backfill material shall not preclude the vertical movement of leakage from any part of the primary container.

(9) The secondary container shall at a minimum encompass the area within the system of vertical planes surrounding the exterior of the primary

containment unit. If backfill is placed between the primary and secondary containment then an evaluation shall be made of the maximum lateral spread of a point leak from the primary containment over the vertical distance between the primary and secondary containment. The secondary containment shall extend beyond the vertical planes an additional distance defined above equal to the radius of lateral spread plus one foot.

(10) The secondary container and any backfill material between the primary and secondary container shall be designed and constructed to promote gravity drainage of a leak of hazardous substances from any part of the primary container to the monitoring location(s).

(11) The original excavation for the secondary container shall have a water tight cover which extends at least one (1) 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. Manways shall be constructed as water-tight as practical. Double-walled tanks are exempt from this requirement.

(c) All primary and secondary container systems shall be designed and constructed to comply with all of the following:

(1) Underground storage tanks shall be located outside the prism of bearing pressure from footings of existing or designed structures and a

minimum of ten (10) feet away from these structures. Underground storage tanks may be located closer than ten (10) feet away from these structures provided a registered civil engineer reviews and approves of the design.

(2) The actual location and orientation of the underground 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.

(3) Materials that in combination may cause a fire or explosion, or the production of a flammable, toxic, or poisonous gas, or the deterioration of a primary or secondary container shall be separated in both the primary and secondary containment so as to avoid potential intermixing.

(4) Drainage of liquid from within a secondary container shall be controlled in a manner approved by the local agency so as to prevent hazardous materials from being discharged. The liquid shall be analyzed to determine the presence of any of the hazardous substance(s) stored in the primary container 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 an indication of an unauthorized release from the primary container.

(d) All primary containers and double-walled tanks shall be installed according to the manufacturer's written recommendations or, if no

written recommendations exist, best engineering practice.

(e) All primary containers and double-walled tanks subject to floatation shall be weighted or anchored using methods specified by the manufacturer or, if none exist, best engineering judgment.

(f) When required by the local agency, all underground storage tanks shall be equipped with an overflow protection system which includes the following elements:

(1) A level sensing device that continuously monitors and indicates the liquid level in the tank and either (2) or (3) or both,

(2) An audible or visual alarm system triggered by a liquid level sensor to alert the operator of an impending overfill condition, or

(3) An automatic shut-off device that stops the flow of product being delivered to the tank when the tank is full.

(g) The overflow protection system required in subsection (f) of this section shall be satisfied for underground storage tanks containing motor vehicle fuels in which:

(1) Both the fluid level is visually monitored and the filling operation is controlled by the facility operator during filling of the underground storage tank, or

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(2). The available capacity of the tank to be filled is determined immediately prior to filling to be at least 110 percent of the volume of the entire tank compartment to be delivered as determined by tank gauging, or

(3) The hazardous substance being delivered can be metered into the tank and the available tank capacity is determined immediately prior to filling.

(h) All primary containers and double-walled tanks constructed of steel shall be protected by either:

(1) A properly installed, maintained, and monitored cathodic protection system with or without coatings, or

(2) Corrosion resistant materials of construction such as special alloys or fiberglass-reinforced plastic coatings.

Selection of the type of protection to be employed shall be based on the corrosion history of the area and the judgment of a registered corrosion engineer.

Authority H&SC 25288.2

Reference: H&SC 25280, 25288

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Article 4. Existing Underground Storage Tank Monitoring Criteria

Adopt new section to read:

2640. Applicability

(a) All owners of existing underground storage tanks subject to this subchapter shall implement a monitoring system that complies with this article and is approved by the local agency. A local agency shall not issue a permit if the underground storage tank cannot be adequately monitored. To be adequate, the monitoring system must be capable of detecting active and historic unauthorized releases, any unauthorized release that may occur in the future, and be capable of measuring the ground water quality directly. The failure to implement an approved monitoring system shall be cause for the local agency to require closure of the underground storage tank pursuant to Article 7 of this subchapter.

(b) The objectives of the monitoring program for existing underground storage tanks are: to determine if unauthorized releases are occurring or have occurred in the past, to detect unauthorized releases that occur in the future before ground water is affected, and to directly measure the quality of the ground water underlying the tank. Therefore, multiple monitoring systems, as described in Sections 2641 through 2647, shall be implemented where technically feasible to existing tanks that do not have a secondary containment that meets the requirements of Article 3.

(c) The initial monitoring of all existing underground storage tanks shall, if feasible, be capable of determining if prior use of the underground storage tank has resulted in an unauthorized release. The soil sampling described in Section 2644 of this article shall be one method to meet this intent. Other methods which achieves this intent may be approved by a local agency.

(d) All owners of existing underground storage tanks subject to this subchapter shall implement visual monitoring as described in Section 2641 of this article when feasible. If the entire underground storage tank is not susceptible to visual monitoring, but a significant portion of the underground storage tank can be visually monitored, then that portion of the underground storage tank shall be monitored visually. Visual monitoring that can only be implemented during a portion of the year due to flooding or the presence of other liquids shall be utilized during those portions of the year when feasible. However, unless visual monitoring is implemented for the entire underground storage tank throughout the entire year, other forms of monitoring shall also be implemented.

(e) All owners of existing underground storage tanks subject to this subchapter who are not able to implement visual monitoring as specified in Section 2641 of this article, shall implement each alternate monitoring method as specified in Sections 2642 through 2646 of this Article. Soils monitoring specified in Section 2644 of this article shall not

be exempted based on the ability to implement visual monitoring unless an alternative monitoring method is approved by the local agency which meets the intent of subsection (c) of this section. If an owner demonstrates to the local agency that the exemption criteria should apply, the owner shall be relieved of the obligation to implement soils monitoring.

(f) Additional monitoring methods that are equivalent to or better than the methods specified in this article may be approved by a local agency pursuant to the intent of subsections (b) and (c) of this section. Requests for the use of additional monitoring methods shall be subject to the applicable sections of Article 8. These additional methods may, upon the discretion of the local agency, remove the necessity to implement any or all of the alternatives described in Sections 2642 through 2646 provided that all monitoring objectives can be achieved with the additional methods.

(g) All owners of underground storage tanks shall, if feasible, install an assurance monitoring system which monitors ground water beneath the underground storage tank. Underground storage tank owners are exempt from this requirement if they meet the exemption criteria contained in Section 2647 of this article.

(h) All borings and wells constructed and sampled pursuant to this article shall utilize the construction and sampling methods specified in Section 2648 of this article.

(i) All exploratory borings or soil sample collection borings that are not converted to a cased monitoring well shall be backfilled with bentonite grout or slurry.

Authority: H&SC 25288.2

Reference: H&SC 25282, 25284, 25284.1

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Adopt new section to read:

2641. Visual Monitoring

(a) Visual monitoring shall be utilized as the principal leak detection monitoring method, where feasible, for all or a portion of the exterior surfaces of an underground storage tank. All owners of existing underground tank owners shall implement visual monitoring for any exposed portion of an underground tank unless they demonstrate to the local agency that at least one of the exemption criteria of subsection (b) of this section is applicable. If visual monitoring is to be implemented, then the provisions of subsections (c) and (d) of this section shall be followed.

(b) If any one of the following conditions are met the owner is exempted from implementing visual monitoring for that portion to the tank which the condition applies.

(1) An owner may be exempted from visually monitoring any portion of an underground storage tank that is in contact with the ground surface, a floor or pad such that it cannot be seen. A tank in a saddle should not typically qualify for an exemption.

(2) If the act of visually inspecting the exterior of the underground storage tank would put a person in a physically unsafe environment.

(3) If a person would be required to use personal protection equipment (other than normal protective equipment, such as steel-toed shoes,

hard hat, eye or ear protection, etc.) in order to visually inspect the entire of the underground storage tank.

(4) If the underground storage tank is located at a facility which is not staffed on a daily basis.

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

(1) Provisions that all accessible exterior surfaces of a tank and the surface of the floor directly beneath the tank shall be monitored by direct viewing.

(2) A written routine monitoring procedure shall be prepared which includes: the frequency of visual inspections, the location[s] from which observerations will be made, the name(s) or title(s) of the person(s) responsible for performing the observations, and the reporting format.

(3) Visual inspections shall be performed daily at a minimum, and shall be more frequent if necessary. At least one inspection shall be performed when the liquid level in the tank is at its highest. The inspection frequency shall be selected such that any unauthorized release will remain observable on the exterior of or the surface immediately beneath the underground storage tank between visual inspections. The evaluation of how long the hazardous substance

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remains observable shall consider the volatility of the hazardous substance and the porosity and slope of the surface immediately beneath the underground storage tank or portion thereof being visually monitored.

(4) Recordation and reporting of the liquid level in the tank at the time of the inspection.

(d) The observation of any liquid on the exterior of or the surface immediately beneath the underground storage tank being visually monitored shall cause the owner or operator to implement all or a portion of the following actions. The applicable actions and their timing shall be based on the site-specific situation; shall be intended to determine if the observed liquid constitutes an unauthorized release; and shall be included in the permit.

(1) Laboratory analysis of the observed liquid.

(2) Testing of the underground storage tank utilizing the procedures described in Section 2642 of this article.

(3) Removing all hazardous substances from the underground storage tank.

(e) Visual monitoring of the exposed portion of a partially concealed tank shall not relieve an owner from implementing monitoring for the

concealed portion of the tank using the other monitoring methods described in this article.

Authority: H&SC 25288.2

Reference: H&SC 25284.1, 25284.2

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Adopt new section to read

2642. Underground Storage Tank Testing

(a) All owners of existing underground storage tanks subject to this subchapter shall, except as provided in subsection (b) of this section, implement a testing program pursuant to subsections (c) through (g) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing an underground storage tank testing program if they can demonstrate to the local agency that at least one of the following conditions applies.

(1) If visual monitoring pursuant to Section 2641 of this article is implemented.

(2) If any test which meets the conditions described in subsection (c) of this section cannot be performed without significant excavation.

(c) Testing of underground storage tanks shall utilize a method capable of detecting a hazardous substance loss of at least 0.05 gallons per hour (gph). These methods are limited to those tests that make adjustments for all of the following, if applicable:

(1) the presence of vapor pockets,

(2) thermal expansion or contraction of the hazardous substance,

(3) temperature stratification in the tank,

(4) evaporation,

(5) pressure variations in the tank, and

(6) deflection of the tank ends.

(d) Underground storage tanks shall be tested according to the following schedule.

Category A: Uncladed steel tanks without corrosion protection - within one year of permit issuance and yearly beginning ten (10) years after tank installation.

Category B: Corrosion resistant tanks[1] - within one year of permit issuance and yearly beginning fifteen (15) years after tank installation

1 Common corrosion resistant tanks include: fiberglass reinforced plastic (FRP), cathodically protected steel, and FRP-clad steel tanks.

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(e) Within thirty days of completion of the leak detection test, the underground tank owner shall provide the local agency with a report presenting the following information:

(1) The procedures used (including any deviations from those recommended by the manufacturer) for the leak detection method;

(2) The test results used in determining the volumetric rate of product loss; and

(3) The volumetric rate of product loss.

The information shall be presented in written and/or tabular format as appropriate and shall be at a level of detail appropriate for the test procedure used.

(f) Underground tanks which are found to lose product at a rate greater than or equal to 0.05 gph shall be repaired or replaced as specified in Articles 6 and 7, respectively.

(g) The results of any tests performed on the tank at any other interval to determine if the tank is leaking shall be reported by the tank owner to the local agency within thirty days of completion as specified in subsection (a)(3) above.

(h) All pressurized portions of an underground storage tank shall be monitored utilizing an on-line pressure loss detector and flow reduction device. The detector shall be connected to a visual or

audible alarm system. The flow reduction device shall reduce the the flow to no more than 50 percent of the maximum flow under non-pressure loss situations (i.e., normal operations).

Authority: H&SC 25288.2

Reference: H&SC 25284, 25284.1, 25284.2

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Adopt new section to read.

2643. Inventory Control

(a) All owners of existing underground storage tanks subject to this subchapter shall, except as provided for in subsection (b) of this section, implement an inventory control program as described in subsections (c) through (f) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing an inventory control program if they can demonstrate to the local agency that the hazardous substance is not susceptible to accepted technologically available metering.

(c) All tanks shall be individually monitored utilizing a daily inventory control system that takes into account: daily tank quantity measurements for both tank contents and any water layer; daily retail meter delivery records for outgoing product, and daily wholesale meter delivery records for incoming product. Meters shall be approved for use by the County Department of Weights and Measures.

(d) Tank quantity measurements shall be based on liquid elevation measurements which are:

(1) Capable of measuring to one-eighth of an inch,

(2) Performed during periods of no tank additions or withdrawals,

(3) Performed by the tank owner, operator or other managerial personnel who have had appropriate training;

(4) Based on the average of two readings if gage measurements are used;

(5) Capable of detecting a water layer at the lowest end of the tank, if possible;

(6) 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 initial measurements at both ends, if possible, to determine if any tank tilt exists and, if so, its magnitude; and

(7) Converted to volume measurements based on a calibration chart provided by the tank manufacturer or supplier. This chart shall, if possible, take into account the actual tilt of the tank as determined initially as described in subsection (6) above.

(e) Wholesale meter delivery records shall be verified according to the following procedure which utilizes the criteria described in subsection (d) of this section:

(1) Prior to any delivery, the volume of actual tank contents shall be determined and, if product is to be removed from the tank during delivery, the retail meter totalizer reading(s) shall be recorded.

(2) Following a delivery, the volume of the actual tank contents shall be determined and, if product was removed from the tank during the delivery, the retail meter totalizer reading(s) shall be recorded.

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(3) Based on the above readings, a determination shall be made of the increase or decrease in the volume of water in the tank and the increase or decrease in the volume of product in the tank. This figure shall be compared with the metered volume of the product delivery.

(4) A difference of more than the lesser of one-half percent of the delivery volume or 50 gallons shall be cause for a reevaluation of the measurements. This reevaluation shall initially include collection of the information required in subsection (e)(2) of this section.

(f) Underground tanks used for storage of motor vehicle fuels that have a loss or gain of product or water as determined by daily gauging and inventory control of greater than any of the following shall be evaluated according to the methods and time schedules provided for in subsection (f) of Section 2634 of Article 3.

(1) Daily loss or gain of 50 gallons, or

(2) Seven (7) day loss or gain of five percent of the volume of motor vehicle fuel delivered over the seven days, or

(3) Cumulative (calculated over a period of at least thirty (30) days) loss or gain of one-half percent of the volume of motor vehicle fuel delivered over the period that the cumulative loss or gain is calculated.

Authority: H&SC 25288.2

Reference: H&SC 25284, 25284.1

Adopt new section to read:

2644. Soil Testing and Exploratory Boring

(a) Except for those tanks that have been granted an exemption under subsection (b) of this section, all owners of existing underground storage tanks subject to this subchapter shall implement an evaluation as described in subsections (c) through (e) of this section to determine if prior usage of the underground storage tank has resulted in an unauthorized release.

(b) Exemptions to soil testing at specific underground storage tank locations may be granted by the local agency if any of the following situations exist and if they are confirmed by the local agency:

(1) Proximity to physical obstacles prevent the positioning and operation of drilling equipment within a horizontal distance of 15 feet from the tank.

(2) Soil conditions prevent drilling by any generally existing technique.

(c) At least one slant boring shall be drilled as close as possible to the tank and shall be directed so as to intercept a point that has been projected vertically downward from the midpoint of the tank and is 50 feet below the invert of the tank. If slant drilling and soils collection is not possible, then vertical borings pursuant to subsection (d) of this section shall be drilled.

(d) At those sites where slant drilling is precluded but vertical drilling is feasible, at least one vertical boring shall be drilled on each

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long dimensional side of the tank. The borings shall be located within 10 feet of the tank opposite the midpoint of the long dimension of the tank and shall be drilled to a depth of at least 50 feet below the invert of the tank. Soil samples shall be obtained in accordance with Subsection (e) of this section.

(e) Soil samples shall be obtained from the boring(s) according to the following procedures:

(1) Undisturbed soil samples shall be obtained at vertical intervals no greater than 5 feet beginning at the ground surface and proceeding to the target depth of the boring or to the ground water level in borings encountering ground water, whichever occurs first.

(2) The soil samples shall be collected, transported, stored, and analyzed according to approved EPA methods.

(3) Analysis of the individual soil samples shall be as follows:

(A) If more than one boring is utilized, samples from the same depth from each boring may be composited if analytically possible without loss of constituents prior to analysis.

(B) Samples may be analyzed in any order of depth. If levels of hazardous substances known or suspected to be contained in the underground storage tank are detected (above background if the constituent occurs naturally at the

site) then further soils analysis is not necessary pursuant to this subsection. However, the following additional actions will be required:

(i) The hazardous substance(s) will be assumed to have originated from the underground storage tank and a permit shall not be granted. A permit may be granted if further detailed investigation clearly establishes that the underground storage tank is not the source of the hazardous substance or the tank has been properly repaired since the unauthorized release and that the tank can be adequately monitored with the hazardous substance already in the environment.

(ii) Further investigation will be needed to determine the magnitude and extent of any soil or ground water contamination due to the unauthorized release. This may involve, but is not limited to, analysis of the remaining soil samples and/or ground water sampling and analysis.

(C) Samples shall be analyzed for one or more of the most conservative constituents that have been stored in the underground storage tank. If the use of the underground storage tank has historically changed, then analysis shall be for at least one constituent from each period of use. If the stored hazardous substance is known to degrade or transform to other

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constituents in the soil environment, then analysis shall include these degradation and/or transformation constituents.

(4) All borings shall be logged in detail and the soils described according to the Unified Soils Classification System by a registered civil engineer or registered geologist competent in soils engineering or a certified engineering geologist.

(5) All wet zones above the free water zone shall be noted and accurately logged.

(f) If soils analysis indicates that an unauthorized release has occurred the permittee shall report the release pursuant to Article 5 of this subchapter and shall repair or abandon the underground storage tank pursuant to Articles 6 or 7 of this subchapter.

(g) If evidence of an unauthorized release is not detected, a leak detection monitoring system shall be installed pursuant to Section 2645 or 2646 and an assurance monitoring system shall be installed according to Section 2647.

Authority: H&SC 25288.2

Reference: H&SC 25284.1

Adopt new section to read:

2645. Vadose Zone Detection Monitoring

(a) All owners of existing underground tanks subject to this subchapter shall, except as provided in subsection (b) of this section, implement a vadose zone detection monitoring system pursuant to subsections (c) through (h) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing a vadose zone monitoring system if they can demonstrate to the local agency that at least one of the following conditions apply.

(1) Proximity to physical obstacles prevent the positioning and operation of drilling equipment, including hand equipment if suitable, within a horizontal distance of 15 feet from the underground storage tank.

(2) Ground water is periodically above a point 5 feet below the invert of the underground storage tank and vadose zone monitoring is not possible due to the characteristics (e.g., nonvolatility) of the hazardous substance(s) stored. (Vapor monitoring is required when possible to complement leak detection ground water monitoring as described in Section 2646 of this article.)

(3) Vadose zone monitoring is not required if the hazardous substance(s) being stored is not susceptible to detection by vadose zone monitoring methods.

(4) Visual monitoring of the entire tank pursuant to Section 2641 of this article has been implemented.

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(c) Vadose zone monitoring may consist of vapor monitoring or soil-pore liquid monitoring or a combination of both methods.

(d) The number, location, and depths of vadose zone monitoring points shall be selected so as to give the earliest possible warning of any unauthorized release from the underground storage tank.

(e) Subsurface systems shall be located within the backfill surrounding the tank if at all possible.

(f) Vapor monitoring for underground storage tanks may be used in accordance with the following criteria if the vapor characteristics of the stored product are susceptible to detection:

(1) Before any method of vapor monitoring is approved for a specific site, it shall be demonstrated by an actual on site demonstration, using an appropriate tracer substance, that vapor would actually be detected by the installed system.

(2) The depth at which each sensor is placed relative to the tank shall be determined according to the most probable movement of vapor through the backfill or surrounding soil.

(3) Vapor monitoring wells placed in the backfill shall be constructed so that any leakage that may pond at the horizontal interface between the backfill and natural soils can be detected in the vapor well.

(g) Soil-pore liquid monitoring of the vadose zone may be approved if the discharger can clearly show that:

(1) The stored substance is susceptible to detection by the proposed technique.

(2) The stored substance will not attack the materials from which the detector system is constructed or otherwise render the detector system inoperable.

(3) The site and soil characteristics will not prevent detection of an unauthorized release using a soil-pore liquid monitoring system.

(4) The proposed technique will be effective in providing early detection of tank leakage.

(h) Vadose zone monitoring shall be continuous where feasible and connected to an above-ground alarm system. Where continuous monitoring is unfeasible, monitoring shall be performed weekly.

Authority: H&SC 25288.2

Reference: H&SC 25284.1

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Adopt new section to read:

2646. Ground Water Leak Detection Monitoring

(a) All owners of existing underground storage tanks subject to this subchapter shall, except as provided for in subsection (b) of this section, implement a ground water leak detection monitoring system pursuant to subsections (c) through (f) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing a ground water leak detection monitoring system if they can demonstrate to the local agency that at least one of the following conditions apply:

(1) Visual monitoring of the entire tank pursuant to Section 2641 of this article has been implemented.

(2) A vadose monitoring system pursuant to Section 2645 of this article has been implemented and ground water is and will remain at least 5 feet below the invert of the underground storage tank.

(3) The proximity to physical obstacles prevent the positioning and operation of drilling equipment within a horizontal distance of 50 feet from the tank.

(4) Soil conditions prevent drilling by any generally existing technique.

(c) At those sites at which vadose zone monitoring is feasible and the ground water level fluctuates above and below a point 5 feet below the tank invert, a combination of ground water monitoring and vadose

monitoring shall be used. The ground water monitoring wells shall extend 20 feet below the lowest anticipated ground water level in order to provide assurance monitoring pursuant to Section 2647 during periods of low ground water.

(d) When the ground water level is continuously above a point 5 feet below the tank invert, ground water monitoring shall be used as the principal leak detection technique, and vapor monitoring will also be used in conjunction with ground water monitoring whenever possible.

(e) The ground water monitoring network shall be designed and constructed according to the following criteria:

(1) Three ground water monitoring wells shall be installed around the underground storage tank or facility at spacings of 120° of arc around the central point of the underground storage tank or facility. Additional borings shall be installed at closer angular spacings if the straight line distance between wells exceeds 30 feet. If it can be demonstrated that the radii of influence of fewer monitoring wells overlap and that the entire area of the underground storage tank or facility is under the influence of at least one well under all anticipated hydraulic conditions, fewer wells may suffice. All wells should be located as close as possible to the underground storage tank or the perimeter of the facility.

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(2) One of the three wells shall be located such that it represents the best estimate of the downgradient direction.

(3) The ground water monitoring wells shall be constructed as gravel packed water wells with a minimum 4-inch inside diameter (ID) casing and in accordance with the provisions of Section 2648.

(4) All wells shall be provided with the minimum surface seal necessary to prevent infiltration of surface water but the seal shall extend to a depth of at least 5 feet.

(5) Monitoring wells at which the ground water elevation is above the base of the surface seal shall be closed and equipped with a pump capable of drawing the ground water level down to an elevation 10 feet below the base of the surface seal.

(6) The ground water monitoring wells shall extend to an elevation that is at least 10 feet below the tank invert and shall be perforated from the base of the surface seal to the bottom of the well.

(8) Ground water shall be monitored at least once per week from each well. More frequent monitoring may be required by the local agency. Sampling and analysis, if applicable shall be according to Section 2648 of this article.

Authority: H&SC 25288.2

Reference: H&SC 25284.1

Adopt new section to read:

2647. Assurance Ground Water Monitoring

(a) All owners of existing underground storage tanks subject to this subchapter shall, except as provided in subsection (b) of this section, implement an assurance ground water monitoring system pursuant to subsections (c) through (g) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing an assurance ground water monitoring system if they can demonstrate to the local agency that at least one of the following conditions apply:

(1) Ground water monitoring pursuant to Section 2646 of this article is used as the principal means of leak detection.

(2) The highest ground water level possible during the life of the facility is at a depth greater than 200 feet.

(3) Proximity to physical obstacles prevents the positioning and operation of drilling equipment within a horizontal distance of 500 feet of the tank or tank cluster perimeter.

(4) Soil conditions prevent drilling by any generally existing technique.

(c) Assurance ground water monitoring networks shall be established according to the following criteria:

(1) At those underground tank facilities at which the highest anticipated ground water elevation is between a depth of 5 feet

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below the tank invert and a point 100 feet below the ground surface, a ground water monitoring system as described in Section 2646(e), subsections (1) through (5) of this article shall be installed. The wells shall extend to the base of the aquifer or to a depth of 100 feet, whichever is lessor and shall be perforated from 10 feet above the highest anticipated ground water elevation to the bottom of the well.

(2) At those underground tank facilities at which the highest anticipated ground water elevation is between 100 feet and 200 feet, at least one monitoring well shall be installed at a location that is as close as possible to the tank and represents the best estimate of the downgradient direction. The well shall extend to the base of the aquifer or to a depth of 200 feet, whichever is lessor, and shall be perforated from 10 feet above the highest anticipated ground water elevation to the bottom of the well.

(d) In order to implement subsection (c) of this section, the depth to ground water must be accurately determined. This shall be accomplished either by documentation of the ground water elevation in all, but not less than three, existing wells within 500 feet of the facility or an exploratory boring constructed as follows:

(1) An exploratory boring shall be drilled in the anticipated downgradient direction from the underground storage tank. More than one exploratory boring may be required where geohydrologic conditions

are complex or where more than one boring is needed to adequately cover a facility that occupies a large area.

(2) The exploratory boring may be of any diameter capable of allowing the detection of first water and the recovery of undisturbed soil samples.

(3) The exploratory boring shall be drilled by a dry drilling technique that permits the detection of wet zones and first water.

(4) The exploratory boring shall be within 10 feet of the tank. If physical constraints preclude drilling within 10 feet of the tank, the boring shall be drilled as near as possible to the tank, but no further than 50 feet from the tank.

(5) The exploratory boring shall be drilled to a minimum depth of 200 feet if ground water is not encountered at a depth of less than 200 feet.

(6) If ground water is encountered within a depth of 200 feet, in addition to the requirements of subsection (c) of this section, the following shall also apply:

(A) The exploratory boring shall be modified if necessary and constructed as a gravel-packed water well with a minimum 4-inch ID casing.

(B) In the case of unconfined ground water aquifers, the exploratory well shall extend a minimum of 20 feet below the ground water

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surface or 20 feet below the lowest known historical ground water level in the area, whichever is lowest. The well shall be perforated from the tank bottom elevation to 20 feet below the ground water surface or the lowest known historical ground water level in the area, whichever is lowest.

(C) In the case of confined aquifers, the well shall extend to the bottom of the aquifer and shall be perforated from the top of the aquifer to the bottom of the well.

(7) If the exploratory boring does not encounter ground water within a depth of 200 feet. The exploratory boring shall be backfilled and sealed with bentonite grout or slurry.

(e) Wells shall be sampled semi-annually at a minimum. More frequent sampling may be required by the local agency. Samples shall be taken after sufficient volumes of water have been removed from the well such that pH, temperature and conductivity are stabilized. Sampling equipment shall not donate, capture, mask or alter the sample constituents.

(f) Analysis shall be performed for all constituents stored in the underground storage tank and their degradation or transformation products.

(g) Samples shall be collected, stored, transported, and analyzed according to approved EPA methods.

Authority: H&SC 25288.2

Reference: H&SC 25284.1

Adopt new section to read:

2648. Well Construction and Sampling Methods

(a) The sampling equipment and materials used to construct a well shall be compatible with the stored product and shall not donate, capture, mask nor alter product constituents for which analyses will be made.

(b) All imported materials used to gravel pack or backfill wells and to form seals shall be tested to determine their acceptability with regard to subsection (a) of this section.

(c) All drilling tools shall be cleaned immediately before a boring is started and immediately after a boring is completed.

(d) All well casings, casing fittings, screens, gravel packs and all other components are to be thoroughly cleaned before installation in the boring.

(e) All soil and water samplers shall be cleaned before each sample is taken.

(f) Drilling fluid additives shall be limited to inorganic, non-hazardous materials which conform to the provisions of subsection (a) of this section. All additives used and the depth in which they were used are to be precisely recorded in the boring log.

(g) Samples of additives, cement, bentonite, and grouts shall be analyzed for contaminating or interfering constituents.

(h) All well casings shall have a bottom cap or plug.

(i) All wells shall have a surface seal. Ground water monitoring wells shall be sealed from the ground surface to the top of the perforations.

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The depth of surface seals for vapor wells shall be the minimum necessary to prevent infiltration of surface water but shall not be less than 5 feet deep.

(j) All ground water monitoring wells shall be properly developed.

(k) Well heads shall be provided with a locking water tight cap.

(l) Well heads shall be enclosed in a surface security structure that will protect the well from the entry of surface water, accidental damage, unauthorized access and vandalism.

(m) Pertinent well information including well identification, well type, depths, boring and casing diameters, and perforated depths shall be permanently afixed to the interior of the surface security structure and the well identification number and well type shall be afixed on the exterior of the surface security structure.

(n) Initial borings or wells to determine the depth to ground water shall be capable of allowing the collection of undisturbed soil samples and shall utilize a dry drilling technique that permits the detection of wet zones and first water.

Authority: H&SC 25288.2

Reference: H&SC 25284.1

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Article 5. Release Reporting Requirements

Adopt new section to read:

2650. Applicability

(a) All unauthorized releases from the primary or secondary container must meet the reporting, clean-up and disposal requirements of this section.

(b) All unauthorized releases shall be reported. The nature and timing of the reporting is divided into two groups depending on the threat to contaminate soil and water as a result of the release. This article describes the various reporting requirements and actions which must be implemented by the owner or permittee and the local agency.

(c) Unauthorized releases requiring only initial recording with reporting completed as part of the normal operating reports are defined in Section 2651 of this article.

(d) Unauthorized releases requiring immediate reporting are defined in Section 2652 of this article.

Authority: H&SC 25288.2

Reference: H&SC 25284.3, 25284.4

Adopt new section to read:

2651. Unauthorized Release Requiring Recording

(a) A recordable unauthorized release is any unauthorized release of a hazardous substance which meets all the following criteria:

(1) The hazardous substance released is from the primary container.

(2) The hazardous substance released does not escape from the secondary container or cause any deterioration of the secondary container.

(3) The hazardous substance released can be cleared up within eight hours.

(4) The hazardous substance released does not increase the hazard of fire or explosion.

(b) All recordable unauthorized releases shall be contained and the released hazardous substance shall be safely transported and legally disposed of in an appropriate manner by the permittee. Such an occurrence shall be reported in the permittee's monitoring reports as required in the permit and shall include:

(1) List of type, quantities and concentration of hazardous substance released.

(2) Method of clean-up and cost.

(3) Method and location of disposal of the released hazardous substances (include copy of hazardous waste manifest(s) if utilized).

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(4) Method of future leak prevention or repair. If this involves a change as defined in Article 10, Section 2702, Subsection (a) of this subchapter, then appropriate reports pursuant to that article shall also be filed.

(5) If the primary container is to continue to be used, then a description of how the monitoring system between the primary and secondary container has been re-activated.

(6) Facility operator's name and telephone number.

(c) The local agency shall review the information submitted pursuant to Subsection (b) of this section and the permit and may inspect the underground storage tank pursuant to the provisions of Article 10, Section 2702, Subsection (a) of this subchapter. The local agency shall find that the containment and monitoring standards of Article 1 of this subchapter can continue to be achieved or the local agency shall revoke the permit until appropriate modifications are made to allow compliance with the standards.

(d) Deterioration of the secondary container is likely when any of the following conditions exist.

(1) The secondary container will have some loss of integrity due to contact with the stored hazardous substance, or

(2) The mechanical means used to clean-up the released hazardous substance could damage the secondary container; or

(3) Hazardous substances, other than those stored in the primary container are added to the secondary container for treatment or neutralization of the released hazardous substance as part of the clean-up process.

(e) If a recordable unauthorized release becomes a reportable unauthorized leak due to initially unanticipated facts, the release shall immediately be treated as a reportable release pursuant to Section 2652 of this article.

Authority H&SC 25284.2

Reference H&SC 25284.3

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Adopt new section as follows

2652. Unauthorized Releases Requiring Immediate Reporting

(a) All unauthorized releases which are described by either Subsection (1) or (2) of this subsection shall be reported as specified in Subsection (b) of this section. In addition the requirements of Subsections (c), (d) and (e) of this section shall be followed.

(1) A reportable unauthorized release is any unauthorized release of hazardous substance which meets any of the following criteria

(A) The released hazardous substance escapes from the secondary container assuming that a secondary container exists.

(B) The released hazardous substance increases the hazard of fire or explosion.

(C) The released hazardous substance causes any deterioration of the secondary container.

(2) An unauthorized release of a hazardous substance that occurs from an underground storage tank that does not have a secondary container This includes unauthorized releases from pressurized piping which is monitored by a pressure loss detector as described in Article 3, Section 2633, Subsection (f) of this subchapter.

(b) All unauthorized releases meeting the criteria of Subsection (a) of this section shall be reported within 24 hours after the release has been detected or should have been detected. The operator or permittee shall notify the local agency, Office of Emergency Services and the Regional Water Quality Control Board.

(c) Within five working days of the occurrence, the operator or permittee shall submit to the local agency a full written report to include

(1) List of type, quantity and concentration of hazardous substances released.

(2) The results of all investigations completed at that time to determine the extent of soil or ground water or surface water contamination due to the release

(3) Method of clean-up implemented to-date and cost and proposed clean-up actions.

(4) Method and location of disposal of the released hazardous substance and any contaminated soils or groundwater or surface water (include copy of hazardous waste manifest[s] if utilized).

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(5) Proposed method of repair or replacement of the primary and secondary containers. If this involves a change as defined in Subsection 2702(a) of Article 10, then appropriate reports pursuant to that article shall also be filed.

(6) Facility operator's name and telephone number.

(d) Until clean-up is complete the operator or permittee shall submit reports every three months or at a more frequent interval specified by the local agency or Regional Board to the local agency and the Regional Board. The reports shall include the information requested in Subsections (c)(2), (c)(3) and (c)(4) of this section.

(e) The local agency shall review the permit whenever there has been an unauthorized release or when it determines that the underground storage tank is unsafe. In determining whether to modify or terminate the permit, the local agency shall consider the age of the tank, the methods of containment, the methods of monitoring, the feasibility of any required repairs, the concentration of the hazardous substances stored in the tank, the severity of potential unauthorized releases, and the suitability of any other long-term preventive measures.

(f) The reporting requirements of this section are in addition to any reporting requirements specified by other laws and regulations.

(g) The local agency, Regional Board, and Department of Health Services or other governmental agency may, pursuant to other laws or regulations, request the permitte to investigate the extent of soil, groundwater or surface water contamination that resulted from the unauthorized release and to implement appropriate remedial action.

Authority. H&SC 25288 2

Reference H&SC 25284 4

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Article 6. Allowable Repairs

Adopt new section to read.

2660. Applicability

(a) This article describes the conditions which must be met to allow primary container repairs, to allow the use of interior coatings of hazardous substance storage tanks in order to repair the tank, the required repair methodology and the required tank testing following repair.

(b) Section 2661 lists the required evaluations which must be completed in order to allow the repair of a primary container. A satisfactory demonstration of each part of Section 2661 shall be made prior to approval by the local agency of the repair process.

(c) Section 2662 describes the required methodology which must be utilized in the interior coating repair process.

(d) Section 2663 lists the required primary container monitoring which shall be implemented by amendment of the permit by the local agency following primary container repair. Subsections a) and (b) describe the monitoring which shall be performed prior to placing the underground storage tank back in service.

Authority: H&SC 25288.2

Reference: H&SC 25284.4

Adopt new section to read:

2661. Repair Evaluation

(a) The evaluations described in Subsections (b) through (d) of this section must be completed before a primary container repair can be allowed. Failure to adequately demonstrate that the repaired primary container will provide continued containment based on the evaluations described below shall be adequate rationale for a local agency to deny the proposed repair.

(b) It shall be determined if the failure mechanism is isolated to the actual failure or is affecting other areas of the tank or if any other failure mechanism is affecting the primary container.

(c) If interior lining is the proposed repair method, a demonstration that the actual failure may not have resulted from any one or more of the following conditions shall be made:

(1) a linear split of more than three (3) inches,

(2) a single hole with a diameter of greater than one (1) inch; or

(3) more than ten (10) small perforations.

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(d) If interior lining or plate replacement of a steel tank is the proposed repair method, then it shall be demonstrated to the satisfaction of the local agency based on an ultrasonic or comparable test that a serious corrosion problem does not exist. If a serious corrosion problem exists, an interior lining repair may be allowed if it can be demonstrated 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 tank.

(e) If interior lining is the proposed repair method, then it shall be demonstrated that the primary container has never been repaired using an interior lining.

Authority H&SC 25284.2

Reference H&SC 25284.5

Adopt new section to read

2262. Repair Methodology

(a) If a tank repair is approved based on satisfactory demonstration of the issues raised in Section 2661, then the repair must be accomplished according to the applicable subsections of this section.

(b) If interior coating is the method of repair, the material used in the repair shall be applied in accordance with nationally recognized engineering practices. An example of such a practice is the American Petroleum Institute's recommended practice No. 1631.

(c) The repair material and any adhesives used shall be compatible with the existing tank materials and shall not be subject to deterioration due to contact with the hazardous substance being stored.

Authority H&SC 25288.2

Reference H&SC 25284.5

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Adopt new section to read.

2663. Primary Container Monitoring

(a) After any repair, the primary container shall be demonstrated to be capable of containing the stored hazardous substance by satisfactorily passing the standard installation tests specified in Seciton 2-7.3 of the Flammable and Combustible Liquids Code adopted by the National Fire Protection Association on November 20, 1981 (NFPA 30-1981).

(b) All pipelines shall be pressure tested following repair to assure the adequacy of the repair. The testing shall be accomplished using procedures described in the applicable sections of ANSI B31, American National Standard Code of Pressure Piping or National Fire Protection Association Flammable and Combustible Liquids Code (NFPA 30).

Authority: H&SC 25288.2

Reference: H&SC 25284.5

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Article 7. Closure Requirements

Adopt new section to read:

2670. Applicability

(a) This article defines temporary and permanent closure and describes the nature of activities which must 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 materials has ceased but where the tank owner or operator proposes to retain the ability to use the tank within two years for the storage of hazardous materials. Section 2671 does not apply to tanks that are empty as a result of the withdrawal of all stored material during normal operating practice prior to the planned input of additional hazardous material consistent with permit conditions.

(c) The permanent closure requirements of Section 2672 shall apply to those underground storage tanks in which the storage of hazardous materials has ceased and where the owner or operator has no intent within the next two years to use the underground storage tank for the storage of hazardous materials.

(d) The requirements of this article do not apply to those underground storage tanks in which hazardous materials are continued to be stored even though there is no use being made of the stored material. In these cases, the applicable containment and monitoring requirements of Articles 3 or 4 of this subchapter shall continue to apply.

(e) During the period of time between cessation of waste storage and actual completion of underground storage tank closure pursuant to Sections 2671 or 2672 the applicable containment and monitoring requirements of Articles 3 or 4 of this subchapter shall continue to apply.

(f) At least 45 days prior to cessation of storage of hazardous materials, unless such cessation occurs as a result of an unauthorized release or in order to prevent an unauthorized release or minimize its effect, the underground storage tank owner shall submit to the local agency a proposal describing how the owner intends to comply with Section 2671 or 2672 of this article as appropriate.

(g) Underground storage tanks that have experienced an unauthorized release do not qualify for temporary closure pursuant to Section 2671 of this article until the tank owner demonstrates to the local agency's satisfaction that appropriate authorized repairs have been made that would allow the underground storage tank to be capable of storing hazardous materials pursuant to the permit issued by the local agency.

(h) Underground storage tanks that have experienced an unauthorized release and that cannot be repaired by authorized methods must be permanently closed pursuant to requirements of Section 2672 of this subchapter.

Authority: H&SC 25288.2

Reference: H&SC 25286

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Adopt new section to read

2671. Temporary Closure

(a) This section applies to those underground storage tanks in which storage has ceased but where the owner or operator proposes to retain the ability to use the underground storage tank within two years for the storage of hazardous substances.

(b) The owner or operator shall comply with all of the following:

(1) All residual liquid, solids or sludges shall be removed and handled as follows:

(A) product - legally stored for future use or handled as a hazardous waste.

(B) hazardous waste - legally recycled or disposed of as a hazardous waste.

(2) If the underground storage tank contained a hazardous substance that could produce flammable vapors at standard temperature and pressure, then the underground storage tank, either in part or as a whole, shall be completely purged of the flammable vapors

(3) The underground storage tank may be filled with a noncorrosive liquid that is not a hazardous substance.

(4) All fill and access locations and piping shall be sealed utilizing locked caps or concrete pluga.

(5) Power service shall be disconnected from all pumps associated with the use of the underground storage tank except if the pump services some other equipment which is not being closed.

(c) All monitoring required pursuant to Article 4, except visual monitoring, shall be continued. The frequency of this monitoring may be reduced.

(d) The underground storage tank shall be inspected at least once every three months to assure that the temporary closure actions are still in place. This shall include:

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

(2) If locked caps are utilized, then 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 (b)(3) of this section.

Authority H&SC 25288.2

Reference: H&SC 25286

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Adopt new section to read:

2672. Permanent Closure Requirements

(a) Underground storage tanks subject to permanent closure shall comply with either subsection (b) for tank system removal or subsection (c) for closure-in-place. It is not essential that all portions of a tank system be permanently closed in the same manner; however, all actions shall comply with the appropriate subsection. Subsection (d) regarding no discharge demonstration applies to all underground storage tanks subject to permanent closure.

(b) Removal of underground storage tanks shall comply with subsections (1) and (2) and either subsections (3), (4), or (5) as appropriate:

(1) All residual liquid, solids or sludges shall be removed and handled as follows:

(A) product - legally stored for future use or handled as a hazardous waste

(B) hazardous waste - legally recycled or disposed of as a hazardous waste.

(2) If the underground storage tank contained a hazardous material that could produce flammable vapors at standard temperature and pressure, then the underground storage tank, either in part or as a whole, shall be completely purged of the flammable vapors.

(3) An underground storage tank or any part of an underground storage tank that is destined for disposal shall be handled, transported and disposed of as a hazardous waste. The tank system or any part of the tank system may be handled, transported or disposed as a nonhazardous waste after it has been properly cleaned. In either case, the owner must document to the local agency that proper disposal has been completed.

(4) An owner of an underground storage tank or any part of an underground storage tank that is destined for a specific reuse shall comply with all of the following:

(A) Reuse shall not be inconsistent with other laws or regulations which may exist as they may relate to the nature of the hazardous material in the underground storage tank or the nature of the proposed reuse, and

(B) The owner of an existing underground storage tank shall identify to the local agency the future underground storage tank owner, operator, location of use and nature of use.

(5) An owner of an underground storage tank or any part of an underground storage tank that is destined for reuse as scrap material shall comply with all of the following before the underground storage tank or any part of the underground storage tank is removed from the facility unless such removal is

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done according to the provisions of subsection (b)(4) of this section:

(A) The tank system shall be thoroughly cleaned,

(B) The tank system shall be cut or punctured in sufficient locations to render it obviously unfit for use;

(C) Apply appropriate warnings to the tank.

(c). Closure of underground storage tanks in place shall comply with all of the following:

(1) All residual liquid, solids, or sludges shall be removed and handled as follows.

(A) product - legally stored for future use or handled as a hazardous waste.

(B) hazardous waste - legally recycled or disposed of as a hazardous waste.

(2) All piping associated with the tank shall be removed, handled and disposed of as a hazardous waste.

(3) The tank shall be completely filled with an inert solid such as sand or concrete.

(4) A notice shall be placed in the deed to the property. The notice shall describe the exact vertical and areal location of the closed tank, the hazardous substances it contained and the closure method.

(d) The owner 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 can be based on the ongoing leak detection monitoring, verification ground water monitoring or soils sampling performed during or immediately after closure activities.

If feasible, soil samples shall be taken and analyzed according to the following:

(1) If the underground storage tank or any portion thereof is removed then soil samples from the soils immediately beneath the removed portions shall be taken. A separate sample shall be taken for every 200 square feet or every 20 lineal feet for piping.

(2) If the underground storage tank or any portion thereof is not removed, then soils sampling pursuant to Section 2644 of Article 4 shall be implemented, if feasible

(3) Soils shall be analyzed for all constituents contained in the previously stored hazardous substances and their breakdown or transformation products

(e) The detection of any unauthorized release shall require compliance with the reporting requirements of Article 5.

Authority: H&SC 25288 2

Reference: H&SC 25286

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Article 8. Categorical and Site-Specific Variance Procedures

Adopt new section to read

2680. Applicability

(a) This article sets up procedures for categorical and site-specific variances from Articles 3 and 4 of this subchapter. A site-specific variance, if approved, would only apply to the specific site approved for a variance. A categorical variance, if approved, would apply to the region, area or circumstances approved for a variance. A categorical variance application shall include more than one site or shall be non-site specific.

(b) Section 2681 specifies the procedures that must be followed by the applicant and the State Board for categorical variance requests.

(c) Section 2682 specifies the procedures that must be followed by the applicant, local agency and the Regional Board for site-specific variance requests.

Authority: H&SC 25288.2

Reference: H&SC 25288.3

Adopt new section to read

2681. Categorical Variances

(a) A categorical variance is an alternative method of construction or monitoring which is applicable to more than one site. Application for a categorical variance shall be made by the permittee to the State Board.

(b) Application for a categorical variance shall be made on a state application form provided by the State Board and shall include but not be limited to:

(1) Provision from which the variance is requested.

(2) Description of the proposed alternative program, method, device or process.

(3) Description of the region, area or circumstances under which the variance would apply.

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

(5) A list including names and addresses of all local agencies and persons who may be affected by or may be interested in the variance request.

(6) A fee of $26,000.

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(c) The State Board shall review all applications submitted and shall notify the applicant in writing within 30 days of receipt of the application as to whether or not the application is complete.

(d) The State Board shall complete any documents necessary to satisfy the California Environmental Quality Act (Division 13, commencing with Section 21000, of the Public Resources Code).

(e) The State Board shall remand the application to the appropriate Regional Board if it determines that the application falls within Section 2682.

(f) The State Board shall hold at least two public hearings in different areas of the state within 180 days of receipt of a complete variance application to consider the request for a categorical variance. Notice of the hearings shall be provided at least 10 days in advance to any person who requests such notice in writing. Notice shall also be provided to all affected local agencies and to any person known to be interested in the proceedings. The notice shall specify the date, time and location of the hearing, and shall include a description of the proposed categorical variance. When the notice is mailed, it shall be placed in the mail at least 11 days in advance of the hearing.

(g) All hearings shall be conducted according to the regulations governing adjudicatory proceedings which are contained in Subchapter 1.5 of this Chapter. The State Board in its discretion may require that, not later than 10 days prior to the hearing, all interested parties intending to

participate shall submit to the State Board in writing the name of each witness who will appear, together with a statement of the qualifications of each expert witness, the subject of the proposed testimony and the estimated time required by the witness to present his direct testimony. The State Board may also require that copies of proposed exhibits be supplied to adverse parties and seven copies be supplied to the Board not later than 10 days prior to the hearing.

(h) An applicant for a categorical variance must demonstrate by clear and convincing evidence that the proposed alternative will adequately protect the soil and the beneficial uses of water of the state from an unauthorized release.

(i) The decision of the State Board will be based on that evidence and testimony in the record of the hearings. The record may be supplemented by any other evidence and testimony accepted by the State Board pursuant to the procedure outlined in Section 2066 of Subchapter 6 of this Chapter. Upon the close of a hearing, the presiding officer may keep the hearing record open for a definite time, not to exceed thirty days, to allow any interested person to file additional exhibits, reports or affidavits.

(j) The State Board may discuss a proposed decision in response to a request for a categorical variance at a workshop meeting. The regulations governing workshop meetings and formal disposition of State Board matters for decision which are contained in Subchapter 6 of this Chapter shall apply.

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(k) If the State Board grants the variance, it will prescribe the conditions the applicant must maintain and will describe the specific alternative for which the variance is being granted.

(l) All permit applicants who intend to utilize an approved categorical variance shall attach a copy of the approved variance to the permit application submitted to the local agency. The local agency shall review the application and categorical variance to determine if the variance applies to the specific site. If the variance applies, the local agency shall issue a permit to the applicant which includes the conditions prescribed by the State Board.

(m) The State Board shall modify or revoke a categorical variance upon a finding that the proposed alternative does not adequately protect the soil and the beneficial uses of the water of the state from an unauthorized release. The State Board will not modify or revoke a categorical variance until it has followed procedures comparable to those outlined herein for approval of a categorical variance. The State Board shall notify all affected local agencies of the modification or revocation and shall require the local agencies to modify or revoke all site permits which were based on the categorical variance.

Authority: H&SC 25288.2

Reference: H&SC 25288.3

Adopt new section to read:

2682. Site-Specific Variances

(a) A site-specific variance is an alternative method of construction or monitoring which would be applicable at one facility location. Application for a site-specific variance shall be made by the permittee to the appropriate Regional Board.

(b) At least 60 days prior to applying to the Regional Board, the permittee 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 days of its receipt of the permittee's complete construction and monitoring, the permittee may proceed with a variance application.

(c) At least 30 days prior to applying to the Regional Board, the permittee must request the local agency and the city, county or city and county having land use jurisdiction over the permittee's site to join the applicant in the variance request. The local agency shall also be requested to prepare any documents required by California Environmental Quality Act (Division 13, commencing with Section 21000, of the Public Resources Code).

(d) The local agency shall have 30 days after completion of the documents or the receipt of the Regional Board's staff recommendation and analysis, whichever is later, to decide whether to join the applicant in the variance request.

(e) Application for a site-specific variance shall be made on a state application form provided by the appropriate Regional Board and shall include but not be limited to.

(1) Provision from which the variance is requested.

(2) 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) Clear and convincing evidence demonstrating that:

(A) Due to special circumstances not generally applicable to other property or facilities, including size, shape, design, topography, location or surroundings the strict application of Articles 3 or 4 of this subchapter would be unnecessary to adequately protect the soil and beneficial uses of the waters of the state from an unauthorized release, or

(B) The strict application of Articles 3 or 4 of this subchapter would create practical difficulties not generally applicable to other facilities or property.

(4) That the proposed alternative will adequately protect the soil and the beneficial uses of water of the state from an unauthorized release.

(5) Any documents necessary to satisfy the California Environmental Quality Act (Division 13, commencing with Section 21000, of the

Public Resources Code).

(6) A fee of $7,750.

(f) The Regional Board shall review all applications submitted and shall notify the applicant in writing within 30 days of receipt of the application as to whether or not the application is complete

(g) The Regional Board shall hold a hearing on the proposed alternative within 120 days after receiving a complete variance application, however, the hearing shall be held after the 30-day period described in subsection (h) of this section has expired. Notice of the hearings shall be provided at least 10 days in advance to any person who requests such notice in writing. Notice shall also be provided to all affected local agencies and to any person known to be interested in the proceedings. The notice shall specify the date, time and location of the hearing, and shall include a description of the proposed categorical variance. When the notice is mailed, it shall be placed in the mail at least 11 days in advance of the hearing.

(h) All hearings shall be conducted according to the regulations governing adjudicatory proceedings which are contained in Subchapter 1.5 of this Chapter The Regional Board in its discretion may require that, not later than 10 days prior to the hearing, all interested parties intending to participate shall submit to the Board in writing the name of each witness who will appear, together with a statement of the qualifications of each expert witness, the subject of the proposed

testimony and the estimated time required by the witness to present his direct testimony. The Regional Board may also require that copies of proposed exhibits be supplied to adverse parties and seven copies be supplied to the Regional Board not later than 10 days prior to the hearing.

(i) Any variance so issued will prescribe the conditions the applicant must maintain and will describe the specific alternative system for which the variance is being granted. The Regional Board shall notify the applicant and the local agency of its decision.

(j) The Regional Board shall consider the local agency's and the city, county, or city and county's recommendations in rendering its decision. The Regional Board shall consider the completeness and accuracy of the information provided by the applicant in subsection (e) of this section in rendering its decision.

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

(l) The Regional 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 water of the state from an unauthorized release. The Regional Board will not modify or revoke the variance

until it has followed procedures comparable to those outlined herein for approval of a variance. The Regional Board shall notify the local agency of the modification or revocation and shall require the local agency to modify or revoke the permit for the site.

Authority: H&SC 25288.2

Reference H&SC 25288.3

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Article 9. Local Agency Additional Standards Request Procedures

Adopt new section to read:

2690. Applicability

(a) This article sets up procedures for local agencies to request State Board authorization for more stringent standards than those set [illegible] Articles 3 and 4 of the Subchapter.

Authority H&SC 25288.2

Reference H&SC 25288.3

Adopt new section to read.

2691. Additional Standards Request Procedures

(a) Local agency application for additional standards shall include:

(1) Description of the proposed design and construction standards.

(2) Clear and convincing evidence that the additional standards are necessary and would adequately 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) A fee of $11,500.

(b) The board will conduct an investigation and public hearing on the proposed standards and their need to protect the soil and beneficial uses of the water before determining whether to authorize the local agency to implement additional standards. The notice and other procedural requirements contained in Sections (d) through (j) of Article 8 of this Subchapter shall apply.

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(c) The board shall make its determination whether to authorize a local agency to implement additional standards within six months of the receipt of a complete application.

(d) Should the board authorize the local agency to implement additional standards, the standards shall be effective as of the date the board made the determination.

(e) Should the board not authorize the local agency to implement additional standards, the additional standards will not go into effect.

(f) The 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 board will not modify or revoke the authorization until it has followed procedures comparable to those outlined herein for issuance of the authorization.

Authority H&SC 25288.2

Reference H&SC 25288.3

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Article 10. Permit Application, Annual Report and Trade Secret Requirements

Adopt new section to read:

2710. Applicability

(a) This article describes specific administrative actions that must be accomplished by all tank owners, local agencies and the State Board relative to issuing permits for underground storage tanks.

(b) Section 2711 lists the information that must be submitted by the tank owner to the local agency as part of the permit application and the requirements for the local agency to submit the permit application to the State Board.

(c) Section 2712 describes the conditions that local agencies must include in all permits issued and conditions local agencies must meet prior to permit issuance.

(d) Section 2713 describes the annual report requirements for both tank owners and local agencies.

(e) Section 2714 specifies conditions that must be met by a tank owner when requesting trade secret provisions for any information submitted to the local agency or State Board or Regional Board. It also specifies how the local agency, the State Board or Regional Board shall consider the request and how they shall maintain the information if the trade secret request is accepted.

Authority H&SC 25288.2

Reference: H&SC 25283, 25283.1, 25283.2, 25283.4, 25283.5, 25283.6, 25284.2

Adopt new section to read:

2711. Permit Application and Information

(a) An application for a permit to operate an underground storage tank, or for renewal of the permit or for transfer of a permit shall be made by the owner on a form prepared by the State Board and provided by the local agency. The local agency shall provide the Board with a copy of the completed approved application within 30 days.

(b) The permit application shall include, but not be limited to, the following information if it is accurately known to the permit applicant:

(1) The name and address of the person, firm, corporation or public agency which owns the underground storage tank or tanks,

(2) The name, location, mailing address, phone number and type of facility where the underground storage tank is located and type of business.

(3) The name, address and telephone numbers of the underground storage tank operator and 24-hour emergency contact person.

(4) The name and telephone nukmber of the person making the application.

(5) The underground storage tank description including, but not limited to, tank and auxiliary equipment manufacturer, year of manufacture, capacity, history of repairs and operation methods schedule.

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(6) The underground storage tank (tank, piping and auxiliary equipment) construction details, including, but not limited to, type and thickness of primary containment, type and thickness of secondary containment (if applicable), installation procedures and backfill, lining, wrapping, and cathodic protection methods (if applicable).

(7) A diagram or design or as-built drawing which indicates the location of the underground storage tank (tank, piping, auxiliary equipment) with respect to buildings or other landmarks.

(8) The description of the proposed monitoring program, including, but not limited to the following where applicable:

(A) visual;

(B) tank testing or inspection procedures;

(C) inventory controls including gaging and reconciliation methods;

(D) soils sampling locations and methods and analysis procedures;

(E) vadose zone sampling locations and methods and analysis procedures,

(F) ground water well(s) locations, construction and completion methods, sampling and analysis procedures,

(G) frequency and sensitivity of any monitoring method sensing instrument, or analytical method.

(9) A list of all the substances which previously, currently or are proposed to be stored in the underground storage tank or tanks.

(10) 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 tank.

(11) The permit application must be signed by (A) a principal executive officer at the level of vice-president or by an authorized representative. The representative must be responsible for the overall operation of the facility where the tank(s) are located, (B) a general partner proprietor, or (C) a principal executive officer, ranking elected official or authorized representative of a public agency.

(c) The application shall be accompanied by a fee. The local agency may require a fee to cover necessary and reasonable costs of permitting and inspection of the underground storage tank. This fee shall include a surcharge determined annually by the legislature to cover the costs of State Board in carrying out its responsibilities under these regulations.

Authority H&SC 25288 2

Reference H&SC 25283.2

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Adopt new section to read:

2712. Permit Conditions

(a) As a condition of any permit to operate an underground storage tank, the permittee shall report to the local agency which has permitting authority at least 30 days prior to the change any changes in the usage of any underground storage tanks, including

(1) the storage of new hazardous substances, or

(2) changes in monitoring procedure, or

(3) the replacement or repair of all or part of any underground storage tank.

(b) As a condition of any permit to operate an underground storage tank, the permittee shall report to the local agency any unauthorized release occurrences (as defined in Article 2 within the time frame specified in subsections 2652(b) and (c)).

(c) Written records of all monitoring performed shall be maintained by the operator for a period of at least three (3) years from the date the monitoring was performed. This 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;

(5) The logs of all readings of gages or other monitoring equipment, ground water elevations, or other test results, and

(6) The results of inventory readings and reconciliations.

(d) A permit to operate issued by the local agency shall be effective for five years. A local agency shall not issue a permit to operate an underground storage tank until the local agency inspects the tank and determines the tank complies with the provisions of these regulations. The tank owner shall apply for renewal at least 180 days prior to the expiration of the permit.

(e) Permits may be transferred to new tank owners if the new tank owner does not change any conditions of the permit and the transfer is registered with the local agency within 30 days of the change in ownership by submittal of a revised permit application listing the new owner and any modifications to the information in the initial permit application due to the change in ownership. A local agency may review, modify or terminate the transfer of the permit to operate the underground storage tank upon receiving the transfer request.

(f) If an underground storage tank does not completely conform with Articles 3 or 4 of this subdivision, a local agency, at its discretion, may issue a provisional permit subject to conditions specified by the local agency and providing such a permit would not be detrimental to the public's interest. The conditions shall, at a minimum, include a time schedule for upgrading the underground storage tank such that it conforms with Articles 3 or 4 of this subdivision or is closed pursuant to Article 7 of

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this subdivision. These time schedules shall not extend beyond the duration of the provisional permit. A provisional permit will be issued for no longer than three months and cannot be renewed or extended. The local agency shall inspect the underground storage tank pursuant to the provisions of subsection (g) of this section within 15 days of the expiration of the provisional permit to assure that the permit conditions have been met.

(g) The local agency shall not renew an underground storage tank permit unless the underground storage tank has been inspected within the prior three years and the inspection revealed that the underground storage tank complies with Articles 3 or 4, as applicable of this subchapter and with all existing permit conditions. The inspection shall be conducted as specified in subsection (n) of this section. If the inspection revealed noncompliance, then the local agency must verify by a follow-up inspection pursuant to subsection (h) of this section that all required corrections have been implemented.

(h) The local agency shall inspect every underground storage tank within its jurisdiction at least once every three years. The inspection which shall evaluate the items listed in subdivision (i) of this section may be performed by the local agency or by a special inspector employed by the permit holder as required by the local agency, or both. If a special inspector conducts any or all of the inspection, a copy of the special inspector's report which may contain recommendations concerning the safe

storage of hazardous materials shall be filed with the local agency at the same time as it is submitted to the permit holder. Any deficiencies or items of noncompliance found shall be addressed as described in subsection (j) of this section.

(h) The purpose of the inspection described in subsection (h) of this section is to:

(1) Determine whether the underground storage tank complies with the applicable standards of Article 3 or Article 4 of this subchapter;

(2) Determine whether the operator has monitored and tested the underground storage tank as required by the permit, and

(3) Determine whether the underground storage tank is in a safe operating condition.

(j) Within 30 days of receiving an inspection report from either the local agency or the special inspector, the permit holder shall file with the local agency a plan and time schedule to implement any required modifications to the underground storage tank or to the monitoring plan needed to achieve compliance with either Article 3 or Article 4 of this subchapter, as appropriate, or the permit conditions. This plan and time schedule shall also implement all the recommendations of the special inspector. The local agency may exempt the implementation of any of the special inspector's recommendations based on a demonstration by the

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permit holder to the local agency's satisfaction that the failure to implement the recommendation will not cause an unauthorized release.

Authority: H&SC 25288.2

Reference: H&SC 25283, 25283.1, 25283.4, 25283.5, 25284.2

Adopt new section to read:

2713. Annual Report

(a) The local agency shall notify the State Board of any changes in permits as defined in subsections (a) or (d), Section 2712 of this Article or any unauthorized releases as defined in Article 2 annually on State Board annual report forms or other methods determined by the State Board. This information shall be submitted to the State Board by March 1 of each year covering the prior calendar year.

Authority: H&SC 25288.2

Reference: H&SC 25283.2

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Adopt new section to read:

2714. Trade Secret Provisions

(a) Any person providing information in an application for a permit to operate an underground storage tank, or for renewal of the permit or application for a categorical or site-specific variance, shall, at the time of its submission, identify all information which the person believes is a trade secret and submit a legal justification for the request for confidentiality. The information which must be submitted includes:

(1) Which portions of the information submitted is actually a trade secret;

(2) How long this information should be treated as confidential;

(3) Measures that have been taken to protect this information as confidential;

(4) A discussion of why this information is a trade secret including references to statutory and case law as appropriate.

(b) If the local agency or the State Board or the Regional Board determines that a request for confidentiality is clearly valid, the material will be given trade secret protection as discussed in subsection (f) of this section.

(c) If the local agency or State Board or the Regional Board determines that the request for confidentiality is clearly frivolous, it will send a letter to the applicant stating that the information will

not be treated as a trade secret unless the local agency or the State Board or the Regional Board is instructed otherwise by a court within 10 days of the date of the letter.

(d) If the validity of the trade secret is unclear, the local agency or the State Board or the Regional Board will inform the person claiming trade secrecy that the burden is on him to justify the claim. The applicant will be given a fixed period of time to submit such additional information as the local agency or the State Board or the Regional Board may request. The local agency or the State Board shall then evaluate the request on this basis of the definition of "trade secrets" contained in Health and Safety Code Section 25283.6(a) and issue its decision. If the local agency or the State Board or the Regional Board determines that the information is not a trade secret, it will send a letter to the applicant stating that the local agency or the State Board or Regional Board will treat the information as such unless the local agency or the State Board or the Regional Board is instructed otherwise by a court within 10 days of the date of the letter.

(e) All information received for which trade secrecy status is requested shall be treated as confidential until a final determination is made as discussed in subsection (f) of this section.

(f) Information which has been found to be confidential, or regarding which a final determination has not been made, shall be immediately filed in a separate "confidential" file. If a document or portion

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of a document is filed in a confidential file, a notation should be filed with the remainder of the document indicating that further information is in the confidential file.

g) Information contained in confidential files shall only be disclosed to authorized representatives or other governmental agencies only in connection with the State Board's, the Regional Board's or local agency's responsibilities pursuant to Chapter 6.7 of the Health and Safety Code.

(h) Nothing contained herein shall limit an applicant's right to obtain prevention of disclosure of information pursuant to other provisions of law.

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Authority: H&SC 25298.2

Reference: H&SC 25183.6

5. Initial Statement of Reasons dated 10/23/1984

Statement of Reasons

Preamble

Statement of Necessity

Historically both government and industry believed that the storage of hazardous substances in tanks was a technologically safe activity which would not threaten the environment. Recently, this theory has been shattered with the on-going reports of numerous instances of leaking tanks causing ground and surface water contamination. This is especially true for underground tanks since they are "out-of-sight, out-of-mind" and are not susceptible to easy visual observation of leakage. Typically, it has been the discovery of a contaminated water supply that has triggered a search for the source of the contamination that eventually lead to a leaking underground tank.

Considering the wide-spread use of underground tanks and the reliance on ground water in California we now find that it is necessary to regulate these underground tanks in order to protect ground waters from contamination. This is especially important since ground water, as differentiated from surface waters, is very difficult if not impossible to clean-up once contaminated. These regulations require the use of such facilities, based on currently available technology, to preclude leakage from new tanks and to provide early detection of leakage from existing

tanks.

Statutory Authority to Regulate Underground Tanks

Chapter 6.7 of Division 20 of the Health and Safety Code was recently enacted to require specific construction and monitoring methods for both new and existing underground tanks that store hazardous substances. Section 25288.2 of the above chapter requires the State Water Resources Control Board to adopt regulations implementing specific sections of the statute and allows the Board to adopt regulations for other sections.

The statute provides that the permits for underground tanks will be issued by either counties or cities pursuant to these regulations. These permits will incorporate construction standards for new tanks and monitoring, leak reporting and closure standards for both existing and new tanks.

Development of New Regulations

These regulations are mandated by Section 25288.2, of Division 20 of the Health and Safety Code. This statute was recently enacted and there are no existing regulations addressing this matter. These regulations have been developed with the intent of meeting the following objectives:

1. Achieve the mandate of Section 25288.2, Chapter 6.7 of

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Division 20 of the Health and Safety Code.

2. Provide concise standards, both performance and specific, for owners of new and existing underground tanks to follow.

3. Provide concise direction to counties and cities in their implementation of permits for all underground tanks.

4. Ensure that these regulations are presented in a clear and logical way and conform to the statutory requirements in the California Administrative Procedures Act (commencing with Section 11340 of the California Government Code).

Water Quality Protection Strategy

The fundamental purpose of the regulations in this subchapter is the prevention of pollution and unacceptable water quality degredation as a result of leakage from underground tanks. As was discussed previously, ground water resources are vulnerable to contamination from leaking underground tanks which can almost never be totally cleaned-up. This objective is addressed in these regulations according to the following complementary strategies:

1. A form of secondary containment is mandated in the statute for all new tanks. This containment coupled with a means of detecting any leakage within the secondary system and the

remedial action plan are the basis for ground water protection. New tanks containing motor vehicle fuels are not mandated to have the same volumetric requirements within the secondary system as all other new tanks; therefore, the ground water protection strategy relies heavily on detection and response which must be an integral part of any new facility proposal.

2. The strategy relys on installing monitoring systems for existing tanks to provide ground water protection. Monitoring installed "after the fact" is somewhat unreliable; therefore, multiple monitoring systems are necessary to provide more assurance that a leak will be detected. Even with multiple systems there is some risk that a leak will go undetected; therefore, ground water monitoring is being required as a final protection for the water user. With the use of ground water monitoring, contamination will be detected and the user notified of the need to find another source before the user consumes contaminated water. Ground water monitoring does not provide protection for the resource but provides a stop-gap public health protection for the consumer.

3. Leakage from underground tanks will continue to occur even with the implementation of the above strategies. In order to minimize the impact on the ground water resource, the regulations require the reporting of leaks to those agencies

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charged with the responsibility to assure that proper and adequate remedial actions are implemented in a timely manner.

4. The closure of an underground tank used to store hazardous substances must be accomplished in such a manner that it does not pose a continued threat to the environment. The regulations require the implementation of one of several alternative closure methods.

Small Business Impact Statement

The State Board finds that the adoption of this regulation may have a significant adverse economic impact on small business. The staff of the State Board believes the implementation of these regulations will require short term capitol expenditures (either to replace an underground tank or to install the required monitoring) and some on-going costs for monitoring. However, we believe these costs are less than the liability a tank owner may incur to investigate and clean-up contamination resulting from a leak and the possible lawsuits if health implications are associated with the leakage. Given the high percentage of tanks that, once investigated, prove to be leaking, the staff of the State Board believes that the statewide implementation of these regulations will reduce costs to society.

Another impact to small business as a result of the implementation of these regulations will be the investigation and

remedial action associated with the discovery of past leakage. Given the high percentage of leaking tanks already found it is probable than many small business will discover that their tanks are leaking as a result of the implementation of the monitoring required by these regulations. The staff of the State Board has considered proposed alternatives including:

1. The establishment of different compliance or reporting requirements or timetables which take into account the resources available to small business,

2. Consolidation or simplification of compliance and reporting requirements for small business,

3. The use of performance standards rather than design standards, and/or

4. Exemption or partial exemption from regulatory requirements for small business.

Many new requirements will affect small business, including requirements for increased monitoring, compliance with prescriptive standards (or demonstration of the equivalence of alternatives) providing assurances of financial responsibility, and post-closure maintenance requirements. The State Board has determined that compliance with these provisions is necessary to assure protection for water quality, for reasons set forth in the

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statement of reasons and in response to the comments of interested persons.

The local agencies implementing this permit program have some discretion as to the appropriate compliance methods and the timing for implementation of these methods. Once a leaking tank is identified the Regional Board and other responsible agencies have significant discretions as to the timing and nature of the investigation and remedial measures. This discretion can take into account the limited resources available to small business and the actual or potential impact to water quality or public health that the leak poses. In addition, investigation and remedial action costs could be born by either Federal or State superfund actions.

Local Agency Mandate Statement

The State Board has determined that the state law which mandates these regulations imposes new requirements on local agencies and school districts with regard to their underground storage tanks. Local agencies will have increased costs associated with their implementation of an underground tank permit program. However, these costs are completely recoverable through fees, pursuant to Section 25283.1 of Chapter 6.7, Division 20 of the Health and Safety Code.

Local agencies and school districts will have increased costs

associated with implementation of these regulations for underground tanks that they own or operate. Such cost are not reimbursable within the meaning of Section 2231 of the Revenue and Taxation Code. This position is based on Section 4 of Assembly Bill 1362 filed with the Secretary of State on September 23, 1983.

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Article 1. General

Subchapter 16 applies to underground storage tanks that store hazardous substances. The regulations in this subchapter govern those aspects of the construction and operation of such tanksthat directly or indirectly have the potential to affect water quality. This article covers the applicability of these regulations to new and existing underground storage tanks and identifies categorical exemptions.

Section 2610. Applicability

Specific Purpose

The specific purpose of Subsection (a) is to state the general intent of the regulations and to outline the major activities covered.

The specific purpose of Subsection (b) is to identify who is governed by this subchapter anhd to specify that if the owner of a tank is not also the operator of the tank, the owner must enter into a written contract with the operator providing that the operator will comply with the conditions of the permit.

The specific purpose of Subsection (c) is to make clear that counties, and cities under certain conditions, are responsible for the implementation and administration of those regulations

and that these local agencies must issue permits for the operation of underground tanks located within their jurisdiction and that are covered by this subchapter.

The specific purpose of subsection (d) is to specify which articles of this subchapter apply to new tanks and which articles apply to existing tanks.

Section 2611. Exemptions

Specific Purpose

The specific purpose of Subsection (a)(1) is to exempt from these regulations the owners of underground storage tanks that are already being regulated by county or city ordinaces which were adapted and implemented under the provisions of Health and Safety Code Section 25288.

The specific purpose of Subsection (a)(2) is to exempt from these regulations the owners of underground storage tanks that meet the conditions specified in Health and Safety Code Section 25280 (m)(1).

The specific purpose of Subsection (a)(3) is to exempt from these regulations the owners of underground storage tanks that meet the conditions specified in Health and Safety Code Section 25280 (m)(2).

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The specific purpose of Subsection (a)(4) is to exempt from these regulations owners of underground storage tanks that meet the conditions specified in Health and Safety Code Section 25290(m)(3).

The specific purpose of Subsection (a)(5) is to exempt from these regulations owners of underground storage tanks that meet the conditions specified in Health and Safety Code Section 25280 (k).

The specific purpose of Subsection (b) is to exempt from these regulations owners of structures specified in Health and Safety Code Section 25280 (m)(4).

Factual Basis

Chapter 6.7 of the Health and Safety Code provides that no person shall own or operate certain underground storage tanks used for the storage of hazardous substances unless a permit for its operation has been issued to the owner by the local agency. Chapter 6.7 describes the scope of applicability identifying which types of underground storage tanks are to be regulated and specifying the agencies responsible for implementing regulations. Exemptions are included for certain types of underground storage tanks. These regulations are being proposed to make clear the intent of the legislature as to the objective of the underground tank program, who shall be regulated, who is responsible for

implementing and administering the program, and who is exempt from these regulations.

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Article 2. Definitions of Technical Terms

Section 2620. Definitions

Specific Purpose

Establishing a regulatory program to administer underground tank construction and monitoring standards volves consideration of many technical factors. These factors include engineering, geology and hydrology. The program must be both understandable and sufficiently technical in nature so as to be workable. The use of definitions to explain technical terms allows both these goals to be met. In addition, definitions to technical terms are needed to meet the clarity requirements of the Administrative Procedure Act.

Factual Basis

Without the definitions, the regulations would be much harder for many people to understand. Thus, the regulations are reasonably necessary to assure clarity and to avoid ambiguities.

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Article 3. New Tank Construction and Monitoring Standards

Introduction

The construction standards for new underground storage tanks (as defined in Section 2620 of the regulations) and associated the monitoring standards are mandated in Section 25284, Chapter 6.7 of Division 20 of the Health and Safety Code and presented in Article 3. All new underground tanks must provide primary and secondary levels of containment for the hazardous substances stored in them in accordance with the performance standards specified in the regulations. Sections 2631 and 2632 of the regulations specify the construction and monitoring standards for all new underground storage tanks. As prescribed in Section 25284 of the Health and Safety Code, separate construction and monitoring standards are provided in Sections 2633 and 2634 for new underground storage tanks storing only motor vehicle fuels. However; motor vehicle fuel tanks may be constructed and monitored as specified in Sections 2631 and 2632 in lieu of Sections 2633 and 2634. The final section of this article (Section 2635) provides general construction standards for primary and secondary containers indifferent to the hazardous substance stored.

Section 2630. Applicability

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Specific Purpose

The specific purpose of Section 2630 is to set forth the applicability of Article 3 to new underground storage tanks that contain hazardous substances. Statewide, minimum standards are provided for the construction, installation, and monitoring of new underground tanks, along with available options for construction and monitoring standards for tanks that store any hazardous substance and tanks that only store motor vehicle fuels.

Factual Basis

Health and Safety Code Section 25150.1 mandates that the State Water Resources Control Board (the Board) shall develop and adopt regulations for the construction, operation, maintenance, monitoring, and testing of new underground storage tanks used for the storage of hazardous substances. The requirements for the new underground storage tanks are provided in Sections 25284 and 25284.1 of the Health and Safety Code and detailed in Sections 2631 through 2635 of the regulations. These requirements are necessary to insure that new underground storage tanks provide a level of control which will minimize the opportunity for an unauthorized release to reach and contaminate ground water through containment and early warning (monitoring) systems.

Subsection 2630 (a) provides that the standards presented in Article 3 are minimum standards for construction, installation,

and monitoring of new underground tanks. These regulations are considered as minimum standards since local agencies which implement the regulations may apply to the Board for authority to implement design and construction standards in addition to those set forth in this article (Health and Safety Code Section 25288.3 (b)).

Subsections 2630 (b) and (c) delineate those sections of the article that specify construction and monitoring standards for all new underground tanks and for those that only store motor vehicle fuels. Sections 2631 and 2632 specify the construction and monitoring standards, respectively, for all new underground storage tanks. The separate construction and monitoring standards for motor vehicle fuel tanks, as prescribed in Section 25284 of the Health and Safety Code, are provided in Sections 2633 and 2634, respectively. The final section of this article (Section 2635) provides general construction standards for primary and secondary containers indifferent to the hazardous substance stored.

Section 2631. Construction Standards for New Underground Storage Tanks

Section 2631(a)

Specific Purpose

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The specific purpose of subsection (a) is to require that all new underground tanks used for the storage of hazardous substances be provided with both primary and secondary levels of containment.

Factual Basis

Health and Safety Code Section 25284(a) requires that every new underground storage tank be designed and constructed to provide primary and secondary levels of containment of the hazardous substances stored in them. For containment of the hazardous substance, the primary container is an obvious necessity. The secondary container provides a second line of defense against the propagation of soil or ground water contamination. It enchances the effectiveness of the monitoring system by confining the unauthorized release in the secondary container until detection is possible and preventing it from adversely impacting the beneficial uses of ground water.

Section 2631(b)

Specific Purpose

The specific purpose of subsection (b) is to require that all new underground tanks be product-tight.

Factual Basis

Health and Safety Code Section 25284(a) (1) requires that every new underground storage tank be designed and constructed to have the primary container be product-tight. To effectively store the hazardous substance the underground tank (primary container) must be impervious to the substance contained within it and not be subject to physical or chemical deterioration by the substance over the useful life of the tank, that is by definition, be product-tight.

Section 2631(c)

Specific Purpose

The specific purpose of subsection (c) is to require that all new underground storage tanks be constructed of materials of sufficient thickness, density, and composition to contain the hazardous substance for a period of at least twice the maximum anticipated time sufficient to allow detection and recovery of an unauthorized release from the primary container.

Factual Basis

Health and Safety Code Section 25284 (a)(2) requires that every new underground storage tank be designed and constructed with a secondary container which will not be structually weakened as a result of contact with any released hazardous substances and also be capable of storing the hazardous substance for the maximum

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anticipated period of time necessary for the recovery of any unauthorized release.

The maximum anticipated time necessary for storage of a hazardous substance in the secondary container is a difficult quantity to estimate. A leak from the primary container requires that the secondary container store the hazardous substance for the period of time from initial contact with the seconday container, to detection with the monitoring system, and to final recovery and clean up.

A number of uncertainties are present in determining the exposure time for the secondary container (such as the actual duration of the recovery and clean up phase) and the potential response of the secondary container material to the hazardous substance under possible field conditions.

As such, a safety factor of two(2) was provided in the regulations to both maintain the intent of the Health and Safety Code requirements and provide for the uncertainties associated with determining the exposure time for the secondary container.

Section 2531(d)

Specific Purpose

The specific purpose of subsection (d) is to provide the

volumetric requirements for the seconday container when only one primary container is within the secondary container (requires at least 100 percent of the volume of the primary container) or when multiple primary containers are within a single secondary container (requires 150 percent of the volume of the largest primary container placed in it, or 10 percent of the aggregate internal volume of all primary primary containers, whichever is greater).

Factual Basis

Health and Safety Code Section 25284 (a)(3) and (a)(4) require that for new underground storage tanks with primary container, the secondary container shall be large enough to contain at least 100 percent of the volume of the primary container and in the case of multiple primary containers, the secondary container shall be large enough to contain 150 percent of the volume of the largest primary tank placed in it, or 10 percent of the aggregate volume of all primary tanks, whichever is greater. Subsection (d) is a verbatim transcription of these sections of the Health and Safety Code.

The object of subsection (d) is to provide adequate volume in the secondary container to prevent hazardous substances from a ruptured primary container reaching ground water. For multiple primary containers, a lesser volumetric requirement was used based on the assumption that not all of the primary containers

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will rupture simultaneously and require a volume equivalent to all of the primary containers.

Section 2631(e)

The specific purpose of subsection (e) is to require that the seconday container accomodate the volume of the twenty-four (24) hour-one hundred (100) year storm plus the volumetric requirements in Section 2631(d) if the facility is open to rainfall.

Factual Basis

Health and Safety Code Section 25284(a)(5) requires that if the facility is open to rainfall, the secondary container must be able to accomodate the volume of a twenty-four (24) rainfall as determined by a 100-year storm history. As written, the precipitation requirement does not define a specific storm event, but a storm duration (24-hours) and a period of record to be considered (100-years). As such, the wording of Section 25284 (a)(5) was altered to define a specific depth of precipitation, which was the original intent of the regulation, using the numerical levels provided in the original code requirements. The additional volume required is necessary for those facilities open to rainfall to assure that sufficient volume is available to satisfy the requirements of subsection (d).

Section 2631(f)

Specific Purpose

The specific purpose of subsection(f) is to require that for secondary containers which consist of pore space in the backfill placed around the seconday container, the volumetric requirements shall be 110 percent of that required in Sections 2631 (d) and (e) and the available pore space shall be determined using appropriate engineering methods.

Factual Basis

Sections 2631(d) and (e) require that the secondary container have sufficient size to accomodate the volumes specified. These requirements specifically apply to seconday containers which are not backfilled. Subsection (f) requires that secondary containers which are backfilled must also satisfy these volumetric requirements in the backfill pore space. An additional ten (10) percent of the volume was added to account for inherent inaccuracies in determining the pore space available in the backfill and nonhomogenous characteristics of the backfill material itself and that resulting from installation and compaction.

Section 2631(g)

Specific Purpose

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The specific purpose of subsection(g) is to eliminate the possibility of using laminated, coated, or clad materials to satisfy the requirements of both primary and secondary containment.

Factual Basis

Subsection (g) is a combination of the requirements specified in Health and Safety Code Sections 25280(j) and 25284(a)(6). Section 25280(j) qualifies "laminated, coated, or clad materials (as) being considered single-walled" and Section 25284 (a)(6) specifies that "single-walled containers do not fulfill the requirement of an underground storage tank providing both a primary and secondary containment."

Section 2631(h)

Specific Purpose

The specific purpose of subsection (h) is to provide that double walled tanks which satisfy the requirements of Sections 2631(b) and (c) for material construction and product-tightness satisfy the volumetric requirements for secondary containment specified in Section 2631(d).

Factual Basis

As in case of a single walled tank, double walled tanks must satisfy the requirements for material construction and product-tightness. Each double walled tank is considered a separate primary and secondary container subject to volumetric requirements of Section 2631 (d)(1). The double walled tank satisfies this requirement as the volume of the secondary (exterior) container is considered as the volume of the primary (interior) container plus the volume of the interstitial space between the containers.

Section 2632. Monitoring Standards for New Underground Storage Tanks

Section 2632(a)

Specific Purpose

The specific purpose of subsection(a) is to provide information concerning the applicability of Section 2632 to new underground storage tanks.

Factual Basis

Health and Safety Code Section 25284(b) provides that every new underground storage tank be designed and constructed with a monitoring system capable of detecting the entry of hazardous

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material stored in the primary containment into the secondary containment. As such subsection (a) specifies that Section 2632 provides the monitoring requirements for new underground storage tanks constructed pursuant to the standards of Section 2631.

Section 2632(b)

Specific Purpose

The specific purpose of subsection (b) is to require that the secondary container for the underground storage tanks, be equipped with a collection system and a means of removing any precipitation, sub-surface infiltration, or hazardous substance and liquid leakage from the primary container.

Factual Basis

Health and Safety Code Section 25284(e) requires that if water could enter into the secondary container by precipitation or infilration, the facility shall contain a means of removing the water. In addition the removal system shall also provide for a means of analyzing the removed water for hazardous substance contamination and a means of disposing of the water, if contaminated, at an authorized disposal facility. Subsection (b) satisfies the requirements mandated in the Health and Safety Code.

The collection system is necessary for removal of precipitation and infiltration to maintain the volumetric requirements for the secondary containment specified in Section 2631(d) through (f) as applicable. Without a removal system, secondary containers subject to precipitation and subsurface infiltration would become unusable. In the case of a leak from the primary container, the removal system provides a means of determining that liquid leakage is present through analysis of liquid samples from the secondary container, and, if appropriately designed, provide a means for cleaning up the secondary container for possible future use.

Section 2632(c)

Specific Purpose

The purpose of subsection (c) is to specify performance standards for the design and construction of the secondary container, specifically the collection sump and access casing. These standards include: (1) construction of the secondary container on a firm base and sloped to a collection sump, (2) development of the sump with sufficient depth to allow efficient removal of collected liquid, and (3) development of an access casing to allow efficient removal of collected liquid which is extended to the ground surface, screened in the region of the sump, and covered with a locked waterproof cap.

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Factual Basis

Subsection (c) provides the performance standards for the secondary containment system required under Health and Safety Code Section 25284(e). The secondary containment system consists of the secondary container, a collection sump to which the secondary container directs any precipitation, subsurface infiltration, or any unauthorized release from the primary container, and an access casing for removal of liquids for appropriate discharge and/or analytical determination.

Installation of the secondary container and collection sump liner is as critical to the success of the operation as the material selected. As such, the liner material should be constructed on a firm base that will provide sufficient support for the liner and prevent settling of the liner and primary container (tank) once the system is in operation. Undue settlement of the secondary container could adversely affect the integrity of the liner system by creating leak [illegible] in an unauthorized release from the primary container could occur. The primary container could also be adversely affected as settlement of the tank could produce undue strain on both the tank and connections in the associated piping promoting additional unauthorized releases.

As required in Health and Safety Code section 25284 (e), the collection sump is used for collecting liquid (hazardous or nonhazardous) and providing a temporary storage volume for subsequent transport to the ground surface for disposal and/or laboratory analysis. Effective design of the sump requires that it be designed and constructed in conjunction with a pump and/or removal system to efficiently remove the collected liquid.

The access casing is perforated in the region of the sump to provide a means for the liquid in the sump to enter the access casing. Perforating the access casing in the region of the sump (from the top to bottom) allows complete removal of the sump liquid. The term "perforated" is intended to include all methods of perforating (as applicable with backfill materials) including an access casing screen.

The access casing is extended to the ground surface (plus an additional height as necessary) to locate the system for its intended uses and with a locked cap prevents surface runoff and drainage from entering the secondary containment directly, while preventing vandalism from intentional contamination.

Section 2632(d)

Specific Purpose

The purpose of subsection(d) is to specify further performance standards for the access casing. These standards include that the casing shall be (1) of sufficient thickness to withstand all anticipated stresses with a 2 safety factor, or (2) constructed

of materials that will not be structually weakened by the stored product nor donate, capture, or mask product constituents for which analyses will be made.

Factual Basis

The access casing must be designed and constructed to fulfill its function for removing liquid in the secondary container and providing unaffected sampling for the presence of the hazardous substance stored in the primary container. For the access casing the primary applied stress results from the backfill placed in the secondary containment. The safety factor of 1.5 is equivalent to that commonly used in structural design and allows for uncertainties associated with the design calculations.

Regardless of the method used to initially determine that a hazardous substance has entered into the secondary container, the "final word" is actually taking a sample from the secondary container through the access casing. In order, to insure that the analyses are representative of the material in the secondary container, the access casing must not donate, capture, or mask product constituents for which the analyses are made. Perforations in the access casing provide the conduit for discharging liquid from the secondary containment. An access casing that is constructed of materials not compatible with the hazardous substance stored in the primary container, may have damaged or even closed perforations which would limit the access casings

usefulness during the sampling and clean up and removal programs.

Section 2632(e)

Specific Purpose

The purpose of subsection (e) is to require that the collection sump be monitored with a continuous sensor, which can be removed for calibration and maintenance at least semiannually or as needed. The continuous sensor must be capable of either:

(1) Detecting within the sump 0.5 inches of standing liquid and activating a strategically located, above-ground alarm system when any combination of a hazardous substance or water is present. Because the sensor detects only the presence of liquid, the fluid in the sump shall be immediately analysed, within a time specified by the local agency to best detection limits to determine the presence of hazardous substances. This leak detection system functions on the presence of standing liquid in the sump, and thus cannot be used when water is normally expected to be present in the secondary containment, or

(2) Detecting within the sump 0.5 inches of the hazardous substance stored in the primary container(s) and activating a strategically-located, above ground alarm system.

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Factual Basis

Section 25284(b) of the Health and Safety Code requires that every new underground storage tank be designed and constructed with a monitoring system capable of detecting the entry of the hazardous material stored in the primary container. To this end, a continous monitoring system capable of activating a strategically-located, above ground alarm system is required in the regulations. This system was chosen to minimize the human error associated with requiring periodic measurement and the time that a leaked hazardous substance may spend in the secondary container before detection.

An automatic system minimizes the human error associated with taking the measurements at the accuracy levels required in the regulations. Although an intermittent automatic measuring system would satisfy the same measuring requirements, the continous monitoring system eliminates the dependency of the system on the operator for periodic activation.

The regulations provide the option that the collection sump can be monitored using either a water level detector or a hazardous substance sensor, both of which must activate a strategically located, above-ground alarm system. The water level recorder can be used when liquid (i.e. subsurface infiltration, precpitation) are not normally expected to be present in the secondary

container indicates that the potential for an unauthorized release from the primary container is present and a sample must be taken to verify the presence of hazardous substance. A continuous monitoring system which utilizes a sensor for distinguishing between liquid and the hazardous substance stored in the primary container and activates a strategically-located, above ground alarm system may also be used for this alternative.

For the alternative where the secondary container normally has liquid present, the monitoring system which utilizes a sensor for distinguishing between liquid and the hazardous substance stored in the primary container must be used. A system which measures a water level change would not indicate that an unauthorized release had occurred. Only a sensing device which distinguishes between the liquid present and the hazardous substance would be effective.

Section 2632(f)

Specific Purpose

The specific purpose of subsection (f) is to specify that double walled tanks may be monitored continuously using a pressure sensor which must be capable of activating a strategically located above-ground alarm system. An exemption to the requirement of Sections 2632(c) through (e) is also provided to double walled tanks which utilize this leak detection system.

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Factual Basis

Double walled tanks are required to have the interstitial space between the walls monitored for leakage from either the interior wall (hazardous substance) or exterior wall (subsurface water). The regulations allow this interstitial space to be monitored continously using either an automatic sensing device that measures the presence of liquid as specified in Section 2632(e) or a pressure sensor. Either system must be capable of activating a strategically located above-ground alarm system.

The fluid sensors are located in the interstitial space and detect the presence of a liquid due to failure of the interior wall (detecting the stored hazardous substance) or the outer wall (detecting subsurface water infiltration). This system is subject to a "greenhouse" effect as moisture may condense in the interstitial space and the fluid sensor would indicate the presence of a leak. Although this maybe a shortcoming of the system, it is permissible to use this monitoring method.

The pressure sensor is used to monitor the tanks that either have a vacuum drawn in the space between the walls, or have the space pressurized. When a leak occurs, the pressure drops or vacuum is lost and the alarm system is activated.

Section 2633. Construction Standards for New Motor Vehicle Fuel

Tanks

Section 2633(a)

Specific Purpose

The purpose of subsection (a) is to specify the alternate construction standards for new underground storage tanks which only contain motor vehicle fuels.

Factual Basis

Health and Safety Code Section 25284(a)(7) provides that new underground storage tanks used for motor vehicle fuel have alternative construction standards than those required for tanks storing other hazardous substances. As such subsection (a) specifies that motor vehicle tanks may be constructed under their own regulations (Section 2633) and be subject to the monitoring requirements of Section 2634, or use the construction standards for all other underground storage tanks for hazardous substances (Section 2631) and the associated monitoring standards (Section 2632).

Section 2633(b)

Specific Purpose

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The purpose of subsection (b) is to specify that primary containers used for the underground storage of motor vehicle fuel shall consist of product-tight tanks constructed of fiberglass reinforced plastic, cathodically protected steel, or steel clad with glass fibre reinforced plastic.

Factual Basis

Health and Safety Code Section 25284(a)(7) provides that new underground storage tanks used for motor vehicle fuel shall be constructed of product-tight tanks constructed of fiberglass reinforced plastic, cathodically protected steel, or steel clad with glass fibre reinforced plastic and be subject to the monitoring specified in Section 2634. To effectively store the motor vehicle fuel, the primary container must be impervious to the substance contained within it and not be subject to physical or chemical deterioration by the hazardous substance or it will be subject to unauthorized releases during its useful life. As such, by definition, the tank must be product-tight.

Although steel is compatible with various petroleum and chemical products, the degree of environmental protection provided by bare steel tanks is short-lived. In corrosive soil environments, corrosion protection must be used to extend the useful life of the primary container. As such, the regulations specify that only primary containers not subject to corrosion (assuming appropriate installation and operation) shall be used for motor

vehicle fuel, namely fiberglass reinforced plastic, cathodically protected steel, and steel clad with glass fiber reinforced plastic.

As stated in the factual basis for Section 2633(a), these primary containers must be installed with the secondary containment and monitoring requirements of Section 2634 or Section 2632.

Section 2633(c)

Specific Purpose

The purpose of subsection (c) is to subject those primary containers used for the storage of motor vehicle fuels which do not meet the material construction requirements of Section 2633(b) to the construction standards of Section 2631.

Factual Basis

Health and Safety Code Section 25284(a)(7) specifies that underground tanks constructed of glass fiber reinforced plastic, cathodically protected steel, or steel clad with glass fiber reinforced plastic after January 1, 1984, have the separate construction and monitoring standards specified in Sections 2633 and 2634, respectively. Any other underground tanks used for the storage of motor vehicle fuels must therefore conform to the construction standards of Section 2631.

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Section 2633(d)

Specific Purpose

The purpose of subsection (d) is to require that the secondary container used for motor vehicle fuel tanks be constructed of materials of sufficient thickness, density, and composition to contain the hazardous substance for a period of at least twice the maximum anticipated time sufficient to allow detection and recovery of leakage from the primary container.

Factual Basis

Health and Safety Code Section 25284 (a)(2) requires that every new underground storage tank be designed and constructed with a second container which will not be structually weakened as a result of contact with any released hazardous substance, and also be capable of storing the hazardous substance for the maximum anticipated period of time necessary for the recovery of any unauthorized release.

The maximum anticipated time necessary for storage of a hazardous substance in the secondary container is a difficult quantity to estimate. A leak from the primary container requires that the secondary container store the hazardous substance for the period of time from initial contact with the secondary container, to

detection with the monitoring system, and to final recovery and clean up.

A number of uncertainties are present in determining the exposure time for the secondary container (such as the actual duration of the recovery and clean up phase) and the potential response of the secondary container material to the hazardous substance under possible field conditions.

As such, a safety factor of two (2) was provided in the regulations to both maintain the intent of the Health and Safety Code requirements and provide for the uncertainties associated with determining the exposure time for the secondary container.

Section 2633(e)

Specific Purpose

The purpose of subsection (e) is to provide the criteria which must be considered in proving that the leak interception and detection system (secondary container) and response plan will preclude the contact of any unauthorized release of a hazardous substance with ground water.

Factual Basis

As specified in Health and Safety Code Section 25284(a)(7) motor

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vehicle fuel tanks constructed of glass fibre reinforced plastic, cathodically protected steel, or steel clad with glass fibre reinforced plastic must be installed in conjunction with a system that will intercept and direct a leak from any part of the tank to a monitoring well (casing) to detect any release of motor vehicle fuels stored in the tank and which is designed to provide early leak detection, response, and to protect ground water from releases.

Section 2633(e)(1) through 2633(e)(4) provides the criteria which must be considered by the applicant in demonstrating that the ground water will be protected. In the analysis the worst case is considered where the tank is subject to an instantaneous rupture and an unauthorized release reaches the secondary container. The volume of the secondary container (Section 2633(e) (1)) must be considered in that as a second line of defense against ground water contamination, it must provide adequate volume to store, as necessary, any unauthorized release from the primary container before the hazardous substance is removed and/or direct the leakage to the access casing for removal. Satisfying the volumetric requirements as specified in Sections 2631(d) through (f) eliminate the necessity to consider the volume of the secondary container in this analysis.

If the secondary container does not satify the requirements of Sections 2631(d) through (f), then the unauthorized release from the primary container is assumed to overtop the secondary

container. This assumption can be invalidated provided that the response plan proves that for rupture of the primary container(s) the response plan will remove the unauthorized release of the hazardous substance from secondary container at a sufficient rate and within an adequate response time from the indication of the unauthorized release to assure that secondary container is not overtopped. Otherwise, Sections 2633(e)(2) through 2633(e)(4) must be considered in the response plan.

With the secondary container overtopped, the response plan must consider movement of the hazardous substance to the ground water (saturated zone). The remaining subsections of Section 2633(e) consider the movement of the hazardous substance through the unsaturated zone to the ground water. The applicant must demonstrate that the distance from the bottom of the secondary container to the highest anticipated level of ground water provides adequate depth for the hazardous substances to be removed before reaching the ground water. Included in this analysis is the nature of soils underneath the secondary container and their ability to absorb contaminants or allow vertical movement of contaminants.

It is not the intent of the regulations to allow an unauthorized release of a hazardous substance to the unsaturated zone remain there even if they are adsorbed on to the soil. The hazardous substances must be removed as part of clean up program approved by the local agency as part of the complete response program.

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Section 2633(f)

Specific Purpose

The purpose of subsection (f) is to provide an exemption to the secondary containment requirements for pressurized piping systems that include an automatic, continuously operating pressure loss detector and flow restriction device. To qualify for the exemption, the pressure loss detector shall be connected to a visual or audible alarm system unless it provides at least a 50 percent reduction from normal flow rates.

Factual Basis

Health and Safety Code Section 25284(a)(7) provides that pressurized piping systems connected to underground storage tanks used for the storage of motor vehicle fuels and monitored in accordance with the requirements of Section 2634 are exempt from the secondary containment requirements of Section 2633. An automatic, continuous monitoring system is required in the regulations to remove any dependency of the system on the operator to activate the system for daily use. In order to be effective, the monitoring system must alert the operator that an unauthorized release has occured. Attaching the system to a visual or audible alarm system, alerts the operator that the pressured piping system is leaking when a pressure loss is

detected. *In a similar manner, a 50 percent reduction in flow* would provide the operator with the same information, since theoretically the customers would alert the operator that the flow from the pump had been reduced.

Section 2634(a). Monitoring Standards for New Vehicle Fuel Tanks

Specific Purpose

The objective of subsection (a) is to provide a summary of the monitoring standards for new underground tanks used for the storage of motor vehicle fuels constructed pursuant to the standards of Section 2633.

Factual Basis

Health and Safety Code Sections 25284(a)(7) and 25284.1 (a) provide that new underground storage tanks and used for storage of motor vehicle fuels, shall be constructed with a monitoring system which will:

(1) Intercept and direct a leak from any part of the primary container to an access casing to detect any release of motor vehicle fuel stored in the primary container,

(2) Provide for daily gauging and inventory reconciliation by the operator,

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(3) Test the primary container for tightness hydrostatically at time intervals specified by the Board, and

(4) Provide pressured piping systems with an on-line pressure loss detector and flow reduction device.

This subsection details those parts of the regulations where these requirements can be located. Subsection (a)(4) is essentially repeating the exemption requirement of Section 2633(f) for the secondary container and the factual basis for that requirement is applicable here.

Section 2634(b)

Specific Purpose

The purpose of subsection (b) is to specify the performance standards for the design and construction of the access casing at each monitoring location within the secondary containment.

Factual Basis

Health and Safety Code Section 25284(a)(7) requires that the secondary container for a motor vehicle fuel tank be capable of intercepting and directing a leak from any part of the tank to an access casing to detect any unauthorized release of a motor

vehicle fuel. To this end subsection (b) provides the performance standards for the secondary container for new motor vehicle fuel tanks.

Subsection (b)(1) requires that any liquid moving along the upper surface of the secondary container enter the access casing. As such the secondary container must be contoured to direct the liquid to a single point or points where access casings are located. Because the excavation for the primary container is normally backfilled for motor vehicle fuel tanks, there is the possibility that backfill material may be compacted to such a degree of impermeability to prevent movement of the liquid into the access casing. The performance standard of this subsection prohibits the use of and methods for installation of backfill materials which can preclude movement of liquid into any access casing. This is critical for the motor vehicle fuel secondary containment which is not required to have sides (no volumetric requirements) and the liquid could bypass the access casing moving into the surrounding soils.

The access casing must be designed and constructed to fulfill its function for removing liquid in the secondary container and providing unaffected sampling for the prescence of motor vehicle fuel stored in the primary container. For the access casing the primary applied stress results from the backfill placed in primary container excavation. As specified in subsection (b)(2) a safety factor of 1.5 was used and is equivalent to that

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commonly used in structural design. It allows for uncertainties associated with the design calculations and reflects the importance of maintaining the integrity of the access casing for determining if an unauthorized release has occured and removing the liquid.

Regardless of the method used to initially determine that a hazardous substance has entered into the secondary container, the "final word" is actually taking a sample from the secondary container through the access casing. In order to insure that the analyses are representative of the hazardous substance in the secondary container, the access casing must not donate, capture, or mask product constituents for which the analyses are made. Perforations in the access casing provide the conduit for discharging and or measuring liquids from the leak interception and detection system. An access casing that is constructed of materials not compatible with the motor vehicle fuels stored in the primary container may be damaged or even closed when contacted with the motor vehicle fuel which could limit the access casings usefulness during the sampling program.

The access casing must be screened along the entire vertical zone of the permeable material which may be installed between the primary and secondary container to provide a direct conduit to the monitoring system. As in the explanation for subsection (b)(1), the relatively impermeable portions of the backfill material may preclude the movement of gasoline leaked from the

primary container to the surface of the leak detection system and to the access casing. By perforating the access casing along the vertical zone of permeable material the "misdirected" leakage which may never reach the secondary container can enter the access casing and activate the alarm system.

The access casing is extended to the ground surface (plus an additional height as necessary) to locate the system for its intended uses and with a locked cap prevents surface runoff and drainage from entering the secondary containment directly, while preventing vandalism.

Section 2634(c)

Specific Purpose

The specific purpose of subsection (c) is to require that each access casing utilize a continuous sensor, which can be removed for calibration and maintenance at least semiannually or as needed. The continuous sensor must be capable of detecting within the casing 0.5 inches of the motor vehicle fuel stored in the primary container and activating a strategically located above ground alarm system.

Factual Basis

Section 25284 (b) of the Health and Safety Code requires that

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every new underground storage tank be designed and constructed with a monitoring system capable of detecting the entry of the motor vehicle fuel stored in the primary container into the leak interception and detection system. To this end, a continuous monitoring system capable of activating a strategically located, above-ground alarm system is required in the regulations. A continuous system was required because the leak interception and detection system has no volumetric requirements except that required to activate the monitoring system used. A system which provides the earliest indication of an unauthorized release is necessary to protect groundwater, as any unauthorized release exceeding the available volume of the secondary container will over top the leak detection system and move into the unsaturated zone toward the ground water.

Section 2634(d)

Specific Purpose

The specific purpose of subsection (d) is to establish the maximum acceptable variations in inventory before the tank owner is required to implement an investigation to determine the cause of the variation.

Factual Basis

Subsection (d) establishes acceptable variations in inventory

control which can be attributable to inaccuracies in measurements and should not be cause for further investigation. Since these variations should balance over longer time periods the allowable tolerances are larger for daily variations and become smaller over longer time periods. The API recognizes that variation should not exceed one half of one percent (5 gallons per 1000 gallons) over extended time periods defined in the regulations as greater than 30 days. API further recognizes that greater concern should be given to sudden variations or small but growing daily losses. Based on this concern the tolerance levels were reduced by one-tenth (5 percent or 50 gallons per 1000 gallons) for a seven day period and finally to a value of 50 gallons over a single day which is between 5 and 10 percent of the daily withdrawal of a single tank at an average service station.

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Section 2634(e)

Specific Purpose

The purpose of subsection (e) is to present the step-by-step procedure which must be followed when the inventory controls indicate a gain or loss of hazardous substance greater than that specified in Section 2634(d).

Factual Basis

Inventory control can be a very effective tool to detect large sudden losses or small daily loses due to tank leaks. Allowable gain or loss volumes for inventory control were specified in Section 2634 (d) with the required steps to reconcile inventory errors provided in Section 2634 (e). These steps may be implemented sequentially or concurrently, however the steps must be completed within the specified time periods. The results of each step must be reported as required in Article 5 of this subchapter.

Subsection (e)(1) requires that the operator notify the owner verbally or in writing that the inventory control indicate a gain or loss of hazardous substances or water within 24 hours of the completion of daily reconciliation which indicates the loss or gain. This communication is required to insure that the individual legally responsible for any unauthorized release from the tank have knowledge of the inventory control discrepancy and the appropriate measures. This subsection must be completed under all circumstances.

Subsections (e)(2) and (e)(3) require review of the inventory records by the operator and a qualified individual, respectively, to determine if an error exists in the inventory accounting which would cause the gain or loss to be less than that requiring reconciliation. This requirement is to assure that the review is carried out by responsible individuals experienced in evaluating

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inventory records. The final check on inventory control is to verify that the dispenser meter associated with hazardous substances withdrawal be checked for calibration as specified in subsection (e)(5). Assuming that reevaluation of the inventory records has shown that the accounting is correct, then the only available activity that can be readily checked for error is the dispensing meter. The meter should be recalibrated within 24 hours after completion of the visual inspection required in subsection (e)(4).

Visual inspection of the readily accessible physical facilities of the tank for leakage is required in subsection (e (4). This step provides an obvious method for determining the source of liquid leakage. Should the visual inspection indicate an unauthorized release from the tank, the remaining steps are unnecessary.

Subsection (e)(5) requires that all piping be tested using methods specified in Sections 4-2.1 or 4-3.1 of the National Fire Protection Association (NFPA) publication entitled "Underground Leakage of Flammable and Combustible Liquids," 1983 (NFPA 329). In the systematic search for the source of the leak, testing of the piping system is the next step. The piping system must be tested using recognized standards which are provided in the cited sections of NFPA 329.

Except for providing the local agency with the option of

requiring additional tests as needed in subsection (e)(8), tank testing is the final check on determining the source of the unauthorized release. The term testing refers to those tank leak detection methods that determine at a single point in time if a tank is either tight or leaking. The technical difficulty inherent in determining tank tightness led to a value of 0.05 gallons per hour (gph) as the level for determining a leaker. Less than 0.05 gph was beyond the scope of measurement ability and the tank was considered tight. This level of accuracy taking into consideration adjustments for those factors presented in Section 2642 (c) is referred to as the "precision test."

The operator need not complete all of the steps described in Section 2634 (e). If completion of the steps described in subsections (e)(2), (e)(3), or (e)(5) indicate inventory reconciliation errors that, when corrected cause the levels in subsection (4) not to be exceeded, then the remainder of the steps need not be completed. If completion of the steps described in subsections (e)(4) or (e)(6) through (3) reveal the source of the loss or gain, then the remainder of the steps need not be completed.

Section 2634(f)

Specific Purpose

The specific purpose of subsection (f) is to provide the criteria

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which must be considered in developing the response plan for a secondary container which is used for a primary container storing motor vehicle fuel and does not satisfy the volumetric requirements of Sections 2631 (d) and (e).

Factual Basis

Section 25284 (a)(7) of the Health and Safety Code discusses the leak interception and detection system (secondary container) required for primary containers used for the storage of motor vehicle fuel. The system "...must intercept and direct a leak from any part of the tank to a monitoring well to detect any release of motor vehicle fuels stored in the tank and which is designed to provide early leak detection, response, and to protect ground water from releases..." It is this underlined portion of the legislation that is the basis for requiring that a response plan be developed for the secondary container. Because the secondary container is required only to collect the volume necessary to activate a continous monitoring system, the container can be easily overtopped releasing hazardous substances to the subsurface waters. It must be shown that for all reasonably anticipated modes of leakage, the leak interception and detection system (secondary container) and the plan to respond to the unauthorized release will protect ground water.

The adequacy of the response plan to protect ground water is determined by assessing the factors provided in subsections

(f)(1) through (f)(5). The volume of the secondary container in relation to the volume of the primary container (subsection (e)(1)) must be considered to evaluate the availability of temporary storage for the unauthorized release before removal and disposal can be effected. If the secondary container satisfies the minimum volumetric requirements, no temporary storage is available. The access casing provides the conduit for removing the unauthorized release. The hazardous substance must be removed by pumping through the access casing, although equipment for this purpose may not always be at the site. Consequently, subsection (f)(2) must be evaluated with respect to the results of subsection (f)(1) to determine if there is adequate time and volume available to prevent overtopping of the secondary container before and during extraction of the motor vehicle fuel.

Subsection (f)(3) and (f)(4) must be considered if the results of subsections (f)(1) and (f)(2) indicate that the secondary container will be overtopped. The response plan must determine whether the motor vehicle fuel will reach the ground water based on the nature of the unsaturated soils under the secondary container, their ability to absorb contaminants or allow vertical movement of contaminants, and the depth from the bottom of the secondary container to the highest anticipated level of ground water. The interaction between the unsaturated soil and the motor vehicle fuel must also be considered for the period after the unauthorized release has occurred and the hazardous substance is contained in the soils. Precipitation and subsurface infil-

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tration can transport the motor vehicle fuel stored in the unsaturated soils to ground water. As such, the methods and timing of the response plan to clean up the hazardous substances contained in the unsaturated soils must provide for complete removal of any hazardous substances as specified in subsection (f)(5).

Section 2635. General Construction Standards

Section 2635(a)

Specific Purpose

The specific purpose of subsection (a) is indicate that the following general construction standards apply to all new primary and secondary containers, regardless of the type of hazardous substance stored in the container.

Factual Basis

Health and Safety Code Section 25284 provides that new underground storage tanks be designed and constructed with primary and secondary levels of containment. This section provides additional construction standards, which the Board staff feels are necessary to carry out the intent of the regulations.

Section 2635(b)

Specific Purpose

The specific purpose of subsection (b) is to provide additional construction standards for all new primary and secondary containers, regardless of the type of hazardous substance stored in the container.

Factual Basis

Health and Safety Code Section 25284 provides that new underground storage tanks be designed and constructed with primary and secondary levels of containment. The following section provides additional standards for underground storage tanks which in the opinion of the State Board staff are necessary to maintain the structural integrity of the primary and secondary containers.

Subsection (b)(1) requires that primary containers be constructed such that they are not damaged by the negligent use of dip sticks for inventory control. Under normal operating conditions, stick would not result in damage when used to determine the liquid level in the tank. If the stick is dropped rather lowered into the tank, it can result in a crack or hole in primary container, consequently, installation of a striker plate under the accessible openings where measurements are taken will eliminate this problem. The striker plate also provides [illegible] protection against "blast erosion" which occurs under the

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tube.

To assure tightness of all welds, seams, and fittings, the primary container should be pressure tested at the factory using recognized engineering standards (Subsection (b)(2)). During installation the tank is susceptible to procedures which could damage the tank and result in leak producing cracks. Fiberglass tanks are especially susceptible to this problem if not installed as specified by the manufacturer. As such the tanks are required to be tested at both times to assure the integrity of the system before any hazardous substance is introduced.

Requiring recognized standards for both the steel and fiberglass tank design provides methods which conform to the intent of the regulations with respect to the integrity of the primary container. In addition, with local governments implementing the regulations, applying recognized construction standards provides uniformity throughout the State and lessens the need for local government, not necessarily familiar with tank design requirements, to review each individual tank design by comparison to the standards.

For small tanks (below 1,100 gallons in capacity), Underwriter's Laboratories (UL) allows the use of galvanized steel for cathodic protection. Underwriter's Laboratories provides that such tanks may have a shell thickness of 10-14 mils. The Board requires that small tanks of this design <u>not</u> be used underground. The

zinc coating of galvanized steel and the light weight steel shell do not provide the long-term protection and corrosion allowances that are required. The Board requires that the shell of the steel tank have a minimum thickness of 7 gauge (0.18 inch). The extra shell thickness provides the corrosion allowances and longer life expectancies which are comparable to those of a larger tank.

Numerous resins are available for use in fiberglass reinforced plastic tanks, and each has its own performance characteristics. Some resins dissolve, soften or become brittle in acidic or saline soil environments. Others will lose structural strength when exposed to certain chemicals. Manufacturers of tanks carrying the UL label are required to perform immersion tests to prove material durability and chemical compatability. Underwriters Laboratories in turn certifies only that the tank is compatible with certain chemicals.

exact chemical composition of the product to be stored. The manufacturer should then bear the responsibility for selecting the proper tank and providing the owner with a written assurance of chemical compatability. Under no circumstances should products be switched from tank to tank unless the manufactures provides assurances that the new product is compatible with the tank. ASTM D4021-81 provides recognized standards for testing the compatability of fiberglass reinforced plastic tanks with chemicals.

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Subsection 2635(b)(7) requires that the secondary container preclude the inflow of the highest ground water anticipated during the life of the underground storage tank. This requirements results from the volumetric requirements for the secondary container mandated in Health and Safety Code Section 25284(b)(2). Inflow of ground water into the secondary container would diminish the volume available to contain any leakage and in the event of a leak could result in direct contact with the ground water. For motor vehicle fuels which have no volumetric requirement for the secondary container, if the ground water entered the secondary container a direct contact between tank leakage and ground water could result.

The backfill placed between the primary and secondary container must not preclude the vertical movement of leakage from the primary container to assure that any leakage reaches the secondary container and monitoring system. This is especially critical for motor vehicle fuel secondary containers where the secondary container may have sides of minimal height. If a leak occurs and the backfill directs the leak horizontally away from the secondary container, the leak may never be detected.

Subsection 2635(b)(8) delinates the minimum surface area for the horizontal plane defining the extent of the secondary container. With backfill placed in between the primary and secondary container, a leak from the primary container will disperse away

from the "leak point" forming a plume. The bottom of the secondary container must be far enough away from the vertical plane defining the tank edge to prevent the leak from not contacting the secondary container and reaching the monitoring system. This is especially critical for the leak interception and detection system (secondary container) for motor vehicle fuels which would have minimum sides. Secondary containers for non motor vehicle fuel tanks have volumetric requirements and sides for leak containment. Provided that the secondary container completely encloses the primary container (the top of the secondary container is at least as high as the tank), this subsection is automatically satisified. However, should the primary container be significantly above the top of the secondary container, then this subsection must be applied.

The purpose of the secondary container is to control any leakage from the primary container and direct the leakage to a monitoring system. As such, it is important that the backfill material between the primary and secondary container be designed and constructed to promote gravity drainage of a leak of hazardous substance to the monitoring system. Section 2635(b)(10) requires that the backfill material satisfy these requirements.

Except for double-walled tanks, all tanks are required to have a water tight cover which extends at least one (1) foot beyond each boundary of the original excavation. The purpose of this barrier is to prevent infiltration from entering the secondary container

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providing a safety factor for maintaining the volumetric requirements of the secondary container and against flotation of the tank. The barrier system normally consisting of a synthetic water barrier and a concrete or asphalt slab over the tank also provides a safeguard against vehicle and equipment traffic which may pass over the installation.

Section 2635(c)

Specific Purpose

The specific purpose of subsection (c) is to provide additional construction standards for all new primary and secondary containers, regardless of the type of hazardous substance stored in the container.

Factual Basis

Underground storage tanks must be located outside the prism of bearing pressure of structural footings so as not to receive foundation loads. The underground storage tanks are designed to accomodate the stress associated with installation depth and usage as specified by the tank manufacturer. The additional stresses applied to the tank resulting from footings of existing or designed structures could result in cracks to the tank and subsequent unauthorized releases. Conversely, the excavation for the underground tank can undermine the foundations of existing

structures and develop other construction problems. For these reasons, a minimum set back distance of ten (10) feet was specified in the regulations. Not all structures within ten (10) feet of the underground tank will be adversely affected by the excavation for the tank or vice versa develop bearing stresses which will harm the underground tank. Consequently, an exemption is provided in Subsection (c)(4) for those cases where a registered civil engineer reviews and approves the design.

The development of as-built drawings for a constructed facility is common practice. Providing the copies of all drawings, photographs, and plans to the local agency which has permitted the facility enables them to work in any emergency situation with knowledge of the underground facilities.

Health and Safety Code Section 25284 (d) and Section 2635 (c)(3) requires that different substances which in combination may cause a fire or explosion, or the production of flammable, toxic, or poisonous gas, or the deterioration of a primary or secondary container, be separated in both the primary and secondary container. Separation of these substances in the primary container is obvious since mixture of the liquids will result in the aforementioned problems. Primary containers containing these substances located in the same secondary container could result in the same problem. A simultaneous, unauthorized release from the primary containers would result in mixing of the incompatible materials and the associated problems.

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Section 2635(d)

Specific Purpose

The purpose of subsection (d) is to require that all primary containers and double-walled tanks be installed according to the manufacturer's written recommendations or, if no written recommendations exist, best engineering practices.

Factual Basis

Many leaks are traced to the mishandling of storage tanks and equipment prior to installation or to poor installation practices. The most common installation mistakes include the following:

(1) Damage to the protective coatings of steel tanks

(2) Structural damage to tank materials during transportation and installation.

(3) The use of corrosive backfill materials.

(4) Poor foundations, the lack of bedding, or improper compaction of backfill.

(5) Poor anchoring of tanks subject to flotation.

Poor installation of tanks can lead to tank settling, tank flotation, or deflection of the tank walls - any of which can result in damage to the tank or underground piping. Damage to coatings, or the use of improper backfill material, can lead to accelerated corrosion of underground steel tanks. Proper installation is so crucial that major tank manufacturers warrant their tanks against failure only if they are installed and used in accordance with manufacturers instructions. For this reason, tanks should be installed in strict accord with manufacturer's recommendations.

Section 2635(e)

Specific Purpose

The purpose of subsection (e) is to require that all primary containers and double-walled tanks subject to flotation be weighted or anchored using methods specified by the manufacturer or, if none exist, best engineering judgement.

Factual Basis

Underground tanks are subject to flotation when their backfill becomes saturated with water. Because of their additional weight, steel tanks are less susceptible to flotation than

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fiberglass tanks and smaller tanks are less bouyant than larger tanks. If adequate cover is not provided, the bouyant forces can push the tank through the ground surface, damaging the tank and resulting in an unauthorized release.

Weighting the tank is accomplished by burying the tank deeper and/or by adding a thicker surface (cover) slab. The weight of the overburden holds the tank down. Anchoring involves strapping the tank to a reinforced concrete anchor pad buried underneath 12 inches or more of bedding, or strapping it to reinforced concrete deadmen layed along each side and parallel to the tank. The weight of the concrete and the overburden on top of the slab or deadmen provides the necessary hold-down force. Anchoring and/or weighting of the tank must be accomplished according to manufactures standards to insure that undue stress is not applied to the tank at the points where the tank is stressed.

Section 2635(f)

Specific Purpose

The specific purpose of subsection (f) is to detail the overflow protection system required for all new tanks as required by the local agency.

Factual Basis

Section 25284 (c) of the Health and Safety Code specifies, that when required by a local agency, every new underground storage tank be provided with a means of overfill protection, including an overfill prevention device or an attention-getting high level alarm, or both. Subsection 2635(f) provides these requirements.

Spills can occur at underground storage facilities because of tank overfilling and drainage from product transfer hoses. For example, products are often unloaded from vehicles into underground storage tanks without means of automatic overfill protection. Without such protection, underground tanks can be overfilled with product which will rise through the vent lines until it attains a level equal to the product level inside the truck being unloaded. With the fluid level in the standpipe, the underground tank is subject to liquid pressure which may exceed its design capacity and result in cracks and an unauthorized release.

Overfill protection is accomplished by measuring and controlling the liquid level in the tank. An ideal underground tank overfill prevention system would include: (1) a level sensing device that monitors and indicates the liquid level in the tank; (2) an alarm to alert the operator of an impending overfill condition; and (3) an automatic shut-off device that stops the flow of product when the tank is full.

The level sensing device provides the operator with continuous

information on the liquid level of the hazardous substance in the tank and, as necessary, any impending overflow condition. The audible or visual alarm system alerts the operator of an impending overflow condition and thus provides a backup to visual monitoring of the level sensing device. The automatic shutoff controls interface with the level sensing devices to: (1) prevent tank overfilling by shuting off the tank loading pump at a preset high level; (2) prevent damage to the tank unloading pump by shutting it off at a low level; and (3) operate various flow valves to control product flow.

Section 2635(g)

Specific Purpose

The specific purpose of subsection (g) is to detail the overflow protection system required in subsection (f) for underground storage tanks containing motor vehicle fuels. The requirements for the overflow protection system are:

(1) Both the fluid level is visually monitored and the filling operation is controlled by the facility operator during filling of the underground storage tank, or,

(2) The available capacity of the tank to be filled is determined immediately prior to filling to be at least 110 percent of the volume of the entire tank compartment

to be delivered as determined by tank gauging, or

(3) The hazardous substance being delivered can be metered into the tank and the available tank capacity is determined immediately prior to filling.

Factual Basis

Section 25284 (c) of the Health and Safety Code provides that primary tank filling operations of underground storage tanks containing motor vehicle fuels which are visually monitored and controlled by the facility operator have satisfied the requirements of Subsection 2635 (f) of the regulations. This requirement is specified in Subsection 2635 (g)(1) of the regulations.

Visual monitoring of the underground tank requires that the operator be able to visually monitor the liquid level in the tank. This can be done by direct observation of the level or by means of a liquid-level monitoring system visible to the facility operator during the filling operation. The facility operator must be able to control the filling operation while observing the liquid level in order to provide a means to prevent overfilling of the primary container.

Two additional methods are provided to satisfy the overflow protection requirement in subsections (g)(1) and (g)(2). Underground tanks used for the storage of motor vehicle fuels are

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normally filled by releasing a compartment(s) of known volume into the tank from a distribution truck. Visual monitoring is not required if the available volume of the underground tank is determined prior to filling (stick gauging in a calibrated tank is sufficient) and is at least 110 percent of the volume of the entire distribution truck compartment. The second method allows delivery when the hazardous substance can be metered into the underground tank and the available volume in the underground tank is determined (stick gauging in a calibrated tank is sufficient) prior to filling.

The objective of both of these methods is to assure that the underground tank has sufficient volume to store the motor vehicle fuel which will be placed in the tank and protect against overfilling.

2635(n)

Specific Purpose

The specific purpose of subsection (h) is to provide the corrosion protection requirements for all primary containers and double-walled tanks constructed of steel. These requirements are:

(1) A properly installed, maintained, and monitored cathodic protection system with or without coatings, or

(2) Corrosion resistant materials of construction such as special alloys or fiberglass-reinforced plastic coatings as specified in subsection (i) of this section.

Selection of the type of protection to be employed shall be based on the corrosion history of the area, the judgement of a registered corrosion engineer, and the local enforcement agency.

Factual Basis

Corrosion and poor installation are by far the most common causes of unauthorized releases from underground storage tanks. A survey by the American Petroleum Institute of over 1,700 underground tanks and pipes which were known to have unauthorized releases indicated that approximately 9' percent were caused by corrosion [1]. As such, corrosion protection for all primary containers and double-walled tanks constructed of steel is required in the regulations.

Although it is common practice to require corrosion protection for a soil resistivity of 10,000 ohm-centimeters or less [2], it was decided to require corrosion protection for all steel tank installations. The soil resistivity is normally measured prior to installing the tank. Over time the resistivity of the backfill material may change due to alterations in the subsurface environment and its effect on pH. A soil environment which would

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not require corrosion protection by common practice during installation may require protection in the ensuing years.

A number of methods are available to protect against corrosion. The regulations require the use of a properly installed, maintained, and monitored cathodic protection system and/or corrosion resistant materials of construction. If properly designed, and installed a cathodic protection system or corrosion resistant materials will minimize corrosion. Both requirements may be used separately or together based on the judgement of a registered corrosion engineer. The advantage of using both methods is that the exterior of a steel tank with a fiberglass-reinforced plastic coating may be damaged during installation and expose the bare steel. Because of the small surface area involved, corrosion will be enhanced decreasing the life of the tank.

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Article 4. Existing Underground Storage Tank Monitoring Criteria

Pursuant to Health and Safety Code Section 25284.1, all owners of underground storage tanks that are used for the storage of hazardous substances and that were installed on or before January 1, 1984, shall provide means of monitoring the tanks for unauthorized releases.

Section 2640 Applicability

Specific Purpose

The specific purpose of Subsection (a) is to specify that owners of existing underground storage tanks subject to Subchapter 16 must implement monitoring systems as a condition for continued operation of the tank.

The specific purpose of Subsection (b) is to set forth the general objectives to be achieved by monitoring systems for existing underground storage tanks.

The specific purpose of Subsection (c) is to specify that the initial monitoring of a tank be designed so that any unauthorized releases that may have occurred since the tank was installed can be detected.

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The specific purpose of Subsection (d) is to specify the general objectives of visual monitoring and to elaborate on the conditions under which visual monitoring is applicable.

The specific purpose of Subsection (e) is to specify that when visual monitoring is impossible or infeasible, alternative methods of monitoring must be implemented and that the implementation of a visual monitoring system does not relieve an owner from determining whether prior unauthorized releases have occurred.

The specific purpose of Subsection (f) is to provide for the use of new methods of monitoring that may be developed in the future and that would as effective or more effective in achieving the monitoring objectives as the methods described in Article 4.

The specific purpose of Subsection (g) is to apprise tank owners that an assurance monitoring system is required.

The specific purpose of Subsection (h) is to apprise tank owners that specific methods for constructing and sampling borings and wells are contained in the regulations.

The specific purpose of Subsection (i) is to specify that all borings made at the site that are not constructed as and used for monitoring shall be completely sealed.

Factual Basis

Health and Safety Code Section 25284.1(a) requires that every underground storage tank used for the storage of hazardous substances that was installed on or before January 1, 1984 shall be equipped with a monitoring system capable of detecting unauthorized releases. The approach to monitoring adopted in this subchapter is consistent with the approach used in formulating the regulations governing the disposal of waste to land (Subchapter 15 of Chapter 3 of Title 23 of the California Administrative Code). This approach is based on the premise that, because ground water pollution is virtually impossible to cleanup completely and cleanup is exorbitantly expensive, ground water monitoring systems should be designed to detect unauthorized releases before the ground water becomes polluted. Consequently, the principal method of leak detection monitoring will, in most cases, need to be some system other than ground water monitoring.

In order to provide a level of protection against ground water pollution from existing tanks that is comparable to the protection provided by secondary containment for new tanks, existing tanks must be monitored by multiple monitoring systems. There are a number of reasons why this is necessary. First, there are three separate but equally important monitoring objectives. These are: insuring that the ground water is not

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being contaiminated, detecting currently leaking tanks and tanks that have leaked in the past, and detecting future leaks before ground water can be affected. There is no single monitoring technique that can meet these objectives and consequently, multiple monitoring systems are needed.

Second, each monitoring technique is subject to limitations intrinsic to the technology and devices involved as well as being subject to limitations in predicting how a given substance will move and behave in the ground. Furthermore, except for flagrantly obvious leaks, data from the various monitoring techniques do not provide clear-cut results in most cases. Therefore, interpretation and judgement must be interjected into the process of leak detection. The gist being that there is a certain amount of uncertainty associated with the reliability of these monitoring systems.

Finally, many of the monitoring systems being mentioned by consultants are new or have not been applied before to the unique conditions posed by underground tanks and the variety of substances they store. Consequently, there is little in the way of a track record upon which to judge the purported capabilities of a given system to monitor underground storage tanks.

Considering the objectives of the monitoring program and the irredeemable consequences of an undetected leak, and bearing in mind that most underground storage tanks are totally concealed

beneath the ground, that most of the monitoring systems monitor only discrete points around the tank, and that monitoring by these systems is not a precise science; the proposed regulations include a broad monitoring program to achieve the monitoring objectives and to compensate for inherent weaknesses in the monitoring systems.

Section 2641. Visual Monitoring

Health and Safety Code Section 25284.1 specifies that visual inspection of underground storage tanks shall be instituted wherever practical.

Specific Purpose

The specific purpose of Subsection(a) is to specify that visual monitoring of all visible portions of the exterior surfaces of underground storage tanks must be conducted wherever such monitoring would be effective in detecting unauthorized discharges, is physically possible, and would not require the use of extraordinary protective equipment to protect the inspector from physical harm.

The specific purpose of Subsection (b) is to provide for exemptions to the requirement for visual monitoring for those exterior surfaces of underground storage tanks where visual inspection is impossible, would be ineffective, or where visual

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inspection would put the inspector in danger.

The specific purpose of Subsection (c) is to specify the components that must be included in a visual inspection program.

The specific purpose of Subsection (d) is to specify the actions the owner must take if, as a result of visual inspection, a leak is suspected.

Factual Basis

Visual inspection provides the most direct and reliable method of detecting unauthorized discharges from underground tanks. Other commonly used methods of detection are indirect and require interpretation of some measured parameter. Whenever interpretation is required, it necessarily follows that misinterpretation or disagreement over interpretation can occur thereby leading to the possibility that unauthorized releases may go undetected. Visual monitoring minimizes the chance that surface or ground water pollution will occur as the result of undetected unauthorized releases.

Subsection (a) is being proposed because portions of underground tanks are frequently concealed or are inaccessible while the remaining portions are visible and susceptible to visual monitoring. The regulation makes explicit the intent that any portion of a tank that can be visually monitored within the

limits specified in Article 4 must be visually monitored regardless of the additional monitoring required for other concealed portions of the tank.

In recognition of the fact that there may be circumstances in which visible portions of a tank can not be effectively monitored visually or in which an owner could not, in good faith, be expected to monitor a tank visually, provision for exemptions from visual monitoring have been provided in Subsection(b).

It has been the Board's experience that the benefits to be derived from a monitoring program can be thwarted because of inadequate design and/or improper response to the discovery of an adverse condition. Therefore, Subsections (c) and (d) contain the minimum required components of a visual monitoring program and the responses that must be taken upon the discovery of a suspected unauthorized release.

Section 2642. Underground Storage Tank Testing

Health and Safety Code Section 25284.1 provides that where visual monitoring of underground storage tanks is not practical, tank testing will be one of the methods used to monitor the tank for unauthorized releases.

Specific Purpose

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The specific purpose of Subsection (a) is to specify that all owners of existing underground storage tanks implement a testing program as described in Subsections (c) through (g). Exceptions are provided to this requirement in Subsection (b).

The specific purpose of Subsection (b) is to provide an exemption for the owners of existing tanks from implementing an underground storage tank testing program if they can demonstrate to the local agency that other approved monitoring methods can be implemented.

The specific purpose of Subsection (c) is to define the level of accuracy required for the underground testing method (at least 0.05 gallons per hour) and those aspects which must be considered during the test to achieve the desired level of accuracy.

The specific purpose of Subsection (d) is to provide the testing schedule for existing underground storage tanks. Testing intervals are presented for un-clad steel tanks without corrosion protection, corrosion resistant tanks, and tanks installed with the secondary container and monitoring system specified in Article 3.

The specific purpose of Subsection (e) is to detail the information that underground tank owner must provide to the local agency following the completion of the leak detection test.

The specific purpose of Subsection (f) is to require that

underground tanks which lose hazardous substances at a rate greater than or equal to 0.05 gallons per hour be replaced or repaired as specified in Articles 6 and 7.

The specific purpose of Subsection (g) is to require that the tank owner report the results of any additional tests which may have been performed to the local agency within thirty days as specified in Subsection (e)(3).

The specific purpose of Subsection (h) is to require that all pressurized portions of an underground storage tank be monitored with an on-line pressure loss detector and flow reduction device.

Factual Basis

Often the contamination caused by leaking underground tanks is not detected for months or even years. Regular testing and inspections of the tank and piping are ways to insure that unauthorized releases are prevented or are detected early if they should occur. Section 25284.1 (b)(1) of the Health and Safety Code designates pressure testing, vacuum testing, or hydrostatic testing of the piping systems or underground storage tanks as an alternative monitoring method. Subsection (a) provides that these methods may be applied to underground storage tanks.

Because visual inspection or monitoring is the primary method of monitoring as specified in Health and Safety Code Section 25284.1

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(b), Subsection (b) of this Section provides an exemption from the tank testing requirements when visual monitoring can be used. An additional exemption is also provided for those underground tanks which would require a significant amount of excavation to perform the required test.

The accuracy of tank testing procedures requires that a number of different adjustments be considered in determining the amount of leakage from an underground tank. These factors include: (1) the presence of vapor pockets, (2) thermal contraction and expansion of the hazardous substance, (3) temperature stratification in the tank, (4) evaporation, (5) pressure variations in the tank, and (6) deflection of the tank ends. Present technology is imprecise in detecting leaks smaller than 0.05 gallons per hour (gph). Consequently, this is the standard required by NFPA 329, including the above adjustments, and is required in Subsection (c).

In the past, bare steel (or carbon steel) tanks have been widely used for underground storage of gasoline and other petroleum products. Carbon steel tanks are particularly susceptible to corrosion, especially when installed in highly corrosive soils or in ground water. Approximately fifty percent of the bare steel tanks installed are leaking by the time they are fifteen years old. As such, the testing schedule in subsection (d) was developed. The schedule requires that existing unclad steel tanks be tested yearly starting ten years after installation.

This schedule provides that at least fifty percent of the unclad steel tanks will be tested before leakage occurs. A fifteen year initial testing time was used for corrosion resistant tanks to reflect the additional life expectancy (no unauthorized releases) due to the cathodic protection. Any existing underground storage tanks that were installed with the secondary container and monitoring systems specified in Article 3 and monitored accordingly do not require tank testing.

Subsection (e) requires that the results of any tank testing be submitted to the local agency with a report detailing the appropriate information. This is necessary to insure that the tests were performed properly and to keep the local agency aware of the operation's compliance with the testing schedule of Subsection (d). For the same reason any other test performed on the tank must be reported to the local agency as specified in Subsection (g).

When an unauthorized release from an underground tank exceeds the 0.05 gph value specified in Subsection (c), the tank is considered to be leaking and must be either repaired or replaced as specified in Section 25284.5 of the Health and Safety Code.

<u>Section 2643. Inventory Control</u>

<u>Specific Purpose</u>

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The specific purpose of this regulation is to require inventory control as a means of monitoring existing underground tanks to detect large leaks. This section specifies how inventory control measurements shall be taken, the minimum accuracy of the readings and the maximum acceptable loss or gain in inventory before further investigation is required.

The specific purpose of subsection (a) is to specify that all owners of existing underground storage tanks subject to Subchapter 16 must implement an inventory control monitoring system as described in this section as a condition for continued operation of the tank unless they can demonstrate to the local agency that they meet the exemption criteria of subsection (b).

The specific purpose of subsection (b) is to exempt from this regulation those tanks containing substances not susceptible to technologically available metering. Board staff intended to exempt the fewest possible tanks from this requirement and did not consider economics a basis for exemption.

The specific purpose of subsection (c) is to define the measurements which must be utilized in an inventory control program. All tank inputs and outflows must be metered using meters certified by the appropriate county authority. Tank contents shall be determined on a daily basis. This is intended to minimize the inaccuracy of meter readings.

The specific purpose of subsection (d) is to define the accuracy and procedures to be used to determine the volume of hazardous substances in the tank on a daily basis. The measuring device must be capable of making readings accurate to one-eighth of an inch and readings must be taken when there are no tank additions or withdrawals. This task must be carried-out by a responsible party such as the tank owner or operator or the person acting as the facility manager. If a gage (stick) is used to measure the liquid level, the tank contents determination must be based on two gage readings. The method used to measure the liquid level shall be capable of detecting and measuring the thickness of a water layer or else tank content quality shall be analyzed weekly to determine if water is present and if so its concentration and volume. The liquid elevation shall be measured at the center of the longitudinal axis of the tank if possible or the amount of tank tilt should be determined if possible so as to accurately calculate liquid volumes from off-set liquid level measurements. Liquid volumes shall be based on tank calibration charts which, if possible, have been corrected for any tank tilt.

The specific purpose of subsection (e) is to verify the volume of substance added to the tank when this volume has been determined from meters. This procedure must follow the requirements of subsection (d) for liquid level measurements and must take into account tank contents prior to the delivery and the volume of any withdrawals during the delivery. A difference of 0.005 times the volume delivered but no greater than 50 gallons between the meter

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reading volume and added volume as determined by liquid level determinations is acceptable. If a greater difference is determined, then a re-evaluation shall be immediately performed which, at a minimum, shall include post delivery liquid level measurements and a determination of any volume withdrawn during the delivery.

The specific purpose of subsection (c) is to establish the maximum acceptable variations in inventory before the tank owner is required to implement an investigation to determine the cause of the variation.

Factual Basis

Inventory control, if performed properly, is a very effective tool to detect large sudden losses or smaller daily loses due to tank leaks. A limitation to inventory control to detect small leaks is the inherent inaccuracies of all of the measurements which lead to the inventory reconciliation. For this reason some level of inventory loss or gain must be allowed before more complex and expensive loss investigation studies are implemented. Inventory control is recommend by American Petroleum Institute (API) for all petroleum marketing and distribution facilities.

Subsection (a) is being proposed due to the effectiveness of this method as described above. All hazardous substances which are being sold are metered using either retail or wholesale meters.

Tanks that contain these substances make up a significant portion of the regulated tanks and are already equipped with the necessary metering systems. The cost of adding meters to those tanks not equipped is small considering the cost of other monitoring methods. Inventory control is the quickest and surest method to detect the larger, sudden releases before significant soils or groundwater contamination occurs. This early detection and subsequent remedial action will significantly minimize environmental damage and hold down remedial action costs which escalate as contaminants migrate further from the source.

The factual basis for subsection (b) is that metering of liquids is a technologically accepted practice that has been used for many years. It is possible to meter most substances with off-the-shelf equipment at minimal cost.

Subsection (c) requires the use of wholesale or retail meters which are properly certified in order to minimize the inaccuracy of this measurement. Meters fluctuate in calibration due to use and age and must normally be recalibrated periodically. This assures that meters are calibrated to within presently acceptable tolerances in order to minimize one potential inaccuracy of inventory control thereby minimizing the volume of loss or gain in inventory control which is allowed without further leak investigations.

Subsection (d) is intended to assure the best possible accuracy

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of the liquid volume determinations since this determination is critical in the inventory control calculation. Currently available and utilized technology allows the measurement of the liquid elevation to one-eighth of an inch. This is equivalent to 16 gallons at the mid-height of a 10,000 gallon tank. Liquid elevation must be taken during periods of no addition or withdrawal since either activity could cause vertical movement of withdrawal of liquid and the turbulance created in the tank. Liquid level determinations are a tedious task usually left to the lowest ranking employee who has to fit it into an already busy shift. This person also has the least to lose if a tank loss occurs. For these reasons and the precision needed to assure accurate volume determinations it is necessary to require that this task be performed by the more responsible persons at the facility; the manager, operator or owner. Since mistakes are easily made in any measurement, the calculation must be based on two readings.

Groundwater entering the tank is a clear indication of a tank that is not capable of providing containment. Also, the volume of water entering the tank could approximate the volume of hazardous substance leaking out thereby masking a leak if no attention was paid to the volume of water in the tank.

Tanks are almost never installed perfectly level. Most fuel tanks are intentionally tilted to allow any water, which is heavier than the fuel, to be collected at the low end, away from

the withdrawal point. A non-level tank makes it very difficult to use manufacturer provided tank calibration charts to convert liquid levels to specific volumes. This is because any liquid level reading taken away from the mid-point of the longitudinal axis will indicate a higher or lower liquid level than that which actually exists due to the tank tilt. Therefore, it is essential to determine the tank tilt if access to the tank at both ends is available.

Subsection (e) provides a check on the volume of liquid added to a tank. The volume is usually measured by a person not associated with the facility and mistakes can be very difficult to determine days after a delivery. This procedure is normally done routinely since the tank operator wants to be certain that the volume delivered is equal to the volume he is being charged for. This procedure should prevent over filling of tanks since the volume of the tank contents is determined prior to the delivery and the remaining volume can easily be compared to the volume to be delivered.

Subsection (f) establishes acceptable variations in inventory control which can be attributable to inaccuracies in measurements and should not be cause for further investigation. Since these variations should balance over longer time periods the allowable tolerances are larger for daily variations and become smaller over longer time periods. The API recognizes that variation should not exceed one half of one percent (5 gallons per 1000

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gallons) over extended periods defined in the regulations as greater than 30 days. API further recognizes that greater concern should be given to sudden variations or small but growing daily losses. Based on this concern the tolerance levels were reduced by one-tenth (5 percent or 50 gallons per 1000 gallons) for a seven day period and finally to a value of 50 gallons over a single day which is between 5 and 10 percent of the daily withdrawal of a single tank at an average service station.

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Section 2644. Soil Testing and Exploratory Boring

Health and Safety Code Section 25284.1 (b) (2) specifies that analysis of soil from borings shall be performed.

Specific Purpose

The specific purpose of Subsection (a) is to apprise tank owners that soil borings and analysis of soil samples are required.

The specific purpose of Subsection (b) is to provide for exemptions from soil sampling in those situations where it is impossible to bring drilling equipment close to the tank or where soil conditions are such that soil samples cannot be obtained.

The specific purpose of Subsection (c) is to specify that at

least one slant boring shall be drilled that will enable soil samples to be taken from directly beneath the tank.

The specific purpose of Subsection (d) is to specify that where slant drilling is precluded or if soil samples cannot be recovered from a slant boring, one vertical boring will be drilled on both of the long sides of the tank.

The specific purpose of Subsection (e) is to specify the procedures and methods for obtaining and analyzing soil and to specify the actions to be taken in the event soil contamination is discovered.

The specific purpose of Subsection (f) is to specify the actions to be taken if the soil analysis indicates an unauthorized release has occurred.

The specific purpose of Subsection (g) is to specify the actions that are to be taken if no evidence of an unauthorized release is detected.

Factual Basis

Many existing underground storage tanks have not been monitored in the past for unauthorized releases in a way that would detect slow continuous leaks nor provide a record of previous large leaks or repairs. Collaterally, spills at tank are not usually

recorded. It is necessary therefore, to determine whether prior use of the tank has already created an actual or potential threat to water quality. With this information, it can be determined whether remedial measures or detection monitoring should be prescribed. Therefore, soil sampling is specified in Section 25284.1(b)(2) of the Health and Safety Code as the means of determining whether prior use of a tank has resulted in the release of hazardous substances in the vadose zone.

Depending on the rate of release, soil characteristics, and the properties of the stored liquid, liquid may move downward with little lateral spreading. In such a case, most, if not all, of the contamined soil will be in the soil column directly below the tank and not accessible by vertical drilling. Therefore, slant drilling has been proposed as the preferred method of drilling for soil sampling. In those cases where slant drilling is not feasible, vertical borings on either side of a tank are the next best alternative.

Because the effectiveness of a soils exploration program is dependent on the selection of appropriate rationale, methods, and techniques; the regulation contains minimum criteria to guide the staffs of the county and city governments that will administer the underground tank program. Further, so that appropriate remedial steps may be taken if necessary and permanent monitoring systems can be installed, the regulations specify the various actions to be taken by the permittee depending on the results of

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the soil testing program.

Section 2645 Vadose Zone Detection Monitoring

Specific Purpose

The specific purpose of Subsection (a) is to apprise owners of underground storage tanks that unless otherwise exempted they must implement a vadose zone detection monitoring system.

The specific purpose of Subsection (b) is to provide for exemptions from vadose zone detection monitoring where it is physically impossible to install a vadose zone monitoring system, where ground water may occur near the invert of the tank, when the stored substance cannot be detected by vadose zone monitoring techniques, or where visual monitoring of the entire tank has been implemented.

The specific purpose of Subsection (c) is to specify the general types of vadose zone monitoring that may be employed.

The specific purpose of Subsection (d) is to make explicit that vadose zone detection systems must be designed to give the earliest possible warning of any unauthorized release.

The specific purpose of Subsection (e) is to require that vadose zone monitoring sensors be installed, if possible, in the

backfill surrounding the tank rather than in the soil into which the tank excavation was made.

The specific purpose of Subsection (f) is to require that any vapor monitoring system proposed for a site must be installed and tested at the site before final approval of the monitoring system is granted, that vapor sensors be located in accordance with the physical laws and site conditions that govern movement of vapor through the soil, and that wells installed in backfill for vapor monitoring be designed and constructed so that they can also be used to monitor the liquid phase of hazardous substances that may escape from the tank.

The specific purpose of Subsection (g) is to require that any soil-pore liquid monitoring system proposed for a site be capable of detecting leakage from the tank, that the monitoring system will not be rendered inoperable because of physical deterioration of the system components by the leaking substance, and that the site and soil characteristics are compatible with the monitoring system.

The specific purpose of Subsection (h) is to specify the monitoring frequency for vadose zone detection monitoring.

Factual Basis

Because the restoration of contaminated ground water is so

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extraordinarily expensive and because attempts to restore contaminated ground water rarely if ever achieve ground water quality comparable to the pre-existing quality, the primary objective of detection monitoring is to provide the earliest possible warning of an unauthorized release. To achieve this objective, it is essential to monitor in the vadose zone immediately adjacent to the underground storage tank. Accordingly, the regulations require vadose zone monitoring where such monitoring is feasible. In some instances it may be physically impossible to install an appropriate vadose zone monitoring system or adverse characteristics of the stored substance or the soil underlying the site will render any vadose zone monitoring unfeasible. Under such circumstances, the regulations provide for exemptions from vadose zone monitoring. An exemption may also be granted if all exterior surfaces of a tank can be monitored visually and any spillage detected. If only a portion of a tank can be monitored visually, vadose zone monitoring is required to detect unauthorized releases from the concealed portion of the tank.

Health and Safety Code Section 25284.1 (b) explicitly requires vapor monitoring within a well but also allows for the adoption of other monitoring methods. Therefore, because new methods of vadose zone monitoring are currently being developed and will continue to be developed in the future, the regulation has been written to allow for the use of other types of vadose zone monitoring. However, because vadose zone monitoring for non-

agricultural purposes is relatively new and largely unproven for tank applications, the regulation requires that vapor monitoring systems must be installed and test demonstrated to prove effectiveness. Further, soil-pore liquid systems must be clearly shown to be compatible and consistent with the characteristics of the site and stored substance.

In order to provide the earliest warning of an unauthorized release, monitoring systems that operate continuously are preferred and should be connected to an above-ground alarm system.

Section 2646. Ground Water Leak Detection Monitoring

Specific Purpose

The specific purpose of Subsection (a) is to apprise owners of underground storage tanks that unless otherwise exempted they must implement a ground water leak detection monitoring system.

The specific purpose of Subsection (b) is to provide for exemptions from ground water leak detection monitoring where other monitoring methods have been implemented and are adequate or where physical constraints preclude the installation of monitoring wells.

The specific purpose of Subsection (c) is to provide for

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alternative means of monitoring for unauthorized releases when ground water rises high enough to inactivate the vadose zone monitoring system.

The specific purpose of Subsection (d) is to provide for two monitoring techniques that are based on different sensing mechanisms.

The specific purpose of Subsection (e) is to provide minimum guidance to city and county staffs on the design of a ground water monitoring system that will provide adequate leak detection capability.

The specific purpose of Subsection (f) is to specify a monitoring frequency that is consistant with the concept of early detection but is not overburdensome for the owner.

Factual Basis

Health and Safety Code Section 25284.1(b)(2) provides for the use of ground water monitoring to detect unauthorized releases. It is anticipated that there will be some sites at which neither visual monitoring nor vadose zone monitor is feasible. Under these conditions, ground water monitoring provides the only other means of detecting unauthorized releases. Ground water leak detection monitoring is also proposed for sites at which vadose monitoring is conducted but where the ground water may

periodically rise and inundate the sensors rendering them inoperable. Under conditions where the ground water level is continuously too high for the use of most vadose zone monitoring techniques, vapor monitoring used in conjunction with ground water monitoring will provide a more rapid means of detecting unauthorized releases than ground water monitoring alone. It is proposed that these wells be constructed in such a way that when the ground water level is low and the vadose zone monitoring sensors are operating, the ground water monitoring wells can be used as assurance monitoring wells pursuant to Section 2647 of Article 4.

Many, if not most, of the staff of the local governments charged with administering these regulations will have little experience in ground water monitoring. Therefore, the regulation provides guidance in the form of minimum criteria for the design of ground water leak detection systems. Because the areal distances between monitoring wells will be, in most cases, too short to determine hydraulic gradient; a fixed pattern of wells is proposed. The well design is predicated on the need to draw in substances that are less dense than water and which tend to accumulate at the water surface as well as substances that would be found in the water column.

Section 2647. Assurance Ground Water Monitoring

Specific Purpose

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The specific purpose of Subsection (a) is to apprise owners of underground storage tanks that unless otherwise exempted they must implement an assurance ground water monitoring system.

The specific purpose of Subsection (b) is to provide for exemptions from assurance ground water monitoring in those instances where a ground water leak detection monitoring system is operating, where the depth to ground water is greater than 200 feet, or where it is physically impossible to drill wells.

The specific purpose of Subsection (c) is to specify the monitoring system design requirements relative to the depth to ground water.

The specific purpose of Subsection (d) is to specify the means by which the depth to ground water is to be determined.

The specific purpose of Subsection (e) is to specify the minimum sampling frequency for assurance ground water monitoring wells.

The specific purpose of Subsection (f) is to specify the parameters to be monitored in the assurance ground water monitoring program.

The specific purpose of Subsection (g) is to specify the protocol for the collection and analysis of samples.

Factual Basis

The ultimate objective of the underground tank monitoring program is to prevent contamination of ground water. Tank testing and vadose zone monitoring provide information as to whether a tank is leaking but do not provide direct information on the state of ground water quality. These indirect methods of inferring whether contamination is occurring have internal limitations as well as being subject to mechanical malfunction and human error. Consequently, a means of periodically measuring ground water quality directly is needed to confirm that unauthorized releases are not bypassing the detection systems and degrading ground water quality. Assurance ground water monitoring provides the needed direct confirmation.

For relatively shallow wells, the number and positioning of wells is based on the assumption that the wells will be so close together that the hydraulic gradient can not be determined; therefore, a predetermined pattern was selected. For the deeper, more expensive wells, only one well is required and it is to be positioned in the best estimate of the down gradient direction from the tank.

The regulation specifies the way in which the depth to ground water is to be determined because often the degree of accuracy of regional representations of ground water levels is out of date or

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is inappropriate for site specific design. In general the monitoring schedule for the assurance ground water monitoring system can be based on fairly long intervals between observations because assurance monitoring is not being used as the principal means of detecting unauthorized discharges.

Because of the relatively long intervals between samplings, there is more opportunity for the effects of attenuation and the movement of a contamination slug past a well to subdue evidence of contamination. Therefore, either the samples should be analyzed for all constituents of the stored substance or at least the more conservative constituents. Furthermore, for any given constituent, there are usually several analytical methods and procedures that are available. However, not all methods and procedures produce the same results. It is important, therefore, that the methods and procedures used are appropriate for the program objectives and are used consistently. Otherwise, the results may be misleading.

Additionally, the standardized use of specific protocols permit the comparison of results obtained from different tank owners where tanks are located in the same area. It also permits data obtained from the underground tank program to be compared with data obtained from other state and federal monitoring programs that use the same protocols. Consequently, the regulation requires the use of specific protocols that are used by the state and the EPA for other ground water monitoring programs.

Section 2648. Well Construction and Sampling Methods

Specific Purpose

The specific purpose of Subsection (a) is to specify that the materials and equipment used to drill a boring and to construct a well must not react with the constituents of interest in such a way that would affect the analytical results or damage the well.

The specific purpose of Subsection (b) is to prevent the use of contaminated materials in the construction or abandonment of monitoring wells.

The specific purpose of Subsection (c) is to prevent the contamination of a well by the use of contaminated drilling equipment.

The specific purpose of Subsection (d) is to prevent contamination of a monitoring well by the use of contaminated materials used to construct a well.

The specific purpose of Subsection (e) is to prevent the contamination of samples by the use of contaminated sampling equipment.

The specific purpose of Subsection (f) is to prevent reaction

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between drilling fluid additives and the constituents of interest in such a way that would affect analytical results.

The specific purpose of Subsection (g) is to prevent the contamination of a well by contaminated drilling fluid additives.

The specific purpose of Subsection (h) is to prevent silting or cavitation of soil by pumps.

The specific purpose of Subsection (i) is to prevent contamination of monitoring wells by the infiltration of surface water into the annular space between the boring wall and the well casing.

The specific purpose of Subsection (j) is to assure that ground water monitoring wells are not constructed without being developed.

The specific purpose of Subsection (k) is to prevent the entrance of water through the top of the well casing.

The specific purpose of Subsection (l) is to protect the integrity of the portion of the well exposed at the ground surface.

The specific purpose of Subsection (m) is to provide permanent well identification and well construction data at each well.

The specific purpose of Subsection (n) is to assure that exploration wells are designed to retrieve soil samples and are drilled by a technique that allows for positive detection of first water.

Factual Basis

Monitoring wells are subject to contamination from a variety of sources that would impair or destroy their effectiveness as monitoring wells. However, the chances of contamination occurring can be greatly reduced by employing appropriate methods, equipment, construction materials, and drilling techniques when constructing the wells. Not all drillers are experienced with monitoring wells used to monitor for the exotic and reactive constituents that are commonly found in hazardous substances. This regulation provides guidance to tank owners in the various areas where special precautions must be taken.

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Article 5. Release Reporting Requirements

Section 2650. Applicability

Specific Purpose

The specific purpose of Section 2650 is to establish reporting procedures for all unauthorized releases as required by the California Health and Safety Code Sections 25284.3 and 25284.4. All unauthorized releases must be reported by tank operators to local agencies. Unauthorized releases are divided into two groups depending on the threat to contaminate the soil and water as a result of the release.

The two types of reporting procedures include recording the unauthorized release on the permittee's monitoring reports and reporting an unauthorized release within 24 hours to the local agency, Office of Emergency Services, and the Regional Water Quality Control Board.

These reporting requirements are in addition to any requirements which may be imposed by Section 13271 of the Water Code.

Factual Basis

The tank construction and monitoring standards were developed such that all unauthorized releases can be identified and

reported. By requiring tank owners and operators to report all unauthorized releases to those agencies with responsibility to require clean-up, the public can have some assurances that the release will be cleaned up such that public health and water quality will be protected. These reporting requirements are mandated by the Health and Safety Code Sections 25284.3 and 25284.4.

Section 2651. Unauthorized Release Requiring Recording

Specific Purpose

The specific purpose of Section 2651 is to identify what is a recordable release, what information and how to report such a release; local agency responsibilities on determining the integrity of the tank; how to determine the integrity of the tank; how to determine the integrity of the secondary container of the tank and how to handle a recordable release which becomes a reportable release.

Factual Basis

Subsection (a), the definition of a recordable release, is any release which is from the primary container; does not escape from or cause any deterioration of the secondary container; can be cleaned-up within eight hours and does not increase the hazard of fire or explosion. This definition is established by the Health

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and Safety Code Section 25284.3.

Subsection (b) requires the recordable release be contained, safely transported, legally disposed of, and reported on the permittee's monitoring reports. Much of the information to be reported is required by the Health and Safety Code Section 25284.4 (b). This information includes hazardous substance, quantity, operator name, and actions taken to abate the problem. The other information required to be recorded are to assist the local agency in determining if the unauthorized release was properly handled and will not contaminant ground and surface waters. This information includes hazardous substance, concentration, method of clean-up and cost, and method and location of disposal.

Subsection (c) gives the local agency authority to review the reported information and determine if the tank is unsafe. Section 25284.4 (a) of the Health and Safety Code gives the local agency this authority so that underground tanks which have experienced releases will be reviewed and repaired before being used again.

Subsection (d) establishes conditions which would cause possible deterioration of the secondary container. These conditions need to be identified so the local agency can determine the safety of reusing the tank.

Subsection (e) requires that if a release being treated as a recordable release is later determined to not meet the definition of a recordable release set forth in Section 2651 (a) that it immediately be treated as a reportable release under Section 2652. If the release is greater than first thought, then the reporting and clean-up procedures need to be more stringent than is required in Section 2651 (a).

Section 2652. Unauthorized Releases Requiring Immediate Reporting

Specific Purpose

The specific purpose of Section 2652 is to identify what is a reportable release; what information is required; how and when to report the release; local agency responsibilities on determining the integrity of the tank; establish that these reporting requirements are in addition to other reporting requirements specified by other laws and regulations; and establish that additional information may be required by other governmental agencies.

Factual Basis

Subsection (a), a release requiring immediate reporting is defined as any release which escapes the secondary container, increases the hazard of fire or explosion and a release which causes any deterioration of the secondary container. This

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definition is established by Section 25284.4 (a) of the Health and Safety Code. In addition to this definition, is added, any release of hazardous substance in a tank which does not have a secondary container. This provides reporting requirements for single container tanks (most existing tanks) which have leaks but no secondary container for protection. These are the type of releases that could immediately threaten public health or water quality and therefore should be reported immediately to allow those agencies with responsibility to require clean-up to become involved in any remedial actions.

Subsection (b) requires the operator or permittee to report the release to the local agency, Office of Emergency Services and Regional Water Quality Control Board within 24 hours after the release has been detected or should have been detected. The releases defined by this section are of critical nature and have the greatest potential for contamination of ground or surface waters and therefore need to be reported and contained immediately. Section 25284.4(a) of the Health & Safety Code provides authority for this requirement.

Subsection (c) requires the operator or permittee to submit a written report to the local agency within five working days of the occurence. Much of the information to be reported is required by Section 25284.4(b) of the Health and Safety Code. This information includes hazardous substance, quantity of release, operator name, and actions taken to abate the problem.

Other information required to be reported is needed to assist the local agency in determining if the authorized release is being handled properly and ground and surface waters are protected. This information includes hazardous substance concentration; method of immediate clean-up and proposed clean-up actions; extent of soil and ground water and surface water contamination; and method and location of hazardous substance and contaminated soil and water disposal. Clean-up costs have been included to be reported so that the State Board and the Legislature (which receives this information in an annual report) have some idea of the total state-wide costs involved with unauthorized release clean-ups.

Subsection (d) requires the operator or permittee to submit reports every three months or more frequently on the clean-up actions and investigations. This reporting is needed to assure the local agency and Regional Water Quality Control Board that clean-up actions are continuing and the appropriate clean-up methods are being used. Depending on the potential of severe contamination, the reporting frequency should be flexible but not beyond three months. Three months is a reasonable maximum amount of time to track clean-up actions.

Subsection (e) gives the local agency authority to review the reported information and determine if the tank is unsafe. Section 25284.4 (a) of the Health and Safety Code gives the local agency this authority so that underground tanks which have

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experienced releases will be reviewed and adequately repaired before being used again.

Subsection (f) establishes that these requirements are in addition to any other reporting requirements specified in other laws and regulations. This is established by Section 25284.4 (c) of the Health and Safety Code.

Subsection (g) allows any governmental agency, pursuant to other laws or regulations, to request additional investigations. Unauthorized releases vary on locations, hazardous substances involved, and a number of different conditions and therefore, should be examined on a case-by-case basis. Depending upon the release, other agencies may need to get involved, such as County Agriculture Commissioners, and Fire Marshals. These agencies may require information above and beyond what is asked in Section 2652(c) to fully evaluate the release.

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Article 6. Allowable Repairs

Introduction

The repair of leaking underground storage tanks is provided for in Section 25284.5, Chapter 6.7, Division 20 of the Health and Safety Code. A leaking underground storage tank must either be repaired, replaced or closed. Replacement and closure are covered in Articles 3 and 7, respectively. This Article specifies repair requirements. If repairs are not adequately performed an underground storage tank without proper containment could be put back in service which would lead to another release of hazardous substances.

Section 2660. Applicability

Specific Purpose

The specific purpose of this regulation is to establish requirements for the repair of leaking underground storage tanks. This regulation describes: the conditions which must be met to allow for a primary container to be repaired; the allowable repair methodology; and the required tank testing which must be implemented prior to placing the underground storage tank back in service.

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Section 2661. Repair Evaluation

Specific Purpose

The specific purpose of this regulation is to establish criteria which will be used to determine if a tank can be successfully repaired. This regulation applies to all underground primary containers storing hazardous substances which are to be repaired. This includes tanks which have not been demonstrated to be leaking. These regulations are intended to identify those tanks that could not be successfully repaired so that an inadequate repair is not performed leading to a false sense of security about the tank.

One of the major concerns regarding tank repair is that all significant problems with the tank are adequately addressed. It would be very easy for a tank owner to identify a puncture, failed weld, or small corrosion hole to be repaired while ignoring a more serious problem such as more wide-spread corrosion that had not yet manifested itself. In order to address this concern these regulations require that the tank owner evaluate the tank to be repaired to determine if the failure mechanism which caused the repair is affecting other parts of the tank or if any other failure mechanisms may be affecting the tank.

There are certain conditions that, if present, make it very

questionable as to whether an interior lining repair will work. For this reason the regulations prohibit the use of an interior lining when the repair is intended to correct: (1) a liner split of more than three inches; (2) a single hole with a diameter greater than one inch; or (3) more than ten small perforations.

The regulations require that for steel tank repairs the evaluation noted above must include an ultrasonic or comparable test to determine if a corrosion problem is affecting the integrity of the tank to be repaired. If such a problem is identified it is incumbent on the tank owner to demonstrate that future corrosion problems can be minimized and that the identified problem will not adversely impact the structural integrity or containment ability of the tank. The failure to provide such assurances is a clear indication that even if the tank is repaired it is likely that a problem will reoccur in a short time and that the repair should not be allowed.

Finally, interior coating is a process that, if done properly, has a reasonably high success rate if it is the first application. A second interior coating has a high risk of failure. Therefore, the regulations require the tank owner to demonstrate that a previous interior coating has not been applied to the tank.

Factual Basis

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The factual basis for the determination by the State Board that this regulation is necessary is as follows.

Section 25284.5, Chapter 6.7, Division 20 of the Health and Safety Code specifically provides for:

(a) One-time interior coating of motor vehicle fuel tanks; and

(b) Requires an ultrasonic or comparable test to determine if a serious corrosion problem exists.

It is recognized fact that certain causes of tank leakage cannot be adequately repaired using an interior tank coating. Preventing these tanks from being repaired will eliminate the potential for leakage to reoccur after only a short time period after the repair or that local agencies or tank owner will be lulled into a false sense of security based on a tank repair that is doomed to failure in the short term.

References

New York State, Department of Environmental Conservation, January 1983, "Technology for the Storage of Hazardous Liquids. A State-of-the-Art Review"

Section 2662. Repair Methodology

Specific Purpose

The specific purpose of this regulation is to establish criteria which will govern the method by which tank repairs will be accomplished. The two principal factors that could contribute to the failure of an interior coating repair are the method of application and the compatibility of the coating to the original tank material and the substance to be stored. These regulations require the use of previously accepted application practices to assure that new methods are adequately tested prior to their use. Furthermore, the accepted practices include specifications for preparation of the interior tank surface which is necessary for a proper bonding of the coating to the tank.

In order for the coating to act as a container it must be compatible with any hazardous substance proposed for storage and be compatible with the original tank material. The requirements for a primary container, which the coating is intended to satisfy, is that it not be subject to deterioration when in contact with the hazardous substances being stored.

Factual Basis

The factual basis for the determination by the State Board that this regulation is necessary is as follows.

Section 25284.5, Chapter 6.7, Division 20 of the Health and

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Safety Code specifically provides for the following:

(a) The material used to repair the tank by an interior-coating process is compatible with the substance being stored.

(b) The material used to repair the tank by interior-coating is applied in accordance with nationally recognized engineering practices such as the American Petroleum Institute's Recommended Practice No. 1631 for the interior lining of existing underground storage tanks.

The use of a material that is incompatible with the stored hazardous substance will deteriorate in time. In some cases this period can be relatively short. This situation will result in a reoccurrence of a leak thereby threatening public health and water quality and costing the tank owner further remedial action expenses. In addition, the owner's time and costs of installing the tank coating are wasted. Unknowingly allowing coatings that are incompatible would lead to a false sense of security as to the reliability of the containment ability of the tank by both the local agency and the tank owner.

Section 2663. Primary Container Monitoring

Specific Purpose

The specific purpose of this regulation is to assure that the

tank or pipe was repaired correctly and that it will be capable of functioning as a primary container without leaking. This testing will provide some assurance that the repairs performed were successful and that no other leaks were overlooked or caused by the repair.

Factual Basis

The factual basis for the determination by the State Board that this regulation is necessary is as follows.

Section 25284.5, Chapter 6.7, Division 20 of the Health and Safety Code provides for the following:

> Following the repair, the standard installation testing requirements for underground storage tanks specified in Section 2-7.3 of the Flammable and Combustible Liquids Code, adopted by the National Fire Protection Association on November 20, 1981 (NDPA 30-181) shall be followed.

Standards already exist for the testing of pipelines after installation. Since a repaired tank or pipeline should act as a new unit it should be capable of successfully passing a test to determine its containment ability.

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Article 7. Closure Requirements

Introduction

Once the useful life of a tank ends it can still pose a threat to public health and the environment if it is not properly closed. Section 25286 of Chapter 6.7, Division 20 of the Health and Safety Code provides that no person shall abandon close or temporarily cease operating an underground storage tank unless they comply with certain requirements. Proper closure involves removal of all hazardous substances from the tank, assuring that no hazardous substances were discharged from the tank during its useful life and assuring that the tank could not be used in the future. The regulations in this Article provide the details implementing the above necessary actions.

Section 2679. Applicability

Specific Purpose

The specific purpose of this regulation is to clearly define temporary and permanent closure and to identify the sections of this article that are applicable to the various forms of closure and the timing that tank owners must comply with when closing a tank.

Subsection (b) defines temporary closure as the planned ceasation of hazardous substance storage in the tank with the intent to reuse the tank for storage within a two year period. Exempted from this definition are tanks which are emptied as a result of complete withdrawal of the stored substance during normal operations prior to refilling.

Subsection (c) defines permanent closure as the ceasation of storage with no intended or planned reuse of the tank.

Subsection (d) is intended to preclude the application of these regulations to those tanks where storage of hazardous substances is on-going pursuant to permits issued utilizing the regulations in Articles 3 or 4 but where there is no use (i.e. additions or withdrawls) of the stored substances.

Subsection (e) is intended to assure that, during closure activities, the tank owner continue to comply with the regulations of Articles 3 or 4 until completion of closure.

Subsection (f) is intended to require that, for planned closure, the tank owner submit to the local agency a closure plan at least 45 days prior to closure. In emergency conditions, to preclude or prevent an unauthorized release, compliance with this time period is not required.

Subsection (g) is intended to prohibit a tank owner from applying

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for a temporary closure permit after experiencing an unauthorized release from the tank without first performing the repairs that would be necessary to immediately place the tank back into service.

Subsection (h) is intended to require the permanent closure of all tanks that have experienced an unauthorized release unless the tank is immediately repaired such that it could be legally reused.

Factual Basis

The factual basis for the determination by the State Board that this regulation is necessary is as follows.

Tanks which are no longer being used can still cause public health or environmental problems due to residual hazardous substances that may be allowed to remain in the tank, unauthorized future use of the tank once the permit conditions and monitoring have been eliminated, and the continued migration of hazardous substances which may have been released from the tank during its life but not detected. Tank owners should have the ability to temporarily take a tank out-of-service without the major expense of reconstructing the tank at some future date. A two year period of time as specified in Subsection (b) was selected as this seemed to be a reasonable time period to allow a tank owner to reconsider their future equipment/facility needs

and to take into account fluctuations in the economy which could cause an owner to discontinue use of a tank.

During the period needed to complete the closure activities, it is necessary to assure compliance with the containment and monitoring requirements which existed while the tank was being used. This is because hazardous substances will probably remain in the tank during this period and these substances have the same potential to leak as during the period the tank was in service. A closure plan will be a detailed document that will require some review period. Subsection (f) requests that these plans be submitted to the local agency 45 days in advance of proposed closure to allow for this review and provide some time to make any required changes.

Subsections (g) and (h) are needed to assure that tanks which have failed and caused an unauthorized release are not put back-in-service at some future date without being repaired. Since temporary closure implies that the tank could be put-back-in-service at any time within two years it should be reserved only for tanks that do provide containment. Therefore, tanks that have failed must be repaired before they can apply for this status. Tanks that have failed and are not properly repaired must be properly closed in order to preclude the existence of some of the environmental threats of an abandoned tank.

Section 2671. Temporary Closure

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Specific Purpose

The specific purpose of this regulation is to require that specific actions be taken by a tank owner during a period when the tank is not being used to store hazardous substances to preclude possible environmental problems.

Subsection (a) restates the definition of temporary closure as was previously defined in Section 2672 (b) in order to be very clear on the applicability of this section.

Subsection (b) requires the removal of all residual hazardous substances from the tank and the appropriate disposal of these substances. If the substance is a product (i.e. suitable for use or reuse) it should be moved to another legal point of storage or, on the option of the owner, handled as a hazardous waste. All hazardous wastes are required to be handled as hazardous wastes pursuant to other applicable sections of the Health and Safety Code and Water Code. If the hazardous substance could produce flammable vapors then these vapors must be purged from the tank system or from the tank and pipelines separately. It is allowable, but not required, to fill the tank with a non-hazardous substance once it is cleaned and purged. The regulations also require that the owner seal all tank accesses with locking caps or concrete plugs and disconnect power from pumps serving the tank to assure no use of these facilities during the

temporary closure period.

Section (c) requires that during the temporary closure period the monitoring required in Article 4 is required for all tanks permitted pursuant to Article 4. Visual monitoring is not required and the frequency of the other monitoring methods may be reduced.

Subsection (d) requires the quarterly inspection of all tanks during the temporary closure period to assure the integrity of the closure actions. Plugs should be inspected to assure that they are still in place and that locks have not been tampered with and, if possible, an evaluation of the liquid level, if any, within the tank should be made.

Factual Basis

The factual basis for the determination by the State Board that this regulation is necessary is as follows.

Tanks which are temporarily taken out-of-service still have the potential to cause environmental problems due to unauthorized use, leakage of residual substances, explosion, and continued migration of previously leaked substances. These regulations are to provide assurances that these conditions do not exist during the temporary closure period.

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Subsection (b) is necessary to require the removal and proper disposition of all residual hazardous substances. This action will greatly reduce the likelihood of any unauthorized release occurring during the temporary closure period when less attention is given to an out-of-service tank. The disposition of the removed hazardous substances is important since improper handling or disposal could cause an environmental problem at another, non-regulated site. Other sections of law require the proper disposition of these residual substances.

The possibility of explosion is significant when all liquids are removed from a tank and flammable vapors remain. Purging is necessary to eliminate this problem. The illegal use of an accessable empty tank can create problems during the temproary closure period since many permit and monitoring conditions may be suspended during this time. It is necessary to eliminate access by locking or sealing all access points and precluding the use of remote pumps which might be used to fill the tank.

Subsection (c) requires the continuation of monitoring at all tanks which do not have secondary containment as provided for in Article 3. The monitoring for tanks that do not have secondary containment does not provide for the immediate detection of a release. Therefore, it may be some time before monitoring detects a leak that occurred prior to when the temporary closure period began. If all monitoring was discontinued a leak that occurred just prior to temporary closure might not be detected

until the tank was placed back in service.

Subsection (d) is needed to assure that the temporary closure actions to eliminate access to the tank are still in-place and have not been tampered with. Determining if there has been a change in the quantity or type of liquid in the tank during the temporary closure period is an early indication of a potential tank containment problem as it could be due to a leak or the infiltration of groundwater.

Section 2672. Permanent Closure

Specific Purpose

The specific purpose of Subsection (a) is to indicate the applicability of the remaining subsections of this section. The tank owner has the option of compliance with either Subsection (b) or (c) but all tank closures must comply with Subsection (d). The owner may decide to close a portion of the tank system (e.g. the piping) according to Subsection (b) and close the actual tank according to subsection (c).

Portions of Subsection (b) are duplicative of Subsection (b) of Section 2671. The tank must be handled, transported and disposed of as a hazardous waste unless it is adequately cleaned to remove all residual hazardous substances. If a tank or portions of a tank are intended to be reused then the owner must comply with

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all regulations concerning tank requirements for the proposed use. This is to prevent a tank which was used to contain hazardous substances from being used for a purpose that requires a new tank. The owner is required to provide specific information on the proposed reuse as part of the closure plan. Tanks that are to be reused as scrap must be thoroughly cleaned to assure that the scrap is not a hazardous waste. The tank should be punctured in numerous locations to assure that it will not be reused and it should be properly labeled as to its prior use.

The first part of Subsection (c) is the same as the first part of Subsection (b) of Section 2671. This subsection requires the removal and proper disposal of all piping and the complete filling of the tank with an inert solid. This subsection also requires that a notice be placed in the deed to the property providing specific information as to location and prior use of the tank.

Subsection (d) requires that the owner demonstrate, upon closure, that no contamination exists outside of the primary or secondary containment. For double containment tanks this demonstration can be based on the on-going leak detection monitoring. Owners of tanks without secondary containment should provide this demonstration by sampling the soils immediately below the tank/piping and analyzing these soils for all constituents stored in the tank and their breakdown or transformation products.

Subsection (e) requires the reporting of an unauthorized release if the demonstration performed as part of Subsection (d) indicates a release.

Factual Basis

Proper closure of underground storage tanks is necessary to preclude possible future impacts to the environment. Closure can be accomplished in more than one way and these regulations give the tank owner the option. One method involves the removal of the tank from the ground and its ultimate disposition. Parts (1) and (2) of Subsection (b), Section 2672 are the same as parts (1) and (2) of Subsection (b), Section 2671. Since the tank material may contain some of the hazardous substance it was in contact with it must be handled and disposed of as a hazardous waste or adequately cleaned to make it non-hazardous. Reuse of the tank can be allowed in certain instances, especially if the reuse is similar to the past use provided the tank is not damaged in removal. However, the prior use may preclude certain proposed future uses. It is the tank owners responsibility to assure that the tank being closed isn't destined for an incompatible future use and this information must be submitted to the lead agency for verification. If the tank or portions thereof are being sold for scrap it is important that the tank be made non-hazardous by proper cleaning since many people will come into contact with the tank and the residual hazardous substances could cause public

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health problems due to contact. Also, the tank should be rendered non-usable by puncturing it in numerous locations such that it would not be mistakenly reused rather than disposed as scrap.

The first two parts of Subsection (c) are the same as parts (1) and (2) of Subsection (b), Section 2671. The regulation requires that the tank be filled with an inert material to preclude the future use of the tank. Piping, since it is more difficult to fill must be removed, handled, and disposed as a hazardous waste. Future site owners should be aware of the tank location and its prior use and the only way to assure this is to require a notice in the deed to the property. If future problems do arise it will be easier to locate the tank and have information on its prior use.

Subsection (d) is needed to assure that the tank did not leak during its useful life. This demonstration is easier for owners of tanks with secondary containment since most releases from the primary tank will be detected in the secondary tank. If no primary tank releases occurred, then it can be assumed that no releases from the secondary tank had occurred. However, if a release from primary did occur then there must be some demonstration that it was totally contained in the secondary system. The chances are that it was contained; however, since this entire set of regulations is premised on the fact that tanks do leak, there is a chance that the secondary system also leaked.

Tanks that only have primary containment are more susceptible to leakage to the environment and, as previously described, the monitoring systems are less susceptible than a secondary contained tank to detecting this leakage. If a release did occur it is likely that some residual contaiminants remain in the soils. Soils testing is the best method to demonstrate that no leakage has occurred.

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Article 8. Categorical and Site Specific Variance Procedures

2680. Applicability

Specific Purpose

The purpose of this article is to establish procedures for categorical and site-specific variances from Articles 3 and 4 of this subchapter.

Factual Basis

Variance procedures are needed in regulations which require that certain standards be met. Not all underground tank construction standards and monitoring systems are applicable to every situation. By establishing variance procedures, tank owners are allowed to examine alternative systems which may meet the objectives of the law and protect surface and ground waters. Sections 25288.3(a) and (c) of the Health and Safety Code provide the basis for these procedures.

Section 2681 Categorical Variances

Specific Purpose

The specific purpose of this section is to establish categorical variance procedures by defining categorical variance; identify as what information is needed in the application; establishing notification and review procedures, allowing conditions to be placed on variances, defining local agency responsibilities, and allowing the State Board to modify or revoke a categorical variance.

Factual Basis

Subsection (a) defines categorical variances for alternative methods of construction or monitoring which are applicable to more than one site. This definition is needed to distinguish which variance procedures should be followed. Pursuant to Section 25288.3 (a) of the Health and Safety Code, application for categorical variances should be made by the permittee to the State Board.

Subchapter (b) requires specific items be included in a catagorical variance application. Information required by Section 2588.3(a) of the Health and Safety Code includes a description of the alternative systems and circumstances under which the variance would apply; and clear and convincing evidence that the alternative systsem will protect the soil and water.

Section 25288.3(d) of the Health and Safety Code allows the State Board to establish a fee to cover reasonable costs. This fee was

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determined by estimating the review time to be .20 SY, which is reasonable for reviewing, plus the cost of two public hearings. Detailed costs of hearings for the Water Rights process were determined to be between $5,000 and $10,000. Since the categorical variance will have an effect statewide but is not expected to be extremely controversial, the cost was estimated at $7,500. The calculation is:

0.2 SY x $55,000 (staff year cost for an Environmental Specialist III or Associate Engineer)	= $11,000
2 public hearings at $7,500	= $15,000
Total Cost	$26,000

Other information requested includes identifying the provision from which the variance is requested and providing a list of names and addresses of local agencies and persons affected or interested in the variance request. This information will assist the State Board in evaluating the variance request and assure successful public notification of the request.

Subsection (c) involves the State Board notifying the applicant within 30 days of receipt of the application as to whether the application is complete. This is required by Governmental Code Section 65943. Similar notification times are established in water rights and waste discharge requirements applications.

Subsection (d) requires the State Board to prepare any necessary CEQA documents on the impacts of alternative system. Since the State Board is the lead agency, this is their responsibility.

Subsection (e) requires the State Board remand the application to the Regional Board if appropriate. This is established in Section 25228.3(a) of the Health and Safety Code.

Subsection (f) requires the State Board to hold at least two public hearings within 180 days of receipt of the completed variance request. The public hearing must be held in two different locations and require at least ten days notice. The two public hearings in two different locations is mandated by Health and Safety Code Section 28288.3(a). The State Board staff needs at least 150 days to review the variance request for technical feasibility because new technology is being developed every day on tank construction and monitoring. Another thirty days is needed to prepare for and notice the public hearings.

Subsection (g) requires information on testimony to be given at public hearing shall be submitted to the State Board 10 days prior to the hearing. This is consistent with existing procedures of the State Board for public hearing testimony.

Subsection (h) requires the applicant to demonstrate that the proposed alternative will protect the soils and waters of the

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state. This information is required so that staff can adequately evaluate the variance request. Section 25288.3(a) of the Health and Safety Code require the applicant to submit this evidence to the State Board.

Subsection (i) identifies the basis upon which the State Board will make its decision on the variance. This is consistent with existing procedures at the State Board for accepting evidence and testimony.

Subsection (j) allows the State Board to discuss the variance at a workshop meeting. This is consistent with existing procedures at the State Board workshop meetings.

Subsection (k) instructs the State Board to describe the specific alternative system and any conditions in granting the variance. Specify the alternative system and conditions in a written variance, the State Board is providing the applicant with a document to show the local agency in permitting the system. Confusion as to what alternative system and conditions are included in the variance is avoided by having the State Board specify exactly what constitutes the variance and its conditions.

Subsection (l) require applicants to attach a copy of the approved variance to the permit application for local agency review for applicability. This allows local agencies to approve permits for alternative systems which are not included in the

regulations.

Subsection (m) allows the State Board to modify or revoke any variance which does not adequately protect soils and waters of the state. Should the State Board error in approving a variance or if the alternative system does not perform as expected, the State Board can reevaluate its approval of the variance. All alternative systems approved must protect the soils and waters of the State in order to maintain the existing quality of life.

Section 2682. Site-Specific Variances.

Specific Purpose

The specific purpose of this section is to establish site-specific variance procedures in defining site-specific variance, identifying what information is needed in the application, establishing notification and review procedures, allowing conditions to be placed on a variance; defining local agency responsibilities and allowing the Regional Board to modify or revoke a site-specific variance.

Factual Basis

Subsection (a) defines site-specific variance as an alternative construction or monitoring method which is applicable at one facility location. This definition is needed to distinguish

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which variance procedures should be followed; Section 2581 or 2682. As established in Section 25288.3(c) of the Health and Safety Code, application for a site-specific variance is made by the permittee to the Regional Board.

Subsection (b) requires that the permittee submit to the local agency 60 days prior to requesting a variance from the Regional Board, a complete construction and monitoring plan. The local agency must then decide within 60 days if a site specific variance is needed. The 60-day time frame is a reasonable amount of time for the local agency to review the proposal and act on the need for a variance before the permittee submits the plan to the Regional Board. Should the local agency not reach a decision within 60 days as to whether or not a variance is required, the permittee may proceed with the application. This is provided so an applicant's request is not lost in the system and no project is ever approved. Authority to proceed is established in Section 25288.3(c) of the Health and Safety Code.

Subsection (c) requires the permittee to request the local agency join the variance request at least 30 days before applying to the Regional Board. This request and time frame is established by Section 25288.3(c) of the Health and Safety Code. Because the local agency has primary review and approval authority on the project, it qualifies as the lead agency. The lead agency is responsible for preparing any documents required by CEQA.

Subsection (d) allows the local agency 30 days after completion of documents or receipt of Regional Boards recommendation to decided whether to join the applicant in the variance request. Health and Safety Code Section 25288.3(c) requires this time frame.

Subsection (e) identifies what items are required to be included in the variance request. Information required by Section 25288.3(c) of the Health and Safety Code includes a description of the alternative systsem, special circumstances that strict application of Articles 3&4 of this subchapter are not necessary to protect the soils and waters of the State or strict application of Article 3 or 4 would create practical difficulties not applicable to the facilities; and evidence that the proposed alternatives will protect the soil and waters.

Other information requested includes citing the provisions from which the variance was requested and submitting any CEQA documents. This information is needed to evaluate the variance request.

Section 25288.3(d) of the Health and Safety Code allows the State Board to establish a fee to cover reasonable costs. This fee was determined by estimating the review time to be 0.05 SY which is less than for categorical variance since at a specific site and specific information can be gathered. The public hearing should not be controversial and thus is estimated at the lowest cost of

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$5,000. The calculation is:

.05 SY x $55,000 =	$2,750
1 public hearing at $5,000 =	5,000
Total Cost	7,750

Subsection (f) involves the Regional Board notifying the applicant within 30 days of receipt of the application whether or not the application is complete. This is required by Government Code Section 65943. Similar notification times are established in water rights and waste discharge requirements applications.

Subsection (g) requires the Regional Board to hold a public hearing within 120 days of receipt of the completed variance. The public hearing must be noticed ten days in advance. Regional Board staff needs about 3 months to complete field investigations and a technical review of the site-specific variance with about 30 days to prepare for and notice the public hearing.

Subsection (h) requires information on testimony to be given at the public hearing be submitted to the Regional Board 10 days prior to the hearing. This is consistent with existing procedures of the Regional Boards for public hearing testimony.

Subsection (i) instructs the Reginal Board to describe the specific alternative and any conditions in granting the variance. The Regional Board must notify the applicant and local agency of

its decisions. By having the Regional Board specify exactly what constitutes the variance and the conditions, avoids confusion as to what alternative system and conditions are in the variance.

Subsection (j) requires the Regional Board to consider the local agency recommendation and the completness and accuracy of the variance application in rendering its decisions. This is required by the Health and Safety Code Section 25288.3(c).

Subsection (k) requires the local agency to issue without modifications a permit with the conditions prescribed by the Regional Board if the variance is approved. The purpose of granting variances is so the applicant can obtain an operating permit for the tank. Therefore, when a variance is approved, a permit must also be approved.

Subsection (l) allows the Regional Board to modify or revoke any variance which does not adequately protect soils and waters of the state. Should the Regional Board error in approving a variance or if the alternative system does not perform as expected, the Regional Board can reevaluate its approval of the variance. All alternative systems approved must protect the soils and waters of the state in order to maintain the existing quality of life.

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Article 9 Local Agency Additional
Standards Request Procedures

2690. Applicability

Specific Purpose

The specific purpose of this article is to establish procedures for local agencies to request State Board authorization for more stringent standards than those set by Articles 3 and 4 of this subchapter.

Factual Basis

The Health and Safety Code Section 25288.3(b) provides for a mechanism through which the local agencies can request for more stringent requirements.

2691. Additional Standards Request Procedures

Specific Purpose

The specific purpose of this section is to establish procedures for local agency requests for more stringent standards than those set by Articles 3 and 4 of this Subchapter. The procedures include identifying information needed to evaluate the request;

review and public hearing procedures and time-frame, effective dates and allowing the State Board modify or revoke additional standards.

Factual Basis

Subsection (a) identifies the items to be submitted by the local agency when applying for additional standards. Description of the proposed design and construction standards; evidence identifying the need for the additional standards and a fee are required by Health and Safety Code Sections 25288.3(b) and (c).

The fee was determined by estimating review time at 0.1 SY. which falls between the review times for categocial and site-specific variances. This is consistent since the requests effect all tanks within a specific region opposed to all tanks statewide and tanks at one facility. The public hearing is not expected to be very controversial, however, there should be more participation since more people are affected. This time cost is estimated to be $6,000. The calculation is:

0.1 SY x $55,000 =	$5,500
1 public hearing at $6,000 =	6,000
Total Cost	11,500

Additional information requested includes evidence that the additional standards will protect the soils and waters of the

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State and any necessary CEQA documents. This information is needed by State Board staff to evaluate the ability of the additional standards to protect soils and waters.

Subsection (b) requires the State Board to conduct an investigation and public hearing in the same manner as required in Article 8 Sections (d-j). These procedures are consistent with existing State Board procedures and proposed procedures in Article 8.

Subsection (c) requires the State Board to make a determination on the local agency request within six months. Section 252883.(b) of the Health and Safety Code requires this time frame.

Subsection (d) requires the effective date of the additional standards to be the date the Board makes its determination, should the Board approve the additional standards. Health and Safety Code Section 25288.3(b) requires the date of Board determination to be the effective date.

Subsection (e) establishes that if the State Board's determination does not uphold the application, the additional standards shall not go into effect. Section 25288.3(c) of the Health and Safety Code supports this idea.

Subsection (f) allows the State Board to modify or revoke any

authorization to implement additional standards. Should the State Board error in approving the additional standards or if the standards do not protect the soil and water of the state as expected, the State Board can reevaluate its decision on the additional standards.

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Article 10. Permit Application, Annual Report and Trade Secret Requirements

Section 2710. Applicability

Specific Purpose

This specific purpose of this section is to establish permitting procedures and conditions; procedures for updating permit information through the annual report, and trade secret provisions.

Factual Basis

Local agencies are required to implement a regulatory program to assure the requirements set-forth in Articles 3 and 4 of this chapter are met. The regulatory program consists of permits, reporting requirements, and inspections. To update the state-wide data base on underground tanks, copies of the permits and unauthorized release reports will be sent to the State Board. To protect proprietary products, trade secrets will be handled in confidence only by authorized personnel.

Section 2711. Permit Application and Information

Specific Purpose

The specific purpose of this section is to identify who must obtain a permit, what information is included in the permit application and what fees are required.

Factual Basis

Subsection (a) requires the tank owner to apply for the operating permit, to renew a permit, or to transfer a permit. The tank owner is liable for any problems the tank creates and thus has the responsibility for the operating permit. By making application on a standard form and sending a copy to the State Board, the statewide data base will continuously be updated with correct information. Sections 25283(a) and 25283.2(a) of the Health and Safety Code provide authority for Subsection (a).

Subsection (b) identifies the information needed in the permit application. The following information is in addition to what is required by Section 25283.2(b) of the Health and Safety Code.

1. Tank operation methods and schedules are required to assist the local agency in deciding the frequency of monitoring.

2. Installation procedures and backfill are required because improper installation and backfilling are the primary causes for leaking tanks.

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3. A diagram indicating the location of the tanks on the property is required for several reasons: the location of a monitoring system can be determined; leaking tanks can be identified; and tanks can be removed or inspected.

4. A list of previously stored chemicals is required to determine compatibility with tank construction and currently stored chemicals.

5. The permit application must be signed by a high level responsible representative to assure that the information is correct.

Subsection (c) requires a fee to be changed to cover the local agency's and State Board's costs. Section 25283.3 (a) and (b) of the Health and Safety Code requires these fees.

Section 2712. Permit Conditions

Specific Purpose

The specific purpose of this section is to describe the conditions local agencies must include in all permits and the conditions local agencies must meet prior to issuing the permit.

Factual Basis

Subsection (a) requires the permittee to notify the local agency of any changes in storage of hazardous substances or monitoring procedures within 30 days. Sections 25283.2 (c) and (d) of the Health and Safety Code requires this notification. In addition the permittee must notify the local agency of any replacement or repair of the tank. This notification will allow the local agency to review replacement or repair for compatibility with the hazardous substances and proper installation or repair procedures.

Subsection (b) requires that the permittee report all unauthorized releases to the local agency. Sections 25284.3 and 25284.4(a) of the Health and Safety Code require this reporting.

Subsection (c) requires that the permittee maintain all records of the monitoring that has been performed pursuant to the permit. Section 25284.2 of the Health and Safety Code require this.

Subsection (d) specifies that the operating permit is effective for five years; the local agency must inspect the tank before issuing the permit and an application for permit renewal is to be submitted at least 180 days prior to expiration of the existing permit. The five years effective period is determined by Section 25283.2(a) of the Health and Safety Code. Inspection of the tank prior to issuing a permit is required to determine if

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the tank is in safe operating condition and meets the criteria set-forth in Articles 3 and 4 of Subchapter 16. Permit renewal 180 days prior to permit expiration is to give the local agency time to review and approve the permit without placing the tank owner in a position of operating a tank without a permit.

Subsection (e) allows operating permits to be transferred to new owners under specific conditions. Section 25283.(b) of the Health and Safety Code gives authority for these transfers.

Subsection (f) allows for provisional permits to be issued for three months while the tank owner conforms with Articles 3 and 4 of this subchapter. Three months is a reasonable amount of time to finance and install equipment to meet the law without denying the tank owner use of the tank. This allows smooth transition into conforming with the law instead of ceasing operation until the tank meets new standards.

Subsection (g) requires tanks to be inspected at least once every three years and meet standards in Articles 3 and 4 before receiving a permit. This is pursuant to Section 25283.4(a) of the Health and Safety Code for verifying compliance is necessary before issuing a permit.

Subsection (h) requires an inspection of underground storage tanks every three years by the local agency or special inspector employed by the permittee. The responsibilities of the special

inspector are mandated by Section 25283.4(b) of the Health and Safety Code.

Subsection (i) defines the purpose of the tank inspection to check for compliance with Articles 3 and 4; determine if monitoring and testing is achieved as required by the permit and check if the tank is in safe operating condition. Section 25283.4(a) of the Health and Safety Code requires these items be examined for an inspection.

Subsection (j) requires the permittee to file with the local agency within 30 days a plan to implement the recommendations of the inspection report. This is required by Section 25283.4(b) of the Health and Safety Code. In addition to the plan, a time schedule is required detailing when the recommendations will be implemented. The time schedule gives the local agency a tool to determine if the permittee is responding to the recommendations in a timely manner. The local agency can exempt any inspection recommendation if the permittee can show that failure to implement the recommendation will result in an not unauthorized release. This allows the permittee to question an inspection recommendation if he feels the recommendation is not necessary.

Section 2713. Annual Report

Specific Purpose

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The specific purpose of this section is to update the statewide data base by requiring local agencies to report any changes for the permits and report all unauthorized releases.

Factual Basis

Section 25283.2(c) requires the permittee to complete the annual report and that this report be sent to the State Board. Section 25288(a) requires all local agencies to submit the annual report to the State Board which duplicates the provisions of this section which has the permittee submitting the information. As a result of several meetings with local agencies it was decided local agencies should collect the annual report information and submit it to the State Board. This eliminates duplicate reporting by the permittee to both local agencies and the State Board, since much of the information is required in the annual report the permittee is required to give the local agency, (ie changes in the permit and unauthorized releases). This reporting procedure will also reinforce with the permittee that the local agency is implementing the regulatory program and not the State or Regional Boards.

Section 2714. Trade Secret Provisions

Specific Purpose

These regulations are intended to establish uniform procedures

for the evaluation of requests for confidentiality of information submitted as part of an application for a permit to operate an underground storage tank or for renewal of the permit. In addition, the regulations develop procedures for treating confidential information to ensure that it will not be improperly disseminated.

Factual Basis

The basis for these regulations is the assumption that a request for trade secrecy status will be, on its face, clearly valid; or clearly frivolous, or unclear. Procedures are established to deal with each situation.

Once the need for confidentiality is established, all documents will be treated in the same manner to ensure that they are not illegally disclosed.

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6. Initial Fiscal Impact Statement dated 08/10/1984

FISCAL IMPACT STATEMENT (REGULATIONS AND ORDERS)

STD 399 (NEW 1-81)

STATE OF CALIFORNIA

SEE S A M SECTION 6055 FOR INSTRUCTIONS

AGENCY	CONTACT PERSON	PHONE NUMBER
Water Resources Control Board	Stephen Fagundes	4-1258

TITLE/DESCRIPTION OF REGULATION/ORDER

CAC Title 23, Chapter 3, Water Resources Control Board, Subchapter 16

A. FISCAL EFFECT ON LOCAL GOVERNMENT (Indicate appropriate boxes 1 through 5 and complete if necessary)

[X] 1. Additional expenditures of approximately $ See Attachment 1 annually which are reimbursable by the State pursuant to Section 2231 of the Revenue and Taxation Code. Funding for this reimbursement:

[ ] a. is provided in (Item _____, Budget Act of _____) or (Chapter _____ Statutes of _____).

[X] b. will be requested in the 1985-86 (FISCAL YEAR) Governor's Budget for appropriation in Budget Act of 1985.

[ ] 2. Additional expenditures of approximately $ _____ annually which are not reimbursable by the State pursuant to Section 2231 of the Revenue and Taxation Code because this regulation:

[ ] a. implements the Federal mandate contained in _____.

[ ] b. implements the court mandate set forth by the _____ court in the case of _____ vs. _____.

[ ] c. implements a mandate of the people of this State expressed in their approval of Proposition No. _____ at the _____ (DATE) election;

[ ] d. is issued only in response to a specific request from the _____, which are the only local entity(s) affected;

[ ] e. is more appropriately financed from the _____ (FEES, REVENUE, ETC.) authorized by Section _____ of the _____ Code;

[ ] f. provides for savings to each affected unit of local government which will, at a minimum, offset any additional costs to each such unit.

[ ] 3. Savings of approximately $ _____ annually.

[ ] 4. No additional costs or savings because this regulation makes only technical, nonsubstantive or clarifying changes to current law and regulations.

[ ] 5. No fiscal impact exists because this regulation does not affect any local entity or program.

B. FISCAL EFFECT ON STATE GOVERNMENT (Indicate appropriate boxes 1 through 3 and complete if necessary)

[X] 1. Additional expenditures of approximately $ See Attachment 1 annually. It is anticipated that State agencies will:

[X] a. be able to absorb these additional costs within their existing budgets and resources.

[X] b. request supplemental funding by means of "Budget Change Proposals" for the _____ fiscal year.

[ ] 2. Savings of approximately $ _____ annually.

[ ] 3. No fiscal impact exists because this regulation does not affect any State agency or program.

C. FISCAL EFFECT ON FEDERAL FUNDING OF STATE PROGRAMS (Indicate appropriate boxes 1 through 3)

[ ] 1. Additional expenditures of approximately $ _____ annually.

[ ] 2. Savings of approximately $ _____ annually.

[ ] 3. No fiscal impact exists because this regulation does not affect any federally-funded State program or agency.

SIGNATURE	TITLE
▶	Executive Director

DEPT. OF FINANCE APPROVAL/CONCURRENCE	PROGRAM BUDGET MANAGER - DOF	DATE
	▶	August 10, 1984

Local Government

The Fiscal Impact Statement estimates the initial cost of compliance to the program for local government owned underground tanks at $41 million and an ongoing (annual) cost of $16 million per year. The Board estimates that even though program compliance is mandated by January 1, 1985, it will probably take five years before all monitoring systems are in place and the program is fully operational. Based on these figures locals should spend about $11.4 million the first year of implementation, increasing to $24.2 million during the fifth year. These figures may need to be adjusted on a year-by-year basis upon determination of the actual implementation rate.

	INITIAL COST	PER YEAR		ANNUAL COST	PERCENTAGE OF PROGRAM ONBOARD		
1st year	($41 million	x 1/5)	+	($16 million	x 1/5)	=	$11.4 million
2nd year	($41 million	x 1/5)	+	($16 million	x 2/5)	=	$14.6 million
3rd year	($41 million	x 1/5)	+	($16 million	x 3/5)	=	$17.8 million
4th year	($41 million	x 1/5)	+	($16 million	x 4/5)	=	$21.0 million
5th year	($41 million	x 1/5)	+	($16 million	x 5/5)	=	$24.2 million
Annually thereafter						=	$16.0 million

State Government

The Fiscal Impact Statement estimates the initial cost of compliance to the program for State owned underground tanks at $19 million and an ongoing (annual) cost of $7 million per year. Funding for these costs can be addressed during the normal budget process as it is not critical to the regulation approval process. When funding for these costs is addressed we may want to consider the issuance of a Budget Letter which would allow for a more coordinated effort.

	INITIAL COST	PER YEAR		ANNUAL COST	PERCENTAGE OF PROGRAM ONBOARD		
1st year	($19 million	x 1/5)	+	($7 million	x 1/5)	=	$5.2 million
2nd year	($19 million	x 1/5)	+	($7 million	x 2/5)	=	$6.6 million
3rd year	($19 million	x 1/5)	+	($7 million	x 3/5)	=	$7.8 million
4th year	($19 million	x 1/5)	+	($7 million	x 4/5)	=	$9.0 million
5th year	($19 million	x 1/5)	+	($7 million	x 5/5)	=	$10.2 million
Annually thereafter							$7.0 million

Article 1. General

The applicability of the proposed regulations to existing and new underground tanks used for the storage of hazardous substances is provided in Article 1. New underground storage tanks must be constructed with primary and secondary levels of containment with monitoring of the secondary container as specified in Article 3. Owners of existing underground storage tanks are required to monitor the tank and maintain appropriate records (Article 4), report unauthorized releases (Article 5), repair the tank as applicable (Article 6), and properly close the tank as required by the permit (Article 7).

Under specific situations some underground tanks are exempt from these proposed regulations. Underground storage tanks that are used for certain agricultural purposes, or that operate under a hazardous waste facilities permit, or have been granted interim status by the Department of Health Services are exempt from these proposed regulations. Specific structures such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation sumps, lined and unlined pits, sumps and lagoons are also exempt from the proposed regulations.

According to Section 25288(a) of Assembly Bill (AB) 1362 (Sher), counties and cities that adopted an ordinace prior to January 1, 1984, which at a minimum meets the requirements set forth in Sections 25284 and 25284.1 of AB 1362 are exempt from these regulations except for some administrative reporting requirements. Based on this exemption, for the twenty (20) counties which had adopted an ordinance prior to January 1, 1984, and using population figures to determine the distribution of underground storage tanks throughout the State,

approximately sixty (60) percent of existing and new tanks would not be subject to these regulations. A more precise interpretation of Section 25284.1(b), however, indicates that these local agencies may be subject to the regulations for monitoring of existing tanks. Because this issue is in the process of being resolved by the legal staff of the State Board, a conservative approach was used in the ensuing analysis. In developing the cost for each article, it was assumed that all underground storage tanks in the State will be subject to the requirements of these regulations. However, comparison is provided in the summary of the fiscal impact statement indicating the reduction in the estimated additional costs if those underground storage tanks that may not be subject to these regulations are excluded from the computations.

Based on the number of inventory forms sent out by the State board for registering of existing underground storage tanks under AB 2013 (Cortese), it was estimated that a total of 200,000 underground tanks are located in the State. The number of underground storage tanks owned by the State of California was developed by contacting the various State agencies that operate tanks (i.e. Department of Transportation, California Highway Patrol). The number of underground storage tanks owned by county and city governments and local school districts (including community college districts) was developed by contacting local government agencies (i.e. cities, counties) and school districts of varying size and determining the number of underground storage tanks as a function of population for cities and counties and students for school districts. The unit values (underground storage tanks per person or student) were then prorated for the entire population (persons or students) in the State to provide the total number of underground storage tanks. The results of this analysis are provided in Table 1.1.

Table 1.1. Number and Owner of Existing Underground Storage Tanks

Owner of Existing Underground Storage Tank	Private Industry	State Government	County Government	City Government	School Districts	Total Number of Underground Storage Tanks
Number of Existing Underground Storage Tanks	190,400	2,500	2,900	2,700	1,500	200,000

For purposes of determining the unit construction and monitoring costs provide in Articles 3 and 4 and the fee structure for Article 10, an average number of underground storage tanks per facility and an average tank size was developed. The following assumptions were used in the development:

(1) Seventy (70) percent of existing and new underground tanks are used for the storage of motor vehicle fuels.

(2) The average motor vehicle fuel tank has a capacity of 10,000 gallons.

(3) Three (3) motor vehicle tanks are installed at each motor vehicle fue facility.

(4) Thirty (30) percent of existing and new underground tanks are used fc the storage of other hazardous substances.

(5) The average tank storing other hazardous substances has a capacity of 6,000 gallons.

(6) Two (2) underground tanks are installed at other facilities for storing hazardous substances.

Based on the above, the average tank volume was found to be 8,800 gallons with a weighted average of 2.6 tanks per facility.

Article 2. Definition of Terms

Article 2 of the proposed regulations includes definitions only and, as such, specifically requires no additional cost to new or existing underground storage tanks.

Article 3. New Tank Construction and Monitoring Standards

Article 3 of the proposed regulations provides minimum standards for the construction of new underground storage tanks and the associated monitoring systems. All new underground storage tanks must provide primary and secondary levels of containment for the hazardous substances stored in them.

The requirements for the secondary container differ depending on the type of hazardous substance stored in the primary container. For hazardous substances other than motor vehicle fuels, the secondary container has volumetric requirements and protects ground water by storing an unauthorized release during both the detection and clean up and removal programs (Section 2631) An access casing(s) is required in the secondary container for installation of a continuous monitoring system to detect unauthorized releases and provide a conduit for removal of the hazardous substance (Section 2632). The secondary container for motor vehicle fuel tanks has no volumetric requirements except that which is required to activate a continuous monitoring system installed in an access casing. The secondary container must direct the unauthorized release to the access casing for detection and removal (Sections 2633 and 2634). A response plan must be developed for the motor vehicle fuel tanks to insure that any unauthorized release from the primary container will be cleaned up before reaching ground water if the secondary container is overtopped (Section 2634)

As presented in Section 2630, new underground storage tanks that only store motor vehicle fuels may be constructed and monitored pursuant to the standards specified in Sections 2631 and 2632, respectively, rather than those specified in Sections 2633 and 2634. Consequently, the methods for primary and secondary containment with continuous monitoring systems (including double walled tanks)

used for the storage of hazardous substances pursuant to Sections 2631 and 2632 may be used for the storage of motor vehicle fuels

The estimated additional costs imposed by the regulations for the construction of new underground storage tanks was based on the assumption that the construction and monitoring standards specified in Sections 2631 and 2632, respectively, would be applied to all new underground tank construction. Although, the primary and secondary container construction standards specified in Sections 2633 and 2634 may result in a less expensive construction cost for the motor vehicle fuel tank, the additional expense for development of the response plan was assumed to make the alternatives essentially equal.

The estimated unit costs for the installation of new underground storage tanks as required by the proposed regulations was compared to that used in present practice. The costs considered in the analysis included the purchase price and installation of the underground storage tank, a secondary container (for single walled tanks only), and a continuous monitoring system including the access casing(s), and performance of a National Fire Protection Association (NFPA) 329 precision tank test. The cost estimate was developed for single walled steel and fiberglass tanks with volumes of 6,000 gallons and 10,000 gallons and double walled steel and fiberglass tanks with a volume of 10,000 gallons. Using the weighted averages for tank size and number per facility provided in Article 1, it was estimated that the average price for installation of a new underground storage tank under the proposed regulations would increase by $7,400. The results of the analysis are provided in Table 3.1.

The additional costs associated with the installation of new underground storage tanks was considered an annual cost. Assuming an average life

Table 3 1 - Estimated Unit Costs For New Underground Storage Tanks

Underground Storage Tank Facility Component	Unit Cost (dollars)	Estimated Cost of Installing Underground Storage Tanks Prior to Regulations (dollars)				Estimated Cost of Installing Underground Storage Tanks Under Proposed Regulations (dollars)					
		Single Fiberglass Tank (6,000 gal)	Single Steel Tank (6,000 gal)	Three Fiberglass Tanks (10,000 gal)	Three Steel Tanks (10,000 gal)	Single Fiberglass Tank (6,000 gal)	Single Steel Tank (6,000 gal)	Three Fiberglass Tanks (10,000 gal)	Three Steel Tanks (10,000 gal)	Three Double-Walled Fiberglass Tanks (10,000 gal)	Three Double-Walled Steel Tanks (10,000
Underground Storage Tank											
Single: Steel-walled (6,000 gal)	3,800		3,800				3,800		15,000		
Steel-walled (10,000 gal)	5,000				15,000	4,000					
Fiberglass (6,000 gal)	4,000	4,000						16,500			
Fiberglass (10,000 gal)	5,500			16,500							32,000
Double: Steel-Walled (6,000 gal)	7,800										
Steel-Walled (10,000 gal)	10,800										
Fiberglass (6,000 gal)	8,000									34,600	
Fiberglass (10,000 gal)	11,500										
Installation[1]											
Single: Steel-walled (6,000 gal)	8,500		8,500				8,500		13,000		
Steel-walled (10,000 gal)	10,500[1] 13,000[3]				13,000	10,500					
Fiberglass (6,000 gal)	10,500	10,500						15,000			
Fiberglass (10,000 gal)	12,500[1] 15,000[3]			15,000							16,000
Double: Steel-walled (6,000 gal)	9,500									18,000	
Steel-Walled (10,000 gal)	11,500[1] 16,000[3]										
Fiberglass (6,000 gal)	11,500										
Fiberglass (10,000 gal)	13,500[1] 18,000[3]										
Secondary Container System[2]											
Single Tank (including installation of secondary liner)	8,000					8,000	8,000				
Three-Tank Cluster (including installation of secondary liner)	15,200							15,200	15,200		
Continuous Monitoring System[3]											
Single Tank (includes access casing[s] and installation)	2,200					2,200	2,200				
Three single-tank cluster (includes access casing and installation)	3,100								3,100	3,100	3,100
One double-walled tank	1,900										
Three double-walled tanks	3,000										
Cost of Precision Test as per NFPA 329											
Single Tank	400	400	400	400	400	400	400	400	400		
Three Tanks	1,200										
Estimated Cost for Complete Installation (dollars)		14,900	12,700	31,900	28,400	23,100	22,900	47,100	46,700	55,900	51,500
Average Per Tank Cost for Installation (dollars)		14,900	12,700	10,600	9,500	23,100	22,900	15,700	15,700	18,500	17,200
Weighted Average Cost per Tank (dollars)					10,800	18,200					
Average Per Tank Increase (dollars)					7,400						

(1) Includes cost of installing associated piping
(2) Although Section 2633(f) specifies that pressured piping systems for motor vehicle fuel tanks that include an automatic, continuously operating pressure loss detector and flow restriction device are exempt from the secondary container requirements for the piping, the cost for a secondary container of the piping was included rather than the cost for a flow restriction device and pressure loss detector. The costs for the two methods ($3,200) was approximately the same.
(3) The regulations (Section 2632) provide that the secondary container can be monitored by either a water level indicating device or a sensing device that can distinguish between water and the hazardous substance being stored in the primary container. The unit cost for this facility component averages the cost for both alternative devices.

expectancy of twenty (20) years for existing tanks, approximately five (5) percent of existing tanks would be replaced annually. Included in this number of new underground storage tanks was that resulting from increased population and business expansion. Using the estimated additional cost for installation of an underground storage tank developed in Table 3.1, the annual cost for all underground storage tanks was estimated at $74,000,000 and is summarized in Table 3.2.

Table 3.2. Estimated Annual Additional Costs for New Underground Storage Tanks

Owner of New Underground Storage Tank	Number of New Tanks Constructed Annually	Estimated Additional Cost per Tank from Regulations (dollars/tank)	Additional Cost for New Underground Storage Tanks (dollars)
Private Industry	9,520	7,400	70,448,000
State of California	125	7,400	925,000
City Government	145	7,400	1,073,000
County Government	135	7,400	990,000
School Districts	75	7,400	555,000
TOTAL	10,000	N/A	74,000,000

Article 4. Existing Underground Storage Tank Monitoring Criteria

Article 4 of the proposed regulations establishes statewide standards for water quality monitoring at underground storage tanks that store hazardous substances. The objectives of the monitoring program for each underground storage tank is to determine if unauthorized releases are occurring or have occurred in the past, to provide existing tanks with a monitoring system that will give early warning of future unauthorized releases before affecting the quality of ground water, and to monitor ground water quality directly to confirm that ground water degradation is not taking place. To achieve these monitoring objectives, four or more monitoring methods must be used. These methods include tank testing, inventory control, soils monitoring, visual monitoring, vadose zone monitoring, ground water detection monitoring, and ground water assurance monitoring.

Unless otherwise exempted, all existing underground storage tanks are subject to initial soils testing, invertory monitoring, and if not capable of being visually monitored, precision testing of the tank. Any underground storage tank that can be visually monitored in its entirety requires none of the additional monitoring described in the monitoring alternatives presented below. If only a part of the tank can be visually monitored, then visual monitoring of the exposed portion of the tank is

required and the concealed portion must be monitored in accordance with the monitoring for a completely concealed tank.

The extent of the subsurface monitoring required for underground storage tanks that cannot be visually monitored depends on the depth of ground water relative to the tank invert. The following alternatives provide the additional monitoring requirements as a function of ground water depth presented in the regulations.

Alternative #1

If the ground water elevation is always above a point five (5) feet below the tank invert, the underground storage tank must have ground water leak detection monitoring and vapor monitoring (if applicable) in three (3) wells with a maximum depth of 35 feet.

Alternative #2

If the ground water elevation fluctuates above and below a point five (5) feet below the tank invert, the underground storage tank must have a combination of vadose zone monitoring and ground water leak detection monitoring. A minimum of three wells with a probable maximum depth of 65 feet would be used for the ground water leak detection monitoring. The number of points for the vadose zone monitoring system is site specific, however, for the purpose of this analysis it was assumed to be four (4) with a

depth of twenty (20) feet.

Alternative #3

If the ground water elevation is continuously below a point five (5) feet below the tank invert but 100 feet or less from the ground surface, the underground storage tank must have a combination of vadose zone monitoring and ground water assurance monitoring. A minimum of three wells with a maximum depth of 100 feet would be used for the ground water assurance monitoring. The number of points for the vadose zone monitoring is site specific, however, for the purposes of this analysis, it was assumed to be four (4 points) with a maximum depth of twenty (20) feet.

Alternative #4

If ground water is continuously between a depth of 100 feet and 200 feet, the underground storage tank must have vadose zone monitoring and ground water assurance monitoring. The number of points for the vadose zone monitoring is site specific, however, for the purposes of this analysis it was assumed to be four (4 points) with a maximum depth of twenty (20) feet. The ground water assurance monitoring requires a minimum of one well with a depth of between 100 feet and 200 feet.

Alternative #5

If ground water is continuously below a depth of 200 feet, the underground storage tank must have vadose zone monitoring. The number of points for the vadose zone monitoring is site specific, however, for the purpose of this analysis it was assumed to be four (4 points) with a maximum depth of twenty (20) feet.

Estimated costs were developed for the subsurface monitoring alternatives described above. These monitoring requirements include: (1) visual monitoring (Section 2641), (2) underground storage tank testing (Section 2642), (3) inventory control (Section 2643), (4) soils testing and exploratory boring (Section 2644), (5) vadose zone detection monitoring (Section 2645), (6) ground water leak detection monitoring (Section 2646) and (7) ground water assurance monitoring (Section 2647). The unit cost estimates are provided in Table 4.1 with a brief explanation of their development provided in the subsequent footnotes to the table. The overall unit cost was based on the weighted average developed in Article 1 for the number and size of underground storage tanks per facility.

The total initial and annual costs for implementing the regulations was determined using the estimates provided in Table 4.2 for the percentage of existing underground storage tanks falling into the six monitoring alternatives. The percentage of tanks capable of being visual monitored was estimated to be two (2) percent of the total number of existing tanks. For the

Table 4.1. Estimated Initial and Annual Unit Costs for Ground Water Monitoring of Existing Underground Storage Tanks

Monitoring Method	Unit Cost (8) (dollars per tank)		Initial and Annual Unit Costs for Ground Water Monitoring Alternatives (dollars per tank)													
			Initial Testing for all Existing Tanks		Visual Monitoring of Entire Tank		Alternative #1		Alternative #2		Alternative #3		Alternative #4		Alternative #5	
	Initial	Annual	Initial	Annual	Initial	Annual	Init	Ann	Init	Ann	Init	Ann	Init	Ann	Init	Ann
Initial Soils Testing(1)	950 - 1,400	-0-	1,300	-0-	1,300	-0-	1,300	-0-	1,300	-0-	1,300	-0-	1,300	-0-	1,300	-0-
Initial Precision Tank Testing(2)	325-500	-0-	400	-0-	400	-0-	400	-0-	400	-0-	400	-0-	400	-0-	400	-0-
Inventory Monitoring(3)	-0-	300	-0-	300			-0-	300	-0-	300	-0-	300	-0-	300	-0-	300
Visual Monitoring(4)	-0-	250	-0-	250	-0-	250	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ground Water Leak Detection Monitoring (5)	2,100 - 6,300 (35 ft.)	150 - 14,200					2,950	2,960	4,100	2,960	N/A	N/A	N/A	N/A	N/A	N/A
	2,920 - 8,750 (65 ft.)	150 - 14,200														
- Pore Liquid Vadose Zone Monitoring(6)	750 - 1,500	4,900-8,900					1,470	75	1,900	2,900	1,900	2,900	1,900	2,900	1,900	2,900
- Vapor	2,450-4,900	150														
Ground Water Assurance Monitoring(7)	Variable depending on depth	150									11,000		5,900			
TOTAL COST			1,700	300	1,700	250	6,120	3,340	7,700	6,160	14,700	3,500	9,500	3,500	3,600	3,200

Footnotes for Table 4.1

(1) Based on costs provided by drilling contractors for (1) one slant boring intercepting a point that has been projectd vertically downward from the midpoint of the tank and is 50 feet below the invert of the tank; or (2) one vertical boring drilled on each side of the underground tank located within ten feet of the tank, opposite the midpoint of the tank, and at least 50 feet below the invert of the tank. Undisturbed soil samples are obtained at vertical intervals of at least five feet from the ground surface to the bottom of the boring. The unit cost includes the cost of analyzing samples and having a registered geologist at the site, and preparing a summary report. The cost range was developed for a single tank requiring two straight borings (the most expensive case) and the typical, three-tank "cluster" which would require four straight borings in total or 1.33 borings per tank (the least expensive case).

(2) Range of prices from companies performing tank testing which satisfies the requirements of the Precision Test (National Fire Protection Assciation [NFPA] 329) as defined in Section 2642(c) of the regulations.

(3) Assumed that existing tanks which do not presently use inventory control (i.e., non-motor vehicle fuel tanks) will not be required to use the inventory control methods and any initial costs will be minimal. Annual costs may be increased for the additional requirements in Section 2643. It was assumed that this would result in approximately five (5) minutes per tank per day by an individual performing the inventory control at $10 per hour.

(4) Based on the assumption that visual monitoring of an underground storage tank will take approximately five (5) minutes per day and the individual performing the inspection receives $8 per hour.

(5) The initial cost for the ground water leak detection monitoring system consists of the cost of constructing three 30-foot (65-foot) monitoring wells, material and installation cost for a continuous monitoring system, (where applicable) and an associated engineering report. The annual cost is for maintenance and operation of the continuous monitoring system or ground water monitoring as required (the most expensive). The maximum initial cost is for a single tank requiring three wells and the minimum cost is for a three-tank "cluster" requiring three ground water wells (one well per tank average).

(6) The initial and annual cost for the vadose zone monitoring system is based on the cost of installing a lysimeter system (the least expensive initial cost) or an automated vapor monitoring system (the most expensive initial cost). The annual cost for the automated vapor monitoring system is the least expensive, while the lysimeter system requiring weekly analyses is the most expensive. The costs were based on four (4) points for the vadose zone monitoring system for a single tank (the maximum cost) and six (6) points for the vadose zone monitoring system for a three-tank "cluster" or two (2) monitoring points per tank (the minimum cost).

(7) The depth of the ground water assurance monitorng wells depends on the monitoring alternative considered. The costs developed for the various alternatives reflect the well depths specified for the monitoring alternative in the text.

(8) The initial and annual costs for the ground water monitoring alternatives was developed the average underground storage tank facility in the State which is assumed to have 2.6 tanks per facility. A weighted average of the costs for single tanks and "clustered" tanks was used as discussed in Article 1.

(9) Assumed that only vapor monitoring is required at fifty (50) percent of the facilities.

Table 4.2. Percentage of Total Underground Storage Tanks for Monitoring Alternative

	MONITORING ALTERNATIVE					
	Visual Monitoring of Entire Tank	Alternative #1	Alternative #2	Alternative #3	Alternative #4	Alternative #5
Percentage of Underground Storage Tanks	2.00	21.56	39.22	27.45	7.85	1.94

percentage of underground tanks in the five (5) subsurface monitoring alternatives, average ground water levels for the monitoring alternatives and the associated land area were determined for each county in the State. A weighted average was then developed based on the population of the county relative to that of the entire State. The percentages were used to evaluate the number of underground storage tanks subject to the monitoring alternatives. Used in conjunction with Table 4.1 the total initial and annual costs for monitoring existing facilities were determined and are presented in Table 4.3

Table 4.3. Estimated Initial and Annual Costs for Ground Water Monitoring of Existing Underground Storage Tanks

Owner of Existing Underground Storage Tanks	Number of Existing Underground Storage Tanks	Initial and Annual Costs for Ground Water Monitoring of Existing Underground Storage Tanks (dollars x 1,000)																		TOTAL COST (dollars x 1,000)	
		Visual Monitoring of Entire Tank			Alternative #1			Alternative #2			Alternative #3			Alternative #4			Alternative #5				
		Tanks	IC	AC	Tanks	IC	AC	Tanks	IC	AC	Tanks	IC	AC	Tanks	IC	AC	Tanks	IC	AC	Initial Cost	Annual Cost
Private Industry	190,400	3,800	6,460	950	41,050	251,226	137,107	74,640	574,728	252,868	52,250	768,075	182,875	14,930	141,835	52,255	3,730	13,428	11,936	1,755,572	637,991
State of California	2,500	50	85	12.5	540	3,305	1,084	980	7,546	3,325	690	10,143	2,415	200	1,900	700	40	144	128	23,123	8,386
City Government	2,900	60	102	15.0	625	3,825	2,088	1,140	8,778	2,088	800	11,760	2,800	230	2,185	805	45	162	144	26,812	7,911
County Government	2,700	50	85	12.5	580	3,550	1,938	1,080	8,316	3,573	740	10,878	2,590	210	1,995	735	40	144	128	24,969	7,389
School Districts	1,500	30	51	7.5	330	2,020	1,102	590	4,543	2,033	410	6,027	1,435	120	1,140	420	20	72	64	13,863	4,078
TOTAL	200,000	3,990	6,783	998	43,125	263,926	144,039	78,430	603,911	263,888	54,890	806,883	192,115	15,690	149,055	54,915	3,875	13,950	12,400	1,844,328	545,812

Article 5. Release Reporting Requirements

The specific procedures for reporting unauthorized releases is provided in Article 5. All unauthorized releases must be reported by tank owners and operators to local agencies. Two types of reporting procedures (one requiring immediate reporting and one requiring only initial recording with reporting as part of normal operating reports) are required depending on the threat of the unauthorized release to contamination of soil and water. The specified reporting procedures include the information that must be reported, how and when to report an unauthorized release, local agency responsibilities, and how to determine the integrity of the underground tank after a release.

The requirements of Article 5 formalize for the local agency, the reporting requirements specified in Section 13271 of the Water Code. Under Section 13271, any individual, who without regard to intent or negligence, causes or permits any hazardous substance to be discharged in or on any waters of the state must notify the Office of Emergency Services and the appropriate regional water quality control board. Article 5 stipulates that this information be provided to the local agency initially and, as such, does not mandate any additional cost beyond that presently required for reporting. Determining the integrity of the underground storage tank after the unauthorized release would normally be required by the regional board in any subsequent investigation and no additional cost would be incurred.

Article 6. Allowable Repairs

The proposed regulations allow a one time repair of a tank that has not exceeded specified levels of failure. The tank owner proposing to repair the tank must demonstrate to the local agency that all modes of failure affecting the tank have been identified and that the proposed repair will correct the failure. For steel tanks an ultrasonic test or equivalent is required to determine if a corrosion problem exists. The tank repairs are required to be performed using accepted engineering practices with materials that are compatible with the tank and the hazardous substance(s) being stored. Following the repair, the tank owner must demonstrate that the repair was successful and that the tank will provide containment.

The regulations require that the underground storage tank repair be accomplished according to the applicable subsections of Section 2662 and monitored according to Section 2663. These sections require that nationally recognized engineering standards be used for the repair and monitoring of repaired underground storage tanks. At present some counties in the State will not allow the repair of underground storage tanks under any circumstances. The fact that the proposed regulations allow for underground tank repair provides the owner and/or operator with a fiscal benefit over previous requirements in those areas. With recognized engineering standards being required as is common practice and the benefit of allowing tank repairs in areas which presently do not allow repairs, it was assumed that the tank repair requirements do not impose any additional costs on tank owners.

Article 7. Closure Requirements

The proposed regulations provide the actions and evaluations which must be completed by the underground storage tank owner when the tank is either temporarily or permanently taken out of service. Under temporary closure an underground storage tank may be taken out-of-service for up to two years without implementing permanent closure. The regulations require that a formal closure plan be submitted to the local agency at least 45 days prior to closure.

All residual hazardous substances must be removed from the underground storage tank and legally stored or disposed of for both temporary and permanent closure. Flammable vapors must be purged from the tank. Temporary closure requires that all of the tank openings be sealed and that the electrical supplies to pumps be disconnected. The underground storage tanks must be monitored during the temporary closure period.

Permanent closure of an underground storage tank requires either removal of the tank or closure in-place. Removal requires proper disposal of the tank or cleaning to remove any hazardous substance residue to reuse or for sale as scrap. Closure in-place requires the removal of all piping, filling of the underground storage tank with inert material such as sand or concrete, and placing a notice in the property deed regarding the location of the closed tank and its prior uses.

At closure it must be demonstrated by the underground tank owner that neither soil nor ground water contamination has not resulted from the use of the tank. The demonstration can be accomplised by analyzing data from ongoing leak detection monitoring, verification ground water monitoring, or soils sampling performed during or immediately after closure activities.

These closure standards essentially mandate requirements similar to those that are currently required by local agencies throughout the State and/or are specified in recognized standards, such as NFPA 30, "Flammable and Combustible Liquids Code." An additional cost beyond that currently required for tank closure could be attributed to the requirements for soils sampling during or immediately after closure activities. Based on the cost estimate for soils sampling developed in Article 4, a unit cost of $1300 per tank was used for the estimated additional cost resulting from tank closure. As detailed in Article 3, approximately five (5) percent of the existing underground storage tanks will be closed annually and replaced by new tanks. Assuming that fifty (50) percent of the underground storage tanks requiring closure will necessitate soils testing, the estimated additional cost for closure was determined and is presented in Table 7.1.

Table 7.1. Estimated Additional Cost Resulting from Closure of Existing Underground Storage Tanks

Owner of Existing Underground Storage Tanks	Private Industry	State	County	City	School Districts	TOTAL
Annual Number of Underground Storage Tanks to be Closed	4,760	60	70	70	40	5,000
Annual Cost for Closure of Underground Storage Tanks	6,188,000	78,000	91,000	91,000	52,000	6,500,000

Article 8. Categorical and Site-Specific Variance Procedures

Procedures for obtaining categorical and site-specific variances from the construction standards of Article 3 and the monitoring standards of Articles 3 and 4 are provided in Article 8. The fees for petitioning for such variances are also included. The fee amounts were determined by estimating the amount of review time required by an Associate Water Resources Control Engineer or Environmental Specialist III and the estimated cost of holding public hearings.

The varying magnitude of staff review time required for the variance procedure is based on the population of the affected area and the amount of specific data which must be reviewed and analyzed by the Board staff. The cost of a staff year for either an Associate Water Resources Control Engineer or Environmental Specialist III is $55,000. The costs of a public hearing were estimated from review of costs for hearings held by the Division of Water Rights and are between $5,000 and $10,000. The lower cost is associated with simple non-controversial public hearings while the higher cost is associated with the more controversial public hearings.

Categorical variances apply to variances from construction and/or monitoring requirements set forth in the proposed regulations and apply to locations statewide. Most of these variances will be generated as the result of new technology or challenges to the proposed regulations. Staff time to review completeness and accuracy of the variance request, the technological feasibility, the ability of the proposed alternative system to protect or

monitor water quality, and time required to prepare the CEQA documents is estimated to be 0.2 staff years. Five categorical variance requests are expected each year.

Health and Safety Code Section 25288.3(a) requires two public hearings be held for each variance request. Since categorical variances affect areas statewide, the variance hearing should be well attended and be some what controversial. Therefore, public hearings costs are estimated to cost $7500. This cost is between the non-controversial and very controversial public hearing costs. As such, the fee is calculated as follows:

0.2 SY x $55,000	=	$11,000
2 public hearings at $7500 each	=	$15,000
Total cost	=	$26,000 per categorical variance

Site-specific variances apply to variances from construction and/or monitoring requirements of the proposed regulations and are applicable to only one facility location. Most of these variances will be based on the specific circumstances concerning the type of business. Staff time to review the completeness and accuracy of the variance request, the technological feasibility, the special circumstances requiring the variance, the ability of the system to protect or monitor water quality and review the CEQA documents is estimated to be 0.05 staff year. Sixty site-specific variance requests are expected each year.

The Health and Safety Code Section 25288.3(c) requires one public hearing be held for each variance request. Site-specific variance requests are not expected to be controversial since only a discreet area is affected. Therefore, the public hearing cost is estimated at the lowest cost of $5,000.

Thus, the fee is calculated as follows:

0.05 SY x $55,000	=	$2,750
1 public hearing at $5,000	=	$5,000
Total cost	=	$7,750 per site-specific variance

For purposes of determining the fiscal impact of the proposed regulations for categorical and site-specific variances, it was assumed that applications for these variances would be submitted by owners of private industry tanks only. As such, the annual cost to private industry resulting from Article 8 would be $595,000.

Article 9. Local Agency Additional Standards Request Procedures

The procedures which must be followed by local agencies to request authorization from the State Board for implementing more stringent standards than those set by Articles 3 and 4 of the proposed regulations are provided in Article 9. *The proposed regulations describe request procedures which include* identifying information needed to evaluate the request, review and public hearing procedures and scheduling, effective dates, and allowing the State Board to modify or revoke additional standards.

As in Article 8, a fee must be submitted to the State or Regional Board. The fee amounts were arrived at by estimating the amount of review time by an Associate Water Resources Control Engineer or Environmental Specialist III and the estimated costs of holding public hearings. These requests affect entire ounty or city jurisdictions. Staff time needed to review completeness and accuracy of the request, technological feasibility, the ability of the proposed standards to protect or monitor water quality and review and the California Environmental Quality Act (CEQA) documents was estimated at 0.1 staff years per request.

The Health and Safety code Section 25288.3(b) requires at least one public hearing be held for each request. Since the request will affect a number of permittees within the governmental jurisdiction the public hearings costs have been estimated to be $6,000.

The fee is calculated as follows:

0.1 SY x $55,000	=	$5,500	
1 public hearing at $6,000	=	$6,000	
Total cost	=	$11,500	per request

For purposes of determining the fiscal impact of the proposed regulations for additional standards requests, it was assumed that applications for these variances would be submitted by county governments only and ten (10) applications would be reviewed annually. As such, the annual cost to county government resulting from Article 9 would be $115,000.

Article 10. Permit Application, Annual Report, and Trade Secret Requirements

The proposed regulations establish specific administrative actions that must be accomplished by all tank owners, local agencies, and the State Board relative to issuing permits for underground storage tanks. As specified in Section 2701 of the regulations, the undergrord tank owner must provide the following information in the required permit application, if it is accurately knowr to the permit applicant:

(1) The name and address of the person, firm, corporation or public agency which owns the underground storage tank or tanks,

(2) The name, location, mailing address, phone number and type of facility where the underground storage tank is located and type of business,

(3) The name, address and telephone numbers of the underground storage tank operatorand 24-hour emergency contact person.

(4) The name and telephone number of the person making the application.

(5) The underground storage tank description including, but not limited to, tank and auxiliary equipment manufacturer, year

of manufacture, capacity, history of repairs and operation methods schedule.

(6) The underground storage tank (tank, piping and auxiliary equipment) construction details, including, but not limited to, type and thickness of primary containment, type and thickness of secondary containment (if applicable), installation procedures and backfill, lining, wrapping, and cathodic protection methods (if applicable).

(7) A diagram of design or as-built drawings which indicate the location of the underground storage tank (tank, piping, auxiliary equipment) with respect to buildings or other landmarks.

(8) The description of the proposed monitoring program, including, but not limited to,the following, where applicable:

(a) visual;

(b) tank testing or inspection procedures;

(c) inventory controls including gaging and reconciliation methods;

(d) soils sampling locations and methods and analysis

procedures;

(e) vadose zone sampling locations and methods and analysis procedures;

(f) ground water well(s) locations, construction and completion methods, sampling and analysis procedures;

(g) frequency and sensitivity of any monitoring method sensing instrument, or analytical method.

(9) A list of all the substances which previously, currently or are proposed to be stored in the underground storage tank or tanks.

(10) 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 tank.

(11) The permit application must be signed by (A) a principal executive officer at the level of vice-president or by an authorized representative. The representative must be responsible for the overall operation of the facility where the tank(s) are located, (B) a general partner proprietor, or (C) a principal executive officer, ranking elected official or authorized representative of a public agency.

As illustrated by the forms presented in Appendix A, the Sample Hazardous Substance Storage Statement (HSSS) Form required for AB 2013 (Cortese) and the State Board Permit Application Form necessitate the same information for requirements (1) through (5) and (9) through (12). The additional information entailed in requirements (6) through (8) are developed in other aspects of the regulatory program and the associated cost is not included as that required by this Article. The underground storage tank (i.e. tank, piping, and auxiliary equipment) construction details entailed in requirements (6) and (7) are developed for the tank owner in the facility design and during construction and these documents need only be reproduced for the local agency to satisfy the permit requirements. New underground tank facilities are required to provide the construction information cited above under all circumstances. For many existing underground storage tanks the construction information is not accessible, and the tank owner is not required to provide the information unless it can be developed at a reasonable cost.

The proposed monitoring program as detailed in requirement (8) is mandated for all existing underground storage tanks in Article 4 of the regulations. As such, the cost of developing the monitoring program and all of the associated information for its implementation are included in the costs developed for that article. The permitting program requires only that this information be reproduced and included in the permit application.

The costs for providing the information required in the permit applications was assumed to be $25 per underground storage tank and includes the labor cost for filling out the form(s) and the labor and material cost for reproducing the facility construction plans and/or as built information.

As specified in Section 2711(c) of the regulations, the local agency may require a fee to cover the necessary and reasonable costs of permitting and inspection of underground storage tanks. The city and county agencies that implemented underground tank programs prior to January 1, 1984, have developed fee schedules for both the permitting and inspection requirements of their regulations. These fees vary between agencies depending on their assessment of the costs involved with implementing the program and the number of tanks subject to the local regulations. The methods of applying the fees also differ, with some based on the number of tanks and others on the total volume of the underground tanks permitted and/or inspected at the facility.

An average permitting and inspection fee was developed for the city and county underground tank programs using fee schedules provided by local agencies implementing programs and the average tank volume (8,800 gallons) and number of tanks (2.6) developed for Article 1.

The average permitting fee was determined to be $120 per tank for city implemented programs and $100 per tank for county

implemented programs; with annual inspection fees of $60 and $50 for city and county implemented programs, respectively.

Cities and counties which implemented their own underground tank programs prior to January 1, 1984 may waive the initial permitting and annual inspection fees for their own underground storage tanks. All other city owned tanks are subject to the fees required by the county government within whose jurisdiction the city is located. The total number of tanks which are city owned and may be subject to initial permitting and annual inspection costs from the county implementing agencies is presented in Table 10.1.

Section 2711(c) of the regulations provides that the Board shall include a surcharge to be determined annually to cover its costs in carrying out its responsibilities under the regulations. The Board originally proposed a surcharge of $28 per tank, based on an estimate of 100,000 tanks statewide subject to the surcharge. A provision in AB 1362 exempts from the surcharge those underground storage tanks in localaties that adopted their own permitting ordinances before January 1, 1984.

When the budget was originally prepared, it was assumed that few localities would enact ordinances by January 1, 1984. Approximately one hundred (100) local governments adopted their own ordinances prior to January 1, 1984, including the counties of Los Angeles, Sacramento, San Bernardino, San Francisco, and

Table 10.1. Estimated City Government Costs for Initial Permitting and Annual Inspection Fees for City Owned Underground Tanks Subject to County Jurisdiction

Number of Existing Tanks Owned by City Governments (1)	Number of Cities with Existing Permitting Programs (2)	Population of Areas with Existing Permitting Programs (3)	Percentage of State Population with Permitting Programs (4)	Number of City Owned Tanks With Fee Waiver (5)	Number of City Owned Tanks Subject to Initial County Permit Fee (6)	Number of City Owned Tanks Subject to Annual County Inspection Fee (7)	Total Cost of Initial Permitting to City Government (dollars) (8)	Total of Annual Inspection to City Government (dollars) (9)
2900	76	7,150,200	38.06	1,100	1,800	1,800	225,000	90,000

(1) Estimated from discussions with incorporated cities of varying size and extrapolating number of tanks per 1000 population to total population of incorporated cities through out the State (18,785,300) obtained from California League of Cities.

(2) Generated from State Water Resources Control Board (SWRCB) computerized listing of cities currently administering underground tank programs.

(3) Developed from Column 2 and 1981-82 California Roster, compiled by Secretary of State (March Fong Eu).

(4) Obtained by dividing Column 3 by total State population for incorporated areas (18,785,300) from Note (1).

(5) Assumed fees for initial permitting and annual inspection are waived by the city (if administering an underground tank program) for its own tanks.

(6) Difference between Column 1 and Column 5.

(7) Same as Note (6).

(8) Total cost of initial permitting of underground tanks based on $100 per tank. Permitting fee developed from proposed fees for various counties administering permit programs.

(9) Total annual inspection cost of underground tanks based on $50 per tank. Inspection fee developed from proposed fees for various counties administering annual inspection programs.

Santa Clara, and the cities of Los Angeles, Long Beach, Sacramento, and San Jose. Given the large number of underground tanks located in these areas, the state surcharge revenue was less than expected

A survey of the State's forty three (43) counties indicated that only twenty three (23) counties had not adopted ordinances prior to January 1, 1984. These twenty three (23) counties estimated a total of 40,000 to 50,000 underground storage tanks within their jurisdiction. Since the number of tanks subject to the surcharge had been substantially lowered, the surcharge was raised to $69 per underground storage tank located outside the jurisdiction of regulatory programs enacted prior to January 1, 1984, to provide adequate revenue pursuant to Assembly Bill 1362.

Currently, Assembly Bill 3447 (a "trailer bill" to Assembly Bill 1362) is proceeding through the legislature and will alter the surcharge requirements. The bill requires that all underground storage tanks except those in Santa Clara County and cities therein pay a surcharge to the Board. With this change in the number of underground storage tanks subject to the surcharge, the amount of the surcharge would be lowered to reflect the increase in the number of tanks considered. For purposes of this analysis, however, the surcharge is assumed to be $69 per underground storage tank located outside the jurisdiction of regulatory programs enacted prior to January 1, 1984.

The estimated costs associated with the implementation of Article 10 are summarized in Table 10.2.

Table 10.2. Summary of Costs Associated with the Implementation of Article 10

Owner of Existing Underground Storage Tank	Number of Tanks Subject to Initial Permit Fee and Annual Inspection	INITIAL COST (dollars x 1000)			ANNUAL COST (dollas x 1000)					
		Permitting of Existing Tanks (1)	State Board Surcharge for Existing Tanks (2)	TOTAL COST	Inspection by Local Government	Permitting of New Tanks	State Board Surcharge for New Tanks (2)	Annual State Board Surcharge (3)	Annual Permitting Fee (3)	TOTAL ANNUAL COST
Private Industry	190,400	23,800	5,255	29,055	9,520	1,190	657	1,051	4,760	17,178
State of California	2,500	313	69	382	125	16	9	14	63	227
City Government	2,900	225	80	305	90	19	10	16	45	180
County Government	2,700	0	75	75	0	0	9	15	0	24
School Districts	1,500	188	41	229	75	10	5	8	38	136
TOTAL	2,000	24,526	5,520	30,046	9,810	1,235	690	1,104	4,905	17,745

(1) Includes cost of permit ($100) plus additional costs ($25) for devleoping the additional permit requirements in Article 10.

(2) Applicable to only forty (40) percent of existing underground storage tanks.

(3) Every five (5) years each underground storage tank is repermitted and surcharged. This cost now considered an annual cost by spreading the total

Summary of Fiscal Impact Statement

As discussed in the summary for Article 1, there is some question as to the number of underground storage tanks subject to the State Board's regulations. As such, three possible scenarios are considered in this summary and presented below.

Scenario #1

All of the underground storage tanks in the State are subject to existing ordinances which mandate construction, monitoring, and closure requirements equivalent to those stipulated in the proposed regulations. The results of this analysis are presented in Table S.1.

Scenario #2

Only those underground storage tanks locaated in jurisdictions which did not adopt an ordinance prior to January 1, 1984 are subject to the proposed regulations, except that all existing underground storage tanks are subject to the monitoring requirements of Article 4 (proposed regulations). The results of this analysis are presented in Table S.2.

Scenario #3

Only those underground storage tanks located in jurisdictions which did not adopt an ordinance prior to January 1, 1984 are subject to the proposed regulations. The results of this analysis are presented in Table S.3.

Table S.1. Summary of Fiscal Impact of Underground Storage Tank Regulations Assuming All Existing Underground Storage Tanks Are Subject to Regulations Equivalent to the Proposed Regulations

Owner of Existing Underground Storage Tanks	Number of Existing Underground Storage Tanks Considered	INITIAL COST (dollars x 1000)				ANNUAL COST (dollars x 1000)									
		Permitting of Existing Tanks	Construction & Testing for Monitoring Alternatives	State Board Surcharge for Existing Tanks	TOTAL INITIAL COST	Inspection by Local Government	Ground Water Monitoring	Additional Cost for Construction of New Tanks	Permitting of New Tanks	State Board Surcharge for New Tanks	Annual Surcharge for Existing Tanks	Annual Permitting Fee	Closure Requirements	Categorical, Site-Specific and Additional Standards Procedures	TOTAL ANNUAL COST
Private Industry	190,400	19,040	1,755,572	5,255	1,779,86[illegible]	9,520	844,905	70,448	1,190	657	1,051	4,760	6,188	595	939,3[illegible]
State of California	2,500	250	23,123	69	23,44[illegible]	125	11,907	925	16	9	14	63	78	0	13,137
City Government	2,900	180	26,812	80	27,07[illegible]	90	12,874	1,073	19	10	16	45	91	0	14,7[illegible]3
County Government	2,700	0	24,968	75	25,041	0	12,067	990	0	9	15	0	91	115	13,277
School Districts	1,500	150	13,853	41	14,041	75	6,663	555	10	5	8	38	52	0	7,[illegible]5
TOTAL	200,000	19,620	1,844,320	5,520	1,869,463	9,810	888,406	74,000	1,235	690	1,104	4,905	6,500	710	987,[illegible]

Table 5.2 Summary of Fiscal Impact of Underground Tank Storage Regulations Assuming All Existing Underground Storage Tanks Subject to Monitoring Requirements of Article 4

Owner of Existing Underground Storage Tanks	Number of Existing Underground Storage Tanks Considered (1)	INITIAL COST (dollars x 1000)				ANNUAL COST (dollars x 1000)									
		Permitting of Existing Tanks	Construction & Testing for Monitoring Alternatives	State Board Surcharge for Existing Tanks	TOTAL INITIAL COST	Inspection By Local Government	Ground Water Monitoring	Additional Cost for Construction of New Tanks	Permitting of New Tanks	State Board Surcharge for New Tanks	Annual Surcharge for Existing Tanks	Annual Permitting Fee	Closure Requirements	Categorical, Site-Specific and Additional Standards Procedures	TOTAL ANNUAL COST
Private Industry	190,400 (77,380)	7,738	1,755,572	5,339	1,768,649	3,869	844,905	28,630	484	267	427	1,934	2,515	595	823,66[illegible]
State of California	2,500 (1,0[illegible])	102	23,123	70	23,29[illegible]	51	11,097	376	7	4	6	26	32	0	11,599
City Government	2,90[illegible] (1,1[illegible])	118	26,812	81	27,011	59	12,874	436	8	4	7	18	37	0	13,44[illegible]
County Government	2,7[illegible] (1,[illegible])	0	24,968	76	25,041	0	12,067	402	0	4	6	0	37	115	[illegible]
School Districts	1,4[illegible] ([illegible])	60	13,853	41	13,951	30	6,663	226	4	2	3	15	21	0	[illegible]
TOTAL	200,3[illegible] (81,2[illegible])	8,018	1,844,328	5,607	1,857,95[illegible]	4,009	887,596	30,070	503	281	449	1,993	2,642	710	[illegible]

Table [illegible] 3 Summary of Fiscal Impact of Underground Tank Storage Regulations Considering Only Those Existing Underground Storage Tanks in Areas Without an Ordinance (Prior to January 1, 1984)

Owner of Existing Underground Storage Tanks	Number of Existing Underground Storage Tanks Considered	INITIAL COST (dollars x 1000)				ANNUAL COST (dollars x 1000)									
		Permitting of Existing Tanks	Construction & Testing for Monitoring Alternatives	State Board Surcharge for Existing Tanks	TOTAL INITIAL COST	Inspection by Local Government	Ground Water Monitoring	Additional Cost for Construction of New Tanks	Permitting of New Tanks	State Board Surcharge for New Tanks	Annual Surcharge for Existing Tanks	Annual Permitting Fee	Closure Requirements	Categorical, Site-Specific and Additional Standards Procedures	TOTAL ANNUAL COST
Private Industry	77,380	7,738	713,464	5,339	726,541	3,869	343,369	28,630	484	287	427	1,934	2,515	59*	382,0[illegible]
State of California	1,020	102	9,397	70	9,569	51	4,510	376	7	4	6	26	32	0	5,[illegible]
City Government	1,180	118	10,896	81	11,095	59	54,232	436	8	4	7	18	37	0	5,[illegible]
County Government	1,100	0	10,147	76	10,223	0	4,900	402	0	4	6	0	37	115	5,[illegible]
School Districts	600 (600)	60	5,630	41	5,731	30	2,708	226	4	2	3	15	21	0	3,[illegible]
TOTAL	81,280	8,018	749,534	5,607	736,189	4,009	360,719	30,070	503	281	449	1,993	2,642	710	401,[illegible]

APPENDIX A

Official Registration Form

California Water Resources Control Board

Hazardous Substance Storage Statement

Who Must File Each person storing hazardous substances in any underground container must file this form no later than July 1 1984 (After October 1 1964 and no later than January 1 1985 for tanks used on farms)

Definition of Underground Containers The law applies to concrete sumps nonvaulted buried tanks or other underground containers (Water Code section 13173) All containers including earthen walled pits ponds lagoons and sumps that are below the normal ground surface level must register A tank sump on the ground is not included Containers partially below the surface are included Lined earthen walls ponds and lagoons are covered if earth has been removed from the storage area to construct the facility Normal grading is not considered construction below ground level

Definition of Hazardous Substance Any substance defined in Section 6382 of the Labor Code or in Section 25316 of the Health and Safety Code This includes gasoline diesel fuel all industrial solvents pesticides herbicides and fumigants If the material must be carried by a registered hauler disposed of at a hazardous waste site is explosive generates pressure due to heat or decomposition or would harm humans or wildlife you must register the tank Wastes are included

Fee: For each tank registered a $10 fee must be paid except that retail gasoline stations pay $5 per tank

Penalties: For failure to file the penalty is $500-$5 000 per day If you falsify information you can be fined up to $20 000 for each day the information is incorrect and has not been corrected

Confidentiality: If you have information protected by trade secret laws please attach a list of the information on this form that is confidential and the justification for confidentiality including specific citations of relevant statutory and case law

Multiple Containers: Fill I and II on one form and leave it blank on all the remaining forms Attach all forms together securely If you own more than 50 tanks you can file information on computer tape Call 916/324-1262 for information

This is not a Permit Application All Underground Tanks will be subject to local regulation Some jurisdictions have already begun programs Check with your local county government for further information

NOTE: ALL UNDERGROUND CONTAINERS MUST REGISTER EVEN IF STATE AND/OR LOCAL PERMITS ARE IN FORCE.

I Owner

Name (Corporation Individual or Public Agency)			
Street Address	City	State	ZIP

II Facility

Facility Name		Dealer/Foreman/Supervisor	
Street Address		Nearest Cross Street	
City	County		ZIP
Mailing Address	City	State	ZIP
Phone w area code	Type of Business ☐ 01 Motor Vehicle Fuel Station ☐ 02 Other		
Number of Tanks at this Facility	Rural Areas Only: Township	Range	Section

III 24 Hour Emergency Contact Person

Day Name (last name first) and Phone w area code	Night Name (last name first) and Phone w area code

COMPLETE THE FOLLOWING ON A SEPARATE FORM FOR EACH CONTAINER

IV Description

A ☐ 01 Tank ☐ 02 Sump ☐ 03 Lagoon Pit or Pond ☐ 04 Other _____ | Container Number (If there is no number assign one)

B Manufacturer (if appropriate) _____ Year of Mfg _____ | C Year Installed _____ ☐ Unknown

D Container Capacity _____ gallons ☐ Unknown | E Container Repairs ☐ 01 None ☐ 02 Unknown ☐ 03 Yes Year _____

F Is Container currently used? ☐ 01 Yes ☐ 02 No If No year of last use _____ ☐ 03 Unknown

G Does the Container Store (Check One) ☐ 01 Waste ☐ 02 Product

H Does the Container Store Motor Vehicle Fuel or Waste Oil? ☐ 01 Yes ☐ 02 No If Yes Check appropriate box(es)

☐ 01 Unleaded ☐ 02 Regular ☐ 03 Premium ☐ 04 Diesel ☐ 05 Waste Oil ☐ 06 Other (List) _____

V Container Construction

A Thickness of Primary Containment _____ ☐ Gauge ☐ Inches ☐ cm ☐ Unknown

B ☐ 01 Vaulted (Located in an underground Vault) ☐ 02 Non-vaulted ☐ 03 Unknown

C ☐ 01 Double Walled ☐ 02 Single Walled ☐ 03 Lined ☐ 04 Wrapped ☐ 05 Unknown ☐ 06 None

D ☐ 01 Carbon Steel ☐ 02 Stainless Steel ☐ 03 Fiberglass ☐ 04 Polyvinyl Chloride ☐ 05 Concrete ☐ 06 Aluminum

☐ 07 Steel Clad ☐ 08 Bronze ☐ 09 Composite ☐ 10 Non-metallic ☐ 11 Earthen Walls

☐ 12 Unknown ☐ 13 Other _____

E ☐ 01 Rubber Lined ☐ 02 Alkyd Lining ☐ 03 Epoxy Lining ☐ 04 Phenolic Lining ☐ 05 Glass Lining ☐ 06 Clay Lining

☐ 07 Unlined ☐ 08 Unknown ☐ 09 Other _____

F ☐ 01 Polyethlene Wrap ☐ 02 Vinyl Wrapping ☐ 03 Cathodic Protection ☐ 04 Unknown ☐ 05 None ☐ 06 Other _____

VI Piping

A. Associated Piping	☐ 01 Above Ground	☐ 02 Underground	☐ 03 Vaulted
B. Underground Piping	☐ 01 Gravity	☐ 02 Pressure	☐ 03 Suction ☐ 04 Unknown
C. Piping Repairs	☐ 01 None	☐ 02 Unknown	☐ 03 Yes Year of most recent repair _____

VII Leak Detection

☐ 01 Visual ☐ 02 Stock Inventory ☐ 03 Tile Drain ☐ 04 Vapor Sniff Wells ☐ 05 Sensor Instrument

☐ 06 Ground Water Monitoring Wells ☐ 07 Pressure Test ☐ 08 Internal Inspection ☐ 09 None

☐ 10 Other _____

VIII Chemical Composition of Materials *Currently or Previously* Stored in Underground Containers

If you checked yes to IV-H you are not required to complete this section

currently stored	previously stored	CAS # (if known)	Chemical Do Not Use Common Or Trade Or Brand Name
☐ 01	☐ 02		
☐ 01	☐ 02		
☐ 01	☐ 02		
☐ 01	☐ 02		
☐ 01	☐ 02		
☐ 01	☐ 02		
☐ 01	☐ 02		
☐ 01	☐ 02		
☐ 01	☐ 02		
☐ 01	☐ 02		
☐ 01	☐ 02		
☐ 01	☐ 02		
☐ 01	☐ 02		

Is Container located on an Agricultural Farm? ☐ 01 Yes ☐ 02 No

IX IMPORTANT! Read instructions before signing

Signature The form must be signed by 1) a principal executive officer at the level of vice-president or by an authorized representative. The representative must be responsible for the overall operation of the facility where the tank(s) are located 2) a general partner proprietor or 3) a principal executive officer ranking elected official or authorized representative of a public agency

This form has been completed under the penalty of perjury and to the best of my knowledge is true and correct

Signature		Date
Printed Name	Title	Phone (Area code)

Send check to: Hazardous Substance Storage Statement State Water Resources Control Board P.O. Box 100 Sacramento CA 95801 0100

Person Fare Statement	Phone (Area code)

For additional forms or more information call 916/324-1262

FOR STATE USE ONLY

Number	Accounting Number		
Date Received			

84 3A697

Permit Application

New Permit	☐ 01 Installed before July 1, 1984 ☐ 02 Installed after July 1, 1984	☐ 03 Renewed Permit	☐ 04 Amended Permit

I Owner

Name (Corporation, Individual, or Public Agency)			
Street Address	City	State	ZIP

II Facility

Facility Name	Dealer/Foreman/Supervisor		
Street Address		Nearest Cross Street	
City	County		ZIP
Mailing Address	City	State	ZIP
Phone w/ area code	Type of Business ☐ 01 Gasoline Station ☐ 02 Other _____		
NUMBER OF CONTAINERS AT THIS FACILITY	Rural Areas Only: Township	Range	Section

III 24 Hour Emergency Contact Person

Days: Name (last name first) and Phone w/ area code	Nights: Name (last name first) and Phone w/ area code

COMPLETE THE FOLLOWING ON A SEPARATE FORM FOR EACH CONTAINER

IV Description

A ☐ 01 Tank ☐ 02 Other _____ | Container Number (if there is no number assign one)

B Manufacturer (if appropriate) _____ Year of Mfg _____ | C Year Installed _____ ☐ Unknown

D Container Capacity _____ gallons ☐ Unknown | E Does the Container Store (Check One) ☐ 01 Waste ☐ 02 Product

F Does the Container Store Motor Vehicle Fuel or Waste Oil? ☐ 01 Yes ☐ 02 No If Yes Check appropriate box(es)
☐ 01 Unleaded ☐ 02 Regular ☐ 03 Premium ☐ 04 Diesel ☐ 05 Waste Oil ☐ 06 Other (List) _____
If you answered yes, do not complete Part VIII.

V Container Construction

A. Thickness of Primary Containment _____ ☐ Gauge ☐ Inches ☐ cm ☐ Unknown

B ☐ 01 Vaulted (Located in an underground Vault) ☐ 02 Non-vaulted ☐ 03 Unknown

C ☐ 01 Double Walled ☐ 02 Single Walled ☐ 03 Lined

D ☐ 01 Carbon Steel ☐ 02 Stainless Steel ☐ 03 Fiberglass ☐ 04 Polyvinyl Chloride ☐ 05 Concrete ☐ 06 Aluminum
☐ 07 Steel Clad ☐ 08 Bronze ☐ 09 Composite ☐ 10 Non-metallic ☐ 11 Earthen Walls
☐ 12 Unknown ☐ 13 Other _____

Container Construction

E ☐ 01 Rubber Lined ☐ 02 Alkyd Lining ☐ 03 Epoxy Lining ☐ 04 Phenolic Lining ☐ 05 Glass Lining ☐ 06 Clay Lining

☐ 07 Unlined ☐ 08 Unknown ☐ 09 Other _____

F ☐ 01 Polyethlene Wrap ☐ 02 Vinyl Wrapping ☐ 03 Cathodic Protection

☐ 04 Unknown ☐ 05 None ☐ 06 tar or asphalt ☐ 09 Other

VI Piping

A. Aboveground Piping: ☐ 01 Double-walled pipe ☐ 02 Concrete-lined trench ☐ 03 Gravity ☐ 04 Pressure ☐ 05 Suction
[(Check) appropriate box(es)] ☐ 06 Unknown ☐ 07 None

B. Underground Piping: ☐ 01 Double-walled pipe ☐ 02 Concrete-lined trench ☐ 03 Gravity ☐ 04 Pressure ☐ 05 Suction
[(Check) appropriate box(es)] ☐ 06 Unknown ☐ 07 None

VII Leak Detection

☐ 01 Visual ☐ 02 Stock Inventory ☐ 03 Tile Drain ☐ 04 Vapor Sniff Wells ☐ 05 Sensor Instrument

☐ 06 Ground Water Monitoring Wells ☐ 07 Pressure Test ☐ 08 Internal Inspection ☐ 09 None

☐ 10 Other _____

VIII Chemical Composition of Materials *Currently* or *Previously* Stored in Underground Containers

If you checked yes to IV-F you are not required to complete this section

currently stored	previously stored	CAS # (if known)	Chemical Do Not Use Commercial Names. Use additional paper for more room
☐ 01	☐ 02		
☐ 03	☐ 04		
☐ 05	☐ 06		

Is Container located on an Agricultural Farm? ☐ 01 Yes ☐ 02 No

Person Filing (Signature)	Phone Number

For Local Agency Use Only

AGENCY NAME	CITY	COUNTY
CONTACT PERSON	PHONE W/AREA CODE	
INSPECTION DATE (1ST INSPECTION)	PERMIT APPROVAL DATE	PERMIT ID NUMBER

FOR STATE USE ONLY

STATE ID NUMBER	Application Number	Site Number
[illegible]	[illegible]	[illegible]

7. Affidavit of Mailing Notice

STATE OF CALIFORNIA GEORGE DEUKMEJIAN, *Governor*

STATE WATER RESOURCES CONTROL BOARD
PAUL R BONDERSON BUILDING
901 P STREET
P.O. BOX 100
SACRAMENTO, CALIFORNIA 95801

AFFIDAVIT OF MAILING NOTICE

I, , mailed a copy of the attached notice to all persons on the attached list of interested persons on September 7, 1984. This notice was deposited in a mailbox (or other regularly maintained United States Post Office letter facility) at least 45 days prior to the public hearing or close of the public comment period.

I certify under penalty of perjury that the foregoing is true and correct.

James K Baglin

NOTE: Depositing the notice in the agency mailroom or with the interagency messenger service does not satisfy the 45-day requirement.

8. Handwritten note referring to number-coded mailing lists

Mailing List for Subchapter 16
Proposed Regulations dated
August 23, 1984 included
the following lists: 005
006, 008, 009, 011
enclosed typed labels
and postcards in Box #6

9. Corrected Notice of Proposed Rulemaking, Public Hearing scheduled for 10/23/1984

III A.9

STATE WATER RESOURCES CONTROL BOARD

CORRECTIONS TO NOTICE OF PROPOSED RULEMAKING

ADOPTION OF PROPOSED REGULATIONS GOVERNING UNDERGROUND STORAGE OF HAZARDOUS SUBSTANCES, TO BE CODIFIED IN SUBCHAPTER 16 OF CHAPTER 3, TITLE 23, CALIFORNIA ADMINISTRATIVE CODE (23 CAC SECTION 2610-2704)

Please be advised that all references to the October 8, 1984 hearing date and deadline for submission of written comments contained in the Notice dated August 15, 1984 should be disregarded. The correct hearing date and deadline for submission of written comments is as indicated below.

PUBLIC HEARING: October 23, 1984 (Tuesday) at 10:00 a.m.,
Resources Building, First Floor Auditorium
1416 Ninth Street, Sacramento, California 0

DEADLINE FOR COMMENTS: October 23, 1984 (Tuesday) at 5:00 p.m.
P. O. Box 100
Sacramento, CA 95801
Attn: Harold Singer
Division of Technical Services

STATE OF CALIFORNIA
GEORGE DEUKMEJIAN, Governor
STATE WATER RESOURCES CONTROL BOARD
PAUL R. BONDERSON BUILDING
901 P STREET
P.O. BOX 100
SACRAMENTO, CALIFORNIA 95801

F7

STATE WATER RESOURCES CONTROL BOARD

NOTICE OF PROPOSED RULEMAKING

PUBLIC HEARING

October 23, 1984 (Tuesday) at 10:00 a.m.,
Resources Building, First Floor Auditorium
1416 Ninth Street, Sacramento, California

DEADLINE FOR COMMENTS

October 23, 1984 (Tuesday) at 5:00 p.m.
P. O. Box 100
Sacramento, CA 95801
Attn: Harold Singer
Division of Technical Services

ADOPTION OF PROPOSED REGULATIONS GOVERNING UNDERGROUND STORAGE OF HAZARDOUS SUBSTANCES, TO BE CODIFIED IN SUBCHAPTER 16 OF CHAPTER 3, TITLE 23, CALIFORNIA ADMINISTRATIVE CODE (23 CAC SECTION 2610-2704)

NOTICE OF PUBLIC HEARING

The State Water Resources Control Board (State Board) is going to hold a hearing relating to regulations which would establish the standards and procedures for counties and/or cities to develop and implement permit programs for underground storage tanks storing hazardous substances. All interested persons are invited to attend.

Chapter 6.7 of the Health and Safety Code (Section 25280 et seq.) prohibits any person from owning or operating an underground storage tank used for the storage of hazardous substances without a permit issued to the owner by a local

by which is defined as a county or a city, if the city assumes responsibility for the implementation of the program within its jurisdiction. The State Water Resources Control Board is directed by Health and Safety Code Section 25713.2 to develop regulations to implement the standards for this permit program.

These proposed regulations will be the subject of a hearing which will begin at 10:00 a.m. on October 8, 1984. The hearing will be held in the auditorium of the Resources Building, 1416 Ninth Street, Sacramento, California. The auditorium, which is accessible to persons with mobility impairments, is reached by using the east entrance of the Resources Building located on Ninth Street.

Written comments on the proposed regulations must be submitted no later than 5:00 p.m. on October 8, 1984.

Presentation of Written and Oral Testimony and Written Comments

Any person interested may present statements relevant to the State Board's proposed rulemaking at the hearing. Statements, arguments, or contentions, may be presented orally or in writing, or both. As there may be many persons wishing to speak at the hearing, the State Board advises that everyone who wishes all of their comments to be received by the State Board should prepare written comments. Then, if time for each person to speak is limited, the complete views of each person will be part of the hearing record. Any person wishing to testify at the hearing, including any person who requires an interpreter to present testimony, is requested to notify the State Board as

early as possible. Written comments must be submitted no later than the of the hearing, or received by the State Board no later than 5:00 p.m. on October 8, 1984.

Adoption of Proposed Regulations

At a State Board meeting following the public hearing the State Board may adopt regulations substantially as proposed. Alternatively, the State Board may adopt modified regulations if such regulations are sufficiently related to the text made available to the public so that the public was adequately placed on notice that modified regulations could result from the proposed regulations. Items which will be on the State Board's agenda at the meeting are normally discussed at a workshop approximately two weeks before each meeting.

The text of proposed regulations, if modified, will be made available to the public at least 15 days prior to the date of the State Board workshop at which the proposed regulations as modified will be discussed. A request for a copy of any proposed regulations as modified should be addressed to the State Board's Division of Technical Services. The State Board will accept written comments on the regulations as modified for 15 days after the date on which they are made available.

If, after the hearing, the State Board intends to modify the proposed regulations in such a way that the proposed regulations, as modified, are not sufficiently related to the original text as to place the public on notice that such modification could result from the proposed regulations, the modified text will not be adopted without complying anew with the notice and hearing requirements of the Administrative Procedure Act.

Authority to Adopt Regulations and Reference to Statutes Implemented

The State Board has authority to adopt the proposed regulations pursuant to Health and Safety Code Section 25288.2(a). The purpose of this regulation is to implement, interpret and make specific Chapter 6.7 of the Health and Safety Code (Section 25283 et seq.).

Initial Statement of Reasons

An initial statement of reasons for the proposed regulations has been prepared. The statement includes the specific purpose of each regulatory interpretation, requirement, or prohibition, and the factual basis for determining that each regulatory interpretation, requirement, or prohibition is necessary. The statement is available, on request, along with the full text of proposed regulations.

Solicitation of Comments; Receipt of Documents and Additional Information

Requests for copies of proposed regulations or the initial statement of reasons should be addressed to: Division of Technical Services, State Water Resources Control Board, P. O. Box 100, Sacramento, California 95801-0100, (916) 324-1201.

All other questions should be directed to Harold Singer, Division of Technical Services, State Water Resources Control Board, P. O. Box 100, Sacramento, California 95801, (916) 322-0202.

Identification of Local Mandate Statement

The staff of the State Board has determined that there will be annual costs to local agencies and school districts which are reimbursable by the State

pursuant to Section 2231 of the Revenue and Taxation Code. Funding for this reimbursement will be requested in the 1985-86 Governor's Budget for appropriation in the Budget Act of 1985.

The Fiscal Impact Statement estimates the initial cost of compliance with the program for local government owned underground tanks at $41 million and an ongoing (annual) cost of $16 million per year. The Board estimates that even though program compliance is mandated by January 1, 1985, it will probably take five years before all monitoring systems are in place and the program is fully operational. Based on these figures local government should spend about $11.4 million the first year of implementation, increasing to $24.2 million during the fifth year. These figures may need to be adjusted on a year-by-year basis upon determination of the actual implementation rate.

	INITIAL COST		PER YEAR		ANNUAL COST		PERCENTAGE OF PROGRAM ONGOING		
1st year	($41 million	x	1/5)	+	($16 million	x	1/5)	=	$11.4 million
2nd year	($41 million	x	1/5)	+	($16 million	x	2/5)	=	$14.4 million
3rd year	($41 million	x	1/5)	+	($16 million	x	3/5)	=	$17.8 million
4th year	($41 million	x	1/5)	+	($16 million	x	4/5)	=	$21.0 million
5th year	($41 million	x	1/5)	+	($16 million	x	5/5)	=	$24.2 million
Annually thereafter								=	$16.0 million

The Fiscal Impact Statement estimates the initial cost of compliance with the program for school district owned tanks at $11 million and an ongoing (annual) cost of $5 million per year. Based on these figures school districts should spend about $3.2 million the first year of implementation, increasing to

[illegible]illion during the fifth year. These figures may need to be adjusted on a year-by-year basis upon determination of the actual implementation rate.

	INITIAL COST		PER YEAR		ANNUAL COST		PERCENTAGE OF PROGRAM ONBOARD		
1st year	($11 million	x	1/5)	+	($5 million	x	1/5)	=	$3.2 million
2nd year	($11 million	x	1/5)	+	($5 million	x	2/5)	=	$4.2 million
3rd year	($11 million	x	1/5)	+	($5 million	x	3/5)	=	$5.2 million
4th year	($11 million	x	1/5)	+	($5 million	x	4/5)	=	$6.2 million
5th year	($11 million	x	1/5)	+	($5 million	x	5/5)	=	$7.2 million
Annually thereafter								=	$5.0 million

Cost Impact on State Agencies

The Fiscal Impact Statement estimates the initial cost of compliance with the program for State owned underground tanks at $19 million and an ongoing (annual) cost of $7 million per year. Funding for these costs can be addressed during the normal budget process as it is not critical to the regulation approval process.

	INITIAL COST		PER YEAR		ANNUAL COST		PERCENTAGE OF PROGRAM ONBOARD		
1st year	($19 million	x	1/5)	+	($7 million	x	1/5)	=	$5.2 million
2nd year	($19 million	x	1/5)	+	($7 million	x	2/5)	=	$6.6 million
3rd year	($19 million	x	1/5)	+	($7 million	x	3/5)	=	$7.8 million
4th year	($19 million	x	1/5)	+	($7 million	x	4/5)	=	$9.0 million
5th year	($19 million	x	1/5)	+	($7 million	x	5/5)	=	$10.2 million
Annually thereafter								=	$7.0 million

Cost Statement

The staff of the State Board has prepared a fiscal impact statement which contains estimates of the increased costs to state agencies and local governments as a result of the proposed regulations. The fiscal impact statement is attached to the initial statement of reasons and is available to interested persons on request.

Housing Cost Statement

The proposed regulations will have no effect on housing costs.

Cost Impact on Private Persons or Businesses

The staff of the State Board has found that the adoption of these regulations will have a significant economic impact on private persons and businesses. An estimate was made in the fiscal impact statement for the initial and annual costs required for implementing the regulations by private persons and/or businesses. Based on these figures, private persons and businesses should spend about $420 million the first year of implementation, increasing to $935 million during the fifth year. These figures may need to be adjusted on a year-by-year basis upon determination of the actual implementation rate.

	INITIAL COST		PER YEAR		ANNUAL COST		PERCENTAGE OF PROGRAM ONBOARD		
1st year	($1.46 billion	x	1/5)	+	($643 million	x	1/5)	=	$[illegible] million
2nd year	($1.46 billion	x	1/5)	+	($643 million	x	2/5)	=	$[illegible] million
3rd year	($1.46 billion	x	1/5)	+	($643 million	x	3/5)	=	$[illegible] million
4th year	($1.46 billion	x	1/5)	+	($643 million	x	4/5)	=	$[illegible] million
5th year	($1.46 billion	x	1/5)	+	($643 million	x	5/5)	=	$935 million
Annually thereafter								=	$[illegible] million

Small Business Impact Statement

The staff of the State Board finds that the adoption of this regulation may have a significant adverse economic impact on small businesses which have underground storage tanks storing hazardous substances. The staff of the State

Board has not considered proposed alternatives and invites you to submit such proposals. Submission may include the following considerations:

1. The establishment of differing compliance or reporting requirements or timetables which take into account the resources available to small businesses;

2. Consolidation or simplification of compliance and reporting requirements for small businesses;

3. The use of performance standards rather than design standards, and/or;

4. Exemption or partial exemption from regulatory requirements for small businesses.

INFORMATIVE DIGEST

Statutory Provision of Law which Regulations Implement

Health and Safety Code Section 25288.2(a) directs the State Board to develop regulations implementing the standards for underground storage tanks storing hazardous substances which are installed after January 1, 1984 and for tanks installed before January 1, 1984; for recording and reporting of unauthorized releases from tanks; for repair of tanks which have had unauthorized releases; for closing a tank; for issuing categorical and site specific variances from the standards established for both new and old tanks; and for State Board approval of local design and construction standards which are more stringent than those set forth in the Health and Safety Code.

In addition, Health and Safety Code Section 25288.2(a) states that the State Board may adopt regulations implementing standards for an initial application form for a permit to operate a tank and for an annual report form; for fees to

be paid to the local agency including a surcharge to cover costs to the State Board; and for procedures to ensure that trade secrets are appropriately protected.

Summary of Proposed Regulations

Article 1. General

The proposed regulations in this subchapter are intended to protect waters of the State from discharges of hazardous substances from underground tanks. Owners or operators of underground storage tank(s) are required to monitor the tank, maintain appropriate records, report unauthorized releases and properly close the tank as required by the permit. Counties shall implement these regulations within both the incorporated and unincorporated areas. Cities may by ordinance implement these regulations within their boundaries.

Under specific situations some underground tanks are exempt from these proposed regulations. Counties and cities which enacted an ordinance meeting certain minimum requirements prior to January 1, 1988 are exempt from the proposed regulations except for some administrative reporting requirements. Underground storage tanks used for certain agricultural purposes are exempt from the proposed regulations. Underground storage tanks which operate under a hazardous waste facilities permit or have been granted interim status by the Department of Health Services are exempt from these proposed regulations. Specific structures such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation sumps, lined and unlined pits, sumps and lagoons are exempt from the proposed regulations.

Article 2. Definition of Terms

The proposed regulations include definitions, arranged in alphabetical order for technical terms in the proposed regulations.

Article 3. New Tank Construction and Montoring Standards

Statewide minimum standards for the construction of new underground storage tanks and the associated monitoring systems are developed in Article 3. All new underground storage tanks must provide primary and secondary levels of containment for the hazardous substances stored in them. The primary container must be product-tight under all circumstances (i.e. impervious to the substance contained within it).

The requirements for the secondary container differ depending on the type of hazardous substance stored in the primary container. For hazardous substances other than motor vehicle fuels, the secondary container has volumetric requirements and protects groundwater by storing an unauthorized release during both the detection and clean up and removal programs. An access casing(s) is required in the secondary container for installation of a continuous monitoring system to detect unauthorized releases and provide a conduit for removal of the hazardous substance.

The secondary container for motor vehicle fuel tanks is referred to as a leak interception and removal system. The secondary container has no volumetric requirements except that which is required to activate a continuous monitoring system installed in an access casing. The secondary container must direct the unauthorized release to the access casing for detection and removal. In itself, the leak detection and removal system (secondary container) provides minimal protection against groundwater contamination. A response plan must be

developed for the motor vehicle fuel tanks to insure that any unauthorized release from the primary container will be cleaned up before reaching ground water if the secondary container is overtopped.

Article 4. Existing Underground Storage Tank Monitoring Criteria

The proposed regulations establish statewide standards for water quality monitoring at underground storage tanks that store hazardous substances. The objectives of the monitoring program are to determine if unauthorized releases are occurring or have occurred in the past, to equip existing tanks with a monitoring system that will give early warning of future unauthorized releases before groundwater is affected, and to monitor groundwater quality directly to confirm that groundwater degradation is not taking place. To achieve these monitoring objectives, four or more monitoring methods must be used. These methods include tank testing, inventory control, soils monitoring, visual monitoring, vadose zone monitoring, groundwater detection monitoring, and groundwater assurance monitoring.

Pressure testing of tanks will be used to determine if the tank leaks at rates of 0.05 gallons per hour. Soil testing will be used to detect whether unauthorized releases have occurred in the past and whether long-term, slow leaks are occurring. Vadose zone monitoring will be used primarily to provide early warning of future leaks at those locations where the vadose zone is of substantial thickness and groundwater detection monitoring will be used at those locations where groundwater is shallow. Groundwater assurance monitoring will be used on a periodic basis for all tanks except visually monitored tanks to verify that groundwater is not being degraded.

In the event monitoring indicates an apparent unauthorized release has occurred, the actions to be taken for monitoring and corrective action will be covered by the provisions of Subchapter 15 of Chapter 3 of Title 23, California Administrative Code, governing the discharge of waste to land.

The proposed regulations include standards for obtaining, transporting, storing, and analyzing samples and for well construction.

Article 5. Release Reporting Requirements

The proposed regulations describe the specific procedures for reporting unauthorized releases. All unauthorized releases must be reported by tank owners or operators to local agencies. Two types of reporting procedures (one requiring immediate reporting and one requiring only initial recording with reporting as part of normal operating reports) are proposed depending on the threat of contamination to soil and water as a result of the unauthorized release. The reporting procedures include the information that must be reported, how and when to report an unauthorized release, local agency responsibilities, and how to determine the integrity of the underground tank after a release.

Article 6. Repair Methodology

The proposed regulations would allow a one time repair of a tank that has failed. The tank owner proposing to repair a tank must demonstrate to the local agency that all of the failure mechanisms affecting the tank have been identified and that the proposed repair will correct the problems. If the tank to be repaired is steel, a test to determine if a corrosion problem exists is required. Repairs are required to be performed using accepted engineering practices with materials that are compatible with the tank and with

the hazardous substance(s) being stored. Following the repair, the tank owner must demonstrate that the repair was successful and that the tank will provide containment.

Article 7. Closure Requirements

The proposed regulations specify certain actions and evaluations which must be completed by the tank owner when the tank is either temporarily or permanently taken out-of-service. Temporary closure allows a tank to be taken out-of-service for up to two years without implementing permanent closure. A formal closure plan is required to be submitted to the local agency at least 45 days prior to closure. Leaking tanks must be repaired or permanently closed.

The regulations for both temporary and permanent closure require that all residual hazardous substances be removed from the tank and legally stored or disposed. Also, flammable vapors must be purged from the tank. Temporary storage requires the sealing of all tank openings and the disconnection of electrical supplies to pumps. Monitoring during the temporary closure period is required.

The tank owner has two options under the proposed regulations for permanent closure: either removal of the tank or closure in-place. Removal requires proper disposal or cleaning prior to reuse or sale as scrap. Closure in-place requires the removal of all piping, filling of the tank with inert material and placing a notice in the property deed regarding the location of the closed tank and its prior uses.

At closure, the tank owner must demonstrate that soil or groundwater contamination has not occurred as a result of prior use of the tank. This can

be accep[illegible]ed by analyzing prior monitoring data or collecting and analyzing samples of soil under the tank on closure.

Article 8. Categorical and Site Specific Variance Procedures

The proposed regulations establish procedures for categorical and site-specific variances from the construction and monitoring standards of Article 3 and monitoring standards of Article 4. A categorical variance is applicable to more than one site and is obtained by application to the State Board. A site-specific variance is applicable at one facility and is obtained by application to the appropriate Regional Board. The proposed procedures include defining categorical and site-specific variance, identifying needed information, establishing notification and review procedures, allowing conditions to be placed on the variance, defining local agency responsibilities and allowing the variance to be modified or revoked.

Article 9. Local Agency Additional Standards Request Procedures

Health and Safety Code Section 25288.3(b) allows local agencies to request State Board authorization for implementing more stringent standards than those set by Articles 3 and 4. The proposed regulations describe request procedures which include identifying information needed to evaluate the request, review and public hearing procedures and scheduling, effective dates, and allowing the State Board to modify or revoke additional standards.

[illegible]cle 10. Permit Application, Annual Report and Trade Secret Requirements

The proposed regulations establish permit procedures and conditions; procedures for updating permit information through the annual report and trade secret provisions. The proposed regulations require tank owners to obtain a permit, identify the information that is required in the permit application, require fees to cover local agency and State Board costs, and identify local agency responsibilities for issuing permits and reporting permit changes and unauthorized releases. The proposed regulations also establish procedures to evaluate requests for confidentiality of information and to ensure that the trade secrets are utilized only in connection with protecting water quality.

Dated: AUG 15 1984

Michael A. Campos
Executive Director
STATE WATER RESOURCES CONTROL BOARD

B. Other Draft Regulations

1. Partial draft of regulations including sections dated January 13, April 24, May 3, May 8, 1984

Vol 3

Underground Tank Regulations Outline

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Title _____ Waters
Chapter ____ Water Resources Control Board
Subchapter ____ Underground Tank Regulations

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Adopt new section to read:

xx10. Applicability

a) The regulations in this subchapter are intended to protect waters of the State from discharges of hazardous materials from underground tanks. These regulations define new and existing tanks; provide a list of regulated substances; establish construction, monitoring, release reporting, repair and closure standards; and specify variance request procedures.

b) Persons who own one or more underground tank storing hazardous materials shall comply with these regulations except as provided in Section xx of Article xx. If the operator of the tank(s) is not the owner then the owner shall enter into a written contract with the operator requiring the operator to: monitor the tank; maintain appropriate records; implement reporting procedures as required by the permit; and properly close the tank.

c) Counties shall implement the regulations in this subchapter without modification except as provided in Section xx of this Article and Section xx of Article xx, through the issuance of permits to underground tank owners. A permit may be issued for each underground tank, several tanks or for a facility. A city may, by ordinance, assume the responsibility for implementing within its boundaries the provisions of this subchapter.

d) All owners of underground tanks subject to these regulations must comply with the construction and monitoring standards of Article 3 or Article 4 depending on whether the tank is new or existing, respectively. However, owners

of existing underground tanks which meet the construction and monitoring standards of Article 3 may be issued permits pursuant to these standards in lieu of the standards of Article 4. In addition, all owners of underground tanks subject to these regulations must comply with the release reporting requirements of Article 5, the closure requirements of Article 7, and the permit application requirements of Article 10.

Adopt new section to read:

xxll. Exemptions

The following activities shall be exempt from the provisions of this subchapter:

a) Underground storage tanks that are located within the jurisdictions of counties or cities where the county or city had, prior to January 1, 1984, adopted an ordinance which, at a minimum, meets the requirements of Article 3 and Article 4 or equivalent standards to implement Health and Safety Code Sections 25284 and 25284.1 provided that:

   1) The ordinance, as it may be amended, continues to meet the requirements of Article 3 and Article 4 or equivalent standards; and

   2) The county or city issues permits for underground tanks pursuant to the ordinance.

b) Underground storage tanks that are used for the storage of hazardous substances used for the control of external parasites of cattle and subject to the supervision of the county agricultural commissioner if the county agricultural commissioner determines, by inspection prior to use, that the tank provides a level of protection equivalent to that required by Section 25284 of the Health and Safety Code, if the tank was installed after June 30, 1984, or protection equivalent to that provided by Section 25284.1 of the Health and Safety Code if the tank was installed on or before June 30, 1984.

c) Underground storage tanks that are located on a farm and only store motor vehicle fuel which is used only to propel vehicles used primarily for agricultural purposes. Vehicles used primarily for agricultural purposes is meant to include non-licensed vehicles and vehicles utilized in the production of agriculture at the farm site.

d) Underground storage tanks that are used for aviation or motor vehicle fuel storage and are located within one mile of a farm and the tank is used by a licensed pest control operator, as defined in Section 11705 of the Food and Agricultural Code, who is primarily involved in agricultural pest control activities.

e) Structures such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation sumps, lined and unlined pits, sumps and lagoons. Sumps which are a part of a monitoring system required under Article 3 or Article 4 are not exempted by this section. These sumps would be considered part of the secondary containment or leak detection system of the primary containment and would be required to meet the appropriate construction criteria.

f) Underground storage tanks containing hazardous wastes as defined in Section 25316 of the Health and Safety Code if the person owning or operating the tank has been issued a hazardous waste facilities permit by the Department of Health Services pursuant to Section 25200 of the Health and Safety Code or granted interim status under Section 25200.5 of the Health and Safety Code.

Article 3. New Tank Construction and Monitoring Standards

xx30. Applicability

a. This article contains statewide minimum standards for the construction, installation, and monitoring of new underground tanks that contain hazardous substances.

b. Sections xx31 and xx32 specify construction and monitoring standards for all new tank systems. New tank systems that only store motor vehicle fuels may be constructed and monitored pursuant to the standards specified in Sections xx33 and xx34 in lieu of those specified in Sections xx31 and xx32, respectively. However, if the construction standards in Section xx33 are used, then the monitoring standards of Section xx34 must also be used.

c. All new tank systems must comply with Section xx35.

xx31. Construction Criteria for New Underground Storage Tanks

a. Primary and secondary levels of containment shall be required for all new underground tanks used for the storage of hazardous substances as defined in Article 11.

b. All primary containers shall be product-tight.

c. All secondary containers shall be constructed of materials of sufficient thickness, density, and composition to contain the hazardous substance for a period of at least twice the maximum anticipated time sufficient to allow detection and recovery of leakage from the primary container.

d. The secondary container for one tank shall be large enough to contain at least 100 percent of the volume of the primary container.

e. In the case of a storage facility with multiple primary containers, the secondary container shall be large enough to contain 150 percent of the volume of the largest primary container placed in it, or 10 percent of the aggregate internal volume of all primary containers in the storage facility, whichever is greater.

f. If the storage facility is open to rainfall, then the secondary container must be able to accommodate the volume of the twenty-four (24) hour-one hundred (100) year storm in addition to that required in Subsections d and e of this section.

g. Volume requirements for a secondary container which consists of the pore space in backfill placed around the primary container shall be 110 percent

of that required in Sections xx31(d) through (f). The available pore space in the secondary container backfill shall be determined using the methods prescribed in ASTM standard _____.

h. Laminated, coated, or clad materials shall be considered single walled and shall not be construed to fulfill the requirements of both primary and secondary containment.

i. Double walled tanks which satisfy the requirements of Sections xx31(b) and (c) shall be considered to fulfill the volumetric requirements for secondary containment specified in Sections xx31(d).

xx32. Monitoring Criteria for New Underground Storage Tanks

a. Secondary containers shall be equipped with a collection system capable of removing any precipitation, subsurface infiltration, or hazardous substance and liquid leakage from the primary containment.

b. The floor of the secondary containment shall be of rigid construction and sloped to a collection sump. The sump shall be of sufficient depth to allow efficient removal of the collected liquid and be extended to the ground surface by an access casing of not less than four (4) inches in diameter screened in the region of the sump, and covered with a locked waterproof cap.

c. The casing shall be of sufficient thickness to withstand all anticipated applied stresses plus a 1.5 safety factor and constructed of materials that will not be structurally weakened by the stored product nor donate, capture, or mask product constituents for which analyses will be made.

d. The sump shall be equipped with a removable leak detection sensor capable of detecting 0.5 inches of standing liquid and activating a strategically located above-ground alarm system when any combination of a hazardous substance or water is present.

e. Doubled walled tanks which have a detection monitoring system satisfying Section xx32(f) are exempt from the requirements of Sections xx32(b) through (d).

f. The interstitial space between the walls of a double-walled tank shall be monitored continuously using a pressure sensor. A fluid sensor capable

of detecting 0.5 inches of any combination of a hazardous substance or water may be used when ground water is above the top of the double-walled tank. The sensing devices shall be capable of activating a strategically located above-ground alarm system.

xx33. Construction Criteria for New Motor Vehicle Fuel Tanks

a. Primary containers for the underground storage of motor vehicle fuel shall consist of product-tight tanks constructed of fiberglass reinforced plastic, cathodically protected steel, or steel clad with glass fibre reinforced plastic and installed in conjunction with the secondary containment system described in Section xx33(i).

b. Primary containers used for the underground storage of motor vehicle fuel and constructed of materials other than those specified in Section xx33(a) shall be subject to the requirements of Section xx31.

c. The secondary container shall be demonstrated to achieve the integrity and compatibility criteria of Section xx31(c) of this Article.

d. The leak interception and detection system (secondary container) and the response plan shall preclude the contact of any leaked hazardous substance with ground water. Proof that the secondary container and response plan will protect ground waters must be demonstrated by an evaluation which considers the following:

1) The volume of the secondary container;

2) The depth from the bottom of the secondary container to the highest anticipated level of ground water;

3) The nature of the unsaturated soils under the secondary container their ability to adsorb contaminants or allow vertical movement of contaminants; and

4) The nature and timing of the response plan to clean-up the hazardous substances which have been discharged from the primary container.

e. Pressurized piping systems that include an automatic, continuously operating pressure loss detector and flow restriction device are exempt from the secondary container requirements of the article. This detector shall be connected to a visual or audible alarm system.

xx34. Monitoring Criteria for New Motor Vehicle Fuel Tanks

a. Monitoring of underground tanks used for the storage of motor vehicle fuel shall consist of all of the following:

1) Monitoring of the secondary containment system pursuant to subsections b, c and d of this section.

2) Daily gauging and inventory reconciliation by the operator pursuant to subsections c through f of Section xx42 of Article 4.

3) Hydrostatic testing of the tank every two years according to the criteria specified in Section xxxx(xx), and

4) All pressurized piping systems shall be monitored utilizing an on-line pressure loss detector and flow reduction device. The detector shall be connected to a visual or audible alarm system.

b. An access casing shall be installed at each monitoring location as described in Section xx35(b)(11) of this Article. The casing shall be:

1) Capable of allowing any liquid that may be moving along the upper surface of the secondary container to enter the casing;

2) Constructed to be not less than four (4) inches in diameter and of sufficient thickness to withstand all anticipated applied stresses plus a safety factor of 1.5 and of materials that will not be structurally weakened by the stored product nor donate, capture, or mask product constituents for which analyses will be made.

3) Screened along the entire vertical zone of permeable material which may be installed between the primary and secondary container;

4) Capable of precluding leakage of any hazardous substance to areas outside of the secondary container; and

5) Extended to the ground surface and covered with a locked water-proof cap.

c. Monitoring of each casing described in Section xx34(b) shall utilize a method which is capable of detecting 0.50 inches of stored hazardous substance or water in the casing and differentiating between the hazardous substance and water.

d. The frequency of monitoring shall be such that materials leaked from the primary container are detected and cleaned up before they reach ground water. The determination of monitoring frequency shall be based on an evaluation which considers factors 1 and 2 below. Factors 3 through 6 must also be evaluated if the volume of the secondary container is less than either: for a single primary tank in a secondary container - 100 percent of the volume of the primary tank in a secondary container; or, for multiple primary tanks within a secondary container - the largest of 150 percent of the volume of largest primary container or 10 percent of the total of all primary containers.

1) Volume of the secondary container in relation to the volume of the primary container;

2) The amount of time the secondary container can be expected to provide containment in relation to the period of time between monitoring and for the clean-up of leaked materials to be completed;

3) The volume of the secondary container and its relationship to the expected volume of leakage between monitoring that will not be detected by other, more frequent monitoring methods;

4) The depth from the bottom of the secondary container to the highest anticipated level of ground water;

5) The nature of the unsaturated soils under the secondary container and their ability to adsorb contaminants or allow vertical movement of contaminants; and

6) The nature and timing of the response plan to clean-up the hazardous substances which have been discharged from the primary container.

e. Underground tanks used for the storage of motor vehicle fuels that have a loss or gain of hazardous substance or water as determined by daily gauging and inventory control (as required in subsection a(2) of this section) of greater than any of the following shall immediately be taken out of service and within five working days be tested for tightness by methods specified in Section xxxx.

1) Daily loss or gain of 50 gallons, or

2) Seven (7) day loss or gain of five percent of the volume of hazardous substance delivered over the seven days, or

3) Cumulative (calculated over a period of at least thirty (30) days) loss or gain of one-half percent of the volume of hazardous substance delivered over the period that the cumulative loss or gain is calculated.

xx35. General Construction Criteria

a. The following sections apply to all primary and secondary containers.

b. Primary containers and double-walled tanks shall be designed and constructed to comply with all of the following:

1) A permanent label shall be affixed at the fill port of each underground tank containing information on the tank manufacturer, date of manufacture, construction standards, and tank capacity.

2) A 0.25 inch thick steel wear plate (striker plate) shall be centered under each opening of the underground tank. The plate shall be rolled to the contours of the tank, bonded or seam welded in place, and have a minimum area of 576 square inches. Underground tanks equipped with a guide for directing dip sticks to the striker plate may use a smaller striker plate upon approval by the local agency.

3) All underground tanks shall be guaranteed by the manufacturer to be product tight prior to installation.

4) Following installation, all underground tanks shall be tested either hydrostatically or with pressure in accordance with standards and procedures set forth in Article 4.

5) Cathodically protected steel and steel clad with glass fibre reinforced plastic shall be fabricated and designed by the requirements in UL 58, Standards for Steel Underground Tanks for Flammable and Combustible Liquids or the American Society of Mechanical Engineers (ASME) Pressure

Vessel Code, Section VIII, Division 1, Boiler and Pressure Vessel Code and have a minimum thickness of at least 7 gauge (0.18 inch).

6) Fiberglass reinforced plastic tanks shall be Underwriters Llimited (UL) listed and designed in accordance with UL Standard 1316, Standard for Glass-Fiber-Reinforced Plastic Underground Storage, or Underwriter's Laboratory of Canada, Standard ULC-5615-1977, Standard for Reinforced Plastic Underground Tanks for Petroleum Products.

7) Fiberglass reinforced plastic tanks shall be tested by the manufacturer for durability and chemical compatability with the hazardous substances to be stored using applicable sections of ASTM D4021-81 "Standard Specifications for Glass-Fiber-Reinforced Polyester Underground Storage Tanks", and the manufacturer shall provide the owner with written assurance of the compatibility.

8) The secondary container must be capable of precluding the inflow of the highest seasonal ground water into the space between the primary and secondary containers.

9) If the space between the primary and secondary containers is backfilled, the backfill material shall not preclude the vertical movement of leakage from any part of the primary container.

10) The secondary container shall at a minimum encompass the area within the system of vertical planes surrounding the exterior of the primary containment unit. If backfill is placed between the primary and secondary containment then an evaluation shall be made of the maximum

lateral spread of a point leak from the primary containment over the vertical distance between the primary and secondary containment. The secondary containment shall extend beyond the vertical planes an additional distance defined above equal to the radius of lateral spread plus one foot.

11) The secondary container and any backfill material between the primary and secondary container shall be designed and constructed to promote gravity drainage of a leak of hazardous substances from any part of the primary container to the monitoring location(s).

12) The original excavation for the secondary container shall have a water tight cover which extends at least one (1) 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. Double-walled tanks are exempt from this requirement.

c. All primary and secondary container systems shall be designed and constructed to comply with all of the following:

1) Underground storage tanks shall be located outside the prism of bearing pressure from footings of existing structures and a minimum of ten (10) feet away from these structures.

2) The actual location and orientation of the underground tanks and appurtenant piping systems shall be indicated on as-built drawings

of the facility. Copies of all drawings, photographs, and plans shall be maintained at the site for the life of the facility.

3) Materials that in combination may cause a fire or explosion, or the production of a flammable, toxic, or poisonous gas, or the detioration of a primary or secondary container shall be separated in both the primary and secondary containment so as to avoid potential intermixing.

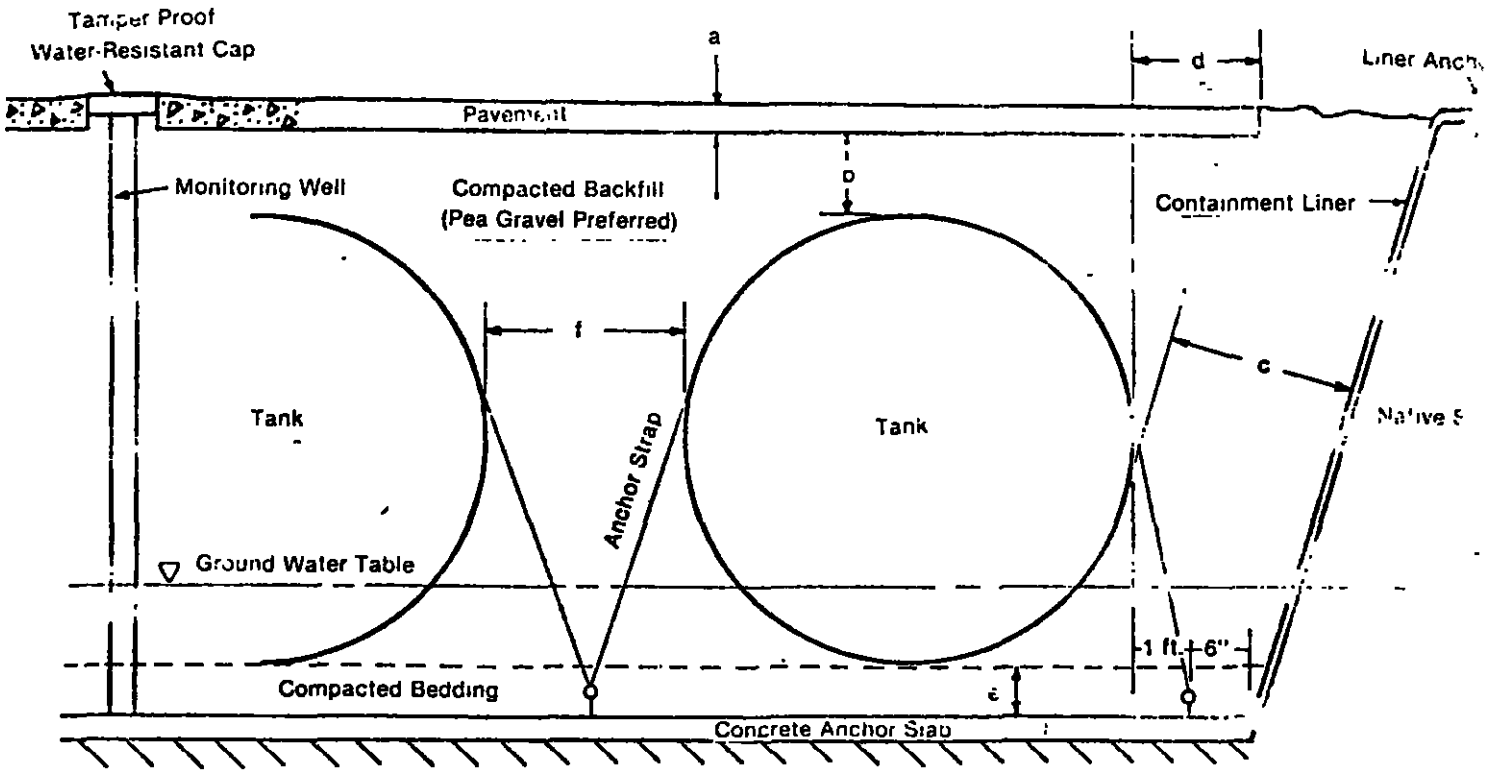
4) Drainage of precipitation from within a storage facility containing hazardous materials shall be controlled in a manner approved by the local agency so as to prevent hazardous materials from being discharged.

5) The water shall be analyzed for the product(s) stored in the primary containment prior to initial removal and monthly thereafter for any continuous discharge (removal) to determine the appropriate method for final disposal.

d. All primary containers and double-walled tanks shall be installed as follows:

1) Underground storage tanks shall be installed in accordance with the minimum depth of cover and thickness of bedding provided in Figure 3.1, "Dimensions for Underground Tank Installation" and Table 3.1, "Recommended Dimensions for Underground Tank Installations". Atmospheric tanks of steel construction may be buried deeper, but in no case shall the burial depth be such that the static head on the bottom of the tank exceeds 10 psig with the fill pipe or vent pipes filled with liquid.

Figure 3.1. Dimensions for Underground Tank Installation



Key

a-pavement thickness
b-depth of compacted backfill cover
c-distance between tank and excavation wall
d-pavement extension
e-depth of bedding
f-distance between adjacent tanks

Table 3.1. Recommended Dimensions for Underground Tank Installations

TYPE OF TANK	MINIMUM REQUIREMENT*
All Tanks	
Pavement Extensions(d)	12 inches
Distance Between Adjacent Tanks(f)	24 inches
Distance Between Tank and Bank of Excavation(c)	24 inches
Thickness of Compacted Bedding(e)	12 inches
Steel Tanks	
With Traffic Loads	
Reinforced Concrete Pavement(a)	6 inches
Plus Compacted Backfill Cover(b)	18 inches
or	
Asphaltic Concrete Pavement(a)	8 inches
Plus Compacted Backfill Cover(b)	18 inches
Without Traffic Loads	
Reinforced Concrete Pavement(a)	4 inches
Plus Compacted Backfill Cover(b)	12 inches
Fiberglass Reinforced Plastic Tanks (20,000 Gallons and Under)	
Maximum Burial Depth(b)	84 inches
With Traffic Load	
Reinforced Concrete Pavement(a)	6 inches
Plus Compacted Backfill Cover(b)	18 inches**
or	
Asphaltic Concrete Pavement(a)	6 inches
Plus Compacted Backfill Cover(b)	30 inches**
Without Traffic Loads	
Reinforced Concrete Pavement(a)	4 inches
Plus Compacted Backfill Cover(b)	12 inches**
Fiberglass Reinforced Plastic Tanks (Over 20,000 gallons)	
Maximum Burial Depth(b)	84 inches
With Traffic Loads	
Reinforced Concrete Pavement(a)	6 inches
Plus Compacted Backfill Cover (b)	36 inches
or	
Asphaltic Concrete Pavement(a)	6 inches
Plus Compacted Backfill Cover(b)	42 inches
Without Traffic Loads	
Reinforced Concrete Pavement(a)	6 inches
Plus Compacted Backfill Cover(b)	24 inches

**Unless Otherwise Noted*
***In Wet Hole Installations, the Minimum Depth of Compacted Cover Is 36 Inches*

2) For installations above the water table, the backfill in the secondary container shall be placed in successive twelve (12) inch lifts with hand placement and compaction to 95 percent standard procter for the bed, the first two lifts, and the last two lifts between the top of the tank and the cover slab. All other lifts shall be placed in successive twelve (12) inch lifts and tamped.

3) All underground tanks shall rest directly on a compacted bed or on foundations made of concrete, masonry, piling, or steel. The foundations shall be designed to minimize the possibility of uneven settling of the tank and to minimize corrosion in any part of the tank resting on the foundation.

4) Tanks shall be so supported as to prevent the excessive concentration of loads on the supporting portion of the shell.

5) Fiberglass reinforced plastic tanks shall be installed using a bedding of either pea gravel or stone/gravel crushings which satisfy the following criteria (certified by the backfill supplier):

   (a) For pea gravel, a clean and naturally rounded aggregate with a mix of particle sizes with diameters not less than 0.125 inches or more than 0.750 inches,

   (b) For stone/gravel crushings, the material should be washed and free flowing, with angular particle sizes not less than 0.125 inches or more than 0.500 inches,

(c) Meet the requirements of the American Society for Testing and Materials (ASTM) - 33 for quality and soundness, and

(d) Have no particles passing a #8 sieve.

6) Other backfill materials may be substituted if: (a) the material required in Section xx35(d)(5) is not available, and (2) the tank manufacturer or a professional engineer designated by the local agency has approved the use of the substitute material and developed appropriate installation procedures.

7) Steel tanks shall be installed using the materials presented in Sections xx35(d)(5) or a uniform clear sand or self-compacting gravel which is free of rocks, clay, loam, or cinders.

8) All fittings and accessways which extend through pavement openings shall be raised at least two (2) inches above grade (the pavement surface) with the pavement sloped upward to the edge of this opening.

9) A minimum gap of three (3) inches shall be maintained between the underground tank and the bottom of any cavity used for associated tank functions.

e. All primary containers and double-walled tanks shall be anchored as follows:

1) Anchoring in strict accord with the manufacturer's specifications shall be required for all fiberglass reinforced plastic tanks with

a diameter greater than or equal to twelve (12) feet. These specifications are in lieu of those in (2) through (6) below.

2) All underground storage tanks which are subject to flotation shall be weighted or anchored. The requirements for weighting and anchoring shall be based on an analysis of potential ground water levels at the site and calculations on the buoyancy of the underground tank(s), both of which shall be made by a registered professional engineer.

3) Anchoring of underground storage tanks shall be accomplished by strapping to a reinforced concrete anchor pad buried underneath twelve (12) inches or more of bedding material, or concrete deadmen layed along each side and parallel to the tank.

4) The anchor slab or concrete deadmen shall be designed in accordance with recognized engineering standards by a registered professional engineer and installed in accordance with manufacturer's recommendations. At a minimum the anchor slabs shall be eight (8) inches thick and extend eighteen (18) inches beyond the end of the tank and the vertical tangent line of the tank. Deadmen shall be a minimum twelve (12) inches by twelve (12) inches and extend twelve (12) inches beyond the ends and vertical tangent lines of the tank.

5) Anchor bolts shall be imbedded in the slab and coated with epoxy to prevent corrosion.

6) Anchor straps shall be uniformly tight and spaced to evenly distribute the load and aligned, where applicable, at locations designated by

the manufacturer for this purpose. On steel tanks, the strap shall be electrically isolated from the tank by neoprene, asphalt-impregnated expansion joint material, or equivalent.

f. When required by the local agency, all underground storage tanks shall be equipped with an overflow protection system which includes the following elements:

1) A level sensing device that continuously monitors and indicates the liquid level in the tank and either (2) or (3) or both,

2) An audible or visual alarm system triggered by a liquid level sensor to alert the operator of an impending overfill condition, or

3) An automatic shut-off device that stops the flow of product being delivered to the tank when the tank is full.

The overflow protection system required above shall be satisfied for underground storage tanks containing motor vehicle fuels in which both the fluid level is visually monitored and the filling operation is controlled by the facility operator during filling of the underground storage tank.

g. Corrosion protection as described below shall be installed for all primary tanks and double-walled tanks made of steel. Steel tanks clad with fiberglass complying with the specifications of subsection h of this section are exempt from this subsection.

1) A corrosion protection system shall include the following measures of control:

(a) Cathodic protection using sacrificial galvanic anodes or anodes energized by impressed currents,

(b) A monitoring system to measure the effectiveness of the cathodic protection system,

(c) A tough exterior epoxy coating, and

(d) Electrical isolation of the tank from the piping system and other underground metallic structures.

2) Active cathodic protection systems consisting of sacrificial galvanic anodes or energized by impressed currents shall be designed by a registered corrosion engineer and monitored at 90-day intervals.

3) An exterior epoxy coating shall be applied to the entire exterior surface of the tank after all bushings and plugs have been installed, and immediately after sand blasting in accordance with Steel Structure Painting Council Specification No. 6, Commercial Blast Cleaning.

4) The coating material shall be a coal tar epoxy applied to the tank shell to a thickness of 13 mils when wet (10 mils minimum when dry) and on the tank head and within 48 inches of shell-mounted anodes to a thickness of 22 mils when wet (15 mils minimum when dry). The fabricator shall use a wet film thickness gauge during application of the coating and a nondestructive magnetic film gauge tester to the dried coating to ensure proper application thickness.

5) All cathodically protected steel tanks shall be equipped with fittings for electrically insulating the tank from the piping. The fittings shall be nylon bushings, bolted flanges with companion nylon flanges, commercially available flange insulation kits, or an equivalent system. The insulating materials shall be able to withstand exposure to the material to be stored without swelling and/or degradation.

h. Primary containers or double-walled tanks that are made of steel and clad with glass fiber-reinforced plastic shall comply with all of the following:

1) The resin coating used for steel underground tanks clad with fiberglass shall satisfy the following:

(a) Have a minimum thickness of 100 mils bonded to the steel shell.

(b) Have bonding qualities and a coefficient of thermal expansion compatible with steel such that stress due to temperature changes will not be detrimental to the soundness of the coating and the permanent bond between the coating and the steel.

(c) Be of sufficient density and strength to form a hard impermeable shell which will not crack, wick, wear, soften, or separate over the life of the tank.

(d) Be noncorrosive in the anticipated underground soil environment and compatible with the product stored in the tank.

2) Steel tanks clad with glass fiber-reinforced plastic shall have nonconductive bushings, gaskets, or washers at all piping connections.

Article 4. Existing Tank Monitoring Criteria

Adopt new section to read:

xx40. Applicability

a. All owners of existing underground storage tanks subject to this subchapter shall implement a monitoring system that is capable of detecting any release of hazardous substance stored in the tank. The failure to implement an approved monitoring system shall be cause for immediate closure of the tank pursuant to the regulations of Article 7 of this subchapter.

b. The monitoring system for all existing underground tanks shall meet the standards described in Section xx41; however, existing underground tanks storing motor vehicle fuels may utilize a monitoring system meeting the standards of Section xx42 in lieu of Section xx41.

xx41. Applicable Monitoring Methods and Results Evaluation - Existing Underground Storage Tanks

a. A monitoring system for existing underground storage tanks shall include the following:

1) Visual monitoring pursuant to subsection b where practical.

2) Where visual monitoring pursuant to 1 above is not practical, then the following monitoring shall be implemented unless the criteria described in the applicable subsection allowing an exemption are met:

(a) tank testing pursuant to subsection c; and

(b) inventory control pursuant to subsection d; and

(c) soils monitoring pursuant to subsection e; and

(d) ground water monitoring pursuant to subsection f; or

(e) vadose zone monitoring pursuant to subsection g; or

(f) vapor monitoring pursuant to subsection h.

b. Underground tanks used for the storage of hazardous substances shall be tested for leaks.

1) Methods used must be capable of detecting a hazardous substance loss of at least 0.05 gallons per hour (gph). These methods are limited to those tests that make adjustments for all of the following:

(a) the presence of vapor pockets,

(b) thermal expansion or contraction of the hazardous substance,

(c) temperature stratification in the tank,

(d) evaporation,

(e) pressure variations in the tank, and

(f) the deflection of the tank ends.

2) Underground tanks used for the storage of hazardous substances shall be tested according to the schedule presented in Table 4-1.

3) Within thirty days of completion of the leak detection test, the underground tank owner shall provide the local agency with a report presenting the following information:

(a) The procedures used (including any deviations from those recommended by the manufacturer) for the leak detection method,

(b) the test results used in determining the volumetric rate of product loss, and

(c) the volumetric rate of product loss.

The information shall be presented in written and/or tabular format as appropriate, and shall be at a level of detail appropriate for the test procedure used.

Table 4.1 Tank Testing Schedule for Hazardous Substance Storage Tanks

Category A: Un-clad steel tanks without corrosion protection - test 10 years after installation, and yearly thereafter.

Category B: Corrosion resistant tanks[1] - test 15 years after installation, and yearly thereafter.

Category C: Tanks installed with the secondary container and monitoring systems specified in Article 3 and monitored accordingly require no testing.

[1] Common corrosion resistant tanks include: fiberglass reinforced plastic (FRP), cathodically protected steel, FRP-clad steel tanks, and double-walled tanks.

4) Underground tanks which are found to lose product at a rate greater than or equal to 0.05 gph shall be repaired or replaced as specified in Articles 6 and 7, respectively.

5) The results of any tests performed on the tank at any other interval to determine if the tank is leaking shall be reported by the tank owner to the local agency within thirty days of completion as specified in 3 above.

xx42. Applicable Methods and Results Evaluation - Motor Vehicle Fuel Tanks

a. A monitoring system for existing motor vehicle fuel tanks shall include the monitoring specified in subsection (b) of this section and subsection b of Section xx41 of this Article.

b. All pressurized piping systems shall be monitored utilizing an on-line pressure loss detector and flow reduction device. The detector shall be connected to a visual or audible alarm system.

c. All tanks shall be individually monitored utilizing a daily inventory control system that takes into account: daily tank quantity measurements for both tank contents and any water layer; daily retail meter delivery records for outgoing product; and, daily wholesale meter delivery records for incoming product. Meters shall be approved for use by the County Department of Weights and Measures.

d. Tank quantity measurements shall be based on liquid elevation measurements which are:

1) Capable of measuring to one-eighth of an inch;

2) Performed during periods of no tank additions or withdrawals;

3) Performed by the tank owner, operator or other managerial personnel who have had appropriate training;

4) Based on the average of two readings if stick measurements are used;

5) Capable of detecting a water layer at the lowest end of the tank;

6) 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 measurements at both ends on a semi-annual basis to determine if any tank tilt exists and, if so, its magnitude; and

7) Converted to volume measurements based on a calibration chart provided by the tank manufacturer or supplier that takes into account the actual tilt of the tank as determined initially and semi-annually as described in 6 above.

e. Wholesale meter delivery records shall be verified according to the following procedure which utilizes the criteria described in d above:

1) Prior to any delivery, the volume of actual tank contents shall be determined and, if product is to be removed from the tank during delivery, the retail meter totalizer reading(s) shall be recorded.

2) Following a delivery, the volume of the actual tank contents shall be determined and, if product was removed from the tank during the delivery, the retail meter totalizer reading(s) shall be recorded.

3) Based on the above readings, a determination shall be made of the increase or decrease in the volume of water in the tank and the increase in the volume of product in the tank. This figure shall be compared with the metered volume of the product delivery.

4) A difference of more than the lessor of xx percent of the delivery volume or xx gallons, shall be cause for a reevaluation of the measurements. This reevaluation shall initially include collection of the information required in 2 above. If this reevaluation results in a difference of more than the figures described above, the delivery meter shall be recalibrated.

f. Underground tanks used for storage of motor vehicle fuels that have a loss or gain of product or water as determined by daily gauging and inventory control of greater than any of the following shall immediately be taken out of service and within five working days be tested for tightness by methods specified in Subsection b of Section xx41 of this Article.

1) Daily loss or gain of 50 gallons, or

2) Seven (7) day loss or gain of five percent of the volume of motor vehicle fuel delivered over the seven days, or

3) Cumulative (calculated over a period of at least thirty (30) days) loss or gain of one-half percent of the volume of motor vehicle fuel delivered over the period that the cumulative loss or gain is calculated.

Article 11. Definition of Terms

Adopt new section to read:

xx10. Definitions

The following definitions shall apply to terms used in this subchapter.

"Board" means the State Water Resources Control Board.

"Existing underground tank" means any underground tank that is not a new underground tank.

"Facility" means any one, or combination of, underground storage tanks used by a single business entity at a single location or site.

"Hazardous substance" means all of the following liquid and solid substances:

1. Substances on the list prepared by the Director of the Department of Industrial Relations pursuant to Section 6382 of the Labor Code.

2. Hazardous substances as defined in Section 25316.

3. Any substance or material which is classified by the National Fire Protection Association (NFPA) as a flammable liquid, a class II combustible liquid, or a class III-A combustible liquid.

"Installed" means the point in time when all necessary permits have been issued allowing the implacement of the underground tank or, if no permits are necessary, the point in time when actual implacement of the tank begins.

"Local agency" means the county or city that is implementing the permit program. The local agency may also mean the department within the county or city designated to implement the program.

"New underground tank" means any underground tank installed after the effective date of these regulations or, if prior to adoption of these regulations, installed within a county, city and county or city where the county, city and county or city has adopted an ordinance implementing the provisions of Section 25284 of the Health and Safety Code and the tank was installed after the date of adoption of said ordinance.

"Operator" means the operator of an underground storage tank.

"Owner" means the owner of an underground storage tank.

"Person" means an individual, trust, firm, joint stock company, corporation, including a government corporation, partnership, and association. "Person" also includes any city, county, district, the state, or any department or agency thereof. "Person" includes the United States, to the extent authorized by federal law.

"Pipe" means any pipeline or system of pipelines which is used in connection with the hazardous substances and which are not intended to transport hazardous substances in interstate or intrastate commerce or to transfer hazardous materials in bulk to or from a marine vessel.

"Primary containment" means the first level of containment, such as the portion of a tank which comes into immediate contact on its inner surface with the hazardous substance being contained.

"Product-tight" means impervious to the substance which is contained, or is to be contained, so as to prevent the seepage of the substance from the primary containment. To be product-tight, the tank shall not be subject to physical or chemical deterioration by the substance which it contains over the useful life of the tank.

"Secondary containment" means the level of containment external to, and separate from, the primary containment.

"Single-walled" means construction with walls made of only one thickness of material. For the purpose of this subchapter, laminated, coated, or clad materials shall be considered single-walled.

"Special inspectors" means a professional engineer, registered pursuant to Chapter 7 (commencing with Section 6700) of Division 3 of the Business and Professions Code, who is qualified to attest, at a minimum, to structural soundness, seismic safety, the compatibility of construction materials with contents, cathodic protection, and the mechanical compatibility of the structural elements.

"Storage" or "store" means the containment, handling or treatment of hazardous substances, either on a temporary basis or for a period of years.

"Substantially beneath the surface of the ground" means that at least 50 percent of the surface area of the tank that can be in contact with the stored material is below the ground surface.

"Tank" means any single container including connecting piping which is used for the storage of hazardous substances and which is substantially or totally beneath the surface of the ground.

"Tank system" means any one or more tanks and is used synonymously with "underground storage tank".

"Unauthorized release" means any release or emission of any hazardous substance unless this release is authorized by the State Water Resources Control Board pursuant to Division 7 (commencing with Section 13000) of the Water Code. "Unauthorized release" does not include withdrawals of hazardous substances for the purpose of legitimate sale or use.

"Underground storage tank" means any one or combination of tanks, including pipes connected thereto, which is used for the storage of hazardous substances and which is substantially or totally beneath the surface of the ground.

2. Draft regulations dated June 1, 1984

Underground Tank Regulations

California Administrative Code
Title 23 Waters
Chapter 3 Water Resources Control Board
Subchapter 16 Underground Tank Regulations

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Article 1. General

Adopt new section to read:

2610. Applicability

(a) The regulations in this subchapter are intended to protect waters of the State from discharges of hazardous substances from underground tanks. These regulations define new and existing tanks; provide a list of regulated substances; establish construction, monitoring, release reporting, repair and closure standards; and specify variance request procedures.

(b) Persons who own one or more underground tank(s) storing hazardous substances shall comply with these regulations except as provided in Section 2611 of this Article. If the operator of the tank(s) is not the owner then the owner shall enter into a written contract with the operator requiring the operator as required by the permit to: monitor the tank; maintain appropriate records; implement reporting procedures as required by the permit; and properly close the tank.

(c) Counties shall implement the regulations in this subchapter within both the incorporated and unincorporated areas of the County without modification except as provided in Section 2611(g) of this Article or Article 8 of this subchapter, through the issuance of permits to underground tank owners. A permit may be issued for each underground tank, several tanks or for a facility. A city may, by ordinance, assume the responsibility for implementing within its boundaries the provisions of this subchapter.

(d) All owners of underground tanks subject to these regulations must comply with the construction and monitoring standards of Article 3 or Article 4

of this subchapter depending on whether the tank is new or existing, respectively. However, owners of existing underground tanks which meet the construction and monitoring standards of Article 3 of this subchapter may be issued permits pursuant to these standards in lieu of the standards of Article 4 of this subchapter. In addition, all owners and/or operators of underground tanks subject to these regulations must comply with the release reporting requirements of Article 5 of this subchapter, the closure requirements of Article 7 of this subchapter, and the permit application requirements of Article 10 of this subchapter.

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Adopt new section to read:

2611. Exemptions

The following activities shall be exempt from the provisions of this subchapter:

(a) Underground storage tanks that are located within the jurisdictions of counties or cities where the county or city had, prior to January 1, 1984, adopted an ordinance which, at a minimum, meets the requirements of Article 3 and Article 4 of this subchapter or equivalent standards to implement Health and Safety Code Sections 25284 and 25284.1 provided that:

(1) The ordinance, as it may be amended, continues to meet at a minimum the requirements of Article 3 and Article 4 of this subchapter or equivalent standards to implement Health and Safety Code Sections 25284 and 25284.1; and

(2) The county or city issues permits for underground tanks pursuant to the ordinance.

(b) Underground storage tanks that are used for the storage of hazardous substances used for the control of external parasites of cattle and subject to the supervision of the county agricultural commissioner if the county agricultural commissioner determines, by inspection prior to use, that the tank provides a level of protection equivalent to that required by Section 25284 of the Health and Safety Code, if the tank was installed after June 30, 1984, or protection equivalent to that provided by Section 25284.1 of the Health and Safety Code if the tank was installed on or before June 30, 1984.

(c) Underground storage tanks that are located on a farm and only store motor vehicle fuel which is used only to propel vehicles used primarily for agricultural purposes. Vehicles used primarily for agricultural purposes is meant to include non-licensed vehicles and vehicles utilized in the production of agriculture at the farm site.

(d) Underground storage tanks that are used for aviation or motor vehicle fuel storage and are located within one mile of a farm and the tank is used by a licensed pest control operator, as defined in Section 11705 of the Food and Agricultural Code, who is primarily involved in agricultural pest control activities.

(e) Structures such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation sumps, lined and unlined pits, sumps and lagoons. (Sumps which are a part of a monitoring system required under Article 3 or Article 4 of this subchapter are not exempted by this section; however, these sumps would be considered part of the secondary containment or leak detection system of the primary containment and would be required to meet the appropriate construction criteria.)

(f) Underground storage tanks containing hazardous wastes as defined in Section 25316 of the Health and Safety Code if the person owning or operating the tank has been issued a hazardous waste facilities permit by the Department of Health Services pursuant to Section 25200 of the Health and Safety Code or granted interim status under Section 25200.5 of the Health and Safety Code.

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(g) Counties or cities which had, prior to January 1, 1984, adopted an ordinance which, at a minimum, meets the requirements of Article 3 and Article 4 of this subchapter or equivalent standards to implement Health and Safety Code Sections 25284 and 25284.1 are exempt from all sections of this subchapter except subsections (a) and (b) of section 2701 and subsection (b) of section 2702 of Article 10 provided that:

(1) The ordinance, as it may be amended, continues to meet at a minimum the requirements of Article 3 and Article 4 of this subchapter or equivalent standards to implement Health and Safety Code Sections 25284 and 25284.1; and

(2) The county or city issues permits for underground tanks pursuant to the ordinance; and

(3) The county or city submit a written report of any unauthorized release from an underground storage tank to the Office of Emergency Services within 10 working days from the time the local agency is notified of the unauthorized release.

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Article 2. Definition of Terms

Adopt new section to read:

2620. Definitions

The following definitions shall apply to terms used in this subchapter.

"Board" means the State Water Resources Control Board.

"Existing underground tank" means any underground tank that is not a new underground tank.

"Facility" means any one, or combination of, underground storage tanks used by a single business entity at a single location or site.

"Hazardous substance" means all of the following liquid and solid substances, unless the Department of Health Services, in consultation with the Board, determines the substance could not adversely affect the quality of the waters of the State:

1. Substances on the list prepared by the Director of the Department of Industrial Relations pursuant to Section 6382 of the Labor Code.
2. Hazardous substances as defined in Section 25316 of the Health and Safety Code.
3. Any substance or material which is classified by the National Fire Protection Association (NFPA) as a flammable liquid, a class II combustible liquid, or a class III-A combustible liquid.

"Installed" means the point in time when all necessary permits have been issued allowing the implacement of the underground tank or, if no permits are necessary, the point in time when actual implacement of the tank begins.

"Local agency" means the county or city that is implementing the permit program. The local agency may also mean the department within the county or city designated to implement the program.

"Motor vehicle" means a self-propelled device by which any person or property may be propelled, moved, or drawn upon a highway, excepting a device moved exclusively by human power or used exclusively upon stationary rails or tracks.

"Motor vehicle fuel tank" means a tank that contains a product which is intended to be used primarily to fuel motor vehicles.

"New underground tank" means any underground tank installed after the effective date of these regulations or, if prior to adoption of these regulations, installed within a county, city and county or city where the county, city and county or city has adopted an ordinance implementing the provisions of Section 25284 of the Health and Safety Code and the tank was installed after the date of adoption of said ordinance.

"Operator" means the operator of an underground storage tank.

"Owner" means the owner of an underground storage tank.

"Person" means an individual, trust, firm, joint stock company, corporation, including a government corporation, partnership, and association. "Person" also includes any city, county, district, the state, or any

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department or agency thereof. "Person" includes the United States, to the extent authorized by federal law.

"Pipe" means any pipeline or system of pipelines which is used in connection with the hazardous substances and which are not intended to transport hazardous substances in interstate or intrastate commerce or to transfer hazardous materials in bulk to or from a marine vessel.

"Primary containment" means the first level of containment, such as the portion of a tank which comes into immediate contact on its inner surface with the hazardous substance being contained.

"Product-tight" means impervious to the substance which is contained, or is to be contained, so as to prevent the seepage of the substance from the primary containment. To be product-tight, the tank shall not be subject to physical or chemical deterioration by the substance which it contains over the useful life of the tank.

"Secondary containment" means the level of containment external to, and separate from, the primary containment.

"Single-walled" means a tank with walls made of only one thickness of material. For the purpose of this subchapter, laminated, coated, or clad materials shall be considered single-walled.

"Special inspectors" means a professional engineer, registered pursuant to Chapter 7 (commencing with Section 6700) of Division 3 of the Business and Professions Code, who is qualified to attest, at a minimum, to

structural soundness, seismic safety, the compatibility of construction materials with contents, cathodic protection, and the mechanical compatibility of the structural elements.

"Storage" or "store" means the containment, handling or treatment of hazardous substances, either on a temporary basis or for a period of years.

"Substantially beneath the surface of the ground" means that at least 50 percent of the surface area of the tank that can be in contact with the stored material is below the ground surface.

"Tank" means any single container including connecting piping which is used for the storage of hazardous substances and which is substantially or totally beneath the surface of the ground.

"Tank system" means any one or more tanks and is used synonymously with "underground storage tank".

"Unauthorized release" means any release or emission of any hazardous substance unless this release is authorized by the State Water Resources Control Board pursuant to Division 7 (commencing with Section 13000) of the Water Code. "Unauthorized release" does not include withdrawals of hazardous substances for the purpose of legitimate sale or use.

"Underground storage tank" means any one or combination of tanks, including pipes connected thereto, which is used for the storage of hazardous substances and which is substantially or totally beneath the surface of the ground.

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Article 3. New Tank Construction and Monitoring Standards

2630. Applicability

(a) This article contains statewide minimum standards for the construction, installation, and monitoring of new underground tanks that contain hazardous substances.

(b) Sections 2631 and 2632 specify construction and monitoring standards for all new tank systems. New tank systems that only store motor vehicle fuels may be constructed and monitored pursuant to the standards specified in Sections 2633 and 2634 in lieu of those specified in Sections 2631 and 2632, respectively. However, if the construction standards in Section 2633 are used, then the monitoring standards of Section 2634 must also be used.

(c) All new tank systems must comply with Section 2635.

2631. Construction Standards for New Underground Storage Tanks

(a) Primary and secondary levels of containment shall be required for all new underground tanks used for the storage of hazardous substances as defined in Article 11.

(b) All primary containers shall be product-tight.

(c) All secondary containers shall be constructed of materials of sufficient thickness, density, and composition to contain the hazardous substance for a period of at least twice the maximum anticipated time sufficient to allow detection and recovery of leakage from the primary container.

(d) The secondary container shall have the ability to contain the following volumes:

(1) at least 100 percent of the volume of the primary container where only one primary container is within the secondary container;

(2) in the case of multiple primary containers within a single secondary container, the secondary container shall be large enough to contain 150 percent of the volume of the largest primary container placed in it, or 10 percent of the aggregate internal volume of all primary containers in the storage facility, whichever is greater.

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(e) If the storage facility is open to rainfall, then the secondary container must be able to accommodate the volume of the twenty-four (24) hour-one hundred (100) year storm in addition to that required in Subsections (d) and (e) of this section.

(f) Volume requirements for a secondary container which consists of the pore space in backfill placed around the primary container shall be 110 percent of that required in Sections 2631(d) and (e). The available pore space in the secondary container backfill shall be determined using appropriate engineering methods.

(g) Laminated, coated, or clad materials shall be considered single walled and shall not be construed to fulfill the requirements of both primary and secondary containment.

(h) Double walled tanks which satisfy the requirements of Sections 2631(b) and (c) shall be considered to fulfill the volumetric requirements for secondary containment specified in Sections 2631(d).

2632. Monitoring Standards for New Underground Storage Tanks

(a) This section is applicable only to those underground storage tanks constructed pursuant to the standards of Section 2631 of this article.

(b) Secondary containers shall be equipped with a collection system capable of removing any precipitation, subsurface infiltration, or hazardous substance and liquid leakage from the primary containment.

(c) The floor of the secondary containment shall be constructed on a firm base and sloped to a collection sump. The sump shall be of sufficient depth and the access casing shall be of sufficient size to allow efficient removal of the collected liquid. The access casing shall be extended to the ground surface, screened in the region of the sump, and covered with a locked waterproof cap.

(d) The casing shall be of sufficient thickness to withstand all anticipated applied stresses with a 1.5 safety factor and constructed of materials that will not be structurally weakened by the stored product nor donate, capture, or mask product constituents for which analyses will be made.

(e) The sump shall be monitored with a continuous sensor, which is removable on a semi-annual basis for calibration and maintenance if needed. The continuous sensor shall be capable of either:

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(1) Detecting within the sump 0.5 inches of standing liquid and activating a strategically-located, above-ground alarm system when any combination of a hazardous substance or water is present. All standing liquid shall be immediately sampled and analyzed within normal analysis times to best detection limits to determine the presence of hazardous substances. This system cannot be used when water is normally expected to be present within the secondary containment; or

(2) Detecting within the sump 0.5 inches of the hazardous substance stored in the primary container(s) and activating a strategically-located, above-ground alarm system.

(f) The interstitial space between the walls of a double-walled tank may be monitored continuously using a pressure sensor. The sensing devices shall be capable of activating a strategically located above-ground alarm system. Double-walled tanks which utilize this leak detection system are exempt from the requirements of Sections 2632(c) through (e).

2633. Construction Standards for New Motor Vehicle Fuel Tanks

(a) This section specifies alternate construction standards for new tanks which only contain motor vehicle fuels. This section may be utilized by permit applicants in lieu of Section 2631. If this section is used in lieu of Section 2631, then the monitoring standards specified in Section 2634 shall be used in lieu of those specified in Section 2632.

(b) Primary containers for the underground storage of motor vehicle fuel shall consist of product-tight tanks constructed of fiberglass reinforced plastic, cathodically protected steel, or steel clad with glass fibre reinforced plastic and installed in conjunction with the secondary containment system described in Section 2633(d) and (e).

(c) Primary containers used for the underground storage of motor vehicle fuel and constructed of materials other than those specified in Section 2633(b) shall be subject to the requirements of Section 2631.

(d) The secondary container shall be demonstrated to achieve the integrity and compatibility criteria of Section 2633(c) of this article.

(e) The leak interception and detection system (secondary container) and the response plan shall preclude the contact of any leaked hazardous substance with ground water. Proof that the secondary container and response plan will protect ground waters must be demonstrated by the permit applicant to the satisfaction of the local agency. The demonstration shall consider the following:

(1) The volume of the secondary container;

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(2) The depth from the bottom of the secondary container to the highest anticipated level of ground water;

(3) The nature of the unsaturated soils under the secondary container and their ability to adsorb contaminants or allow vertical movement of contaminants; and

(4) The nature and timing of the response plan to clean-up the hazardous substances which have been discharged from the primary container.

(f) Pressurized piping systems that include an automatic, continuously operating pressure loss detector and flow restriction device are exempt from the secondary container requirements of the article. This detector shall be connected to a visual or audible alarm system unless it provides at least a 50 percent reduction from normal flow rates.

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2634. Monitoring Standards for New Motor Vehicle Fuel Tanks

(a) Monitoring of underground tanks used for the storage of motor vehicle fuel and constructed pursuant to the standards of Section 2633 of this article shall consist of all of the following:

(1) Monitoring of the secondary containment system pursuant to subsections (b), (c) and (d) of this section.

(2) Daily gauging and inventory reconciliation by the operator pursuant to Section 2643 of Article 4.

(3) Hydrostatic testing of the tank every two years according to the criteria specified in Section 2642 of Article 4, and

(4) All pressurized piping systems shall be monitored utilizing an on-line pressure loss detector and flow reduction device. The detector shall be connected to a visual or audible alarm system unless it provides for at least a 50 percent reduction from normal flow rates.

(b) An access casing shall be installed at each monitoring location as described in Section 2635(b)(11) of this article. The casing shall be:

(1) Capable of allowing any liquid that may be moving along the upper surface of the secondary container to enter the casing;

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(2) Of sufficient size and thickness to allow efficient removal of collected liquid and to withstand all anticipated applied stresses with a safety factor of 1.5;

(3) Constructed of materials that will not be structurally weakened by the stored product nor donate, capture, or mask product constituents for which analyses will be made;

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

(5) Capable of precluding leakage of any hazardous substance to areas outside of the secondary container; and

(6) Extended to the ground surface and covered with a locked water-proof cap.

(c) Monitoring of each casing described in Section 2634(c) shall utilize a continuous sensor which is removable on a semi-annual basis for calibration and maintenance, if needed, and capable of either:

(1) Detecting within the casing 0.5 inches of standing liquid and activating a strategically-located, above-ground alarm system when any combination of a hazardous substance or water is present. All standing liquid shall be immediately sampled and analyzed within normal analysis times to best detection limits to determine the presence of hazardous substances. Thi system cannot be used when water is normally expected to be present within the casing; or

(2) Detecting within the casing 0.50 inches of the hazardous substance stored in the primary container(s) and activating a strategically-located, above-ground alarm system.

(d) The frequency of monitoring shall be such that materials leaked from the primary container are detected and cleaned up before they reach ground water. The determination of monitoring frequency shall be based on an evaluation which considers factors 1 and 2 below. Factors 3 through 6 must also be evaluated if the volume of the secondary container is less than either: for a single primary tank in a secondary container - 100 percent of the volume of the primary tank in a secondary container; or, for multiple primary tanks within a secondary container - the largest of 150 percent of the volume of largest primary container or 10 percent of the total of all primary containers.

(1) Volume of the secondary container in relation to the volume of the primary container;

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(2) The amount of time the secondary container can be expected to provide containment in relation to the period of time between monitoring and for the clean-up of leaked materials to be completed;

(3) The volume of the secondary container and its relationship to the expected volume of leakage between monitoring that will not be detected by other, more frequent monitoring methods;

(4) The depth from the bottom of the secondary container to the highest anticipated level of ground water;

(5) The nature of the unsaturated soils under the secondary container and their ability to adsorb contaminants or allow vertical movement of contaminants; and

(6) The nature and timing of the response plan to clean-up the hazardous substances which have been discharged from the primary container.

(e) An underground tank used for the storage of motor vehicle fuels that has a loss or gain of hazardous substance or water as determined by daily gauging and inventory control (as required in subsection (a)(2) of this section) of greater than any of the following shall be tested according to the procedures specified in subsection (f) of this section:

(1) Daily loss or gain of 50 gallons, or

(2) Seven [7] day loss or gain of five percent of the volume of hazardous substance delivered over the seven days, or

(3) Cumulative (calculated over a period of at least thirty (30) days) loss or gain of one-half percent of the volume of hazardous substance delivered over the period that the cumulative loss or gain is calculated.

(f) If inventory controls indicate a gain or loss of hazardous substances greater than that specified in subsection (e) of this section, then the following steps shall be implemented by the operator or permittee. The steps may be implemented sequentially or concurrently; however, they must be completed within the specified time periods. Reporting as required in Article 5 of this subchapter shall be followed.

If completion of the steps described in subsections (2), (3), or (5) of this subsection indicate inventory reconciliation errors that, when corrected cause the levels in subsection (e) of this section not to be exceeded, then the remainder of the steps need not be completed. If completion of the steps described in subsections (4) or (6) through (8) of this subsection reveal the source of the loss or gain, then the remainder of the steps need not be completed.

Transfer of hazardous substances into and out of the underground storage tank may continue throughout the steps provided that the steps are completed within the specified time periods and any loss or gain does not exceed two times the levels specified in subsection (g) of this section. Inventory control and daily reconciliation shall continue throughout implementation of the steps.

(1) The operator shall notify the owner verbally or in writing of the fact that inventory controls indicate a gain or loss of hazardous substances or water within 24 hours of the completion of the daily reconciliation which indicates the loss or gain.

(2) The operator shall review the inventory records within two (2) hours to determine if an error exists which would cause the gain or loss to be less than that specified in subsection (g) of this section.

(3) The operator shall have performed by a qualified person a complete review of all inventory records from the last time a zero loss or gain condition existed. This shall be completed within 24 hours of the conclusion of subsection (2).

(4) The readily accessible physical facilities shall be carefully inspected for leakage. This shall be completed by trained personnel within 24 hours of completion of subsection (3).

(5) All dispenser meters associated with hazardous substance withdrawal shall be checked for calibration within 24 hours of completion of subsection (4).

(6) All piping shall be tested using the methods specified in Sections 4-3.6 or 4-3.7 of the National Fire Protection Association (NFPA) publication entitled "Underground Leakage of Flammable and Combustible Liquids", 1983 (NFPA 329), within 24 hours of completion of subsection (5). This step may be completed after the step described in subsection (7) if excavation is necessary to perform the tests and if the step described in subsection (7) is completed within 48 hours of the completion of subsection (5). If this occurs, then this subsection shall be completed within 24 hours of the completion of subsection (7).

(7) The tank shall be tested using the tests described in Section 2642 of Article 4 within 48 hours of completion of subsection (6).

(8) Additional tests or investigations as required by the local agency.

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2635. General Construction Standards

(a) The following sections apply to all primary and secondary containers.

(b) Primary containers and double-walled tanks shall be designed and constructed to comply with all of the following:

(1) A 0.25-inch thick steel wear plate (striker plate) shall be centered under all accessible openings of the underground tank. The plate shall be rolled to the contours of the tank, bonded or seam welded in place, and have a minimum area of the opening or a guide tube, whichever is smaller.

(2) All underground tanks shall be guaranteed by the manufacturer to be product tight prior to leaving the factory.

(3) Following installation, all underground tanks shall be tested either hydrostatically or with pressure in accordance with standards and procedures set forth in Article 4.

(4) Cathodically protected steel tanks and steel tanks clad with glass fiber reinforced plastic shall be fabricated and designed by the requirements in Underwriters Limited (UL) 58, Standards for Steel Underground Tanks for Flammable and Combustible Liquids or the American Society of Mechanical Engineers (ASME) Pressure Vessel Code, Section VIII, Division 1, Boiler and Pressure Vessel Code and have a minimum thickenss of at least 7 gauge (0.18 inch).

(5) Fiberglass reinforced plastic tanks shall be UL listed and designed in accordance with UL Standard 1316, Standard for Glass-Fiber-Reinforced Plastic Underground Storage or Underwriter's Laboratory of Canada, Standard ULC-5615-1977, Standard for Reinforced Plastic Underground Tanks for Petroleum Products.

(6) Fiberglass reinforced plastic tanks shall be designed based on tests by the manufacturer for durability and chemical compatability with the hazardous substances to be stored using applicable sections of ASTM D4021-81 "Standard Specifications for Glass-Fiber-Reinforced Polyester Undesground Storage Tanks", and the manufacturer shall provide the owner with written assurance of the compatibility.

(7) The secondary container must be capable of precluding the inflow of the highest ground water anticipated during the life of the underground storage tank into the space between the primary and secondary containers.

(8) If the space between the primary and secondary containers is backfilled, the backfill material shall not preclude the vertical movement of leakage from any part of the primary container.

(9) The secondary container shall at a minimum encompass the area within the system of vertical planes surrounding the exterior of the primary containment unit. If backfill is placed between the primary and secondary containment then an evaluation shall be made of the maximum lateral spread of a point leak from the primary containment

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over the vertical distance between the primary and secondary containment. The secondary containment shall extend beyond the vertical planes an additional distance defined above equal to the radius of lateral spread plus one foot.

(10) The secondary container and any backfill material between the primary and secondary container shall be designed and constructed to promote gravity drainage of a leak of hazardous substances from any part of the primary container to the monitoring location(s).

(11) The original excavation for the secondary container shall have a water tight cover which extends at least one (1) 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. Manways shall be constructed as water-tight as practical. Double-walled tanks are exempt from this requirement.

(c) All primary and secondary container systems shall be designed and constructed to comply with all of the following:

(1) Underground storage tanks shall be located outside the prism of bearing pressure from footings of existing or designed structures and a minimum of ten (10) feet away from these structures. Underground storage tanks may be located closer than ten (10) feet away from

these structures provided a registered civil engineer reviews and approves of the design.

(2) The actual location and orientation of the underground 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.

(3) Materials that in combination may cause a fire or explosion, or the production of a flammable, toxic, or poisonous gas, or the deterioration of a primary or secondary container shall be separated in both the primary and secondary containment so as to avoid potential intermixing.

(4) Drainage of liquid from within a secondary container shall be controlled in a manner approved by the local agency so as to prevent hazardous materials from being discharged. The liquid shall be analyzed to determine the presence of any of the hazardous substance(s) stored in the primary container 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 an indication of an unauthorized release from the primary container.

(d) All primary containers and double-walled tanks shall be installed according to the manufacturer's written recommendations or, if no written recommendations exist, best engineering practice.

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(e) All primary containers and double-walled tanks subject to floatation shall be weighted or anchored using methods specified by the manufacturer or, if none exist, best engineering judgment.

(f) When required by the local agency, all underground storage tanks shall be equipped with an overflow protection system which includes the following elements:

(1) A level sensing device that continuously monitors and indicates the liquid level in the tank and either (2) or (3) or both,

(2) An audible or visual alarm system triggered by a liquid level sensor to alert the operator of an impending overfill condition, or

(3) An automatic shut-off device that stops the flow of product being delivered to the tank when the tank is full.

(g) The overflow protection system required in subsection (f) of this section shall be satisfied for underground storage tanks containing motor vehicle fuels in which:

(1) Both the fluid level is visually monitored and the filling operation is controlled by the facility operator during filling of the underground storage tank, or

(2) The available capacity of the tank to be filled is determined immediately prior to filling to be at least 110 percent of the volume of the entire tank compartment to be delivered as determined by tank gauging, or

(3) The hazardous substance being delivered can be metered into the tank and the available tank capacity is determined immediately prior to filling.

(h) All primary containers and double-walled tanks constructed of steel shall be protected by either:

(1) A properly installed, maintained, and monitored cathodic protection system with or without coatings, or

(2) Corrosion resistant materials of construction such as special alloys or fiberglass-reinforced plastic coatings as specified in Subsection (i) of this Section.

Selection of the type of protection to be employed shall be based on the corrosion history of the area and the judgment of a registered corrosion engineer.

(i) Primary containers or double-walled tanks that are made of steel and clad with glass fiber-reinforced plastic shall comply with all of the following:

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(1) The resin coating used for steel underground tanks clad with fiber-glass shall satisfy the following:

(A) Have a minimum thickness of 100 mils bonded to the steel shell.

(B) Have bonding qualities and a coefficient of thermal expansion compatible with steel such that stress due to temperature changes will not be detrimental to the soundness of the coating and the permanent bond between the coating and the steel.

(C) Be of sufficient density and strength to form a hard impermeable shell which will not crack, wick, wear, soften, or separate over the life of the tank.

(D) Be noncorrosive in the anticipated underground soil environment and compatible with the product stored in the tank.

(2) Steel tanks clad with glass fiber-reinforced plastic shall have nonconductive bushings, gaskets, or washers at all piping connections.

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Article 4. Existing Underground Storage Tank Monitoring Criteria

Adopt new section to read:

2640. Applicability

(a) All owners of existing underground storage tanks subject to this subchapter shall implement a monitoring system that complies with this article and is approved by the local agency. A local agency shall not issue a permit if the underground storage tank cannot be adequately monitored. The failure to implement an approved monitoring system shall be cause for closure of the underground storage tank pursuant to Article 7 of this subchapter.

(b) The intent of monitoring existing underground storage tanks is to detect leakage before the hazardous substance reaches ground water. Therefore, primary leak detection monitoring shall, in most cases, utilize systems other than ground water monitoring. Most primary tank monitoring methods individually cannot provide a degree of leak detection equivalent to that provided with secondary containment. For this reason, multiple, nonduplicative systems, as described in Sections 2641 through 2646, shall be implemented where technically and practicably feasible.

(c) The initial monitoring of all existing underground storage tanks shall, if feasible, be capable of determining if prior use of the underground storage tank has resulted in an unauthorized release. The soil sampling described in Section 2644 of this article shall be one method to meet this intent. Other methods may be approved by a local agency which achieves this intent.

(d) All owners of existing underground storage tanks subject to this subchapter shall implement visual monitoring as described in Section 2641 of this article when feasible. If the entire underground storage tank is not susceptible to visual monitoring, but a significant portion of the underground storage tank can be visually monitored, then that portion of the underground storage tank shall be monitored visually. Visual monitoring that can only be implemented during a portion of the year due to the presence of other liquids shall be utilized during those portions of the year when feasible. However, unless visual monitoring is implemented for the entire underground storage tank throughout the entire year, other forms of monitoring shall also be implemented.

(e) All owners of existing underground storage tanks subject to this subchapter and not able to implement visual monitoring as specified in Section 2641 of this article, shall implement each alternate monitoring method specified in Sections 2642 through 2646 of this Article unless the exemption criteria in each section are met. The implementation of

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soils monitoring specified in Section 2644 of this article is not exempted based on the ability to implement visual monitoring unless an alternative monitoring is approved by the local agency to meet the intent of subsection (c) of this section. The exemption criteria are based on a specific method being infeasible, not physically implementable or duplicative. If an owner demonstrates to the local agency that the exemption criteria apply the owner shall be relieved of the obligation to implement the specific method.

(f) Additional alternative monitoring methods may be approved by a local agency pursuant to the intent of subsections (b) and (c) of this section. These additional methods may, upon the discretion of the local agency, negate the necessity to implement any or all of the alternatives described in Sections 2642 through 2646.

(g) All owners of underground storage tanks shall, if feasible, install a verification monitoring system which monitors ground water beneath the underground storage tank. This system, as described in Section 2647 of this article, is intended to assure that the primary leak detection monitoring system described in subsection (b) of this section is functioning properly and that ground water contamination has not occurred. Underground storage tank owners are exempt from this requirement if they meet the exemption criteria contained in Section 2647 of this article.

(h) All borings and wells constructed and sampled pursuant to this article shall utilize the construction and sampling methods specified in Section 2648 of this article.

(i) All exploratory borings or soil sample collection borings that are not converted to a cased monitoring well shall be backfilled with bentonite grout or slurry.

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2641. Visual Monitoring

(a) Visual monitoring shall be utilized as the primary leak detection monitoring method, where feasible, for all or a portion of the underground storage tank. All existing underground tank owners shall implement visual monitoring unless they demonstrate to the local agency that at least one of the exemption criteria of subsection (b) of this section is applicable. If visual monitoring is to be implemented, then the provisions of subsections (c) and (d) of this section shall be followed.

(b) If any one of the following conditions are met the owner is exempted from implementing visual monitoring:

(1) Any portion of the underground storage tank is in contact with the ground surface, a floor or pad such that it cannot be seen. A tank in a saddle should not typically qualify for an exemption.

(2) If the act of visually inspecting the entire exterior of the underground storage tank would put a person in a physically unsafe environment.

(3) If a person would be required to use personal protection equipment (other than normal protective equipment, such as steel-toed shoes, hard hat, eye or ear protection, etc.) in order to visually inspect the entire exterior of the underground storage tank.

(4) If the underground storage tank is located at a facility which is not staffed on a daily basis.

(5) If liquids are normally or seasonally present in the area immediately beneath or surrounding the underground storage tank.

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

(1) The entire exterior of and the surface immediately beneath the underground storage tank or that portion of the underground storage tank subject to visual monitoring shall be accessible for visual inspection.

(2) A written routine monitoring procedure shall be prepared which includes: the frequency of visual inspections, the location[s] from which observerations will be made, the person[s] or position[s] responsible for performing the observations and the reporting format.

(3) Visual inspections shall be performed daily at a minimum, and shall be more frequent if necessary. Any unauthorized release shall remain observable on the exterior of or the surface immediately beneath the underground storage tank between visual inspections. The evaluation of how long the hazardous substance remains observable shall consider the volatility of he hazardous substance

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substance and the porosity and slope of the surface immediately beneath the underground storage tank or portion thereof being visually monitored.

(d) The observation of any liquid on the exterior of or the surface immediately beneath the underground storage tank being visually monitored shall cause the implementation of all or a portion of the following actions or any alternative actions. The applicable actions and their timing shall be based on the site-specific situation; shall be intended to determine if the observed liquid constitutes an unauthorized release; and shall be included in the permit.

(1) Laboratory analysis of the observed liquid.

(2) Testing of the underground storage tank utilizing the procedures described in Section 2642 of this article.

(3) Removing all hazardous substances from the underground storage tank.

2642. Underground Storage Tank Testing

(a) All owners of existing underground storage tanks subject to this subchapter shall, except as provided in subsection (b) of this section, implement a testing program pursuant to subsections (c) through (g) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing an underground storage tank testing program if they can demonstrate to the local agency that at least one of the following conditions applies:

(1) If visual monitoring pursuant to Section 2641 of this article is implemented.

(2) If any test which meets the conditions described in subsection (c) of this section cannot be performed without significant excavation.

(c) Testing of underground storage tanks shall utilize a method capable of detecting a hazardous substance loss of at least 0.05 gallons per hour (gph). These methods are limited to those tests that make adjustments for all of the following, if applicable:

(1) The presence of vapor pockets,

(2) Thermal expansion or contraction of the hazardous substance,

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(3) temperature stratification in the tank,

(4) evaporation,

(5) pressure variations in the tank, and

(6) deflection of the tank ends.

(d) Underground storage tanks shall be tested according to the following schedule:

Category A: Un-clad steel tanks without corrosion protection - test 10 years after installation, and yearly thereafter.

Category B: Corrosion resistant tanks[1] - test 15 years after installation, and yearly thereafter.

Category C: Tanks installed with the secondary container and monitoring systems specified in Article 3 and monitored accordingly require no testing.

[1] Common corrosion resistant tanks include: fiberglass reinforced plastic (FRP), cathodically protected steel, and FRP-clad steel tanks.

(e) Within thirty days of completion of the leak detection test, the underground tank owner shall provide the local agency with a report presenting the following information:

(1) The procedures used (including any deviations from those recommended by the manufacturer) for the leak detection method;

(2) The test results used in determining the volumetric rate of product loss; and

(3) The volumetric rate of product loss.

The information shall be presented in written and/or tabular format as appropriate, and shall be at a level of detail appropriate for the test procedure used.

(f) Underground tanks which are found to lose product at a rate greater than or equal to 0.05 gph shall be repaired or replaced as specified in Articles 6 and 7, respectively.

(g) The results of any tests performed on the tank at any other interval to determine if the tank is leaking shall be reported by the tank owner to the local agency within thirty days of completion as specified in subsection (e)(3) above.

(h) All pressurized portions of an underground storage tank shall be monitored utilizing an on-line pressure loss detector and flow reduction device. The detector shall be connected to a visual or

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audible alarm system. The flow reduction device shall reduce the the flow to no more than 50 percent of the minimum flow under non-pressure loss situations (i.e., normal operations).

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2643. Inventory Control

(a) All owners of existing underground storage tanks subject to this subchapter shall, except as provided for in subsection (b) of this section, implement an inventory control program as described in subsections (c) through (f) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing an inventory control program if they can demonstrate to the local agency that the hazardous substance is not susceptible to accepted technically available metering.

(c) All tanks shall be individually monitored utilizing a daily inventory control system that takes into account: daily tank quantity measurements for both tank contents and any water layer; daily retail meter delivery records for outgoing product; and, daily wholesale meter delivery records for incoming product. Meters shall be approved for use by the County Department of Weights and Measures.

(d) Tank quantity measurements shall be based on liquid elevation measurements which are:

(1) Capable of measuring to one-eighth of an inch;

(2) Performed during periods of no tank additions or withdrawals;

(3) Performed by the tank owner, operator or other managerial personnel who have had appropriate training;

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(4) Based on the average of two readings if gage measurements are used;

(5) Capable of detecting a water layer at the lowest end of the tank, if possible;

(6) 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 initial measurements at both ends, if possible, to determine if any tank tilt exists and, if so, its magnitude; and

(7) Converted to volume measurements based on a calibration chart provided by the tank manufacturer or supplier. This chart shall, if possible, take into account the actual tilt of the tank as determined initially as described in subsection *(6) above*.

(e) Wholesale meter delivery records shall be verified according to the following procedure which utilizes the criteria described in subsection (d) of this section:

(1) Prior to any delivery, the volume of actual tank contents shall be determined and, if product is to be removed from the tank during delivery, the retail meter totalizer reading(s) shall be recorded.

(2) Following a delivery, the volume of the actual tank contents shall be determined and, if product was removed from the tank during the delivery, the retail meter totalizer reading(s) shall be recorded.

(3) Based on the above readings, a determination shall be made of the increase or decrease in the volume of water in the tank and the increase in the volume of product in the tank. This figure shall be compared with the metered volume of the product delivery.

(4) A difference of more than the lessor of one-half percent of the delivery volume or 50 gallons, shall be cause for a reevaluation of the measurements. This reevaluation shall initially include collection of the information required in subsection (e)(2) of this section.

(f) Underground tanks used for storage of motor vehicle fuels that have a loss or gain of product or water as determined by daily gauging and inventory control of greater than any of the following shall be evaluated according to the methods and time schedules provided for in subsection (f) of *Section 2634* of Article 3.

(1) Daily loss or gain of 50 gallons, or

(2) Seven (7) day loss or gain of five percent of the volume of motor vehicle fuel delivered over the sever days, or

(3) Cumulative (calculated over a period of at least thirty (30) days) loss or gain of one-half percent of the volume of motor vehicle fuel delivered over the period that the cumulative loss or gain is calculated.

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2644. Soil Testing and Exploratory Boring

(a) Except for those tanks that have been granted an exemption under subsection (b) of this section, all owners of existing underground storage tanks subject to this subchapter shall implement an evaluation as described in subsections (c) through (e) of this section to determine if prior usage of the underground storage tank has resulted in an unauthorized release.

(b) Exemptions to soil testing at specific underground storage tank locations may be granted by the local agency if any of the following situations exist and if they are confirmed by the local agency:

(1) Proximity to physical obstacles prevent the positioning and operation of drilling equipment within a horizontal distance of 15 feet from the tank.

(2) Soil conditions prevent drilling by any generally existing technique.

(c) At least one slant boring shall be drilled as close as possible to the tank and shall be directed so as to intercept a point that has been projected vertically downward from the midpoint of the tank and is 50 feet below the invert of the tank. If slant drilling and soils collection is not possible, then vertical borings pursuant to subsection (d) of this section shall be implemented.

(d) At those sites where slant drilling is precluded but vertical drilling is feasible, at least one vertical boring shall be drilled on each

side of the tank. The borings shall be located within 10 feet of the tank opposite the midpoint of the tank and shall be drilled to a depth of at least 50 feet below the invert of the tank. Soil samples shall be obtained in accordance with Subsection (e) of this section.

(e) Soil samples shall be obtained from the boring(s) according to the following procedures:

(1) Undisturbed soil samples shall be obtained at vertical intervals of at least 5 feet from the ground surface to the bottom of the boring or to the ground water level in borings encountering ground water, whichever occurs first.

(2) The soil samples shall be collected, transported, stored, and analyzed according to approved EPA methods.

(3) Analysis of the individual soil samples shall be as follows:

(A) If more than one boring is utilized, then samples from the same depth may be composited (if analytically possible without loss of constituents) prior to analysis.

(B) Samples may be analyzed in any order. If levels of hazardous substances known or suspected to be contained in the underground storage tank are detected (above background if the constituent occurs naturally at the site) then further soils analysis is not necessary pursuant to this subsection. However, the following additional actions will be required:

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(i) The hazardous substance(s) are assumed to originate from the underground storage tank and further detailed investigations would be needed to prove otherwise. The underground storage tank must be clearly demonstrated to not be the source of the hazardous substances (wastes) found or have been properly repaired since the unauthorized release occurred before a permit can be issued.

(ii) Further investigation is needed to determine the magnitude and extent of any soil or ground water contamination due to the unauthorized release. This may involve, but is not limited to, analysis of the remaining soil samples and/or ground water sampling and analysis.

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

(4) All borings shall be logged in detail and the soils described according to the Unified Soils Classification System by a registered civil engineer or registered geologist competent in

soils engineering or a certified engineering geologist.

(5) All wet zones above the free water zone shall be noted and accurately logged.

(f) If soils analysis indicates that an unauthorized release has occurred the permittee shall report the release pursuant to Article 5 of this subchapter and shall repair or abandon the underground storage tank pursuant to Articles 6 or 7 of this subchapter.

(g) If evidence of an unauthorized release is not detected, a leak detection monitoring system shall be installed pursuant to Section 2645 or 2646 and a verification monitoring system shall be installed according to Section 2647.

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2645. Vadose Zone Detection Monitoring

(a) All owners of existing underground tanks subject to this subchapter shall, except as provided in subsection (b) of this section, implement a vadose zone detection monitoring system pursuant to subsections (c) through (h) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing a vadose zone monitoring if they can demonstrate to the local agency that at least one of the following conditions apply:

(1) Proximity to physical obstacles prevent the positioning and operation of drilling equipment, including hand equipment if suitable, within a horizontal distance of 15 feet from the underground storage tank.

(2) Ground water is periodically above a point 5 feet below the bottom of the underground storage tank and vadose zone monitoring is not possible due to the characteristics (e.g., nonvolatility) of the hazardous substance(s) stored. (Vapor monitoring is required when possible to complement leak detection ground water monitoring as described in Section 2646 of this article.)

(3) Vadose zone monitoring is not required if the hazardous substance(s) being stored is not susceptible to detection by vadose zone monitoring methods.

(4) Visual monitoring pursuant to Section 2641 of this article has been implemented.

(c) Vadose zone monitoring may consist of vapor monitoring or soil-pore liquid monitoring or a combination of both methods.

(d) The number, location, and depths of vadose zone monitoring points shall be selected so as to give the earliest possible warning of any unauthorized release from the underground storage tank.

(e) Subsurface systems shall be located within the tank backfill if at all possible.

(f) Vapor monitoring for underground storage tanks may be used in accordance with the following criteria if the vapor characteristics of the stored product are susceptible to detection:

(1) Before any method of vapor monitoring is approved for a specific site, it shall be demonstrated by an actual on site demonstration, using an appropriate tracer substance, that vapor would actually be detected by the installed system.

(2) The depth at which each sensor is placed relative to the tank shall be determined according to the most probable movement of vapor through the backfill or surrounding soil.

(3) Vapor monitoring wells placed in the backfill shall be constructed so that any leakage that may pond at the horizontal interface between the backfill and natural soils can be detected in the vapor well.

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(g) Soil-pore liquid monitoring of the vadose zone may be approved if the discharger can clearly show that:

(1) The stored substance is susceptible to detection by the proposed technique.

(2) The stored substance will not attack the materials from which the detector system is constructed or otherwise render the detector system inoperable.

(3) The site and soil characteristics will not prevent detection of an unauthorized release using a soil-pore liquid monitoring system.

(4) The proposed technique will be effective in providing early detection of tank leakage.

(h) Vadose zone monitoring shall be continuous where feasible and connected to an above-ground alarm system. Where continuous monitoring is unfeasible, monitoring shall be performed weekly.

2646. Ground Water Leak Detection Monitoring

(a) All owners of existing underground storage tanks subject to this subchapter shall, except as provided for in subsection (b) of this section, implement a ground water leak detection monitoring system pursuant to subsections (c) through (f) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing a ground water leak detection monitoring system if they can demonstrate to the local agency that at least one of the following conditions apply:

(1) Visual monitoring pursuant to Section 2641 of this article has been implemented.

(2) A vadose monitoring system pursuant to Section 2645 of this article has been implemented and ground water is and will be at least 5 feet below the invert of the underground storage tank.

(3) The proximity to physical obstacles prevent the positioning and operation of drilling equipment within a horizontal distance of 50 feet from the tank.

(4) Soil conditions prevent drilling by any generally existing technique.

(c) At those sites at which vadose zone monitoring is feasible and the ground water level fluctuates above and below a point 5 feet below the tank invert, a combination of ground water monitoring and vadose

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monitoring shall be used. The ground water monitoring wells shall extend 20 feet below the lowest anticipated ground water level in order to provide verification monitoring pursuant to Section 2647 during periods of low ground water.

(d) When the ground water level is above a point 5 feet below the tank invert and ground water is used as the primary leak detection technique, vapor monitoring will also be used whenever possible.

(e) The primary ground water monitoring network shall be designed and constructed according to the following criteria:

(1) Three ground water monitoring wells shall be installed around the underground storage tank or facility at spacings of 120° of arc around the central point of the underground storage tank or facility. Additional borings shall be installed at closer angular spacings if the straight line distance between wells exceeds 30 feet. If it can be demonstrated that the radii of influence of fewer monitoring wells overlap and that the entire area of the underground storage tank or facility is under the influence of at least one well under all anticipated hydraulic conditions, fewer wells may suffice. All wells should be located as close as possible to the underground storage tank or the perimeter of the facility.

(2) One of the three wells shall be located such that it represents the best estimate of the downgradient direction.

(3) The ground water monitoring wells shall be constructed as gravel packed water wells with a minimum 4-inch inside diameter (ID) casing and in accordance with the provisions of Section 2648.

(4) All wells shall be provided with a minimum surface seal to prevent infiltration of surface water but the seal shall extend to a depth of at least 5 feet.

(5) Monitoring wells at which the ground water elevation is above the base of the surface seal shall be sized and equipped with a pump capable of drawing the ground water level down to an elevation 10 feet below the base of the surface seal.

(6) The ground water monitoring wells shall extend to an elevation that is at least 10 feet below the tank invert and shall be perforated from the base of the surface seal to the bottom of the well.

(f) Ground water shall be monitored at least once per week from each well. More frequent monitoring may be required by the local agency. Sampling and analysis, if applicable shall be according to Section 2648 of this article.

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2647. Verification Ground Water Monitoring

(a) All owners of existing underground storage tanks subject to this subchapter shall, except as provided in subsection (b) of this section, implement a verification ground water monitoring system pursuant to subsections (c) through (g) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing a verification ground water monitoring system if they can demonstrate to the local agency that at least one of the following conditions apply:

(1) Ground water monitoring pursuant to Section 2646 of this article is used as the primary means of leak detection.

(2) The highest ground water level possible during the life of the facility is at a depth greater than 200 feet.

(3) Proximity to physical obstacles prevents the positioning and operation of the drilling equipment within a horizontal distance of 500 feet of the tank or tank cluster perimeter.

(4) Soil conditions prevent drilling by any generally existing technique.

(c) Verification ground water monitoring networks shall be established according to the following criteria:

(1) At those underground tank facilities at which the highest anticipated ground water elevation is between a depth of 5 feet

below the tank invert and a point 100 feet below the ground surface, a ground water monitoring system as described in Section 2646(e), subsections (1) through (5) of this article shall be installed. The wells shall extend to the base of the aquifer or to a depth of 100 feet, whichever is lessor and shall be perforated from 10 feet above the highest anticipated ground water elevation to the bottom of the well.

(2) At those underground tank facilities at which the highest anticipated ground water elevation is between 100 feet and 200 feet, a monitoring well shall be installed at a location that represents the best estimate of the downgradient direction. The well shall extend to the base of the aquifer or to a depth of 200 feet, whichever is lessor, and shall be perforated from 10 feet above the highest anticipated ground water elevation to the bottom of the well.

(d) In order to implement subsection (c) of this section, the depth to ground water must be accurately determined. This shall be accomplished either by documentation of the ground water elevation in all existing wells within 500 feet of the facility or an exploratory boring constructed as follows:

(1) An exploratory boring shall be drilled in the anticipated down-gradient direction from the underground storage tank. More than one exploratory boring may be required where geohydrologic conditions are complex or to adequately cover a facility that occupies large areas.

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(2) The exploratory boring may be of any diameter capable of allowing the detection of first water and the recovery of undisturbed soil samples.

(3) The exploratory boring shall be drilled by a dry drilling technique that permits the detection of wet zones and first water.

(4) The exploratory boring shall be within 10 feet of the tank. If physical constraints preclude drilling within 10 feet of the tank, the boring shall be drilled as near as possible to the tank, but no further than 50 feet from the tank.

(5) The exploratory boring shall be drilled to a minimum depth of 200 feet if ground water is not encountered at a depth of less than 200 feet.

(6) If ground water is encountered within a depth of 200 feet in addition to the requirements of subsection (c) of this section, the following shall also apply:

(A) The exploratory boring shall be modified if necessary, and constructed as a gravel-packed water well with a minimum 4-inch ID casing.

(B) In the case of unconfined ground water aquifers, the exploratory well shall extend a minimum of 20 feet below the ground water surface or 20 feet below the lowest known historical ground water level in the area, whichever is lowest. The well shall

be perforated from the tank bottom elevation to 20 feet below the ground water surface or the lowest known historical ground water level in the area, whichever is lowest.

(C) In the case of confined aquifers, the well shall extend to the bottom of the aquifer and shall be perforated from the tank bottom elevation to the bottom of the well.

(7) If the exploratory boring does not encounter ground water within a depth of 200 feet. The exploratory boring shall be backfilled with bentonite grout or slurry.

(e) Wells shall be sampled semi-annually at a minimum. More frequent sampling may be required by the local agency. Samples shall be taken after sufficient volumes of water have been removed from the well such that pH, temperature and conductivity are stabilized. Sampling equipment shall not donate, capture, mask or alter the sample constituents.

(f) Analysis shall be performed for all constituents stored in the underground storage tank.

(g) Samples shall be collected, stored and analyzed according to approved EPA methods.

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2648. Well Construction and Sampling Methods

(a) The sampling equipment and materials used to construct a well shall be compatible with the stored product and shall not donate, capture, nor mask-product constituents for which analyses will be made.

(b) All imported materials used to backfill wells and to form seals shall be tested to determine their acceptability with regard to subsection (a) of this section.

(c) All drilling tools shall be cleaned immediately before a boring is started and immediately after a boring is completed.

(d) All well casings, casing fittings, screens, gravel pads and all other components are to be thoroughly cleaned before installation in the boring.

(e) All soil and water samples shall be cleaned before each sample is taken.

(f) Drilling fluid additives shall be limited to inorganic, non-hazardous materials which contain the provisions of subsection (d) of this section. All additives used and the depth in which they were used are to be precisely recorded in the boring log.

(g) Samples of additives, cement, bentonite, and grouts shall be analyzed for contaminating or interfering constituents.

(h) All well casings shall have a bottom cap or plug.

(i) All wells shall have a surface seal. Ground water monitoring wells shall be sealed from the ground surface to the top of the perforations.

The depth of surface seals for vapor wells shall be the minimum necessary to prevent infiltration of surface water but shall not be less than 5 feet deep.

(j) All ground water monitoring wells shall be properly developed.

(k) Well heads shall be provided with a locking water tight cap.

(l) Well heads shall be enclosed in a surface security structure that will protect the well from the entry of surface water, accidental damage, unauthorized access and vandalism.

(m) Pertinent well information including well identification, well type, depths, boring and casing diameters, and perforated depths shall be permanently afixed to the interior of the surface security structure and the well identification number and well type shall be afixed on the exterior of the surface security structure.

(n) Initial borings or wells to determine the depth to ground water shall be capable of allowing the collection of undisturbed soil samples and shall utilize a dry drilling technique that permits the detection of wet zones and first water.

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Article 5. Release Reporting Requirements

Adopt new section to read:

2650. Applicability

(a) All unauthorized releases from the primary or secondary container must meet the reporting, clean-up and disposal requirements of this section.

(b) All unauthorized releases shall be reported. The nature and timing of the reporting is divided into two groups depending on the threat to contaminate soil and water as a result of the release. This article describes the various reporting requirements and actions which must be implemented by the owner or permittee and the local agency.

(c) Unauthorized releases requiring only initial recording with reporting comleted as part of the normal operating reports are defined in Section 2651 of this article.

(d) Unauthorized releases requiring immediate reporting are defined in Section 2652 of this article.

2651. Unauthorized Release Requiring Recording

(a) A recordable unauthorized release is any unauthorized release of a hazardous substance which meets all the following criteria:

(1) The hazardous substance released is from the primary container.

(2) The hazardous substance released does not escape from the secondary container or cause any deterioration of the secondary container.

(3) The hazardous substance released can be cleaned up within eight hours.

(4) The hazardous substance released does not increase the hazard of fire or explosion.

(b) All recordable unauthorized release shall be contained and the released hazardous substance shall be safely transported and legally disposed of in an appropriate manner by the permittee. Such an occurrence shall be reported in the permittee's monitoring reports as required in the permit and shall include:

(1) List of type, quantities and concentration of hazardous substance released.

(2) Method of clean-up and cost.

(3) Method and location of disposal of the released hazardous substances (include copy of hazardous waste manifest[s] if utilized).

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(4) Method of future leak prevention or repair. If this involves a change as defined in Article 10, Section 2702, Subsection (a) of this subchapter, then appropriate reports pursuant to that article shall also be filed.

(5) If the primary container is to continue to be used, then a description of how the monitoring system between the primary and secondary container has been re-activated.

(6) Facility operator's name and telephone number.

(c) The local agency shall review the information submitted pursuant to Subsection (b) of this section and the permit and may inspect the underground storage tank pursuant to the provisions of Article 10, Section 2702, Subsection (g) of this subchapter. The local agency shall find that the containment and monitoring standards of Article 3 of this subchapter can continue to be achieved or the local agency shall revoke the permit until appropriate modifications are made to allow compliance with the standards.

(d) Deterioration of the secondary container is likely when any of the following conditions exist:

(1) The secondary container will have some loss of integrity due to contact with the stored hazardous substance; or

(2) The mechanical means used to clean-up the released hazardous substance could damage the secondary container; or

(3) Hazardous substances, other than those stored in the primary container are added to the secondary container for treatment or neutralization of the released hazardous substance as part of the clean-up process.

(e) If a recordable unauthorized release becomes a reportable unauthorized leak due to initially unanticipated facts, the release shall immediately be treated as a reportable release pursuant to Section 2652 of this article.

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2652. Unauthorized Releases Requiring Immediate Reporting

(a) All unauthorized releases which are described by either Subsection (1) or (2) of this subsection shall be reported as specified in Subsection (b) of this section. In addition the requirements of Subsections (c), (d) and (e) of this section shall be followed.

(1) A reportable unauthorized release is any unauthorized release of hazardous substance which meets any of the following criteria:

(A) The released hazardous substance escapes from the secondary container assuming that a secondary container exists.

(B) The released hazardous substance increases the hazard of fire or explosion.

(C) The released hazardous substance causes any deterioration of the secondary container.

(2) An unauthorized release of a hazardous substance that occurs from an underground storage tank that does not have a secondary container. This includes unauthorized releases from pressurized piping which is monitored by a pressure loss detector as described in Article 3, Section 2633, Subsection (f) of this subchapter.

(b) All unauthorized releases meeting the criteria of Subsection (a) of this section shall be reported within 24 hours after the release has been detected or should have been detected. The operator or permittee shall notify the local agency, Office of Emergency Services and the Regional Water Quality Control Board.

(c) Within five working days of the occurrence, the operator or permittee shall submit to the local agency a full written report to include:

(1) List of type, quantity and concentration of hazardous substances released.

(2) The results of all investigations completed at that time to determine the extent of soil or ground water or surface water contamination due to the release.

(3) Method of clean-up implemented to date and cost and proposed clean-up actions.

(4) Method and location of disposal of the released hazardous substance and any contaminated soils or groundwater or surface water (include copy of hazardous waste manifest[s] if utilized).

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(5) Proposed method of repair or replacement of the primary and secondary containers. If this involves a change as defined in Subsection 2702(a) of Article 10, then appropriate reports pursuant to that article shall also be filed.

(6) Facility operator's name and telephone number.

(d) Until clean-up is complete the operator or permittee shall submit reports every three months or at a more frequent interval specified by the local agency or Regional Board to the local agency and the Regional Board. The reports shall include the information requested in Subsections (c)(2), (c)(3) and (c)(4) of this section.

(e) The local agency shall review the permit whenever there has been an unauthorized release or when it determines that the underground storage tank is unsafe. In determining whether to modify or terminate the permit, the local agency shall consider the age of the tank, the methods of containment, the methods of monitoring, the feasibility of any required repairs, the concentration of the hazardous substances stored in the tank, the severity of potential unauthorized releases, and the *suitability of any other long-term preventive measures.*

(f) The reporting requirements of this section are in addition to any reporting requirements specified by other laws and regulations.

(g) The local agency, Regional Board, and Department of Health Services or other governmental agency may, pursuant to other laws or regulations, request the permitte to investigate the extent of soil, groundwater or surface water contamination that resulted from the unauthorized release and to implement appropriate remedial action.

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Article 6. Allowable Repairs

2660. Applicability

(a) This article describes the conditions which must be met to allow primary container repairs, to allow the use of interior coating of hazardous substance storage tanks in order to repair the tank, the required repair methodology and the required tank testing following repair.

(b) Section 2661 lists the required evaluations which must be completed in order to allow the repair of a primary container. A satisfactory demonstration of each part of Section 2661 shall be made prior to approval by the local agency of the repair process.

(c) Section 2662 describes the required methodology which must be utilized in the interior coating repair process.

(d) Section 2663 lists the required primary container monitoring which shall be implemented by amendment of the permit by the local agency following primary container repair. Subsections (a) and (b) describe the monitoring which shall be performed prior to placing the underground storage tank back in service.

2661. Repair Evaluation

(a) The evaluations described in Subsections (b) through (d) of this section must be completed before a primary container repair can be allowed. Failure to adequately demonstrate that the repaired primary container will provide continued containment based on the evaluations described below shall be adequate rationale for a local agency to deny the proposed repair.

(b) It shall be determined if the failure mechanism is isolated to the actual failure or is affecting other areas of the tank or if any other failure mechanism is affecting the primary container.

(c) If interior lining is the proposed repair method, a demonstration that the actual failure may not have resulted from any one or more of the following conditions shall be made:

(1) a linear split of more than three (3) inches;

(2) a single hole with a diameter of greater than one (1) inch; or

(3) more than ten (10) small perforations.

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(d) If interior lining or plate replacement of a steel tank is the proposed repair method, then it shall be demonstrated to the satisfaction of the local agency based on an ultrasonic or comparable test that a serious corrosion problem does not exist. If a serious corrosion problem exists, an interior lining repair may be allowed if it can be demonstrated 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 tank.

(e) If interior lining is the proposed repair method, then it shall be demonstrated that the primary container has never been repaired using an interior lining.

'662. Repair Methodology

(a) If a tank repair is approved based on satisfactory demonstration of the issues raised in Section 2661, then the repair must be accomplished according to the applicable subsections of this section.

(b) If interior coating is the method of repair, the material used in the repair shall be applied in accordance with nationally recognized engineering practices. An example of such a practice is the American Petroleum Institute's recommended practice No. 1631.

(c) The repair material and any adhesives used shall be compatible with the existing tank materials and shall not be subject to deterioration due to contact with the hazardous substance being stored.

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2663. Primary Container Monitoring

(a) After any repair, the primary container shall be demonstrated to be capable of containing the stored hazardous substance by satisfactorily passing the standard installation tests specified in Seciton 2-7.3 of the Flammable and Combustible Liquids Code adopted by the National Fire Protection Association on November 20, 1981 (NFPA 30-1981).

(b) All pipelines shall be pressure tested following repair to assure the adequacy of the repair. The testing shall be accomplished using procedures described in the applicable sections of ANSI B31, American National Standard Code of Pressure Piping or National Fire Protection Association Flammable and Combustible Liquids Code (NFPA 30).

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Article 7. Closure Requirements

2670. Applicability

(a) This article defines temporary and permanent closure and describes the nature of activities which must 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 hazard materials has ceased but where the tank owner or operator proposes to retain the ability to use the tank within two years for the storage of hazardous materials. Section 2671 does not apply to tanks that are empty as a result of the withdrawal of all stored material during normal operating practice prior to the planned input of additional hazardous material consistent with permit conditions.

(c) The permanent closure requirements of Section 2672 shall apply to those underground storage tanks in which the storage of hazardous materials has ceased and where the owner or operator has no intent within the next two years to use the underground storage tank for the storage of hazardous materials.

(d) The requirements of this article do not apply to those underground storage tanks in which hazardous materials are continued to be stored even though there is no use being made of the stored material. In these cases, the applicable containment and monitoring requirements of Articles 3 or 4 of this subchapter shall continue to apply.

(e) During the period of time between cessation of waste storage and actual completion of underground storage tank closure pursuant to Sections 2671 or 2672 the applicable containment and monitoring requirements of Articles 3 or 4 of this subchapter shall continue to apply.

(f) At least 45 days prior to cessation of storage of hazardous materials, unless such cessation occurs as a result of an unauthorized release or in order to prevent an unauthorized release or minimize its effect, the underground storage tank owner shall submit to the local agency a proposal describing how the owner intends to comply with Section 2671 or 2672 of this article as appropriate.

(g) Underground storage tanks that have experienced an unauthorized release do not qualify for temporary closure pursuant to Section 2671 of this article until the tank owner demonstrates to the local agency's satisfaction that appropriate authorized repairs have been made that would allow the underground storage tank to be capable of storing hazardous materials pursuant to the permit issued by the local agency.

(h) Underground storage tanks that have experienced an unauthorized release and that cannot be repaired by authorized methods must be permanently closed pursuant to requirements of Section 2672 of this subchapter.

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2671. Temporary Closure

(a) This section applies to those underground storage tanks in which storage has ceased but where the owner or operator proposes to retain the ability to use the underground storage tank within two years for the storage of hazardous substances.

(b) The owner or operator shall comply with all of the following:

(1) All residual liquid, solids or sludges shall be removed and handled as follows:

(A) product - legally stored for future use or handled as a hazardous waste.

(B) hazardous waste - legally recycled or disposed of as a hazardous waste.

(2) If the underground storage tank contained a hazardous substance that could produce flammable vapors at standard temperature and pressure, then the underground storage tank, either in part or as a whole, shall be completely purged of the flammable vapors.

(3) The underground storage tank may be filled with a noncorrosive liquid that is not a hazardous substance.

(4) All fill and access locations and piping shall be sealed utilizing locked caps or concrete plugs.

(5) Power service shall be disconnected from all pumps associated with the use of the underground storage tank except if the pump services some other equipment which is not being closed.

(c) All monitoring required pursuant to Article 4, except visual monitoring, shall be continued. The frequency of this monitoring may be reduced.

(d) The underground storage tank shall be inspected at least once every three months to assure that the temporary closure actions are still in place. This shall include:

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

(2) If locked caps are utilized, then 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 (b)(3) of this section.

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2672. Permanent Closure Requirements

(a) Underground storage tanks subject to permanent closure shall comply with either subsection (b) for tank system removal or subsection (c) for closure-in-place. It is not essential that all portions of a tank system be permanently closed in the same manner; however, all actions shall comply with the appropriate subsection. Subsection (d) regarding no discharge demonstration applies to all underground storage tanks subject to permanent closure.

(b) Removal of underground storage tanks shall comply with subsections (1) and (2) and either subsections (3), (4), or (5) as appropriate:

(1) All residual liquid, solids or sludges shall be removed and handled as follows:

(A) product - legally stored for future use or handled as a hazardous waste

(B) hazardous waste - legally recycled or disposed of as a hazardous waste.

(2) If the underground storage tank contained a hazardous material that could produce flammable vapors at standard temperature and pressure, then the underground storage tank, either in part or as a whole, shall be completely purged of the flammable vapors.

(3) An underground storage tank or any part of an underground storage tank that is destined for disposal shall be handled, transported and disposed of as a hazardous waste. The tank system or any part of the tank system may be handled, transported or disposed as a nonhazardous waste after it has been properly cleaned. In either case, the owner must document to the local agency that proper disposal has been completed.

(4) An owner of an underground storage tank or any part of an underground storage tank that is destined for a specific reuse shall comply with all of the following:

(A) Reuse shall not be inconsistent with other laws or regulations which may exist as they may relate to the nature of the hazardous material in the underground storage tank or the nature of the proposed reuse; and

(B) The owner of an existing underground storage tank shall identify to the local agency the future underground storage tank owner, operator, location of use and nature of use.

(5) An owner of an underground storage tank or any part of an underground storage tank that is destined for reuse as scrap material shall comply with all of the following before the underground storage tank or any part of the underground storage tank is removed from the facility unless such removal is

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done according to the provisions of subsection (b)(4) of this section:

(A) The tank system shall be thoroughly cleaned;

(B) The tank system shall be cut or punctured in sufficient locations to render it obviously unfit for use;

(C) Apply appropriate warnings to the tank.

(c) Closure of underground storage tanks in place shall comply with all of the following:

(1) All residual liquid, solids, or sludges shall be removed and handled as follows:

(A) product - legally stored for future use or handled as a hazardous waste.

(B) hazardous waste - legally recycled or disposed of as a hazardous waste.

(2) All piping associated with the tank shall be removed, handled and disposed of as a hazardous waste.

(3) The tank shall be completely filled with an inert solid such as sand or concrete.

(4) A notice shall be placed in the deed to the property. The notice shall describe the exact vertical and areal location of the closed tank, the hazardous substances it contained and the closure method.

(d) The owner 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 can be based on the ongoing leak detection monitoring, verification ground water monitoring or soils sampling performed during or immediately after closure activities.

If feasible, soil samples shall be taken and analyzed according to the following:

(1) If the underground storage tank or any portion thereof is removed then soil samples from the soils immediately beneath the removed portions shall be taken. A separate sample shall be taken for every 200 square feet or every 20 lineal feet for piping.

(2) If the underground storage tank or any portion thereof is not removed, then soils sampling pursuant to Section 2644 of Article 4 shall be implemented, if feasible.

(3) Soils shall be analyzed for all constituents contained in the previously stored hazardous substances and their breakdown or transformation products.

(e) The detection of any unauthorized release shall require compliance with the reporting requirements of Article 5.

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Article 8. Categorical and Site-Specific Variance Procedures

Adopt new section to read:

2680. Applicability

(a) This article sets up procedures for categorical and site-specific variances from Articles 3 and 4 of this subchapter. A site-specific variance, if approved, would only apply to the specific site approved for a variance. A categorical variance, if approved, would apply to the region, area or circumstances approved for a variance. A categorical variance application shall include more than one site or shall be non-site specific.

(b) Section 2681 specifies the procedures that must be followed by the applicant and the State Board for categorical variance requests.

(c) Section 2682 specifies the procedures that must be followed by the applicant, local agency and the Regional Board for site-specific variance requests.

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2681. Categorical Variances

(a) A categorical variance is an alternative method of construction or monitoring which is applicable to more than one site. Application for a categorical variance shall be made by the permittee to the State Board.

(b) Application for a categorical variance shall be made on a state application form provided by the State Board and shall include but not be limited to:

(1) Provision from which the variance is requested.

(2) Description of the proposed alternative program, method, device or process.

(3) Description of the region, area or circumstances under which the variance would apply.

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

(5) A list including names and addresses of all local agencies and persons who may be affected by or may be interested in the variance request.

(6) A fee of _____.

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(c) The State Board shall review all applications submitted and shall notify the applicant in writing within 30 days of receipt of the application as to whether or not the application is complete.

(d) The State Board shall complete any documents necessary to satisfy the California Environmental Quality Act (Division 13, commencing with Section 21000, of the Public Resources Code).

(e) The State Board shall remand the application to the appropriate Regional Board if it determines that the application falls within Section 2682.

(f) The State Board shall hold at least two public hearings in different areas of the state within 180 days of receipt of a complete variance application to consider the request for a categorical variance. Notice of the hearings shall be provided at least 10 days in advance to any person who requests such notice in writing. Notice shall also be provided to all affected local agencies and to any person known to be interested in the proceedings. The notice shall specify the date, time and location of the hearing, and shall include a description of the proposed categorical variance. When the notice is mailed, it shall be placed in the mail at least 11 days in advance of the hearing.

(g) All hearings shall be conducted according to the regulations governing adjudicatory proceedings which are contained in Subchapter 1.5 of this Chapter. The State Board in its discretion may require that, not later than 10 days prior to the hearing, all interested parties intending to

participate shall submit to the State Board in writing the name of each witness who will appear, together with a statement of the qualifications of each expert witness, the subject of the proposed testimony and the estimated time required by the witness to present his direct testimony. The State Board may also require that copies of proposed exhibits be supplied to adverse parties and seven copies be supplied to the Board not later than 10 days prior to the hearing.

(h) An applicant for a categorical variance must demonstrate by clear and convincing evidence that the proposed alternative will adequately protect the soil and the beneficial uses of water of the state from an unauthorized release.

(i) The decision of the State Board will be based on that evidence and testimony in the record of the hearings. The record may be supplemented by any other evidence and testimony accepted by the State Board pursuant to the procedure outlined in Section 2066 of Subchapter 6 of this Chapter. Upon the close of a hearing, the presiding officer may keep the hearing record open for a definite time, not to exceed thirty days, to allow any interested person to file additional exhibits, reports or affidavits.

(j) The State Board may discuss a proposed decision in response to a request for a categorical variance at a workshop meeting. The regulations governing workshop meetings and formal disposition of State Board matters for decision which are contained in Subchapter 6 of this Chapter shall apply.

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(k) If the State Board grants the variance, it will prescribe the conditions the applicant must maintain and will describe the specific alternative for which the variance is being granted.

(l) All permit applicants who intend to utilize an approved categorical variance shall attach a copy of the approved variance to the permit application submitted to the local agency. The local agency shall review the application and categorical variance to determine if the variance applies to the specific site. If the variance applies, the local agency shall issue a permit to the applicant which includes the conditions prescribed by the State Board.

(m) The State Board shall modify or revoke a categorical variance upon a finding that the proposed alternative does not adequately protect the soil and the beneficial uses of the water of the state from an unauthorized release. The State Board will not modify or revoke a categorical variance until it has followed procedures comparable to those outlined herein for approval of a categorical variance. The State Board shall notify all affected local agencies of the modification or revocation and shall require the local agencies to modify or revoke all site permits which were based on the categorical variance.

2682. Site-Specific Variances

(a) A site-specific variance is an alternative method of construction or monitoring which would be applicable at one facility location. Application for a site-specific variance shall be made by the permittee to the appropriate Regional Board.

(b) At least 60 days prior to applying to the Regional Board, the permittee 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 days of its receipt of the permittee's complete construction and monitoring, the permittee may proceed with a variance application.

(c) At least 30 days prior to applying to the Regional Board, the permittee must request the local agency and the city, county or city and county having land use jurisdiction over the permittee's site to join the applicant in the variance request. The local agency shall also be requested to prepare any documents required by California Environmental Quality Act (Division 13, commencing with Section 21000, of the Public Resources Code).

(d) The local agency shall have 30 days after completion of the documents or the receipt of the Regional Board's staff recommendation and analysis, whichever is later, to decide whether to join the applicant in the variance request.

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(e) Application for a site-specific variance shall be made on a state application form provided by the appropriate Regional Board and shall include but not be limited to:

(1) Provision from which the variance is requested.

(2) 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) Clear and convincing evidence demonstrating that:

(A) Due to special circumstances not generally applicable to other property or facilities, including size, shape, design, topography, location or surroundings the strict application of Articles 3 or 4 of this subchapter would be unnecessary to adequately protect the soil and beneficial uses of the waters of the state from an unauthorized release; or

(B) The strict application of Articles 3 or 4 of this subchapter would create practical difficulties not generally applicable to other facilities or property.

(4) That the proposed alternative will adequately protect the soil and the beneficial uses of water of the state from an unauthorized release.

(5) Any documents necessary to satisfy the California Environmental Quality Act (Division 13, commencing with Section 21000, of the

Public Resources Code).

(6) A fee of _____.

(f) The Regional Board shall review all applications submitted and shall notify the applicant in writing within 30 days of receipt of the application as to whether or not the application is complete.

(g) The Regional Board shall hold a hearing on the proposed alternative within 120 days after receiving a complete variance application; however, the hearing shall be held after the 30-day period described in subsection (d) of this section has expired. Notice of the hearings shall be provided at least 10 days in advance to any person who requests such notice in writing. Notice shall also be provided to all affected local agencies and to any person known to be interested in the proceedings. The notice shall specify the date, time and location of the hearing, and shall include a description of the proposed categorical variance. When the notice is mailed, it shall be placed in the mail at least 11 days in advance of the hearing.

(h) All hearings shall be conducted according to the regulations governing adjudicatory proceedings which are contained in Subchapter 1.5 of this Chapter. The Regional Board in its discretion may require that, not later than 10 days prior to the hearing, all interested parties intending to participate shall submit to the Board in writing the name of each witness who will appear, together with a statement of the qualifications of each expert witness, the subject of the proposed

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testimony and the estimated time required by the witness to present his direct testimony. The Regional Board may also require that copies of proposed exhibits be supplied to adverse parties and seven copies be supplied to the Regional Board not later than 10 days prior to the hearing.

(i) Any variance so issued will prescribe the conditions the applicant must maintain and will describe the specific alternative system for which the variance is being granted. The Regional Board shall notify the applicant and the local agency of its decision.

(j) The Regional Board shall consider the local agency's and the city, county, or city and county's recommendations in rendering its decision. The Regional Board shall consider the completeness and accuracy of the information provided by the applicant in subsection (e) of this section in rendering its decision.

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

(l) The Regional 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 water of the state from an unauthorized release. The Regional Board will not modify or revoke the variance

until it has followed procedures comparable to those outlined herein for approval of a variance. The Regional Board shall notify the local agency of the modification or revocation and shall require the local agency to modify or revoke the permit for the site.

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Article 9. Local Agency Additional Standards Request Procedures

Adopt new section to read:

2690. Applicability

(a) This article sets up procedures for local agencies to request State Board authorization for more stringent standards than those set by Articles 3 and 4 of the Subchapter.

2691. Additional Standards Request Procedures

(a) Local agency application for additional standards shall include:

(1) Description of the proposed design and construction standards.

(2) Clear and convincing evidence that the additional standards are necessary and would adequately 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) A fee of _____.

(b) The board will conduct an investigation and public hearing on the proposed standards and their need to protect the soil and beneficial uses of the water before determining whether to authorize the local agency to implement additional standards. The notice and other procedural requirements contained in Sections (d) through (j) of Article 8 of this Subchapter shall apply.

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(c) The board shall make its determination whether to authorize a local agency to implement additional standards within six months of the receipt of a complete application.

(d) Should the board authorize the local agency to implement additional standards, the standards shall be effective as of the date the board made the determination.

(e) Should the board not authorize the local agency to implement additional standards, the additional standards will not go into effect.

(f) The State 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 Board will not modify or revoke the authorization until it has followed procedures comparable to those outlined herein for issuance of the authorization.

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Article 10. Permit Application, Annual Report and Trade Secret Requirements

2700. Applicability

(a) This article describes specific administrative actions that must be accomplished by all tank owners, local agencies and the State Board relative to issuing permits for underground storage tanks.

(b) Section 2701 lists the information that must be submitted by the tank owner to the local agency as part of the permit application and the requirements for the local agency to submit the permit application to the State Board.

(c) Section 2702 describes the conditions that local agencies must include in all permits issued and conditions local agencies must meet prior to permit issuance.

(d) Section 2703 describes the annual report requirements for both tank owners and local agencies.

(e) Section 2704 specifies conditions that must be met by a tank owner when requesting trade secret provisions for any information submitted to the local agency or State Board or Regional Board. It also specifies how the local agency, the State Board or Regional Board shall consider the request and how they shall maintain the information if the trade secret request is accepted.

2701. Permit Application and Information

(a) An application for a permit to operate an underground storage tank, or for renewal of the permit or for transfer of a permit shall be made by the owner on a form prepared by the State Board and provided by the local agency. The local agency shall provide the Board with a copy of the completed approved application within 30 days.

(b) The permit application shall include, but not be limited to, the following information if it is accurately known to the permit applicant:

(1) The name and address of the person, firm, corporation or public agency which owns the underground storage tank or tanks,

(2) The name, location, mailing address, phone number and type of facility where the underground storage tank is located and type of business including SIC number.

(3) The name, address and telephone numbers of the underground storage tank operator and 24-hour emergency contact person.

(4) The name and telephone nukmber of the person making the application.

(5) The underground storage tank description including, but not limited to, tank and auxiliary equipment manufacturer, year of manufacture, capacity, history of repairs and operation methods schedule.

(6) The underground storage tank (tank, piping and auxiliary equipment) construction details, including, but not limited to, type and thickness of primary containment, type and thickness of secondary containment (if applicable), installation procedures and backfill, lining, wrapping, and cathodic protection methods (if applicable).

(7) A diagram or design or as-built drawing which indicates the location of the underground storage tank (tank, piping, auxiliary equipment) with respect to buildings or other landmarks.

(8) The description of the proposed monitoring program, including, but not limited to the following where applicable:

(A) visual;

(B) tank testing or inspection procedures;

(C) inventory controls including gaging and reconciliation methods;

(D) soils sampling locations and methods and analysis procedures;

(E) vadose zone sampling locations and methods and analysis procedures;

(F) ground water well(s) locations, construction and completion methods, sampling and analysis procedures;

(G) frequency and sensitivity of any monitoring method sensing instrument, or analytical method.

(9) A list of all the substances which previously, currently or are proposed to be stored in the underground storage tank or tanks.

(10) 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 tank.

(11) The permit application must be signed by (A) a principal executive officer at the level of vice-president or by an authorized representative. The representative must be responsible for the overall operation of the facility where the tank(s) are located, (B) a general partner proprietor, or (C) a principal executive officer, ranking elected official or authorized representative of a public agency.

(c) The application shall be accompanied by a fee. The local agency may require a fee to cover necessary and reasonable costs of permitting and inspection of the underground storage tank. This fee shall include a surcharge determined annually by the legislature to cover the costs of State Board in carrying out its responsibilities under these regulations.

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2702. Permit Conditions

(a) As a condition of any permit to operate an underground storage tank, the permittee shall report to the local agency which has permitting authority at least 30 days prior to the change any changes in the usage of any underground storage tanks, including:

(1) the storage of new hazardous substances; or

(2) changes in monitoring procedure; or

(3) the replacement or repair of all or part of any underground storage tank.

(b) As a condition of any permit to operate an underground storage tank, the permittee shall report to the local agency any unauthorized release occurrences (as defined in Article 2 within the time frame specified in subsections 2652(b) and (c)).

(c) A permit to operate issued by the local agency shall be effective for five years. A local agency shall not issue or renew a permit to operate an underground storage tank until the local agency inspects the tank and determines the tank complies with the provisions of these regulations. The tank owner shall apply for renewal at least 180 days prior to the expiration of the permit.

(d) Permits may be transferred to new tank owners if the new tank owner does not change any conditions of the permit and the transfer is registered with the local agency within 30 days of the change

in ownership by submittal of a revised permit application listing the new owner and any modifications to the information in the initial permit application due to the change in ownership. A local agency may review, modify or terminate the transfer of the permit to operate the underground storage tank upon receiving the transfer request.

(e) If an underground storage tank does not completely conform with Articles 3 or 4 of this subdivision, a local agency, at its discretion, may issue a provisional permit subject to conditions specified by the local agency and providing such a permit would not be detrimental to the public's interest. The conditions shall, at a minimum, include a time schedule for upgrading the underground storage tank such that it conforms with Articles 3 or 4 of this subdivision or is closed pursuant to Article 7 of this subdivision. These time schedules shall not extend beyond the duration of the provisional permit. A provisional permit will be issued for no longer than three months and cannot be renewed or extended. The local agency shall inspect the underground storage tank pursuant to the provisions of subsection (g) of this section within 15 days of the expiration of the provisional permit to assure that the permit conditions have been met.

(f) The local agency shall not renew an underground storage tank permit unless the underground storage tank has been inspected within the prior three years and the inspection revealed that the

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underground storage tank complies with Articles 3 or 4, as applicable of this subchapter and with all existing permit conditions. The inspection shall be conducted as specified in subsection (g) of this section. If the inspection revealed noncompliance, then the local agency must verify by a follow-up inspection pursuant to subsection (g) of this section that all required corrections have been implemented.

(g) The local agency shall inspect every underground storage tank within its jurisdiction at least once every three years. The inspection which shall evaluate the items listed in subdivision (h) of this section may be performed by the local agency or by a special inspector employed by the permit holder as required by the local agency, or both. If a special inspector conducts any or all of the inspection, a copy of the special inspector's report which may contain recommendations concerning the safe storage of hazardous materials shall be filed with the local agency at the same time as it is submitted to the permit holder. Any deficiencies or items of noncompliance found shall be addressed as described in subsection (i) of this section.

(h) The purpose of the inspection described in subsection (g) of this section is to:

(1) Determine whether the underground storage tank complies with the applicable standards of Article 3 or Article 4 of this subchapter.

(2) Determine whether the operator has monitored and tested the underground storage tank as required by the permit; and

(3) Determine whether the underground storage tank is in a safe operating condition.

(i) Within 30 days of receiving an inspection report from either the local agency or the special inspector, the permit holder shall file with the local agency a plan and time schedule to implement any required modifications to the underground storage tank or to the monitoring plan needed to achieve compliance with either Article 3 or Article 4 of this subchapter, as appropriate, or the permit conditions. This plan and time schedule shall also implement all the recommendations of the special inspector. The local agency may exempt 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 the failure to implement the recommendation will not cause an unauthorized release.

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2703. Annual Report

(a) The local agency shall notify the State Board of any changes in permits as defined in subsections (a) or (d) Section 2702 of this Article or any unauthorized releases as defined in Article 2 annually on State Board annual report forms or other methods determined by the State Board. This information shall be submitted to the State Board by March 1 of each year covering the prior calendar year.

2704. Trade Secret Provisions

(a) Any person providing information in an application for a permit to operate an underground storage tank, or for renewal of the permit or application for a categorical or site-specific variable, shall, at the time of its submission, identify all information which the person believes is a trade secret and submit a legal justification for the request for confidentiality. The information which must be submitted includes:

(1) Which portions of the information submitted is actually a trade secret;

(2) How long this information should be treated as confidential;

(3) Measures that have been taken to protect this information as confidential;

(4) A discussion of why this information is a trade secret including references to statutory and case law as appropriate.

(b) If the local agency or the State Board or the Regional Board determines that a request for confidentiality is clearly valid, the material will be given trade secret protection as discussed in subsection (f) of this section.

(c) If the local agency or State Board or the Regional Board determines that the request for confidentiality is clearly frivilous, it will send a letter to the applicant stating that the information will

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not be treated as a trade secret unless the local agency or the State Board or the Regional Board is instructed otherwise by a court within 10 days of the date of the letter.

(d) If the validity of the trade secret is unclear, the local agency or the State Board or the Regional Board will inform the person claiming trade secrecy that the burden is on him to justify the claim. The applicant will be given a fixed period of time to submit such additional information as the local agency or the State Board or the Regional Board may request. The local agency or the State Board shall then evaluate the request in this basis of the definition of "trade secrets" contained in Health and Safety Code Section 25283.6(a) and issue its decision. If the local agency or the State Board or the Regional Board determines that the information is not a trade secret, it will send a letter to the applicant stating that the local agency or the State Board or Regional Board will treat the information as such unless the local agency or the State Board or the Regional Board is instructed otherwise by a court within 10 days of the date of the letter.

(e) All information received for which trade secrecy status is requested shall be treated as confidential until a final determination is made as discussed in subsection (f) of this section.

(f) Information which has been found to be confidential, or regarding which a final determination has not been made, 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 should be filed with the remainder of the document indicating that further information is in the confidential file.

(g) Information contained in confidential files shall only be disclosed to authorized representatives or other governmental agencies only in connection with the State Board's, the Regional Board's or local agency's responsibilities pursuant to Chapter 6.7 of the Health and Safety Code.

(h) Nothing contained herein shall limit an applicant's right to obtain prevention of disclosure of information pursuant to other provisions of law.

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3. Draft regulations dated August 13, 1984

Underground Tank Regulations

California Administrative Code
Title 23 Waters
Chapter 3 Water Resources Control Board
Subchapter 16 Underground Tank Regulations

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Article 1. General

Adopt new section to read:

2610. Applicability

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

(b) Persons who own one or more underground tanks storing hazardous substances shall comply with these regulations except as provided in Section 2611 of this Article. If the operator of the tank is not the owner, then the owner shall enter into a written contract with the operator requiring the operator to: monitor the tank; maintain appropriate records; implement reporting procedures as required by the permit; and properly close the tank as required by the permit.

(c) Counties shall implement the regulations in this subchapter within both the incorporated and unincorporated areas of the County without modification except as provided in Section 2611(g) of this Article or Article 8 of this subchapter, through the issuance of permits to underground tank owners. A permit may be issued for each underground tank, several tanks or for a facility. A city may, by ordinance, assume the responsibility for implementing the provisions of this subchapter within its boundaries.

(d) All owners of underground tanks subject to these regulations must comply with the construction and monitoring standards of Article 3 (new tanks) or

the monitoring standards of Article 4 (existing tanks) of this subchapter. However, owners of existing underground tanks which meet the construction and monitoring standards of Article 3 of this subchapter may be issued permits pursuant to those standards in lieu of the standards of Article 4 of this subchapter. In addition, all owners and/or operators of underground tanks subject to this subchapter must comply with the release reporting requirements of Article 5, the repair requirements of Article 6, the closure requirements of Article 7, and the permit application requirements of Article 10.

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Adopt new section to read:

2611. Exemptions

(a) The owners of underground storage tanks that meet any of the following conditions shall be exempt from the provisions of this subchapter:

(1) Underground storage tanks that are located within the jurisdictions of counties or cities where the county or city had, prior to January 1, 1984, adopted an ordinance which, at a minimum, meets the requirements of Article 3 and Article 4 of this subchapter or implements the requirements of Health and Safety Code Sections 25284 and 25284.1 provided that:

(A) The ordinance, as it may be amended, continues to meet at a minimum the requirements of Article 3 and Article 4 of this subchapter or implements the requirements of Health and Safety Code Sections 25284 and 25284.1; and

(B) The county or city issues permits for underground tanks pursuant to the ordinance and submits a copy of the permit application to the State Board as specified in Article 10 of this subchapter.

(C) The county or city submits information on all unauthorized releases as specified in Article 5 of this subchapter.

(D) The county or city submits information on any permit changes or renewals as specified in Section 2703 of Article 10 of this subchapter.

(2) Underground storage tanks that are used for the storage of hazardous substances used for the control of external parasites of cattle and subject to the supervision of the county agricultural commissioner if the

county agricultural commissioner determines, by inspection prior to use, that the tank provides a level of protection equivalent to that required by Section 25284 of the Health and Safety Code, if the tank was installed after June 30, 1984, or protection equivalent to that provided by Section 25284.1 of the Health and Safety Code if the tank was installed on or before June 30, 1984.

(3) Underground storage tanks that are located on a farm and only store motor vehicle fuel which is used only to propel vehicles used primarily for agricultural purposes. Vehicles used primarily for agricultural purposes is meant to include non-licensed vehicles and vehicles utilized in the production of agriculture at the farm site.

(4) Underground storage tanks that are used for aviation or motor vehicle fuel storage and are located within one mile of a farm and the tank is used by a licensed pest control operator, as defined in Section 11705 of the Food and Agricultural Code, who is primarily involved in agricultural pest control activities.

(5) Underground storage tanks containing hazardous wastes as defined in Section 25116 of the Health and Safety Code if the person owning or operating the tank has been issued a hazardous waste facilities permit by the Department of Health Services pursuant to Section 25200 of the Health and Safety Code or granted interim status under Section 25200.5 of the Health and Safety Code.

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(b) Structures such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation sumps, lined and unlined pits, sumps and lagoons are not considered underground tanks for the purpose of these regulations. Sumps which are a part of a monitoring system required under Article 3 of this subchapter are not exempted by this section; however, these sumps would be considered part of the secondary container or leak detection system of the primary container and would be required to meet the appropriate construction criteria.

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Article 2. Definition of Terms

Adopt new section to read:

2620. Definitions

The following definitions shall apply to terms used in this subchapter.

"Board" means the State Water Resources Control Board.

"Existing underground tank" means any underground tank that is not a new underground tank.

"Facility" means any one, or combination of, underground storage tanks used by a single business entity at a single location or site.

"Hazardous substance" means all of the following liquid and solid substances on the Department of Health Services' comprehensive master list which includes:

1. Substances on the list prepared by the Director of the Department of Industrial Relations pursuant to Section 6382 of the Labor Code.
2. Hazardous substances as defined in Section 25316 of the Health and Safety Code.
3. Any substance or material which is classified by the National Fire Protection Association (NFPA) as a flammable liquid, a class II combustible liquid, or a class III-A combustible liquid.

"Installed" means the point in time when all necessary permits have been issued allowing the implacement of the underground tank or, if no permits are necessary, the point in time when actual implacement of the tank begins.

"Local agency" means the county or city that is implementing the permit program. The local agency may also mean the department within the county or city designated to implement the program.

"Motor vehicle" means a self-propelled device by which any person or property may be propelled, moved, or drawn upon a highway, excepting a device moved exclusively by human power or used exclusively upon stationary rails or tracks.

"Motor vehicle fuel tank" means a tank that contains a product which is intended to be used primarily to fuel motor vehicles.

"New underground tank" means any underground tank installed after the effective date of these regulations or, if prior to adoption of these regulations, installed within a county, city and county or city where the county, city and county or city has adopted an ordinance implementing the provisions of Section 25284 of the Health and Safety Code and the tank was installed after the date of adoption of said ordinance.

"Operator" means the operator of an underground storage tank.

"Owner" means the owner of an underground storage tank.

"Person" means an individual, trust, firm, joint stock company, corporation, including a government corporation, partnership, and association. "Person" also includes any city, county, district, the state, or any

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department or agency thereof. "Person" includes the United States, to the extent authorized by federal law.

"Pipe" means any pipeline or system of pipelines which is used in connection with the hazardous substances and which are not intended to transport hazardous substances in interstate or intrastate commerce or to transfer hazardous materials in bulk to or from a marine vessel.

"Primary containment" means the first level of containment, such as the portion of a tank which comes into immediate contact on its inner surface with the hazardous substance being contained.

"Product-tight" means impervious to the substance which is contained, or is to be contained, so as to prevent the seepage of the substance from the primary containment. To be product-tight, the tank shall not be subject to physical or chemical deterioration by the substance which it contains over the useful life of the tank.

"Secondary containment" means the level of containment external to, and separate from, the primary containment.

"Single-walled" means construction with walls made of only one thickness of material. For the purpose of this subchapter, laminated, coated, or clad materials shall be considered single-walled.

"Special inspector" means a professional engineer, registered pursuant to Chapter 7 (commencing with Section 6700) of Division 3 of the Business and Professions Code, who is qualified to attest, at a minimum, to

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Article 3. New Tank Construction and Monitoring Standards

2630. Applicability

(a) This article contains statewide minimum standards for the construction, installation, and monitoring of new underground tanks that contain hazardous substances.

(b) Sections 2631 and 2632 specify construction and monitoring standards for all new tank systems. New tank systems that only store motor vehicle fuels may be constructed and monitored pursuant to the standards specified in Sections 2633 and 2634 in lieu of those specified in Sections 2631 and 2632, respectively. However, if the construction standards in Section 2633 are used, then the monitoring standards of Section 2634 must also be used.

(c) All new tank systems must comply with Section 2635.

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Construction Standards for New Underground Storage Tanks

a) Primary and secondary levels of containment shall be required for all new underground tanks used for the storage of hazardous substances as defined in Article 11.

b) All primary containers shall be product-tight.

c) All secondary containers shall be constructed of materials of sufficient thickness, density, and composition to contain the hazardous substance for a period of at least twice the maximum anticipated time sufficient to allow detection and recovery of leakage from the primary container.

d) The secondary container shall have the ability to contain the following volumes:

(1) at least 100 percent of the volume of the primary container where only one primary container is within the secondary container;

(2) in the case of multiple primary containers within a single secondary container, the secondary container shall be large enough to contain 150 percent of the volume of the largest primary container placed in it, or 10 percent of the aggregate internal volume of all primary containers in the storage facility, whichever is greater.

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(e) If the storage facility is open to rainfall, then the secondary container must be able to accommodate the volume of the twenty-four (24) hour-one hundred (100) year storm in addition to that required in Subsections (d) and (e) of this section.

(f) Volume requirements for a secondary container which consists of the pore space in backfill placed around the primary container shall be 110 percent of that required in Sections 2631(d) and (e). The available pore space in the secondary container backfill shall be determined using appropriate engineering methods.

(g) Laminated, coated, or clad materials shall be considered single walled and shall not be construed to fulfill the requirements of both primary and secondary containment.

(h) Double walled tanks which satisfy the requirements of Sections 2631(b) and (c) shall be considered to fulfill the volumetric requirements for secondary containment specified in Sections 2631(d).

632. Monitoring Standards for New Underground Storage Tanks

(a) This section is applicable only to those underground storage tanks constructed pursuant to the standards of Section 2631 of this article.

(b) Secondary containers shall be equipped with a collection system capable of removing any precipitation, subsurface infiltration, or hazardous substance and liquid leakage from the primary containment.

(c) The floor of the secondary containment shall be constructed on a firm base and sloped to a collection sump. The sump shall be of sufficient depth and the access casing shall be of sufficient size to allow efficient removal of the collected liquid. The access casing shall be extended to the ground surface, perforated in the region of the sump, and covered with a locked waterproof cap.

(d) The casing shall be of sufficient thickness to withstand all anticipated applied stresses with a 1.5 safety factor and constructed of materials that will not be structurally weakened by the stored product nor donate, capture, or mask product constituents for which analyses will be made.

(e) The sump shall be monitored with a continuous sensor, which is removable on a semi-annual basis for calibration and maintenance if needed. The continuous sensor shall be capable of either:

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(1) Detecting within the sump 0.5 inches of standing liquid and activating a strategically-located, above-ground alarm system when any combination of a hazardous substance or water is present. All standing liquid shall be immediately sampled and analyzed within a time specified by the local agency to best detection limits to determine the presence of hazardous substances. This system cannot be used when water is normally expected to be present within the secondary containment; or

(2) Detecting within the sump 0.5 inches of the hazardous substance stored in the primary container(s) and activating a strategically-located, above-ground alarm system.

(f) The interstitial space between the walls of a double-walled tank may be monitored continuously using a pressure sensor. The sensing devices shall be capable of activating a strategically located above-ground alarm system. Double-walled tanks which utilize this leak detection system are exempt from the requirements of Sections 2632(c) through (e).

3. Construction Standards for New Motor Vehicle Fuel Tanks

(a) This section specifies alternate construction standards for new tanks which only contain motor vehicle fuels. This section may be utilized by permit applicants in lieu of Section 2631. If this section is used in lieu of Section 2631, then the monitoring standards specified in Section 2634 shall be used in lieu of those specified in Section 2632.

(b) Primary containers for the underground storage of motor vehicle fuel shall consist of product-tight tanks constructed of fiberglass reinforced plastic, cathodically protected steel, or steel clad with glass fibre reinforced plastic and installed in conjunction with the secondary containment system described in Section 2633(d) and (e).

(c) Primary containers used for the underground storage of motor vehicle fuel and constructed of materials other than those specified in Section 2633(b) shall be subject to the requirements of Section 2631.

(d) The secondary container shall be demonstrated to achieve the integrity and compatibility criteria of Section 2631(c) of this article.

(e) The leak interception and detection system (secondary container) and the response plan shall preclude the contact of any leaked hazardous substance with ground water. Proof that the secondary container and response plan will protect ground waters must be demonstrated by the permit applicant to the satisfaction of the local agency. The demonstration shall consider the following:

(1) The volume of the secondary container;

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(2) The depth from the bottom of the secondary container to the highest anticipated level of ground water;

(3) The nature of the unsaturated soils under the secondary container and their ability to adsorb contaminants or allow vertical movement of contaminants; and

(4) The nature and timing of the response plan to clean-up the hazardous substances which have been discharged from the primary container.

(f) Pressurized piping systems that include an automatic, continuously operating pressure loss detector and flow restriction device are exempt from the secondary container requirements of the article. This detector shall be connected to a visual or audible alarm system unless it provides at least a 50 percent reduction from normal flow rates.

4. Monitoring Standards for New Motor Vehicle Fuel Tanks

(a) Monitoring of underground tanks used for the storage of motor vehicle fuel and constructed pursuant to the standards of Section 2633 of this article shall consist of all of the following:

(1) Monitoring of the secondary containment system pursuant to subsections (b), (c) and (d) of this section.

(2) Daily gauging and inventory reconciliation by the operator pursuant to Section 2643 of Article 4.

(3) Hydrostatic testing of the tank every two years according to the criteria specified in Section 2642 of Article 4, and

(4) All pressurized piping systems shall be monitored utilizing an on-line pressure loss detector and flow reduction device. The detector shall be connected to a visual or audible alarm system unless it provides for at least a 50 percent reduction from normal flow rates.

(b) An access casing shall be installed at each monitoring location. The casing shall be:

(1) Capable of allowing any liquid that may be moving along the upper surface of the secondary container to enter the casing;

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(2) Of sufficient size and thickness to allow efficient removal of collected liquid and to withstand all anticipated applied stresses with a safety factor of 1.5;

(3) Constructed of materials that will not be structurally weakened by the stored product nor donate, capture, or mask product constituents for which analyses will be made;

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

(5) Capable of precluding leakage of any hazardous substance to areas outside of the secondary container; and

(6) Extended to the ground surface and covered with a locked water-proof cap.

(c) Monitoring of each casing described in Section 2634(b) shall utilize a continuous sensor which is removable on a semi-annual basis for calibration and maintenance, if needed, and capable of detecting within the casing 0.5 inches of the hazardous substance stored in the primary container(s) and activating a strategically located above-ground alarm system.

(d) An underground tank used for the storage of motor vehicle fuels that has a loss or gain of hazardous substance or water as determined by daily gauging and inventory control (as required in Subsection (a)(2) of this section) of greater than any of the following shall be tested according to the procedures specified in subsection (e) of this section:

(1) Daily loss or gain of 50 gallons, or

(2) Seven (7) day loss or gain of five percent of the volume of hazardous substance delivered over the seven days, or

(3) Cumulative (calculated over a period of at least thirty (30) days) loss or gain of one-half percent of the volume of hazardous substance delivered over the period that the cumulative loss or gain is calculated.

(e) If inventory controls indicate a gain or loss of hazardous substances greater than that specified in subsection (c) of this section, then the following steps shall be implemented by the operator or permittee. The steps may be implemented sequentially or concurrently, however, they must be completed within the specified time periods. Reporting as required in Article 5 of this subchapter shall be followed.

If completion of the steps described in subsections (2), (3), or (5) of this subsection indicate inventory reconciliation errors that, when corrected cause the levels in subsection (d) of this section not to be exceeded,

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then the remainder of the steps need not be completed. If completion of the steps described in subsections (4) or (6) through (8) of this subsect reveal the source of the loss or gain, then the remainder of the steps need not be completed.

Transfer of hazardous substances into and out of the underground storage tank may continue throughout the steps provided that the steps are compl within the specified time periods and any loss or gain does not exceed two times the levels specified in subsection (d) of this section. Inven tory control and daily reconciliation shall continue throughout implementation of the steps.

(1) The operator shall notify the owner verbally or in writing of the r that inventory controls indicate a gain or loss of hazardous substa or water within 24 hours of the completion of the daily reconciliation which indicates the loss or gain.

(2) The operator shall review the inventory records within two (2) hou to determine if an error exists which would cause the gain or loss to be less than that specified in subsection (d) of this section.

(3) The operator shall have performed by a qualified person a complete review of all inventory records from the last time a zero loss or gain condition existed. This shall be completed within 24 hours o the conclusion of subsection (e) (2).

(4) The readily accessible physical facilities shall be carefully inspected for leakage. This shall be completed by trained personnel within 24 hours of completion of subsection (e) (3).

(5) All dispenser meters associated with hazardous substance withdrawal shall be checked for calibration within 24 hours of completion of subsection (e) (4).

(6) All piping shall be tested using the methods specified in Sections 4-3.6 or 4-3.7 of the National Fire Protection Association (NFPA) publication entitled "Underground Leakage of Flammable and Combustible Liquids", 1983 (NFPA 329), within 24 hours of completion of subsection (e) (5). This step may be completed after the step described in subsection (e) (7) if excavation is necessary to perform the tests and if the step described in subsection (e) (7) is completed within 48 hours of the completion of subsection (e) (5). If this occurs, then this subsection shall be completed within 24 hours of the completion of subsection (e) (7).

(7) The tank shall be tested using the tests described in Section 2642 of Article 4 within 48 hours of completion of subsection (e) (6).

(8) Additional tests or investigations as required by the local agency.

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(f) A response plan for an unauthorized release shall be developed prior to installation for any container which does not meet the volumetric requirements of Sections 2631(d) and (e) of this Article. The response plan shall consider the following:

(1) The volume of the secondary container in relation to the volume of the primary container;

(2) The amount of time the secondary container must provide containment in relation to the period of time between detection of an unauthorized release and cleanup of the leaked materials;

(3) The depth from the bottom of the secondary container to the highest anticipated level of ground water;

(4) The nature of the unsaturated soils under the secondary container and their ability to absorb contaminants or allow vertical movement of contaminants; and

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

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2635. General Construction Standards

(a) The following sections apply to all primary and secondary containers.

(b) Primary containers and double-walled tanks shall be designed and constructed to comply with all of the following:

(1) A 0.25-inch thick steel wear plate (striker plate) shall be centered under all accessible openings of the underground tank. The plate shall be rolled to the contours of the tank, bonded or seam welded in place, and have a minimum area of the opening or a guide tube, whichever is smaller.

(2) All underground tanks shall be guaranteed by the manufacturer to be product tight prior to leaving the factory.

(3) Following installation, all underground tanks shall be tested either hydrostatically or with pressure in accordance with standards and procedures set forth in Article 4.

(4) Cathodically protected steel tanks and steel tanks clad with glass fibre reinforced plastic shall be fabricated and designed by the requirements in Underwriters Limited (UL) 58, Standards for Steel Underground Tanks for Flammable and Combustible Liquids or the American Society of Mechanical Engineers (ASME) Pressure Vessel Code, Section VIII, Division 1, Boiler and Pressure Vessel Code and have a minimum thickness of at least 7 gauge (0.18 inch).

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(5) Fiberglass reinforced plastic tanks shall be UL listed and designed in accordance with UL Standard 1316, Standard for Glass-Fiber-Reinforced Plastic Underground Storage or Underwriter's Laboratory of Canada, Standard ULC-S615-1977, Standard for Reinforced Plastic Underground Tanks for Petroleum Products.

(6) Fiberglass reinforced plastic tanks shall be designed based on tests by the manufacturer for durability and chemical compatability with the hazardous substances to be stored using applicable sections of ASTM D4021-81 "Standard Specifications for Glass-Fiber-Reinforced Polyester Underground Storage Tanks", and the manufacturer shall provide the owner with written assurance of the compatibility.

(7) The secondary container must be capable of precluding the inflow of the highest ground water anticipated during the life of the underground storage tank into the space between the primary and secondary containers.

(8) If the space between the primary and secondary containers is backfilled, the backfill material shall not preclude the vertical movement of leakage from any part of the primary container.

(9) The secondary container shall at a minimum encompass the area within the system of vertical planes surrounding the exterior of the primary containment unit. If backfill is placed between the primary and secondary containment then an evaluation shall be made of the maximum lateral spread of a point leak from the primary containment

over the vertical distance between the primary and secondary containment. The secondary containment shall extend beyond the vertical planes an additional distance defined above equal to the radius of lateral spread plus one foot.

(10) The secondary container and any backfill material between the primary and secondary container shall be designed and constructed to promote gravity drainage of a leak of hazardous substances from any part of the primary container to the monitoring location(s).

(11) The original excavation for the secondary container shall have a water tight cover which extends at least one (1) 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. Manways shall be constructed as water-tight as practical. Double-walled tanks are exempt from this requirement.

(c) All primary and secondary container systems shall be designed and constructed to comply with all of the following:

(1) Underground storage tanks shall be located outside the prism of bearing pressure from footings of existing or designed structures and a minimum of ten (10) feet away from these structures. Underground storage tanks may be located closer than ten (10) feet away from

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these structures provided a registered civil engineer reviews and approves of the design.

(2) The actual location and orientation of the underground 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.

(3) Materials that in combination may cause a fire or explosion, or the production of a flammable, toxic, or poisonous gas, or the deterioration of a primary or secondary container shall be separated in both the primary and secondary containment so as to avoid potential intermixing.

(4) Drainage of liquid from within a secondary container shall be controlled in a manner approved by the local agency so as to prevent hazardous materials from being discharged. The liquid shall be analyzed to determine the presence of any of the hazardous substances stored in the primary container 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 an indication of an unauthorized release from the primary container.

(d) All primary containers and double-walled tanks shall be installed according to the manufacturer's written recommendations or, if no written recommendations exist, best engineering practice.

(e) All primary containers and double-walled tanks subject to floatation shall be weighted or anchored using methods specified by the manufacturer or, if none exist, best engineering judgment.

(f) When required by the local agency, all underground storage tanks shall be equipped with an overflow protection system which includes the following elements:

(1) A level sensing device that continuously monitors and indicates the liquid level in the tank and either (2) or (3) or both,

(2) An audible or visual alarm system triggered by a liquid level sensor to alert the operator of an impending overfill condition, or

(3) An automatic shut-off device that stops the flow of product being delivered to the tank when the tank is full.

(g) The overflow protection system required in subsection (f) of this section shall be satisfied for underground storage tanks containing motor vehicle fuels in which:

(1) Both the fluid level is visually monitored and the filling operation is controlled by the facility operator during filling of the underground storage tank, or

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(2) The available capacity of the tank to be filled is determined immediately prior to filling to be at least 110 percent of the volume of the entire tank compartment to be delivered as determined by tank gauging, or

(3) The hazardous substance being delivered can be metered into the tank and the available tank capacity is determined immediately prior to filling.

(h) All primary containers and double-walled tanks constructed of steel shall be protected by either:

(1) A properly installed, maintained, and monitored cathodic protection system with or without coatings, or

(2) Corrosion resistant materials of construction such as special alloys or fiberglass-reinforced plastic coatings.

Selection of the type of protection to be employed shall be based on the corrosion history of the area and the judgment of a registered corrosion engineer.

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Article 4. Existing Underground Storage Tank Monitoring Criteria

Adopt new section to read:

2640. Applicability

(a) All owners of existing underground storage tanks subject to this subchapter shall implement a monitoring system that complies with this article and is approved by the local agency. A local agency shall not issue a permit if the underground storage tank cannot be adequately monitored. To be adequate, the monitoring system must be capable of detecting active and historic unauthorized releases, any unauthorized release that may occur in the future, and be capable of measuring the ground water quality directly. The failure to implement an approved monitoring system shall be cause for closure of the underground storage tank pursuant to Article 7 of this subchapter.

(b) The intent of monitoring existing underground storage tanks is to detect leakage before the hazardous substance reaches ground water. Therefore, principal method of leak detection monitoring shall, in most cases, utilize systems other than ground water monitoring. Multiple, nonduplicative systems, as described in Sections 2641 through 2646, shall be implemented where technically and practicably feasible to tanks that do not have a secondary containment system which meets the requirements of Article 3.

(c) The initial monitoring of all existing underground storage tanks shall, if feasible, be capable of determining if prior use of the underground storage tank has resulted in an unauthorized release. The soil sampling described in Section 2644 of this article shall be one method to meet this intent. Other methods may be approved by a local agency which achieves this intent.

(d) All owners of existing underground storage tanks subject to this subchapter shall implement visual monitoring as described in Section 2641 of this article when feasible. If the entire underground storage tank is not susceptible to visual monitoring, but a significant portion of the underground storage tank can be visually monitored, then that portion of the underground storage tank shall be monitored visually. Visual monitoring that can only be implemented during a portion of the year due to flooding or the presence of other liquids shall be utilized during those portions of the year when feasible. However, unless visual monitoring is implemented for the entire underground storage tank throughout the entire year, other forms of monitoring shall also be implemented.

(e) All owners of existing underground storage tanks subject to this subchapter who are not able to implement visual monitoring as specified in Section 2641 of this article, shall implement each alternate monitoring method as specified in Sections 2642 through 2646 of this Article. Soils monitoring specified in Section 2644 of this article is shall not

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be exempted based on the ability to implement visual monitoring unless an alternative monitoring method is approved by the local agency which meets the intent of subsection (c) of this section. If an owner demonstrate to the local agency that the exemption criteria should apply, the owner shall be relieved of the obligation to implement soils monitoring.

(f) Additional monitoring methods that are equivalent to or better than the methods specified in this article may be approved by a local agency pursuant to the intent of subsections (b) and (c) of this section. Requests for the use of additional monitoring methods shall be subject to the applicable sections of Article 8. *These additional methods may,* upon the discretion of the local agency, remove the necessity to implement any or all of the alternatives described in Sections 2642 through 2646 provided that all additional monitoring objectives can be achieved with the additional methods.

(g) All owners of underground storage tanks shall, if feasible, install a verification monitoring system which monitors ground water beneath the underground storage tank. Underground storage tank owners are exempt from this requirement if they meet the exemption criteria contained in Section 2647 of this article.

(h) All borings and wells constructed and sampled pursuant to this article shall utilize the construction and *sampling methods specified in Section* 2648 of this article.

(i) All exploratory borings or soil sample collection borings that are not converted to a cased monitoring well shall be backfilled with bentonite grout or slurry.

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2641. Visual Monitoring

(a) Visual monitoring shall be utilized as the principal leak detection monitoring method, where feasible, for all or a portion of the exterior surfaces of an underground storage tank. All owners of existing underground tank owners shall implement visual monitoring for any exposed portion of an underground tank unless they demonstrate to the local agency that at least one of the exemption criteria of subsection (b) of this section is applicable. If visual monitoring is to be implemented, then the provisions of subsections (c) and (d) of this section shall be followed.

(b) If any one of the following conditions are met the owner is exempted from implementing visual monitoring:

(1) An owner may be exempted from visually monitoring any portion of an underground storage tank that is in contact with the ground surface, a floor or pad such that it cannot be seen. A tank in a saddle should not typically qualify for an exemption.

(2) If the act of visually inspecting the entire exterior of the underground storage tank would put a person in a physically unsafe environment.

(3) If a person would be required to use personal protection equipment (other than normal protective equipment, such as steel-toed shoes,

hard hat, eye or ear protection, etc.) in order to visually inspect the entire exterior of the underground storage tank.

(4) If the underground storage tank is located at a facility which is not staffed on a daily basis.

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

(1) Provisions that all accessible exterior surfaces of a tank and the surface of the floor directly beneath the tank shall be monitored by direct viewing.

(2) A written routine monitoring procedure shall be prepared which includes: the frequency of visual inspections, the location(s) from which observations will be made, the name(s) or title(s) of the person(s) responsible for performing the observations, and the reporting format.

(3) Visual inspections shall be performed daily at a minimum, and shall be more frequent if necessary. At least one inspection shall be performed when the liquid level in the tank is at its highest. The inspection frequency shall be selected such that any unauthorized release will remain observable on the exterior of or the surface immediately beneath the underground storage tank between visual inspections. The evaluation of how long the hazardous substance

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remains observable shall consider the volatility of the hazardous substance and the porosity and slope of the surface immediately beneath the underground storage tank or portion thereof being visually monitored.

(4) Recordation and reporting of the liquid level in the tank at the time of the inspection.

(d) The observation of any liquid on the exterior of or the surface immediately beneath the underground storage tank being visually monitored shall cause the owner or operator to implement all or a portion of the following actions. The applicable actions and their timing shall be based on the site-specific situation shall be intended to determine if the observed liquid constitutes an unauthorized release; and shall be included in the permit.

(1) Laboratory analysis of the observed liquid.

(2) Testing of the underground storage tank utilizing the procedures described in Section 2642 of this article.

(3) Removing all hazardous substances from the underground storage tank.

(e) Visual monitoring of the exposed portion of a partially concealed tank shall not relieve an owner from implementing monitoring for the

concealed portion of the tank using the other monitoring methods described in this article.

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2642. Underground Storage Tank Testing

(a) All owners of existing underground storage tanks subject to this subchapter shall, except as provided in subsection (b) of this section, implement a testing program pursuant to subsections (c) through (g) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing an underground storage tank testing program if they can demonstrate to the local agency that at least one of the following conditions applies:

(1) If visual monitoring pursuant to Section 2641 of this article is implemented.

(2) If any test which meets the conditions described in subsection (c) of this section cannot be performed without significant excavation.

(c) Testing of underground storage tanks shall utilize a method capable of detecting a hazardous substance loss of at least 0.05 gallons per hour (gph). These methods are limited to those tests that make adjustments for all of the following, if applicable:

(1) the presence of vapor pockets,

(2) thermal expansion or contraction of the hazardous substance,

(3) temperature stratification in the tank,

(4) evaporation,

(5) pressure variations in the tank, and

(6) deflection of the tank ends.

(d) Underground storage tanks shall be tested according to the following schedule:

Category A: Un-clad steel tanks without corrosion protection - test 10 years after installation, and yearly thereafter.

Category B: Corrosion resistant tanks[1] - test 15 years after installation, and yearly thereafter.

Category C: Tanks installed with the secondary container and monitoring systems specified in Article 3 and monitored accordingly require no testing.

[1] Common corrosion resistant tanks include: fiberglass reinforced plastic (FRP), cathodically protected steel, and FRP-clad steel tanks.

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(e) Within thirty days of completion of the leak detection test, the underground tank owner shall provide the local agency with a report presenting the following information:

(1) The procedures used (including any deviations from those recommended by the manufacturer) for the leak detection method;

(2) The test results used in determining the volumetric rate of product loss; and

(3) The volumetric rate of product loss.

The information shall be presented in written and/or tabular format as appropriate and shall be at a level of detail appropriate for the test procedure used.

(f) Underground tanks which are found to lose product at a rate greater than or equal to 0.05 gph shall be repaired or replaced as specified in Articles 6 and 7, respectively.

(g) The results of any tests performed on the tank at any other interval to determine if the tank is leaking shall be reported by the tank owner to the local agency within thirty days of completion as specified in subsection (e)(3) above.

(h) All pressurized portions of an underground storage tank shall be monitored utilizing an on-line pressure loss detector and flow reduction device. The detector shall be connected to a visual or

audible alarm system. The flow reduction device shall reduce the the flow to no more than 50 percent of the minimum flow under non-pressure loss situations (i.e., normal operations).

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2643. Inventory Control

(a) All owners of existing underground storage tanks subject to this subchapter shall, except as provided for in subsection (b) of this section, implement an inventory control program as described in subsections (c) through (f) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing an inventory control program if they can demonstrate to the local agency that the hazardous substance is not susceptible to accepted technically available metering.

(c) All tanks shall be individually monitored utilizing a daily inventory control system that takes into account: daily tank quantity measurements for both tank contents and any water layer; daily retail meter delivery records for outgoing product; and, daily wholesale meter delivery records for incoming product. Meters shall be approved for use by the County Department of Weights and Measures.

(d) Tank quantity measurements shall be based on liquid elevation measurements which are:

(1) Capable of measuring to one-eighth of an inch;

(2) Performed during periods of no tank additions or withdrawals;

(3) Performed by the tank owner, operator or other managerial personnel who have had appropriate training;

(4) Based on the average of two readings if gage measurements are used;

(5) Capable of detecting a water layer at the lowest end of the tank, if possible;

(6) 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 initial measurements at both ends, if possible, to determine if any tank tilt exists and, if so, its magnitude; and

(7) Converted to volume measurements based on a calibration chart provided by the tank manufacturer or supplier. This chart shall, if possible, take into account the actual tilt of the tank as determined initially as described in subsection (6) above.

(e) Wholesale meter delivery records shall be verified according to the following procedure which utilizes the criteria described in subsection (d) of this section:

(1) Prior to any delivery, the volume of actual tank contents shall be determined and, if product is to be removed from the tank during delivery, the retail meter totalizer reading(s) shall be recorded.

(2) Following a delivery, the volume of the actual tank contents shall be determined and, if product was removed from the tank during the delivery, the retail meter totalizer reading(s) shall be recorded.

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(3) Based on the above readings, a determination shall be made of the increase or decrease in the volume of water in the tank and the increase in the volume of product in the tank. This figure shall be compared with the metered volume of the product delivery.

(4) A difference of more than the lesser of one-half percent of the delivery volume or 50 gallons shall be cause for a reevaluation of the measurements. This reevaluation shall initially include collection of the information required in subsection (e)(2) of this section.

(f) Underground tanks used for storage of motor vehicle fuels that have a loss or gain of product or water as determined by daily gauging and inventory control of greater than any of the following shall be evaluated according to the methods and time schedules provided for in subsection (f) of Section 2644 of Article 3.

(1) Daily loss or gain of 50 gallons, or

(2) Seven (7) day loss or gain of five percent of the volume of motor vehicle fuel delivered over the seven days, or

(3) Cumulative (calculated over a period of at least thirty (30) days) loss or gain of one-half percent of the volume of motor vehicle fuel delivered over the period that the cumulative loss or gain is calculated.

44. Soil Testing and Exploratory Boring

(a) Except for those tanks that have been granted an exemption under subsection (b) of this section, all owners of existing underground storage tanks subject to this subchapter shall implement an evaluation as described in subsections (c) through (d) of this section to determine if prior usage of the underground storage tank has resulted in an unauthorized release.

(b) Exemptions to soil testing at specific underground storage tank locations may be granted by the local agency if any of the following situations exist and if they are confirmed by the local agency:

(1) Proximity to physical obstacles prevent the positioning and operation of drilling equipment within a horizontal distance of 15 feet from the tank.

(2) Soil conditions prevent drilling by any generally existing technique.

(c) At least one slant boring shall be drilled as close as possible to the tank and shall be directed so as to intercept a point that has been projected vertically downward from the midpoint of the tank and is 50 feet below the invert of the tank. If slant drilling and soils collection is not possible, then vertical borings pursuant to subsection (d) of this section shall be drilled.

(d) At those sites where slant drilling is precluded but vertical drilling is feasible, at least one vertical boring shall be drilled on each

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long dimensional side of the tank. The borings shall be located within 10 feet of the tank opposite the midpoint of the long dimension of the tank and shall be drilled to a depth of at least 50 feet below the invert of the tank. Soil samples shall be obtained in accordance with Subsection (e) of this section.

(e) Soil samples shall be obtained from the boring(s) according to the following procedures:

(1) Undisturbed soil samples shall be obtained at vertical intervals no greater than 5 feet beginning at the ground surface and proceeding to the target depth of the boring or to the ground water level in borings encountering ground water, whichever occurs first.

(2) The soil samples shall be collected, transported, stored, and analyzed according to approved EPA methods.

(3) Analysis of the individual soil samples shall be as follows:

(A) If more than one boring is utilized, then samples from the same depth from each boring may be composited (if analytically possible without loss of constituents) prior to analysis.

(B) Samples may be analyzed in any order of depth. If levels of hazardous substances known or suspected to be contained in the underground storage tank are detected (above background if the constituent occurs naturally at the

site) then further soils analysis is not necessary pursuant to this subsection. However, the following additional actions will be required:

(i) The hazardous substance(s) will be assumed to originate from the underground storage tank and further detailed investigations would be needed to prove otherwise. The underground storage tank must be clearly demonstrated to not be the source of the hazardous substances (wastes) found or have been properly repaired since the unauthorized release occurred and must be capable of being adequately monitored with the hazardous substance already in the environment before a permit can be issued.

(ii) Further investigation will be needed to determine the magnitude and extent of any soil or ground water contamination due to the unauthorized release. This may involve, but is not limited to, analysis of the remaining soil samples and/or ground water sampling and analysis.

(C) Samples shall be analyzed for one or more constituents that have been stored in the underground storage tank. If the use of the underground storage tank has historically changed, then analysis shall be for at least one constituent from each period of use. If the stored hazardous substance is known to degrade or transform to other constituents in

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the soil environment, then analysis shall include these degradation and/or transformation constituents.

(4) All borings shall be logged in detail and the soils described according to the Unified Soils Classification System by a registered civil engineer or registered geologist competent in soils engineering or a certified engineering geologist.

(5) All wet zones above the free water zone shall be noted and accurately logged.

(f) If soils analysis indicates that an unauthorized release has occurred the permittee shall report the release pursuant to Article 5 of this subchapter and shall repair or abandon the underground storage tank pursuant to Articles 6 or 7 of this subchapter.

(g) If evidence of an unauthorized release is not detected, a leak detection monitoring system shall be installed pursuant to Section 2645 or 2646 and a verification monitoring system shall be installed according to Section 2647.

45. Vadose Zone Detection Monitoring

(a) All owners of existing underground tanks subject to this subchapter shall, except as provided in subsection (b) of this section, implement a vadose zone detection monitoring system pursuant to subsections (c) through (h) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing a vadose zone monitoring if they can demonstrate to the local agency that at least one of the following conditions apply:

(1) Proximity to physical obstacles prevent the positioning and operation of drilling equipment, including hand equipment if suitable, within a horizontal distance of 15 feet from the underground storage tank.

(2) Ground water is periodically above a point 5 feet below the invert of the underground storage tank and vadose zone monitoring is not possible due to the characteristics (e.g., nonvolatility) of the hazardous substance(s) stored. (Vapor monitoring is required when possible to complement leak detection ground water monitoring as described in Section 2646 of this article.)

(3) Vadose zone monitoring is not required if the hazardous substance(s) being stored is not susceptible to detection by vadose zone monitoring methods.

(4) Visual monitoring of the entire tank pursuant to Section 2641 of this article has been implemented.

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(c) Vadose zone monitoring may consist of vapor monitoring or soil-pore liquid monitoring or a combination of both methods.

(d) The number, location, and depths of vadose zone monitoring points shall be selected so as to give the earliest possible warning of any unauthorized release from the underground storage tank.

(e) Subsurface systems shall be located within the backfill surrounding the tank if at all possible.

(f) Vapor monitoring for underground storage tanks may be used in accordance with the following criteria if the vapor characteristics of the stored product are susceptible to detection:

(1) Before any method of vapor monitoring is approved for a specific site, it shall be demonstrated by an actual on site demonstration, using an appropriate tracer substance, that vapor would actually be detected by the installed system.

(2) The depth at which each sensor is placed relative to the tank shall be determined according to the most probable movement of vapor through the backfill or surrounding soil.

(3) Vapor monitoring wells placed in the backfill shall be constructed so that any leakage that may pool at the horizontal interface between the backfill and natural soils can be detected in the vapor well.

g) Soil-pore liquid monitoring of the vadose zone may be approved if the discharger can clearly show that:

(1) The stored substance is susceptible to detection by the proposed technique.

(2) The stored substance will not attack the materials from which the detector system is constructed or otherwise render the detector system inoperable.

(3) The site and soil characteristics will not prevent detection of an unauthorized release using a soil-pore liquid monitoring system.

(4) The proposed technique will be effective in providing early detection of tank leakage.

(h) Vadose zone monitoring shall be continuous where feasible and connected to an above-ground alarm system. Where continuous monitoring is unfeasible, monitoring shall be performed weekly.

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2646. Ground Water Leak Detection Monitoring

(a) All owners of existing underground storage tanks subject to this subchapter shall, except as provided for in subsection (b) of this section, implement a ground water leak detection monitoring system pursuant to subsections (c) through (f) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing a ground water leak detection monitoring system if they can demonstrate to the local agency that at least one of the following conditions apply:

(1) Visual monitoring of the entire tank pursuant to Section 2641 of this article has been implemented.

(2) A vadose monitoring system pursuant to Section 2645 of this article has been implemented and ground water is and will remain at least 5 feet below the invert of the underground storage tank.

(3) The proximity to physical obstacles prevent the positioning and operation of drilling equipment within a horizontal distance of 50 feet from the tank.

(4) Soil conditions prevent drilling by any generally existing technique.

(c) At those sites at which vadose zone monitoring is feasible and the ground water level fluctuates above and below a point 5 feet below the tank invert, a combination of ground water monitoring and vadose

monitoring shall be used. The ground water monitoring wells shall extend 20 feet below the lowest anticipated ground water level in order to provide assurance monitoring pursuant to Section 2647 during periods of low ground water.

(d) When the ground water level is continuously above a point 5 feet below the tank invert, ground water monitoring shall be used as the principal leak detection technique, and vapor monitoring will also be used in conjunction with ground water monitoring whenever possible.

(e) The principal ground water monitoring network shall be designed and constructed according to the following criteria:

(1) Three ground water monitoring wells shall be installed around the underground storage tank or facility at spacings of 120° of arc around the central point of the underground storage tank or facility. Additional borings shall be installed at closer angular spacings if the straight line distance between wells exceeds 30 feet. If it can be demonstrated that the radii of influence of fewer monitoring wells overlap and that the entire area of the underground storage tank or facility is under the influence of at least one well under all anticipated hydraulic conditions, fewer wells may suffice. All wells should be located as close as possible to the underground storage tank or the perimeter of the facility.

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(2) One of the three wells shall be located such that it represents the best estimate of the downgradient direction.

(3) The ground water monitoring wells shall be constructed as gravel packed water wells with a minimum 4-inch inside diameter (ID) casing and in accordance with the provisions of Section 2648.

(4) All wells shall be provided with a minimum surface seal to prevent infiltration of surface water but the seal shall extend to a depth of at least 5 feet.

(5) Monitoring wells at which the ground water elevation is above the base of the surface seal shall be sized and equipped with a pump capable of drawing the ground water level down to an elevation 10 feet below the base of the surface seal.

(6) The ground water monitoring wells shall extend to an elevation that is at least 10 feet below the tank invert and shall be perforated from the base of the surface seal to the bottom of the well.

(f) Ground water shall be monitored at least once per week from each well. More frequent monitoring may be required by the local agency. Sampling and analysis, if applicable shall be according to Section 2648 of this article.

2647. Assurance Ground Water Monitoring

(a) All owners of existing underground storage tanks subject to this subchapter shall, except as provided in subsection (b) of this section, implement an assurance ground water monitoring system pursuant to subsections (c) through (g) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing an assurance ground water monitoring system if they can demonstrate to the local agency that at least one of the following conditions apply:

(1) Ground water monitoring pursuant to Section 2646 of this article is used as the primary means of leak detection.

(2) The highest ground water level possible during the life of the facility is at a depth greater than 200 feet.

(3) Proximity to physical obstacles prevents the positioning and operation of the drilling equipment within a horizontal distance of 500 feet of the tank or tank cluster perimeter.

(4) Soil conditions prevent drilling by any generally existing technique.

(c) Assurance ground water monitoring networks shall be established according to the following criteria:

(1) At those underground tank facilities at which the highest anticipated ground water elevation is between a depth of 5 feet

below the tank invert and a point 100 feet below the ground surface, a ground water monitoring system as described in Section 2646(e), subsections (1) through (5) of this article shall be installed. The wells shall extend to the base of the aquifer or to a depth of 100 feet, whichever is lessor and shall be perforated from 10 feet above the highest anticipated ground water elevation to the bottom of the well.

(2) At those underground tank facilities at which the highest anticipated ground water elevation is between 100 feet and 200 feet, at least one monitoring well shall be installed at a location that is as close as possible to the tank and represents the best estimate of the downgradient direction. The well shall extend to the base of the aquifer or to a depth of 200 feet, whichever is lessor, and shall be perforated from 10 feet above the highest anticipated ground water elevation to the bottom of the well.

(d) In order to implement subsection (c) of this section, the depth to ground water must be accurately determined. This shall be accomplished either by documentation of the ground water elevation in all, but not less than three, existing wells within 500 feet of the facility or an exploratory boring constructed as follows:

(1) An exploratory boring shall be drilled in the anticipated down-gradient direction from the underground storage tank. More than one exploratory boring may be required where geohydrologic conditions

are complex or where more than one boring is needed to adequately cover a facility that occupies a large area.

2) The exploratory boring may be of any diameter capable of allowing the detection of first water and the recovery of undisturbed soil samples.

3) The exploratory boring shall be drilled by a dry drilling technique that permits the detection of wet zones and first water.

(4) The exploratory boring shall be within 10 feet of the tank. If physical constraints preclude drilling within 10 feet of the tank, the boring shall be drilled as near as possible to the tank, but no further than 50 feet from the tank.

(5) The exploratory boring shall be drilled to a minimum depth of 200 feet if ground water is not encountered at a depth of less than 200 feet.

(6) If ground water is encountered within a depth of 200 feet in addition to the requirements of subsection (c) of this section, the following shall also apply:

(A) The exploratory boring shall be modified if necessary, and constructed as a gravel-packed water well with a minimum 4-inch ID casing.

(B) In the case of unconfined ground water aquifers, the exploratory well shall extend a minimum of 20 feet below the ground water

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surface or 20 feet below the lowest known historical ground water level in the area, whichever is lowest. The well shall be perforated from the tank bottom elevation to 20 feet below the ground water surface or the lowest known historical ground water level in the area, whichever is lowest.

(C) In the case of confined aquifers, the well shall extend to the bottom of the aquifer and shall be perforated from the top of the aquifer to the bottom of the well.

(7) If the exploratory boring does not encounter ground water within a depth of 200 feet, the exploratory boring shall be backfilled and sealed with bentonite grout or slurry.

(e) Wells shall be sampled semi-annually at a minimum. More frequent sampling may be required by the local agency. Samples shall be taken after sufficient volumes of water have been removed from the well such that pH, temperature and conductivity are stabilized. Sampling equipment shall not donate, capture, mask or alter the sample constituents.

(f) Analysis shall be performed for all constituents stored in the underground storage tank and their degradation or transformation products.

(g) Samples shall be collected, stored, transported, and analyzed according to approved EPA methods.

648. Well Construction and Sampling Methods

(a) The sampling equipment and materials used to construct a well shall be compatible with the stored product and shall not donate, capture, nor mask product constituents for which analyses will be made.

(b) All imported materials used to gravel pack or backfill wells and to form seals shall be tested to determine their acceptability with regard to subsection (a) of this section.

(c) All drilling tools shall be cleaned immediately before a boring is started and immediately after a boring is completed.

(d) All well casings, casing fittings, screens, gravel packs and all other components are to be thoroughly cleaned before installation in the boring.

(e) All soil and water samplers shall be cleaned before each sample is taken.

(f) Drilling fluid additives shall be limited to inorganic, non-hazardous materials which conform to the provisions of subsection (a) of this section. All additives used and the depth in which they were used are to be precisely recorded in the boring log.

(g) Samples of additives, cement, bentonite, and grouts shall be analyzed for contaminating or interfering constituents.

(h) All well casings shall have a bottom cap or plug.

(i) All wells shall have a surface seal. Ground water monitoring wells shall be sealed from the ground surface to the top of the perforations.

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The depth of surface seals for vapor wells shall be the minimum necessary to prevent infiltration of surface water but shall not be less than 5 feet deep.

(j) All ground water monitoring wells shall be properly developed.

(k) Well heads shall be provided with a locking water tight cap.

(l) Well heads shall be enclosed in a surface security structure that will protect the well from the entry of surface water, accidental damage, unauthorized access and vandalism.

(m) Pertinent well information including well identification, well type, depths, boring and casing diameters, and perforated depths shall be permanently afixed to the interior of the surface security structure and the well identification number and well type shall be afixed on th exterior of the surface security structure.

(n) Initial borings or wells to determine the depth to ground water shall be capable of allowing the collection of undisturbed soil samples and shall utilize a dry drilling technique that permits the detection of wet zones and first water.

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Article 5. Release Reporting Requirements

Adopt new section to read:

2650. Applicability

(a) All unauthorized releases from the primary or secondary container must meet the reporting, clean-up and disposal requirements of this section.

(b) All unauthorized releases shall be reported. The nature and timing of the reporting is divided into two groups depending on the threat to contaminate soil and water as a result of the release. This article describes the various reporting requirements and actions which must be implemented by the owner or permittee and the local agency.

(c) Unauthorized releases requiring only initial recording with reporting completed as part of the normal operating reports are defined in Section 2651 of this article.

(d) Unauthorized releases requiring immediate reporting are defined in Section 2652 of this article.

1. Unauthorized Release Requiring Recording

(a) A recordable unauthorized release is any unauthorized release of a hazardous substance which meets all the following criteria:

(1) The hazardous substance released is from the primary container.

(2) The hazardous substance released does not escape from the secondary container or cause any deterioration of the secondary container.

(3) The hazardous substance released can be cleaned up within eight hours.

(4) The hazardous substance released does not increase the hazard of fire or explosion.

(b) All recordable unauthorized releases shall be contained and the released hazardous substance shall be safely transported and legally disposed of in an appropriate manner by the permittee. Such an occurrence shall be reported in the permittee's monitoring reports as required in the permit and shall include:

(1) List of type, quantities and concentration of hazardous substance released.

(2) Method of clean-up and cost.

(3) Method and location of disposal of the released hazardous substances (include copy of hazardous waste manifest(s) if utilized).

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(4) Method of future leak prevention or repair. If this involves a change as defined in Article 10, Section 2702, Subsection (a) of this subchapter, then appropriate reports pursuant to that article shall also be filed.

(5) If the primary container is to continue to be used, then a description of how the monitoring system between the primary and secondary container has been re-activated.

(6) Facility operator's name and telephone number.

(c) The local agency shall review the information submitted pursuant to Subsection (b) of this section and the permit and may inspect the underground storage tank pursuant to the provisions of Article 10, Section 2702, Subsection (g) of this subchapter. The local agency shall find that the containment and monitoring standards of Article 3 of this subchapter can continue to be achieved or the local agency shall revoke the permit until appropriate modifications are made to allow compliance with the standards.

(d) Deterioration of the secondary container is likely when any of the following conditions exist:

(1) The secondary container will have some loss of integrity due to contact with the stored hazardous substance; or

(2) The mechanical means used to clean-up the released hazardous substance could damage the secondary container; or

(3) Hazardous substances, other than those stored in the primary container are added to the secondary container for treatment or neutralization of the released hazardous substance as part of the clean-up process.

) If a recordable unauthorized release becomes a reportable unauthorized leak due to initially unanticipated facts, the release shall immediately be treated as a reportable release pursuant to Section 2652 of this article.

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2652. Unauthorized Releases Requiring Immediate Reporting

(a) All unauthorized releases which are described by either Subsection (1) or (2) of this subsection shall be reported as specified in Subsection (b) of this section. In addition the requirements of Subsections (c), (d) and (e) of this section shall be followed.

(1) A reportable unauthorized release is any unauthorized release of hazardous substance which meets any of the following criteria:

(A) The released hazardous substance escapes from the secondary container assuming that a secondary container exists.

(B) The released hazardous substance increases the hazard of fire or explosion.

(C) The released hazardous substance causes any deterioration of the secondary container.

(2) An unauthorized release of a hazardous substance that occurs from an underground storage tank that does not have a secondary container. This includes unauthorized releases from pressurized piping which is monitored by a pressure loss detector as described in Article 3, Section 2633, Subsection (f) of this subchapter.

(b) All unauthorized releases meeting the criteria of Subsection (a) of this section shall be reported within 24 hours after the release has been detected or should have been detected. The operator or permittee shall notify the local agency, Office of Emergency Services and the Regional Water Quality Control Board.

(c) Within five working days of the occurrence, the operator or permittee shall submit to the local agency a full written report to include:

(1) List of type, quantity and concentration of hazardous substances released.

(2) The results of all investigations completed at that time to determine the extent of soil or ground water or surface water contamination due to the release.

(3) Method of clean-up implemented to-date and cost and proposed clean-up actions.

(4) Method and location of disposal of the released hazardous substance and any contaminated soils or groundwater or surface water (include copy of hazardous waste manifest(s) if utilized).

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(5) Proposed method of repair or replacement of the primary and secondary containers. If this involves a change as defined in Subsection 2702(a) of Article 10, then appropriate reports pursuant to that article shall also be filed.

(6) Facility operator's name and telephone number.

(d) Until clean-up is complete the operator or permittee shall submit reports every three months or at a more frequent interval specified by the local agency or Regional Board to the local agency and the Regional Board. The reports shall include the information requested in Subsections (c)(2), (c)(3) and (c)(4) of this section.

(e) The local agency shall review the permit whenever there has been an unauthorized release or when it determines that the underground storage tank is unsafe. In determining whether to modify or terminate the permit, the local agency shall consider the age of the tank, the methods of containment, the methods of monitoring, the feasibility of any required repairs, the concentration of the hazardous substances stored in the tank, the severity of potential unauthorized releases, and the suitability of any other long-term preventive measures.

(f) The reporting requirements of this section are in addition to any reporting requirements specified by other laws and regulations.

g) The local agency, Regional Board, and Department of Health Services or other governmental agency may, pursuant to other laws or regulations, request the permitte to investigate the extent of soil, groundwater or surface water contamination that resulted from the unauthorized release and to implement appropriate remedial action.

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Article 6. Allowable Repairs

2660. Applicability

(a) This article describes the conditions which must be met to allow primary container repairs, to allow the use of interior coating of hazardous substance storage tanks in order to repair the tank, the required repair methodology and the required tank testing following repair.

(b) Section 2661 lists the required evaluations which must be completed in order to allow the repair of a primary container. A satisfactory demonstration of each part of Section 2661 shall be made prior to approval by the local agency of the repair process.

(c) Section 2662 describes the required methodology which must be utilized in the interior coating repair process.

(d) Section 2663 lists the required primary container monitoring which shall be implemented by amendment of the permit by the local agency following primary container repair. Subsections (a) and (b) describe the monitoring which shall be performed prior to placing the underground storage tank back in service.

2661. Repair Evaluation

(a) The evaluations described in Subsections (b) through (d) of this section must be completed before a primary container repair can be allowed. Failure to adequately demonstrate that the repaired primary container will provide continued containment based on the evaluations described below shall be adequate rationale for a local agency to deny the proposed repair.

(b) It shall be determined if the failure mechanism is isolated to the actual failure or is affecting other areas of the tank or if any other failure mechanism is affecting the primary container.

(c) If interior lining is the proposed repair method, a demonstration that the actual failure may not have resulted from any one or more of the following conditions shall be made:

(1) a linear split of more than three (3) inches;

(2) a single hole with a diameter of greater than one (1) inch; or

(3) more than ten (10) small perforations.

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(d) If interior lining or plate replacement of a steel tank is the proposed repair method, then it shall be demonstrated to the satisfaction of the local agency based on an ultrasonic or comparable test that a serious corrosion problem does not exist. If a serious corrosion problem exists, an interior lining repair may be allowed if it can be demonstrated 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 tank.

(e) If interior lining is the proposed repair method, then it shall be demonstrated that the primary container has never been repaired using an interior lining.

2. Repair Methodology

(a) If a tank repair is approved based on satisfactory demonstration of the issues raised in Section 2661, then the repair must be accomplished according to the applicable subsections of this section.

(b) If interior coating is the method of repair, the material used in the repair shall be applied in accordance with nationally recognized engineering practices. An example of such a practice is the American Petroleum Institute's recommended practice No. 1631.

(c) The repair material and any adhesives used shall be compatible with the existing tank materials and shall not be subject to deterioration due to contact with the hazardous substance being stored.

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2663. Primary Container Monitoring

(a) After any repair, the primary container shall be demonstrated to be capable of containing the stored hazardous substance by satisfactorily passing the standard installation tests specified in Section 2-7.3 of the Flammable and Combustible Liquids Code adopted by the National Fire Protection Association on November 20, 1981 (NFPA 30-1981).

(b) All pipelines shall be pressure tested following repair to assure the adequacy of the repair. The testing shall be accomplished using procedures described in the applicable sections of ANSI B31, American National Standard Code of Pressure Piping or National Fire Protection Association Flammable and Combustible Liquids Code (NFPA 30).

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Article 7. Closure Requirements

2670. Applicability

(a) This article defines temporary and permanent closure and describes the nature of activities which must 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 hazard materials has ceased but where the tank owner or operator proposes to retain the ability to use the tank within two years for the storage of hazardous materials. Section 2671 does not apply to tanks that are empty as a result of the withdrawal of all stored material during normal operating practice prior to the planned input of additional hazardous material consistent with permit conditions.

(c) The permanent closure requirements of Section 2672 shall apply to those underground storage tanks in which the storage of hazardous materials has ceased and where the owner or operator has no intent within the next two years to use the underground storage tank for the storage of hazardous materials.

(d) The requirements of this article do not apply to those underground storage tanks in which hazardous materials are continued to be stored even though there is no use being made of the stored material. In those cases, the applicable containment and monitoring requirements of Articles 3 or 4 of this subchapter shall continue to apply.

(e) During the period of time between cessation of waste storage and actual completion of underground storage tank closure pursuant to Sections 2671 or 2672 the applicable containment and monitoring requirements of Articles 3 or 4 of this subchapter shall continue to apply.

(f) At least 45 days prior to cessation of storage of hazardous materials, unless such cessation occurs as a result of an unauthorized release or in order to prevent an unauthorized release or minimize its effect, the underground storage tank owner shall submit to the local agency a proposal describing how the owner intends to comply with Section 2671 or 2672 of this article as appropriate.

(g) Underground storage tanks that have experienced an unauthorized release do not qualify for temporary closure pursuant to Section 2671 of this article until the tank owner demonstrates to the local agency's satisfaction that appropriate authorized repairs have been made that would allow the underground storage tank to be capable of storing hazardous materials pursuant to the permit issued by the local agency.

(h) Underground storage tanks that have experienced an unauthorized release and that cannot be repaired by authorized methods must be permanently closed pursuant to requirements of Section 2672 of this subchapter.

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2671. Temporary Closure

(a) This section applies to those underground storage tanks in which storage has ceased but where the owner or operator proposes to retain the ability to use the underground storage tank within two years for the storage of hazardous substances.

(b) The owner or operator shall comply with all of the following:

(1) All residual liquid, solids or sludges shall be removed and handled as follows:

(A) product - legally stored for future use or handled as a hazardous waste.

(B) hazardous waste - legally recycled or disposed of as a hazardous waste.

(2) If the underground storage tank contained a hazardous substance that could produce flammable vapors at standard temperature and pressure, then the underground storage tank, either in part or as a whole, shall be completely purged of the flammable vapors.

(3) The underground storage tank may be filled with a noncorrosive liquid that is not a hazardous substance.

(4) All fill and access locations and piping shall be sealed utilizing locked caps or concrete plugs.

(5) Power service shall be disconnected from all pumps associated with the use of the underground storage tank except if the pump services some other equipment which is not being closed.

(c) All monitoring required pursuant to Article 4, except visual monitoring, shall be continued. The frequency of this monitoring may be reduced.

(d) The underground storage tank shall be inspected at least once every three months to assure that the temporary closure actions are still in place. This shall include:

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

(2) If locked caps are utilized, then 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 (b)(3) of this section.

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2672. Permanent Closure Requirements

(a) Underground storage tanks subject to permanent closure shall comply with either subsection (b) for tank system removal or subsection (c) for closure-in-place. It is not essential that all portions of a tank system be permanently closed in the same manner; however, all actions shall comply with the appropriate subsection. Subsection (d) regarding no discharge demonstration applies to all underground storage tanks subject to permanent closure.

(b) Removal of underground storage tanks shall comply with subsections (1) and (2) and either subsections (3), (4), or (5) as appropriate:

(1) All residual liquid, solids or sludges shall be removed and handled as follows:

(A) product - legally stored for future use or handled as a hazardous waste

(B) hazardous waste - legally recycled or disposed of as a hazardous waste.

(2) If the underground storage tank contained a hazardous material that could produce flammable vapors at standard temperature and pressure, then the underground storage tank, either in part or as a whole, shall be completely purged of the flammable vapors.

(3) An underground storage tank or any part of an underground storage tank that is destined for disposal shall be handled, transported and disposed of as a hazardous waste. The tank system or any part of the tank system may be handled, transported or disposed as a nonhazardous waste after it has been properly cleaned. In either case, the owner must document to the local agency that proper disposal has been completed.

(4) An owner of an underground storage tank or any part of an underground storage tank that is destined for a specific reuse shall comply with all of the following:

(A) Reuse shall not be inconsistent with other laws or regulations which may exist as they may relate to the nature of the hazardous material in the underground storage tank or the nature of the proposed reuse; and

(B) The owner of an existing underground storage tank shall identify to the local agency the future underground storage tank owner, operator, location of use and nature of use.

(5) An owner of an underground storage tank or any part of an underground storage tank that is destined for reuse as scrap material shall comply with all of the following before the underground storage tank or any part of the underground storage tank is removed from the facility unless such removal is

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done according to the provisions of subsection (b)(4) of this section:

(A) The tank system shall be thoroughly cleaned;

(B) The tank system shall be cut or punctured in sufficient locations to render it obviously unfit for use;

(C) Apply appropriate warnings to the tank.

(c) Closure of underground storage tanks in place shall comply with all of the following:

(1) All residual liquid, solids, or sludges shall be removed and handled as follows:

(A) product - legally stored for future use or handled as a hazardous waste.

(B) hazardous waste - legally recycled or disposed of as a hazardous waste.

(2) All piping associated with the tank shall be removed, handled and disposed of as a hazardous waste.

(3) The tank shall be completely filled with an inert solid such as sand or concrete.

(4) A notice shall be placed in the deed to the property. The notice shall describe the exact vertical and areal location of the closed tank, the hazardous substances it contained and the closure method.

(d) The owner 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 can be based on the ongoing leak detection monitoring, verification ground water monitoring or soils sampling performed during or immediately after closure activities.

If feasible, soil samples shall be taken and analyzed according to the following:

(1) If the underground storage tank or any portion thereof is removed then soil samples from the soils immediately beneath the removed portions shall be taken. A separate sample shall be taken for every 200 square feet or every 20 lineal feet for piping.

(2) If the underground storage tank or any portion thereof is not removed, then soils sampling pursuant to Section 2644 of Article 4 shall be implemented, if feasible.

(3) Soils shall be analyzed for all constituents contained in the previously stored hazardous substances and their breakdown or transformation products.

(e) The detection of any unauthorized release shall require compliance with the reporting requirements of Article 5.

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Article 8. Categorical and Site-Specific Variance Procedures

Adopt new section to read:

2680. Applicability

(a) This article sets up procedures for categorical and site-specific variances from Articles 3 and 4 of this subchapter. A site-specific variance, if approved, would only apply to the specific site approved for a variance. A categorical variance, if approved, would apply to the region, area or circumstances approved for a variance. A categorical variance application shall include more than one site or shall be non-site specific.

(b) Section 2681 specifies the procedures that must be followed by the applicant and the State Board for categorical variance requests.

(c) Section 2682 specifies the procedures that must be followed by the applicant, local agency and the Regional Board for site-specific variance requests.

81. Categorical Variances

(a) A categorical variance is an alternative method of construction or monitoring which is applicable to more than one site. Application for a categorical variance shall be made by the permittee to the State Board.

(b) Application for a categorical variance shall be made on a state application form provided by the State Board and shall include but not be limited to:

(1) Provision from which the variance is requested.

(2) Description of the proposed alternative program, method, device or process.

(3) Description of the region, area or circumstances under which the variance would apply.

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

(5) A list including names and addresses of all local agencies and persons who may be affected by or may be interested in the variance request.

(6) A fee of $26,000.

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(c) The State Board shall review all applications submitted and shall notify the applicant in writing within 30 days of receipt of the application as to whether or not the application is complete.

(d) The State Board shall complete any documents necessary to satisfy the California Environmental Quality Act (Division 13, commencing with Section 21000, of the Public Resources Code).

(e) The State Board shall remand the application to the appropriate Regional Board if it determines that the application falls within Section 2682.

(f) The State Board shall hold at least two public hearings in different areas of the state within 180 days of receipt of a complete variance application to consider the request for a categorical variance. Notice of the hearings shall be provided at least 10 days in advance to any person who requests such notice in writing. Notice shall also be provided to all affected local agencies and to any person known to be interested in the proceedings. The notice shall specify the date, time and location of the hearing, and shall include a description of the proposed categorical variance. When the notice is mailed, it shall be placed in the mail at least 11 days in advance of the hearing.

(g) All hearings shall be conducted according to the regulations governing adjudicatory proceedings which are contained in Subchapter 1.5 of this Chapter. The State Board in its discretion may require that, not later than 10 days prior to the hearing, all interested parties intending to

participate shall submit to the State Board in writing the name of each witness who will appear, together with a statement of the qualifications of each expert witness, the subject of the proposed testimony and the estimated time required by the witness to present his direct testimony. The State Board may also require that copies of proposed exhibits be supplied to adverse parties and seven copies be supplied to the Board not later than 10 days prior to the hearing.

(h) An applicant for a categorical variance must demonstrate by clear and convincing evidence that the proposed alternative will adequately protect the soil and the beneficial uses of water of the state from an unauthorized release.

(i) The decision of the State Board will be based on that evidence and testimony in the record of the hearings. The record may be supplemented by any other evidence and testimony accepted by the State Board pursuant to the procedure outlined in Section 2066 of Subchapter 6 of this Chapter. Upon the close of a hearing, the presiding officer may keep the hearing record open for a definite time, not to exceed thirty days, to allow any interested person to file additional exhibits, reports or affidavits.

(j) The State Board may discuss a proposed decision in response to a request for a categorical variance at a workshop meeting. The regulations governing workshop meetings and formal disposition of State Board matters for decision which are contained in Subchapter 6 of this Chapter shall apply.

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(k) If the State Board grants the variance, it will prescribe the conditions the applicant must maintain and will describe the specific alternative for which the variance is being granted.

(l) All permit applicants who intend to utilize an approved categorical variance shall attach a copy of the approved variance to the permit application submitted to the local agency. The local agency shall review the application and categorical variance to determine if the variance applies to the specific site. If the variance applies, the local agency shall issue a permit to the applicant which includes the conditions prescribed by the State Board.

(m) The State Board shall modify or revoke a categorical variance upon a finding that the proposed alternative does not adequately protect the soil and the beneficial uses of the water of the state from an unauthorized release. The State Board will not modify or revoke a categorical variance until it has followed procedures comparable to those outlined herein for approval of a categorical variance. The State Board shall notify all affected local agencies of the modification or revocation and shall require the local agencies to modify or revoke all site permits which were based on the categorical variance.

582. Site-Specific Variances

(a) A site-specific variance is an alternative method of construction or monitoring which would be applicable at one facility location. Application for a site-specific variance shall be made by the permittee to the appropriate Regional Board.

(b) At least 60 days prior to applying to the Regional Board, the permittee 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 days of its receipt of the permittee's complete construction and monitoring, the permittee may proceed with a variance application.

(c) At least 30 days prior to applying to the Regional Board, the permittee must request the local agency and the city, county or city and county having land use jurisdiction over the permittee's site to join the applicant in the variance request. The local agency shall also be requested to prepare any documents required by California Environmental Quality Act (Division 13, commencing with Section 21000, of the Public Resources Code).

(d) The local agency shall have 30 days after completion of the documents or the receipt of the Regional Board's staff recommendation and analysis, whichever is later, to decide whether to join the applicant in the variance request.

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(e) Application for a site-specific variance shall be made on a state application form provided by the appropriate Regional Board and shall include but not be limited to:

(1) Provision from which the variance is requested.

(2) 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) Clear and convincing evidence demonstrating that:

(A) Due to special circumstances not generally applicable to other property or facilities, including size, shape, design, topography, location or surroundings the strict application of Articles 3 or 4 of this subchapter would be unnecessary to adequately protect the soil and beneficial uses of the waters of the state from an unauthorized release; or

(B) The strict application of Articles 3 or 4 of this subchapter would create practical difficulties not generally applicable to other facilities or property.

(4) That the proposed alternative will adequately protect the soil and the beneficial uses of water of the state from an unauthorized release.

(5) Any documents necessary to satisfy the California Environmental Quality Act (Division 13, commencing with Section 21000, of the

Public Resources Code).

(6) A fee of $7,750.

(f) The Regional Board shall review all applications submitted and shall notify the applicant in writing within 30 days of receipt of the application as to whether or not the application is complete.

g) The Regional Board shall hold a hearing on the proposed alternative within 120 days after receiving a complete variance application; however, the hearing shall be held after the 30-day period described in subsection (d) of this section has expired. Notice of the hearings shall be provided at least 10 days in advance to any person who requests such notice in writing. Notice shall also be provided to all affected local agencies and to any person known to be interested in the proceedings. The notice shall specify the date, time and location of the hearing, and shall include a description of the proposed categorical variance. When the notice is mailed, it shall be placed in the mail at least 11 days in advance of the hearing.

h) All hearings shall be conducted according to the regulations governing adjudicatory proceedings which are contained in Subchapter 1.5 of this Chapter. The Regional Board in its discretion may require that, not later than 10 days prior to the hearing, all interested parties intending to participate shall submit to the Board in writing the name of each witness who will appear, together with a statement of the qualifications of each expert witness, the subject of the proposed

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testimony and the estimated time required by the witness to present his direct testimony. The Regional Board may also require that copies of proposed exhibits be supplied to adverse parties and seven copies be supplied to the Regional Board not later than 10 days prior to the hearing.

(i) Any variance so issued will prescribe the conditions the applicant must maintain and will describe the specific alternative system for which the variance is being granted. The Regional Board shall notify the applicant and the local agency of its decision.

(j) The Regional Board shall consider the local agency's and the city, county, or city and county's recommendations in rendering its decision. The Regional Board shall consider the completeness and accuracy of the information provided by the applicant in subsection (e) of this section in rendering its decision.

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

(l) The Regional 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 water of the state from an unauthorized release. The Regional Board will not modify or revoke the variance

until it has followed procedures comparable to those outlined herein for approval of a variance. The Regional Board shall notify the local agency of the modification or revocation and shall require the local agency to modify or revoke the permit for the site.

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Article 9. Local Agency Additional Standards Request Procedures

Adopt new section to read:

2690. Applicability

(a) This article sets up procedures for local agencies to request State Board authorization for more stringent standards than those set by Articles 3 and 4 of the Subchapter.

Additional Standards Request Procedures

(a) Local agency application for additional standards shall include:

(1) Description of the proposed design and construction standards.

(2) Clear and convincing evidence that the additional standards are necessary and would adequately 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) A fee of $11,600.

(b) The board will conduct an investigation and public hearing on the proposed standards and their need to protect the soil and beneficial uses of the water before determining whether to authorize the local agency to implement additional standards. The notice and other procedural requirements contained in Sections (d) through (j) of Article 8 of this Subchapter shall apply.

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(c) The board shall make its determination whether to authorize a local agency to implement additional standards within six months of the receipt of a complete application.

(d) Should the board authorize the local agency to implement additional standards, the standards shall be effective as of the date the board made the determination.

(e) Should the board not authorize the local agency to implement additional standards, the additional standards will not go into effect.

(f) The 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 board will not modify or revoke the authorization until it has followed procedures comparable to those outlined herein for issuance of the authorization.

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Article 10. Permit Application, Annual Report and Trade Secret Requirements

2710. Applicability

(a) This article describes specific administrative actions that must be accomplished by all tank owners, local agencies and the State Board relative to issuing permits for underground storage tanks.

(b) Section 2711 lists the information that must be submitted by the tank owner to the local agency as part of the permit application and the requirements for the local agency to submit the permit application to the State Board.

(c) Section 2712 describes the conditions that local agencies must include in all permits issued and conditions local agencies must meet prior to permit issuance.

(d) Section 2713 describes the annual report requirements for both tank owners and local agencies.

(e) Section 2714 specifies conditions that must be met by a tank owner when requesting trade secret provisions for any information submitted to the local agency or State Board or Regional Board. It also specifies how the local agency, the State Board or Regional Board shall consider the request and how they shall maintain the information if the trade secret request is accepted.

11. Permit Application and Information

(a) An application for a permit to operate an underground storage tank, or for renewal of the permit or for transfer of a permit shall be made by the owner on a form prepared by the State Board and provided by the local agency. The local agency shall provide the Board with a copy of the completed approved application within 30 days.

(b) The permit application shall include, but not be limited to, the following information if it is accurately known to the permit applicant:

(1) The name and address of the person, firm, corporation or public agency which owns the underground storage tank or tanks,

(2) The name, location, mailing address, phone number and type of facility where the underground storage tank is located and type of business.

(3) The name, address and telephone numbers of the underground storage tank operator and 24-hour emergency contact person.

(4) The name and telephone nukmber of the person making the application,

(5) The underground storage tank description including, but not limited to, tank and auxiliary equipment manufacturer, year of manufacture, capacity, history of repairs and operation methods schedule.

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(6) The underground storage tank (tank, piping and auxiliary equipment) construction details, including, but not limited to, type and thickness of primary containment, type and thickness of secondary containment (if applicable), installation procedures and backfill, lining, wrapping, and cathodic protection methods (if applicable).

(7) A diagram or design or as-built drawing which indicates the location of the underground storage tank (tank, piping, auxiliary equipment) with respect to buildings or other landmarks.

(8) The description of the proposed monitoring program, including, but not limited to the following where applicable:

(A) visual;

(B) tank testing or inspection procedures;

(C) inventory controls including gaging and reconciliation methods;

(D) soils sampling locations and methods and analysis procedures;

(E) vadose zone sampling locations and methods and analysis procedures;

(F) ground water well(s) locations, construction and completion methods, sampling and analysis procedures;

(G) frequency and sensitivity of any monitoring method, sensing instrument, or analytical method.

(9) A list of all the substances which previously, currently or are proposed to be stored in the underground storage tank or tanks.

(10) 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 tank.

(11) The permit application must be signed by (A) a principal executive officer at the level of vice-president or by an authorized representative. The representative must be responsible for the overall operation of the facility where the tank(s) are located, (B) a general partner proprietor, or (C) a principal executive officer, ranking elected official or authorized representative of a public agency.

(c) The application shall be accompanied by a fee. The local agency may require a fee to cover necessary and reasonable costs of permitting and inspection of the underground storage tank. This fee shall include a surcharge determined annually by the legislature to cover the costs of State Board in carrying out its responsibilities under these regulations.

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2712. Permit Conditions

(a) As a condition of any permit to operate an underground storage tank, the permittee shall report to the local agency which has permitting authority at least 30 days prior to the change any changes in the usage of any underground storage tanks, including:

(1) the storage of new hazardous substances; or

(2) changes in monitoring procedures; or

(3) the replacement or repair of all or part of any underground storage tank.

(b) As a condition of any permit to operate an underground storage tank, the permittee shall report to the local agency any unauthorized release occurrences (as defined in Article 2 within the time frame specified in subsections 2652(b) and (c)).

(c) A permit to operate issued by the local agency shall be effective for five years. A local agency shall not issue a permit to operate an underground storage tank until the local agency inspects the tank and determines the tank complies with the provisions of these regulations. The tank owner shall apply for renewal at least 180 days prior to the expiration of the permit.

(d) Permits may be transferred to new tank owners if the new tank owner does not change any conditions of the permit and the transfer is registered with the local agency within 30 days of the change

in ownership by submittal of a revised permit application listing the new owner and any modifications to the information in the initial permit application due to the change in ownership. A local agency may review, modify or terminate the transfer of the permit to operate the underground storage tank upon receiving the transfer request.

(e) If an underground storage tank does not completely conform with Articles 3 or 4 of this subdivision, a local agency, at its discretion, may issue a provisional permit subject to conditions specified by the local agency and providing such a permit would not be detrimental to the public's interest. The conditions shall, at a minimum, include a time schedule for upgrading the underground storage tank such that it conforms with Articles 3 or 4 of this subdivision or is closed pursuant to Article 7 of this subdivision. These time schedules shall not extend beyond the duration of the provisional permit. A provisional permit will be issued for no longer than three months and cannot be renewed or extended. The local agency shall inspect the underground storage tank pursuant to the provisions of subsection (g) of this section within 15 days of the expiration of the provisional permit to assure that the permit conditions have been met.

(f) The local agency shall not renew an underground storage tank permit unless the underground storage tank has been inspected within the prior three years and the inspection revealed that the

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underground storage tank complies with Articles 3 or 4, as applicable of this subchapter and with all existing permit conditions. The inspection shall be conducted as specified in subsection (g) of this section. If the inspection revealed noncompliance, then the local agency must verify by a follow-up inspection pursuant to subsection (g) of this section that all required corrections have been implemented.

(g) The local agency shall inspect every underground storage tank within its jurisdiction at least once every three years. The inspection which shall evaluate the items listed in subdivision (h) of this section may be performed by the local agency or by a special inspector employed by the permit holder as required by the local agency, or both. If a special inspector conducts any or all of the inspection, a copy of the special inspector's report which may contain recommendations concerning the safe storage of hazardous materials shall be filed with the local agency at the same time as it is submitted to the permit holder. Any deficiencies or items of noncompliance found shall be addressed as described in subsection (i) of this section.

(h) The purpose of the inspection described in subsection (g) of this section is to:

(1) Determine whether the underground storage tank complies with the applicable standards of Article 3 or Article 4 of this subchapter;

(2) Determine whether the operator has monitored and tested the underground storage tank as required by the permit; and

(3) Determine whether the underground storage tank is in a safe operating condition.

(i) Within 30 days of receiving an inspection report from either the local agency or the special inspector, the permit holder shall file with the local agency a plan and time schedule to implement any required modifications to the underground storage tank or to the monitoring plan needed to achieve compliance with either Article 3 or Article 4 of this subchapter, as appropriate, or the permit conditions. This plan and time schedule shall also implement all the recommendations of the special inspector. The local agency may exempt 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 the failure to implement the recommendation will not cause an unauthorized release.

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2713. Annual Report

(a) The local agency shall notify the State Board of any changes in permits as defined in subsections (a) or (d), Section 2712 of this Article or any unauthorized releases as defined in Article 2 annually on State Board annual report forms or other methods determined by the State Board. This information shall be submitted to the State Board by March 1 of each year covering the prior calendar year.

14. Trade Secret Provisions

(a) Any person providing information in an application for a permit to operate an underground storage tank, or for renewal of the permit or application for a categorical or site-specific variance, shall, at the time of its submission, identify all information which the person believes is a trade secret and submit a legal justification for the request for confidentiality. The information which must be submitted includes:

(1) Which portions of the information submitted is actually a trade secret;

(2) How long this information should be treated as confidential;

(3) Measures that have been taken to protect this information as confidential;

(4) A discussion of why this information is a trade secret including references to statutory and case law as appropriate.

(b) If the local agency or the State Board or the Regional Board determines that a request for confidentiality is clearly valid, the material will be given trade secret protection as discussed in subsection (f) of this section.

(c) If the local agency or State Board or the Regional Board determines that the request for confidentiality is clearly frivolous, it will send a letter to the applicant stating that the information will

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not be treated as a trade secret unless the local agency or the State Board or the Regional Board is instructed otherwise by a court within 10 days of the date of the letter.

(d) If the validity of the trade secret is unclear, the local agency or the State Board or the Regional Board will inform the person claiming trade secrecy that the burden is on him to justify the claim. The applicant will be given a fixed period of time to submit such additional information as the local agency or the State Board or the Regional Board may request. The local agency or the State Board shall then evaluate the request on this basis of the definition of "trade secrets" contained in Health and Safety Code Section 25283.6(a) and issue its decision. If the local agency or the State Board or the Regional Board determines that the information is not a trade secret, it will send a letter to the applicant stating that the local agency or the State Board or Regional Board will treat the information as such unless the local agency or the State Board or the Regional Board is instructed otherwise by a court within 10 days of the date of the letter.

(e) All information received for which trade secrecy status is requested shall be treated as confidential until a final determination is made as discussed in subsection (f) of this section.

(f) Information which has been found to be confidential, or regarding which a final determination has not been made, 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 should be filed with the remainder of the document indicating that further information is in the confidential file.

(g) Information contained in confidential files shall only be disclosed to authorized representatives or other governmental agencies only in connection with the State Board's, the Regional Board's or local agency's responsibilities pursuant to Chapter 6.7 of the Health and Safety Code.

(h) Nothing contained herein shall limit an applicant's right to obtain prevention of disclosure of information pursuant to other provisions of law.

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4. Draft dated November 9, 1984 - proposed regulations as modified

UNDERGROUND TANK REGULATIONS

CALIFORNIA ADMINISTRATIVE CODE
TITLE 23 WATERS
CHAPTER 3 WATER RESOURCES CONTROL BOARD
SUBCHAPTER 16 UNDERGROUND TANK REGULATIONS

PROPOSED REGULATIONS, BASED ON COMMENTS FROM THE 45-DAY COMMENT PERIOD.
(NEW TEXT IS DOUBLE-UNDERLINED; DELETED TEXT IS CROSSED OUT).
NOVEMBER 9, 1984

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Article 3	New Tank Construction and Monitoring Standards
Article 4	Existing Underground Storage Tank Monitoring Criteria
Article 5	Release Reporting Requirements
Article 6	Allowable Repairs
Article 7	Closure Requirements
Article 8	Categorical and Site-Specific Variances
Article 9	Local Agency Additional Standards Request Procedures
Article 10	Permit Application, Annual Report and Trade Secret

Vol 3

UNDERGROUND TANK REGULATIONS

California Administrative Code
Title 23 Waters
Chapter 3 Water Resources Control Board
Subchapter 16 Underground Tank Regulations

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Article 1. General

Adopt new section to read:

2610. Applicability

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

(b) Persons who own one or more underground tanks storing hazardous substances shall comply with these regulations except as provided in Section 2611 of this Article. If the operator of the tank is not the owner, then the owner shall enter into a written contract with the operator requiring the operator to: monitor the tank; maintain appropriate records; implement reporting procedures as required by the permit; and properly close the tank as required by the permit.

(c) Counties shall implement the regulations in this subchapter within both the incorporated and unincorporated areas of

the County ~~except as provided in Section 2611(a) of this Article or Article 8 and 9 of this subchapter~~ through the issuance of permits to underground tank owners. A permit may be issued for each underground tank, several tanks or for a facility. A city may, by ordinance, assume the responsibility for implementing the provisions of this subchapter within its boundaries.

(d) All owners of underground tanks subject to these regulations must comply with the construction and monitoring standards of Article 3 (new tanks) or the monitoring standards of Article 4 (existing tanks) of this subchapter. However, owners of existing underground tanks which meet the construction and monitoring standards of Article 3 of this subchapter may be issued permits pursuant to those standards in lieu of the standards of Article 4 of this subchapter. In addition, all owners and/or operators of underground tanks subject to this subchapter must comply with the release reporting requirements of Article 5, the repair requirements of Article 6, the closure requirements of Article 7, and the permit application requirements of Article 10.

Authority: Health and Safety Code (H&SC) 25288.2

Reference: Health and Safety Code (H&SC) 25282, 25283, 25288, 25288.2

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Adopt new section to read:

2011. Exemptions

(a) The owners of underground storage tanks that meet any of the following conditions shall be exempt from the provisions of this subchapter:

(1) Underground storage tanks that are located within the jurisdictions of counties or cities where the county or city nad, prior to January 1, 1984, adopted an ordinance which, at a minimum, meets the requirements of Article 3 and Article 4 of this subchapter or implements the requirements of Health and Safety Code Sections 25284 and 25284.1 provided that:

(A) The ordinance, as it may be amended, continues to meet, at a minimum, the requirements of Article 3 and Article 4 of this subchapter or implements the requirements of Health and Safety Code Sections 25284 and 25284.1; and

(B) The county or city issues permits for underground tanks pursuant to the ordinance, and submits a copy of the permit application to the State Board as specified in Article 10 of this subchapter

(C) The county or city submits information on all unauthorized releases as specified in Article 5 of this subchapter;

(D) The county or city submits information on any permit changes or renewals as specified in Section 2703 of Article 10 of this subchapter;

(2) Underground storage tanks that are used for the storage of hazardous substances used for the control of external parasites of cattle and subject to the supervision of the county agricultural commissioner if the county agricultural commissioner determines, by inspection prior to use, that the tank provides a level of protection equivalent to that required by Section 25284 of the Health and Safety Code, if the tank was installed after June 30, 1984, or protection equivalent to that provided by Section 25284.1 of the Health and Safety Code if the tank was installed on or before June 30, 1984;

(3) Underground storage tanks that are located on a farm and only store motor vehicle fuel which is used only to propel vehicles used primarily for agricultural purposes. Vehicles used primarily for agricultural purposes is meant to include non-licensed vehicles

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and vehicles utilized in the production of agriculture at the farm site/

(h) Underground storage tanks that are used for division or motor vehicle fuel storage and are located within one mile of a farm and the tank is used by a licensed pest control operator/ as defined in Section 12705 of the Food and Agricultural Code/ who is primarily involved in agricultural pest control activities/

(2) (5) Underground storage tanks containing hazardous wastes as defined in Section 25316 of the Health and Safety Code if the person owning or operating the tank has been issued a hazardous waste facilities permit by the Department of Health Services pursuant to Section 25200 of the Health and Safety Code or granted interim status under Section 25200.5 of the Health and Safety Code.

(b) Structures such as sumps/ separators/ storm drains/ catch basins/ oil field gathering lines/ refinery pipelines/ lagoons/ evaporation ponds/ well cellars/ separation sumps/ lines and unlined pits/ sumps and lagoons are not considered underground tanks for the purpose of these regulations/ Sumps which are a part of a monitoring system required under Article 3 of this subchapter are not exempted by this section/ however/ these sumps would be

considered part of the secondary container or leak detection system of the primary container and are would be required to meet the appropriate construction criteria.

Authority: H&SC 25288.2

Reference: H&SC 25280, 25288

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Article 2. Definition of Terms

Adopt new section to read:

2620. Applicability of Definitions

(a) Terms used in this subchapter shall have the definitions provided by Section 25280 of the Health and Safety Code, or by Section 2621 of this Article.

(b) The following terms are defined in Section 25280 of the Health and Safety Code:

Board
Department
Facility
Hazardous substance
Local agency
Operator
Owner
Person
Pipe
Primary containment
Product-tight
Secondary containment
Single-walled
Special inspector

Storage/store
Unauthorized release
Underground storage tank

2621. ~~2620/~~ Additional Definitions

The following definitions shall apply to terms used in this Subchapter.

~~"Board" means the State Water Resources Control Board/~~

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

"Double-walled tank" means a container with two complete shells which provide both primary and secondary containment. The outer shell must provide structural support and must be constructed primarily of non-earthen materials including, but not limited to, concrete, steel, and plastic.

"Existing underground tank" means any underground tank that is not a new underground tank. The term includes any underground tank which has contained a hazardous substance in the past and as of January 1, 1984 had the physical capability of being used again (i.e. it had not been removed or completely filled with an inert solid that cannot be removed, such as concrete). ~~"Hazardous~~

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"Facility" means any one, or combination of, underground storage tanks used by a single business entity at a single location or site.

"Hazardous substance" means all of the following liquid and solid substances on the Department of Health Services' comprehensive master list which includes:

1. Substances on the list prepared by the Director of the Department of Industrial Relations pursuant to Section 6382 of the Labor Code.

2. Hazardous substances as defined in Section 25316 of the Health and Safety Code.

3. Any substance or material which is classified by the National Fire Protection Association (NFPA) as a flammable liquid, a Class II combustible liquid, or a Class III-A combustible liquid. This classification is contained in the Flammable and Combustible Liquids Code 1981 (NFPA 30).

"Implacement" means the point in time when all necessary permits have been issued allowing the implacement of the underground tank or, if no permits are necessary, the point in time when actual implacement of the tank begins.

"Local agency" means the county or city that is implementing the permit program. The local agency may also mean the department within the county or city designated to implement the program.

"Membrane liner" means any membrane sheet material fabricated into a system for secondary containment.

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

"Membrane liner fabricator" means the company which converts the liner membrane sheeting 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 upon a highway, excepting a device moved exclusively by human power or used exclusively upon stationary rails or tracks.

"Motor vehicle fuel tank" means a tank that contains a product which is intended to be used primarily to fuel motor vehicles.

"New underground tank" means any underground tank subject to this Subchapter which is installed after the effective date of this Subchapter these regulations or complies with the requirements of

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Article 3 of this Subchapter; or was installed after January 1, 1984 and before the effective date of this Subchapter pursuant to a permit if prior to adoption of these regulations, installed within a county, city and county or city where the county, city and county or city has adopted an ordinance implementing the provisions of Section 25284 of the Health and Safety Code and the tank was installed after the date of adoption of said ordinance.

"Operator" means the operator of an underground storage tank.

"Owner" means the owner of an underground storage tank.

"Person" means an individual, trust, firm, joint stock company, corporation, including a government corporation, partnership, and association. "Person" also includes any city, county, district, the state, or any department or agency thereof. "Person" includes the United States, to the extent authorized by federal law.

"Pipe" means any pipeline or system of pipelines which is used in connection with the hazardous substances and which are not intended to transport hazardous substances in interstate or intrastate commerce or to transfer hazardous materials in bulk to or from a marine vessel.

"Primary containment" means the first level of containment, such as the portion of a tank which comes into immediate contact on

its inner surface with the hazardous substance being contained.

"Product-tight" means impervious to the substance which is contained, or is to be contained, so as to prevent the escape of the substance from the primary containment. To be product-tight, the tank shall not be subject to physical or chemical deterioration by the substance which it contains over the useful life of the tank.

"Secondary containment" means the level of containment external to, and separate from, the primary containment.

"Single-walled" means construction with walls made of only thickness of material. For the purpose of this subchapter, laminated, coated, or clad materials shall be considered walled.

"Special inspector" means a professional engineer, registered pursuant to Chapter 7 (commencing with Section 6700) of Div. 3 of the Business and Professions Code, who is qualified to assess, at a minimum, to structural soundness, seismic safety, the compatibility of construction materials with contents, cathodic protection, and the mechanical compatibility of the structural elements.

"Storage" or "Store" means the containment, handling or treatment of hazardous substances, either on a temporary basis or for a

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period of years/

"Substantially beneath the surface of the ground" means that at least 10 50 percent of the surface area of the tank volume, that can be in contact with the stored material including connected piping, is below the ground surface.

"Tank" means any single container including connecting piping which is for used the storage of hazardous substances and which is substantially or totally beneath the surface of the ground/

"Tank system" means any one or more tanks and is used synonymously with "underground storage tanks/

"Unauthorized release" means any release or emission of any hazardous substance unless this release is authorized by the State Water Resources Control Board pursuant to Division 7 (commencing with Section 13000) of the Water Code/

"Unauthorized release" does not include intentional withdrawals of hazardous substances for the purpose of legitimate sale, or use, or disposal.

"Underground storage tank" means any one or combination of tanks/ including pipes connected thereto/ which is used for the storage of hazardous substances and which is substantially or totally beneath the surface of the ground/2/

Authority/ HSC 25288/2

Reference/ HSC 25280/ 25281/ 25284

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Article 3. New Tank Construction and Monitoring Standards

Adopt new section to read:

2630. Applicability

(a) This article contains statewide minimum standards for the construction, installation, and monitoring of new underground storage tanks that contain hazardous substances.

(b) Sections 2631 and 2632 specify construction and monitoring standards for all new underground storage tanks. systems New underground storage tanks systems that only store motor vehicle fuels may be constructed and monitored pursuant to the standards specified in Sections 2633 and 2634 in lieu of those specified in Sections 2631 and 2632, respectively. However, if the construction standards in Section 2633 are used, then the monitoring standards of Section 2634 must also be used.

(c) All new underground storage tanks and secondary containers tank systems must comply with Section 2632.

Authority: H&SC 25288.2

Reference: H&SC 25280, 25284

Adopt new section to read:

2631. Construction Standards for New Underground Storage Tanks

(a) Primary and secondary levels of containment shall be required for all new underground storage tanks used for the storage of hazardous substances as defined in Article 2.

(b) All primary containers shall be product-tight.

(c) All secondary containers shall be constructed of materials of sufficient thickness, density, and composition to prevent structural weakening of the secondary container as a result of contact with any released hazardous substance and shall be capable of containing any unauthorized release of contain the hazardous substance stored within the primary container(s) for a period of at least three for at least the maximum anticipated time period sufficient to allow detection and recovery of the unauthorized release, if leaked from the primary container

(d) If a hazardous substance has come into contact with the secondary container and either additional primary containers exist within the secondary container or the leaking primary container is repaired as specified in

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Article 6 or closed as specified in Article 7 and replaced by a new primary container, the owner shall demonstrate to the satisfaction of the local agency that the requirements of Subsection (c) of this Section are still acheivable or replace the secondary container.

(e) /d/ The secondary container shall have the ability to contain the following volumes.

(1) At least 100 percent of the volume of the primary container where only one primary container is within the secondary container.

(2) In the case of multiple primary containers within a single secondary container, the secondary container shall be large enough to contain 150 percent of the volume of the largest primary container placed in it, or 10 percent of the aggregate internal volume of all primary containers in the secondary container, storage facility whichever is greater.

(f) /e/ If the secondary container storage facility is open to rainfall, then it the secondary container must be able to accommodate the volume of the twenty-four (24) hour-one hundred (100) year storm in addition to that required in Subsection (e) /d/ and /e/ of this Section.

(g) /f/ The volumetric volume requirements for the pore space of a granular material placed in the a secondary container as which consists of the pore space in backfill for the placed around the primary container shall be equal to 110 percent of that required in Subsection Sections 263.(e) of this Section. /d/ and /e/ The available pore space in the secondary container backfill shall be determined using appropriate engineering methods and safety factors and shall consider the specific retention and specific yield of the backfill material, the location of the primary container within the secondary container, and the proposed method of operation for the secondary container.

(h) Secondary containers shall be equipped with a collection system capable of removing any precipitation, subsurface infiltration, or hazardous substance released from the primary container.

(i) The floor of the secondary container shall, if necessary for monitoring, be sloped to a collection sump. One or more access casings shall be installed in the sump and sized to allow removal of the collected liquid. The access casing shall be extended to the ground surface, perforated in the region of the sump, and covered with a locked waterproof cap. If this access casing is within

a secured facility, the requirements for a locked cap may be waived. The casing shall be thick enough to withstand all anticipated applied stresses with appropriate engineering safety factors and constructed of materials that will not be structurally weakened by the stored product nor donate, capture, or react product constituents for which analyses will be made.

(j) Systems for secondary containment utilizing membrane liners shall meet the following requirements:

(1) The membrane liner shall have a permeability factor of 0.25 ounces or less per square foot per 24 hours. Such permeability shall constitute the maximum rate of the transport of the hazardous substance proposed for storage over time. Permeability shall be evaluated according to accepted engineering practices for materials testing. Acceptable methods for determining the permeability are provided in Appendix I.

(2) The membrane liner shall be considered to have satisfied the requirements of Section 2631(c) if and only if the liner material meets the following standards. The material properties specified in these standards shall be determined using accepted engineering practices for materials testing.

Acceptable methods for determining these properties are provided in Appendix I.

(A) Volume swell: after a 24-hour period of immersion in the stored hazardous substance, the volume swell shall not exceed 3 percent of the original liner membrane material's thickness.

(B) Change in elongation: the maximum change in elongation of the liner membrane material at break after 24 hours of immersion in the stored hazardous substance shall not exceed plus or minus 2 percent of the original elongation.

(C) Brittleness: the liner membrane material Shore A hardness after 24 hours of immersion in the hazardous substance shall not change plus or minus 5 percent of the original hardness.

(D) Rate of transport: the rate of transport through the liner membrane material of the hazardous substance after a period of 24 hours shall not exceed 6 percent by weight.

(E) Rate of solubility: the rate of solubility of

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the liner membrane material in the hazardous substance for a period of 24 hours shall not exceed 0.1 percent by weight.

(3) The liner seam strength shall be equal to the tensile strength of the parent material when tested in accordance with accepted engineering practices for materials testing. Acceptable methods for determining the liner seam strength are provided in Appendix I.

(k) The liner shall be installed under the supervision of a representative of the membrane liner fabricator, or a contractor certified by such fabricator.

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

(m) /k/ Laminated, coated, or clad materials shall be considered single walled and shall not be construed to fulfill the requirements of both primary and secondary containment.

(n) /k/ Double-walled tanks which satisfy the construction standards requirements of Sections 2631(b) and (c) shall

be considered to fulfill the volumetric requirements for secondary containment specified in Section 2631(e) 2621(d).

(o) The design of double-walled tanks shall allow for monitoring of the annular space.

(p) "Sticking" the annular space of a double-walled tank as a monitoring method shall not be allowed unless a strike plate or other approved devices used to protect the tank are located directly under the monitoring opening.

(q) The double-walled tank shall be so designed and installed that any loss of hazardous substance from the primary container will drain to a central location within the annular space, to be detected by a monitoring device or method.

(r) Any special accessories, fitting, coating, or lining not inherent within the initial design of the primary container shall be approved by a nationally recognized, independent, testing organization, or a demonstration of integrity with the primary container shall be required by the local agency.

(s) All primary containers and double-walled tanks subject to floatation shall be weighted or anchored using

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methods specified by the manufacturer or, if none exist, best engineering judgment.

Authority: H&S 25288.1

Reference: H&S 25284, 25284

Adopt new section to read:

2635. Monitoring Standards for New Underground Storage Tanks

(a) This section is applicable only to those underground storage tanks constructed pursuant to the standards of Section 2631 of this article.

(b) The owners or operators of underground storage tanks subject to this Section shall implement a monitoring program that is approved by the local agency and required in the permit. The program shall utilize one or more of the methods described in Subsection (c) of this Section and shall address the items listed in Subsection (d) of this Section.

(c) Monitoring of the space between the primary and secondary container shall utilize either visual monitoring of the primary container as described in Subsection (1) or one or more of the methods listed in Subsection (2).

(1) A program which relies on the visual monitoring of the primary container shall incorporate all of the following:

(A) Provisions that all exterior surfaces of the

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underground storage tank and the surface of the floor directly beneath the tank shall be monitored by direct viewing.

(B) Visual inspections shall be performed daily except on weekends and recognized state and/or federal holidays, and may be more frequent if designated by the local agency. The inspection schedule shall be established such that inspections occur on a routine basis when the liquid level in the tank is at its highest. The inspection frequency shall be selected such that any unauthorized release will remain observable on the exterior of or the surface immediately beneath the underground storage tank between visual inspections. The evaluation of how long the hazardous substance remains observable shall consider the volatility of the hazardous substance and the porosity and slope of the surface immediately beneath the underground storage tank.

(C) Recordation of the liquid level in the tank at the time of inspection.

(D) The observation of any liquid on the exterior

of or the surface immediately beneath the underground storage tank being visually monitored shall cause the owner or operator to implement all or a portion of the following actions. The applicable actions and their timing shall be based on the site-specific situation; shall be intended to determine if the observed liquid constitutes an unauthorized release; and shall be included in the permit.

(i) Laboratory analysis of the observed liquid.

(ii) Testing of the underground storage tank utilizing the procedures described in Section 2643 of Article 4.

(iii) Removal of all hazardous substances from the underground storage tank and the secondary container (as specified in Subsection (G) of this Section).

(E) A program which relies on detecting the hazardous substance in the space between the primary and secondary container shall utilize one or more of the methods provided in Table 3.1. The following

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Table 3.1

Methods of Monitoring Hazardous Substances in the Secondary Container

Condition of the Secondary System (1)	Type of Substance Stored	Methods of Monitoring: Liquid Level Indicator (2)	Hazardous Substance Sensor (3)	Vapor Monitor	Pressure or Vacuum Loss Detector (4)
Dry	Volatile		X	X	X
Dry	Nonvolatile		X		X
Wet	Volatile		X	X	X
Wet	Nonvolatile		X		X

(1) A "dry" system does not normally contain liquid within the secondary container during normal operating conditions while a "wet" system does.

(2) Includes: continuously operated mechanical or electronic devices, manual determinations using mechanical, electronic, or "stick" readings or visual determinations to detect the presence of any liquid in "dry" systems or a change in liquid levels in "wet" systems.

(3) Includes either qualitative or quantitative determinations of the presence of the hazardous substance.

(4) Primarily used for double-walled tanks to detect changes in pressure or vacuum between primary and secondary container. The use of pressure or vacuum must be approved as part of the primary and secondary container approval by a recognized testing organization.

requirements shall apply when appropriate.

(A) Continuous monitoring device shall be connected to an audio/visual alarm system.

(B) Manual monitoring shall be performed daily except on weekends and recognized state and/or federal holidays. Manual monitoring may be performed on a more frequent basis as required by the local agency.

(C) For methods of monitoring where the presence of the hazardous substance is not determined directly (i.e., liquid level measurements), the monitoring program shall specify the proposed method(s) for determining the presence of the hazardous substance if the indirect methods indicate a possible unauthorized release.

(d) All monitoring programs shall include the following:

(1) A written routine monitoring procedure which includes, when applicable: the frequency of performing the monitoring method, the methods and equipment to be used for performing the monitoring, the location(s) from which the monitoring will be

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performed, the name(s) or title(s) of the person(s) responsible for performing the monitoring and/or maintaining the equipment, and the reporting format.

(2) A response plan developed by the permit applicant which demonstrates, to the satisfaction of the local agency, that any unauthorized release will be removed from the secondary container within the shortest possible time and no longer than the time consistent with the ability of the secondary container to contain the hazardous substance. 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 the hazardous substance, including the location and availability of the required equipment, if not permanently on-site, and an equipment maintenance schedule for that located on-site.

(B) The name(s) or title(s) of the person(s) responsible for authorizing the work to be performed.

(b) Secondary containers shall be equipped with a collection sphere capable of removing any precipitation/ hazardous infiltration/ or hazardous substance and liquid leakage from the primary containment.

(c) The floor of the secondary containment shall be constructed in a firm base and sloped to a collection sump. The sump and the access casing shall be sized to allow removal of the collected liquid. The access casing shall be extended to the ground surface/ perforated in the region of the sump/ and covered with a locked water-proof cap/

(d) The casing shall be of thick enough to withstand all anticipated applied stresses with a 2.0 safety factor and constructed of materials that will not be structurally weakened by the stored product nor dinate/ capture/ or mask product constituents for which analyses will be made/

(e) The sump shall be monitored with a continuous sensor/ which is removable on a semi-annual basis for calibration and maintenance if needed/ The continuous sensor shall be capable of either:

(1) Detecting within the sump 0.5 inches of standing

liquid and activating a strategically-located, above ground alarm system when any combination of a hazardous substance or water is present. All standing liquid shall be immediately sampled and analyzed within a time specified by the local agency to best detection limits to determine the presence of hazardous substances. This system cannot be used when water is normally expected to be present within the secondary containment or

(2) Detecting within the sump 2/3 inches of the hazardous substance stored in the primary container(s) and activating a strategically-located above-ground alarm system.

(f) The interstitial space between the walls of a doubler walled tank may be monitored continuously using a pressure sensor. The sensing devices shall be capable of activating a strategically located above-ground alarm system. Doubler-walled tanks which utilize this leak detection system are exempt from the requirements of Sections 2632(c) through (e).

Authority: H&SC 25288.2

Reference: H&SC 25280, 25284

Adopt new section to read:

2633. Construction Standards for New Motor Vehicle Fuel Tanks

(a) This section specifies alternate construction standards for new underground storage tanks which only contain motor vehicle fuels. This section may be utilized by permit applicants in lieu of Section 2631. If this section is used in lieu of Section 2631, then the monitoring standards specified in Section 2634 shall be used in lieu of those specified in Section 2632.

(b) Primary containers used for the underground storage of motor vehicle fuel and constructed under this section shall consist of product-tight tanks constructed of fiberglass reinforced plastic, cathodically protected steel, or steel clad with glass fibre reinforced plastic and be installed in conjunction with the leak interception and detection secondary containment system decribed in Section 2633(d) through (f), and (g).

(c) Primary containers used for the underground storage of motor vehicle fuel and constructed of materials other than those specified in Section 2633(b) shall be subject to the requirements of Sections 2631 and 2632.

(d) The permit applicant secondary container shall be

demonstrate to the satisfaction of the local agency that the leak interception and detection system achieves the integrity and compatibility criteria of Section 2631(c) of this article.

(e) Methods of construction for the leak interception and detection system for utilizing membrane liners shall be considered to have satisfied the requirements of Section 2631(c) if, and only if, the liner material meets the following standards:

(1) The membrane liner material shall have the permeability factors specified in Section 2631(j)(1) as tested against ASTM Reference Fuel B.

(2) The membrane liner material shall be suitable for containment of the motor vehiclefuel in that such material shall meet the criteria set forth in Section 2631(j)(2)(A) through (E) as tested against ASTM Reference Fuel B.

(3) The membrane liner shall meet the requirements set forth in Section 2631(j)(3).

(4) The liner has been installed under the supervision of a representative of the membrane liner fabricator, or a contractor certified by such

fabricator.

(5) The excavation base and walls which will come into contact with the synthetic liner shall be prepared to the liner fabricator's specifications and shall be firm, smooth, and free of any sharp objects and protrusions.

(f) (e) The leak interception and detection system (secondary container) and the response plan must preclude the contact of any leaked hazardous substance with ground water. At a minimum the leak interception and detection system shall be above the highest perennial saturated ground water elevation. Proof that the leak interception and detection system secondary container and response plan will protect ground water must be demonstrated by the permit applicant to the satisfaction of the local agency. The demonstration shall, at a minimum, consider the following:

(1) The containment volume of the leak interception and detection systems secondary container

(2) The maximum leak which could go undetected under the inventory reconciliation method presented in Subsection (a)(1) of Section 2634 of the Article and the maximum period during which the leak will

occur;

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

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

(5) (3) The nature of the unsaturated soils under the leak interception and detection system secondary container and their ability to adsorb contaminants or allow vertical movement of contaminants;

(6) (4) 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 systems; and

(7) (5) The nature and timing of the response plan to cleanup the hazardous substances which have been discharged from the primary container.

(g) (7) Pressurized piping systems that include an automatic, on-line continuously operating pressure loss

detector and flow restriction device and suction piping systems are exempt from the leak interception and detection secondary container requirements of Sections 2632 and 2633 of this Article. The automatic leak detector shall be connected to a visual or audible alarm system unless it provides at least a 50 percent reduction from normal flow rates. Suction piping systems shall be evaluated at least once each day of operation to detect if a leak in the piping system exists.

Authority: H&SC 25288.2

Reference: H&SC 25280, 25284

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Adopt new section to read:

2634. Monitoring Standards for New Motor Vehicle Fuel Tanks

(a) Monitoring of underground tanks used for the storage of motor vehicle fuel and constructed pursuant to the standards of Section 2633 of this article shall consist of all of the following:

(1) Monitoring of the leak interception and detection secondary containment system pursuant to subsections (b), (c), and (d) of this section.

(2) Daily gauging and inventory reconciliation by the operator pursuant to Section 2644 2642 of Article 4.

(3) Hydrostatic testing of the tank every two years according to the criteria specified in Section 2643 2642 of Article 4, and

(4) All pressurized piping systems shall be monitored utilizing an on-line pressure loss detector and flow reduction device. The detector shall be connected to a visual or audible alarm system unless it provides for at least a 50 percent reduction from normal flow rates.

(b) The floor of the leak interception and detection system shall be constructed on a firm base and sloped to a specific location or collection sump.

(c) (1) (A) Access casing(s) shall be installed to intercept the collection sump or specific location at each monitoring location. The casing shall be:

(1) Capable of allowing any liquid that may be moving along the upper surface of the leak interception and detection system secondary container to enter the casing;

(2) Sized to allow efficient removal of collected liquid and to withstand all anticipated applied stresses using appropriate engineering with a safety factor of 1.5

(3) Constructed of materials that will not be structurally weakened by the stored product nor dissolve, capture, or mask product 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

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detection system secondary container

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

(6) Extended to the ground surface and 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 secure facility will satisfy the requirements for protection against unauthorized access and vandalism.

(d) Monitoring of the leak interception and detection system shall incorporate all of the following:

(1) The use of a continuous monitoring device connected to an audial/visual alarm system or manual monitoring performed daily, except on weekends and recognized state and/or federal holidays. Monitoring may be required more frequently by the local agency based on an assessment of the available volume of the leak interception and detection system, the accuracy of the proposed monitoring method, and the maximum leak which could go undetected under the inventory reconciliation method presented in Subsection (g). Approved methods of monitoring the leak interception and detection system include liquid level indicators, hazardous substance sensors, and vapor monitors as specified for volatile hazardous substances in Table 3.1.

(2) A written routine monitoring procedure which includes: the frequency of performing the monitoring method, the methods and equipment to be used for performing the monitoring, the location(s) from which the monitoring will be performed, the name(s) or title(s) of the person(s) responsible for performing the monitoring and/or maintaining the equipment, and the reporting format.

(3) For methods of monitoring where the presence of the hazardous substance is not determined directly (i.e., liquid level measurements), the monitoring program shall specify the proposed method(s) for determining the presence of the hazardous substance if the indirect method indicates the possible presence of the motor vehicle fuel.

(e) Monitoring of each system described in Section 2626(b)

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shall utilize a continuous sensor which is removable or a semi-arrival basis for calibration and maintenance, if needed, and capable of detecting within the casing 0.2 inches of the hazardous substance stored in the primary container(s) and activating a strategically located above-ground alarm system.

(e) (d) An underground tank used for the storage of motor vehicle fuels that has a loss or gain of hazardous substance or water as determined by daily gauging and inventory reconciliation controls required in Subsection (a)(4) of this section) of greater than any of the following shall be tested according to the procedures specified in subsection (e) of this section:

(1) Daily loss or gain of 100 50 gallons, or

(2) Seven [7] day loss or gain of five percent of the underground storage tank throughput volume of hazardous substance delivered over the seven days or 100 gallons, whichever is greater, but not greater than 350 gallons, or

(3) Cumulative (calculated over a period of at least thirty 30 days loss or gain of one-half percent of the underground storage tank throughput volume of hazardous substance throughput over the period

that the cumulative loss or gain is calculated or 100 gallons, whichever is greater.

(f) (e) If inventory reconciliation controls indicates a gain or loss of the hazardous substance greater than that specified in Subsection (e) (d) of this Section, then the following steps shall be implemented by the operator or permittee. The steps may be implemented sequentially or concurrently; however, they must be completed within the specified time periods. Reporting as required in Article 5 of this Subsection shall be followed.

If completion of the steps described in Subsections (2), (3), or (5) of this Subsection indicate inventory reconciliation errors that, when corrected cause the levels in Subsection (e) (d) of this section not to be exceeded, then the remainder of the steps need not be completed. If completion of the steps described in Subsections (4) or (6) through (8) of this Subsection reveal the source of the loss or gain, then the remainder of the steps need not be completed.

Transfer of hazardous substances into and out of the underground storage tank may continue during implementation of the steps provided that the steps are completed within the specified time periods and any loss

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or gain did not exceed two times the levels specified in Subsection (e) (4) of this section, inventory control and daily reconciliation shall continue during [illegible] implementation of the [illegible].

(1) The operator shall notify the owner [illegible] in writing of the fact that inventory reconciliation [illegible] indicate a gain or loss of hazardous substances or water within 24 hours of the completion of the daily reconciliation which indicates the loss or gain.

(2) The operator shall review the inventory records within two (2) hours to determine if an error exists which would cause the gain or loss to be less than that specified in Subsection (e) (4) of this section.

(3) The operator shall have performed by a qualified person a complete review of all inventory records from the last time a zero loss or gain condition existed. This shall be completed within 24 hours of the conclusion of Subsection (f) (4) (2).

(4) The readily accessible physical facilities shall be carefully inspected for leakage. This shall be completed by trained personnel within 24 hours of

completion of Subsection (f) (4) (3).

(5) All dispenser meters associated with hazardous substance withdrawal shall be checked for calibration within 24 hours of completion of Subsection (f) (4) (3).

(6) All piping shall be tested using the methods specified in Sections 4-3.6 or 4-3.7 of the National Fire Protection Association (NFPA) publication entitled "Underground Storage of Flammable and Combustible Liquids", 1983 (NFPA 329), within 24 hours of completion of Subsection (f) (4) (5). This step may be completed after the step described in Subsection (f) (4) (7) if excavation is necessary to perform the tests and if the step described in Subsection (f) (4) (7) is completed within 48 hours of the completion of Subsection (f) (4) (5). If this occurs, then this Subsection shall be completed within 24 hours of the completion of Subsection (f) (4) (7).

(7) The tank shall be tested using the tests described in Section 2643 2644 of Article 2 within 48 hours of completion of Subsection (f) (4) (6).

(8) Additional tests or investigations as required by

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the local agency.

(g) (f) A response plan for an unauthorized release shall be developed prior to installation for any leak detection system ~~container~~ which does not meet the volumetric requirements of Sections 2601(e) and (f) (i) and (e) of this Article. The response plan shall consider the following:

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

(2) The amount of time the leak interception and detection system ~~secondary container~~ must provide containment in relation to the period of time between detection of an unauthorized release and cleanup of the leaked materials;

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

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

(5) The methods and scheduling for removing all of the hazardous substances which 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 ~~secondary container~~ sump.

Authority: NSSC 25208.2

Reference: NSSC 25180, 25266

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Adopt new section to read:

2625. General Construction Standards

(a) The following sections shall apply to all primary and secondary containers including leak interception and detection systems.

(b) Primary containers and double-walled tanks shall be designed and constructed to comply with all of the following:

(1) Cathodically protected steel tanks, steel tanks clad with glass fibre-reinforced plastic, and glass fibre plastic tanks shall be fabricated and designed to standards developed by a nationally recognized independent testing organization or be listed by the testing organization. Applicable design standards shall include, but are not limited to, those provided in Appendix I.

(2) Underground storage tanks shall be tested by the manufacturer or an independent testing organization for durability and chemical compatibility with the hazardous substances to be stored using recognized engineering practices for materials testing. Acceptable methods for determining durability and

chemical compatibility with the hazardous substances are provided in Appendix I.

(3) (1) A 0.25-inch thick steel wear-plate (corner plate) shall be centered under all accessible openings of the underground storage tank. The plate shall be constructed of steel or, if the steel is not compatible with the hazardous substance stored, a material resistant to the stored hazardous substance. The width of the plate shall be at least 9 inches wide and have an area of 1 square-foot or 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 0.053 inch (1.35 mm) and those constructed of other materials (as required) shall be of sufficient thickness to provide equivalent protection. The plate shall be rolled to the contours of the tank and bonded or seam welded in place, and have a minimum area equal to the opening or a guide tube, whichever is smaller.

(4) Single-wall primary containers of steel and the outer surface of double-walled tanks constructed of steel shall be protected by either a properly installed, maintained, and monitored cathodic protection system with or without coatings or

listed corrosion resistant materials, non-metallic reinforced plastic coatings, composites, or equivalent systems, which have been checked using electrical holiday testing. Selection of the type of protection to be employed shall be based on a certification listing by a nationally recognized, independent testing organization or the judgment of a registered corrosion engineer or a National Association of Corrosion Engineers (NACE) accredited corrosion specialist taking into account the corrosion history of the area.

When cathodic protection is selected, the system shall be designed by a registered corrosion engineer or a NACE corrosion specialist or in accordance with the certification listing, whichever is applicable. The cathodic protection system shall be initially tested by a registered corrosion engineer or NACE corrosion specialist.

Monitoring of the cathodic protection system shall be done under the direction of a registered corrosion engineer or NACE corrosion specialist at the frequency specified in the certification or in accordance with the schedule prescribed by the system designer, but no less than semi-annually.

Vaulted underground storage tanks are exempted from the requirements of this Subsection.

(5) All primary containers and double-walled tanks shall be installed according to the manufacturer's written recommendations or, if no written recommendations exist, best engineering practice.

(6) (2) All underground tanks shall be tested before being put into service in accordance with the applicable sections of the Code under which they were built. The ASME code stamp, API monogram, or the Listing Mark of Underwriters Laboratories, Incorporated, (UL) or any other nationally recognized independent testing organization shall be evidence of compliance with this requirement, guaranteed by the manufacturer to be provided prior to leaving the factory.

(7) (3) Before being covered, enclosed, or placed in use, following installation all underground storage tanks and piping shall be tested for tightness either hydrostatically or with air pressure at not less than 3 lbs. per square-inch (20.68 k Pa) and not more than 5 lbs. per square-inch (34.48 k Pa). Pressure piping shall be tested according to the requirements specified in Section 3-7.1 of NFPA 30.

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"Flammable and Combustible Liquids Code". Double-walled tanks are exempt from the requirements of this section provided that the annular space is monitored using either pressure or vacuum testing, in accordance with standards and procedures set forth in Article 4

(8) When required by the local agency, all underground storage tanks shall be equipped with an overflow protection system which includes the following elements:

(A) A level sensing device that continuously monitors and indicates the liquid level in the tank and either (2) or (3) or both.

(B) An audible or visual alarm system triggered by a liquid level sensor to alert the operator of an impending overfill condition, or

(C) An automatic shut-off device that stops the flow of product being delivered to the tank when the tank is full.

(D) A spill catchment basin which surrounds the fill pipe and prevents the inflow of the hazardous substance into the subsurface

environment.

(9) The overflow protection system required in Subsection (b)(8) of this Section shall be satisfied for underground storage tanks containing motor vehicle fuels in which:

(A) Both the fluid level is visually monitored and the filling operation is controlled by the facility operator during filling of the underground storage tank, or

(B) The available capacity of the tank to be filled is determined immediately prior to filling to be at least 103 percent of the volume of the entire tank compartment to be delivered or 200 gallons, whichever is less, as determined by tank gauging, or

(C) The hazardous substance being delivered can be metered into the tank and the available tank capacity is determined immediately prior to filling,

(D) A spill catchment basin surrounds the fill pipe and prevents the inflow of the motor vehicle fuel into the subsurface environment.

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(a) Cathodically protected steel tanks and steel tanks clad with glass fibre reinforced plastic shall be fabricated and designed by the requirements in Underwriters Laboratories (UL) 58/ Standards for Steel Underground Tanks for Flammable and Combustible Liquids October 1978 or the American Society of Mechanical Engineers (ASME) Pressure Vessel Code/ Section VIII/ Division 1/ Boiler and Pressure Vessel Code/ 1982/ and have a minimum thickness of at least 7 gauge (0.18 inch)

(b) Fiberglass reinforced plastic tanks shall be UL listed and designed in accordance with UL Standard 1316/ Standard for Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum/ July 1982/ or Underwriter's Laboratory of Canada/ Standard UL-C-S817-1977/ Standard for Reinforced Plastic Underground Tanks for Petroleum Products/ March 1977/

(c) Fiberglass reinforced plastic tanks shall be designed based on tests by the manufacturer for durability and chemical compatability with the hazardous substances to be stored using applicable sections of American Society for Testing and Materials (ASTM) D4021-81 /Standard Specifications for Glass-Fiber-Reinforced Polyester Underground

Storage Tanks/ August 1981/ and the manufacturer shall provide the owner with written assurance of the compatibility/

(c) Secondary containers including leak interception and detection systems shall comply with all of the following:

(1) The secondary container shall, at a minimum, encompass the area within the system of vertical planes surrounding the exterior of the primary containment unit. If backfill is placed between the primary and secondary containment, then an evaluation shall be made of the maximum lateral spread of a point leak from the primary containment over the vertical distance between the primary and secondary containment. The secondary containment shall extend beyond the vertical planes an additional distance foot.

(2) (7) The secondary container must be capable of precluding the inflow of the highest ground water anticipated during the life of the underground storage tank into the space between the primary and secondary containers.

(3) (B) If the space between the primary and secondary containers is backfilled, the backfill material shall not preclude the vertical movement of leakage from any part of the primary container.

(4) The secondary container and any backfill material between the primary and secondary container shall be designed and constructed to promote gravity drainage of a leak of hazardous substances from any part of the primary container to the monitoring location(s).

(5) Materials that in combination may cause a fire or explosion, or the production of a flammable, toxic, or poisonous gas, or the deterioration of a primary or secondary container shall be separated in both the primary and secondary containment so as to avoid potential intermixing.

(6) Drainage of liquid from within a secondary container shall be controlled in a manner approved by the local agency so as to prevent hazardous materials from being discharged. The liquid shall by analyzed to determine the presence of any of the hazardous substance(s) stored in the primary container 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 an indication of an unauthorized releasefrom the primary container.

(7) For primary container installed completely beneath the ground surface, the original excavation for the secondary container shall have a water-tight cover which extends at least 1 foot beyond each boundary of the original excavation. This cover shall beasphalt, reinforced concrete, or equivalent material which is sloped to drainways leadingaway from the excavation. Manways shall be constructed as water-tight as practical. Double-walled tanks and open vaults are exempt from the requirements of this subsection.

(8) The actual location and orientation of the underground 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.

(9) The secondary container shall at a minimum encompass the area within the system of vertical dikes surrounding the exterior of the primary containment unit. If backfill is placed between

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(6) (1) Primary and secondary containers shall be made of materials which are compatible with the contents and which will not react with the contents so as to produce toxic or dangerous products or to weaken the container so as to cause a leakage of the contents.

(2) Containers made of glass or other brittle material shall be provided with a protective outer container of metal or other material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(3) Containers made of metal shall be protected against corrosion by a suitable coating or by other means.

(4) Containers made of plastics material shall be made of a material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(5) Containers made of fibreboard shall be made of fibreboard of a type which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(6) Containers made of wood shall be made of wood which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(7) Containers made of rubber shall be made of rubber which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(8) Containers made of paper shall be made of paper which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(9) Containers made of textile material shall be made of textile material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(10) Containers made of glass shall be made of glass which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(11) Containers made of metal shall be made of metal which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(12) Containers made of plastics material shall be made of plastics material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(13) Containers made of fibreboard shall be made of fibreboard which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(14) Containers made of wood shall be made of wood which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(15) Containers made of rubber shall be made of rubber which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(16) Containers made of paper shall be made of paper which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(17) Containers made of textile material shall be made of textile material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(18) Containers made of glass shall be made of glass which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(19) Containers made of metal shall be made of metal which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(20) Containers made of plastics material shall be made of plastics material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(21) Containers made of fibreboard shall be made of fibreboard which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(22) Containers made of wood shall be made of wood which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(23) Containers made of rubber shall be made of rubber which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(24) Containers made of paper shall be made of paper which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(25) Containers made of textile material shall be made of textile material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(26) Containers made of glass shall be made of glass which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(27) Containers made of metal shall be made of metal which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(28) Containers made of plastics material shall be made of plastics material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(29) Containers made of fibreboard shall be made of fibreboard which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(30) Containers made of wood shall be made of wood which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(31) Containers made of rubber shall be made of rubber which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(32) Containers made of paper shall be made of paper which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(33) Containers made of textile material shall be made of textile material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(34) Containers made of glass shall be made of glass which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(35) Containers made of metal shall be made of metal which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(36) Containers made of plastics material shall be made of plastics material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(37) Containers made of fibreboard shall be made of fibreboard which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(38) Containers made of wood shall be made of wood which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(39) Containers made of rubber shall be made of rubber which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(40) Containers made of paper shall be made of paper which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(41) Containers made of textile material shall be made of textile material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(42) Containers made of glass shall be made of glass which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(43) Containers made of metal shall be made of metal which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(44) Containers made of plastics material shall be made of plastics material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(45) Containers made of fibreboard shall be made of fibreboard which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(46) Containers made of wood shall be made of wood which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(47) Containers made of rubber shall be made of rubber which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(48) Containers made of paper shall be made of paper which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(49) Containers made of textile material shall be made of textile material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(50) Containers made of glass shall be made of glass which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(51) Containers made of metal shall be made of metal which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(52) Containers made of plastics material shall be made of plastics material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(53) Containers made of fibreboard shall be made of fibreboard which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(54) Containers made of wood shall be made of wood which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(55) Containers made of rubber shall be made of rubber which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(56) Containers made of paper shall be made of paper which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(57) Containers made of textile material shall be made of textile material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(58) Containers made of glass shall be made of glass which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(59) Containers made of metal shall be made of metal which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

(60) Containers made of plastics material shall be made of plastics material which will not react with the contents and which will not weaken the container so as to cause a leakage of the contents.

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(2) Upon receipt of the report of the Commissioner, the Minister may, by order, declare that the provisions of this Part shall not apply to the operation of any specified transportation system or to any specified class of such operations.

(3) Where the Minister makes an order under subsection (2), the Minister shall forthwith give notice of the order to the Commissioner.

(4) Where the Minister makes an order under subsection (2), the Minister may, if the Minister considers it advisable, recommend to the Governor in Council that the Governor in Council exercise the powers conferred on the Governor in Council by section 110.

(5) Where the Minister makes an order under subsection (2), the Minister shall, forthwith after the order is made, cause a copy of the order to be published in the Canada Gazette.

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(19) Where the Minister makes an order under subsection (2), the Minister shall, forthwith after the order is made, cause a copy of the order to be published in the Canada Gazette.

(20) Where the Minister makes an order under subsection (2), the Minister shall, forthwith after the order is made, cause a copy of the order to be published in the Canada Gazette.

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capacity is determined immediately prior to filling/

(h) All primary containers and doublewalled tanks constructed of steel shall be protected by either:

(1) A properly installed/ maintained/ and monitored cathodic protection system with or without coatings/or

(2) Corrosion resistant materials of construction such as special alloys or fiberglass/reinforced plastic coatings/

Selection of the type of protection to be employed shall be based on the corrosion history of the area and the judgment of a registered corrosion engineer/

Authority: H&SC 25288.2

Reference: H&SC 25280, 25288

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Article 4. Existing Underground Storage Tank Monitoring Criteria

Adopt new section to read:

2640. Applicability

(a) All owners of existing underground storage tanks subject to this Subchapter shall implement, pursuant to the compliance date in Chapter 6.7 of Division 20 of the Health and Safety Code, a visual monitoring or monitoring alternative system that complies with this Article and is approved by the local agency. A local agency shall not issue a permit if the underground storage tank cannot be adequately monitored. To be adequate, the monitoring system must be capable of: determining the containment ability of the underground storage tank; detecting ~~active and historic unauthorized releases~~ any unauthorized release that may occur in the future; and, in certain situations, determining if hazardous substances are present in the area around the underground storage tank. ~~be capable of measuring the ground water quality directly~~ The failure to implement an approved monitoring system shall be cause for the local agency to require closure of the underground storage tank pursuant to Article 7 of this Subchapter.

(b) The objectives of the monitoring program for existing

underground storage tanks are: to determine if unauthorized releases are occurring ~~or have occurred in the past~~ and to detect unauthorized releases that occur in the future before ground water is affected. ~~and to directly measure the quality of the ground water underlying the tank. Therefore, Quitiple monitoring systems, as described in Sections 2641 through 2647, shall be implemented where technically feasible to existing tanks that do not have a secondary containment that meets the requirements of Article 3.~~

~~(c) The initial monitoring of all existing underground storage tanks shall, if feasible, be capable of determining if prior use of the underground storage tank has resulted in an unauthorized release. The soil sampling described in Section 2644 of this article shall be one method to meet this intent. Other methods which achieves this intent may be approved by a local agency.~~

(c) ~~(d)~~ All owners of existing underground storage tanks subject to this Subchapter shall implement visual monitoring as described in Section 2642 ~~2641~~ of this Article when feasible. If the entire underground storage tank is not susceptible to visual monitoring, but a significant portion of the underground storage tank can be visually monitored, then that portion of the underground storage tank shall be monitored visually.

Visual monitoring that can only be implemented during a portion of the year ~~due to flooding or the presence of other liquids~~ shall be utilized during those portions of the year when feasible. If ~~however, unless~~ visual monitoring cannot be ~~is~~ implemented for the entire underground storage tank throughout the entire year then a ~~other form of~~ monitoring alternative specified in Section 2641 shall also be implemented. The monitoring alternative shall be operative during those times when visual monitoring is not feasible or for those portions of the underground storage tank which are not susceptible to visual monitoring.

(d) ~~(e)~~ All owners of existing underground storage tanks subject to this Subchapter who are not able to implement visual monitoring as specified in Section 2642 ~~2641~~ of this Article shall implement a monitoring alternative ~~each alternate monitoring method as~~ specified in Section 2641 ~~2642 through 2646~~ of this Article. ~~Soils monitoring specified in Section 2644 of this article shall not be exempted based on the ability to implement visual monitoring unless an alternative monitoring method is approved by the local agency which meets the intent of subsection (c) of this section. If an owner demonstrates to the local agency that the exemption criteria should apply, the owner shall be relieved of the obligation to implement soils monitoring.~~

(e) The monitoring methods and frequencies specified in each monitoring alternative listed in Section 2641 are minimums. Local agencies, as a condition of approval of a specific monitoring alternative, shall require additional or more frequent monitoring if necessary to comply with the objectives specified in Subsection (b) of this Section and Subsection (d) of Section 2641 of this Article.

(f) Local agencies shall reduce the monitoring frequency for visual monitoring or a monitoring alternative listed in Section 2642 of this Article in situations where environmental conditions make it impracticable, physically impossible, or life threatening to complete the required monitoring.

~~(f) Additional monitoring methods that are equivalent to or better than the methods specified in this article may be approved by a local agency pursuant to the intent of subsections (b) and (c) of this section. Requests for the use of additional monitoring methods shall be subject to the applicable sections of Article 8. These additional methods may, upon the discretion of the local agency, remove the necessity to implement any or all of the alternatives described in Sections 2642 through 2646 provided that all monitoring objectives can be achieved~~

WITH THE ADDITIONAL METHODS/

(g) ALL OWNERS OF UNDERGROUND STORAGE TANKS SHALL, IF FEASIBLE, INSTALL AN ASSURANCE MONITORING SYSTEM WHICH MONITORS GROUND WATER BENEATH THE UNDERGROUND STORAGE TANK/ UNDERGROUND STORAGE TANK OWNERS ARE EXEMPT FROM THIS REQUIREMENT IF THEY MEET THE EXEMPTION CRITERIA CONTAINED IN SECTION 2643 OF THIS ARTICLE/

(h) ALL BORINGS AND WELLS CONSTRUCTED AND SAMPLED PURSUANT TO THIS ARTICLE SHALL UTILIZE THE CONSTRUCTION AND SAMPLING METHODS SPECIFIED IN SECTION 2648 OF THIS ARTICLE/

(i) ALL EXPLORATORY BORINGS OR SOIL SAMPLE COLLECTION BORINGS THAT ARE NOT CONVERTED TO A CASED MONITORING WELL SHALL BE BACKFILLED WITH BENTONITE GROUT OR SLURRY/

Authority: H&SC 25288.2

Reference: H&SC 25282, 25284, 25284.1

Adopt new section to read:

2642. 2643 Visual Monitoring

(a) Visual monitoring shall be utilized as the principal leak detection monitoring method, where feasible, for all or a portion of the exterior surfaces of an underground storage tank. All owners of existing underground tank owners shall implement visual monitoring for any exposed portion of an underground tank unless they demonstrate to the local agency that at least one of the exemption criteria of subsection (b) of this section is applicable. If visual monitoring is to be implemented, then the provisions of subsections (c) and (d) of this section shall be followed.

(b) If any one of the following conditions are met the owner is exempted from implementing visual monitoring for that portion to the tank which the condition applies.

(1) An owner may be exempted from visually monitoring any portion of an underground storage tank that is in contact with the ground, surface a floor or pad such that it cannot be seen. A tank in a saddle should not typically qualify for an exemption.

(2) If the act of visually inspecting the exterior of

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the underground storage tank would put a person in a physically unsafe environment.

(3) If a person would be required to use personal protection equipment (other than normal protective equipment, such as steel-toed shoes, hard hat, eye or ear protection, etc.) in order to visually inspect the entire ~~of the~~ underground storage tank.

(4) If the underground storage tank is located at a facility which is not staffed on a daily basis.

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

(1) Provisions that all accessible exterior surfaces of a tank and the surface of the floor directly beneath the tank shall be monitored by direct viewing.

(2) A written routine monitoring procedure shall be prepared and be available at the facility which includes: the frequency of visual inspections, the location(s) from which observerations will be made, the name(s) or title(s) of the person(s) responsible for performing the observations, and

the reporting format.

(3) Visual inspections shall be performed daily at a minimum, and shall be more frequent if necessary. The inspection schedule shall be established such that inspections occur on a routine basis ~~AT LEAST ONE INSPECTION SHALL BE PERFORMED~~ when the liquid level in the underground storage tank is at its highest. The inspection frequency shall be selected such that any unauthorized release will remain observable on the exterior of or the surface immediately beneath the underground storage tank between visual inspections. The evaluation of how long the hazardous substance remains observable shall consider the volatility of the hazardous substance and the porosity and slope of the surface immediately beneath the underground storage tank or portion thereof being visually monitored.

(4) Recordation and reporting of the observations made and the liquid level in the tank at the time of the inspection.

(d) The observation of any liquid on the exterior of or the surface immediately beneath the underground storage tank being visually monitored shall cause the owner or operator to implement all or a portion of the following

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actions. The applicable actions and their timing shall be based on the site-specific situation, shall be intended to determine if the observed liquid constitutes an unauthorized release; and shall be included in the permit.

(1) Laboratory or field analysis of the observed liquid.

(2) Testing of the underground storage tank utilizing the procedures described in Section 2643 ~~2642~~ of this Article.

(3) Removing all hazardous substances from the underground storage tank.

(e) Visual monitoring of the exposed portion of a partially concealed tank shall not relieve an owner from implementing monitoring for the concealed portion of the tank using a ~~the other~~ monitoring alternative specified ~~methods described~~ in Section 2641 this Article.

Authority: H&SC 25288.2

Reference: H&SC 25284.1, 25284.2

Adopt new section to read

2643. ~~2642~~ Underground Storage Tank Testing

(a) All owners of existing underground storage tanks implementing a monitoring alternative in Section 2641 of this Article which specifies tank testing ~~subject to this subchapter shall, except as provided in subsection (b) of this section~~ implement a testing program pursuant to Subsections (b) ~~(c)~~ through (f) ~~(g)~~ of this Section.

~~(b) Owners of existing underground storage tanks are exempted from implementing an underground storage tank testing program if they can demonstrate to the local agency that at least one of the following conditions applies:~~

~~(1) If visual monitoring pursuant to Section 2641 of this Article is implemented;~~

~~(2) If any test which meets the conditions described in subsection (c) of this section cannot be performed within significant exceedance;~~

(b) ~~(c)~~ Testing of underground storage tanks shall utilize a method capable of detecting a release of a hazardous substance ~~less of~~ at a rate of ~~least~~ 0.05 gallons per

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hour (gph) or less. These methods are limited to those tests that make adjustments for all of the following, if applicable:

(1) the presence of vapor pockets,

(2) thermal expansion or contraction of the hazardous substance, which include any density considerations,

(3) temperature stratification in the tank,

(4) evaporation,

(5) pressure variations in the tank, and

(6) deflection of the tank ends.

(c) Testing of pipelines which have been isolated may utilize a hydrostatic pressure test in lieu of the test required in Subsection (b) of this Section. This hydrostatic pressure test shall be conducted at a pressure of between 35 and 50 psi (2600 mm Hg). A pressure drop of more than 5 psi (260 mm Hg) per minute indicates a leaking pipeline. A pressure drop of less than 5 psi (260 mm Hg) but greater than zero is inconclusive and a test pursuant to Subsection (b) of

this Section shall be performed. The test shall be performed for at least five minutes.

(d) The test required in this Section shall be performed by personnel who have received training in appropriate test procedures. The person performing the test shall certify that the test procedure utilized takes into account the variables specified in Subsection (b) of this Section and is capable of measuring leaks of 0.05 gallons per hour or less. Additionally, within one year after the development of a listing or certification procedure for this type of test, only listed or certified tests shall be accepted.

(d) Underground storage tanks shall be tested according to the following schedule:

Category A: Unclad steel tanks without corrosion protection: within one year of permit issuance and yearly beginning ten (10) years after tank installation;

Category B: Corrosion resistant tanks (1): 1 + within one year of permit issuance and yearly beginning fifteen (15) years after tank installation;

(1) Corrosion resistant tanks include fiberglass reinforced plastic (FRP); cathodically

~~protected steel, and FRP-clad steel tanks.~~

(e) Within thirty days of completion of the leak detection test, the underground tank owner shall provide the local agency with a report presenting the following information:

(1) The procedures used (including any deviations from those recommended by the developer of the tank test procedure ~~manufacturer~~) for the leak detection method;

(2) The test results used in determining the volumetric rate of product loss; and

(3) The volumetric rate of product loss.

(4) The information shall be presented in written and/or tabular format as appropriate and shall be at a level of detail appropriate for the test procedure used.

(f) Underground tanks which are found to lose product at a rate greater than or equal to 0.05 gph shall be repaired or replaced as specified in Articles 6 and 7, respectively.

(g) The results of any tests, other than those required by this Article, performed on the underground storage tank ~~at any other interval~~ to determine if the underground storage tank is leaking shall be reported by the tank owner to the local agency within thirty days of completion. ~~as specified in subsection (e)(3) above~~

(h) Underground storage tanks or pipelines containing flammable or combustible liquids shall not be pressure tested using air or other gases.

~~(h) All pressurized portions of an underground storage tank shall be monitored utilizing an on-line pressure loss detector and flow reduction device. The detector shall be connected to a visual or audible alarm system. The flow reduction device shall reduce the the flow to no more than 50 percent of the minimum flow under non pressure loss situations (i.e., normal operations).~~

Authority: H&SC 25288.2

Reference: H&SC 25284, 25284.1, 25284.2

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Adopt new section to read:

2641. Monitoring Alternatives

(a) All owners of existing underground storage tanks subject to this Subchapter who cannot implement visual monitoring for the entire underground storage tank during all periods of the year shall implement, within the time allowed, one of the monitoring alternatives specified in Subsection (e) of this Section.

(b) The local agency shall review the monitoring alternative proposed based on the specification in Subsection (d) of this Section and shall approve the monitoring alternative if they find that all aspects of the monitoring alternative can be implemented and that the monitoring alternative will satisfy the objectives listed in Subsection (b) of Section 2640 of this Article. If the proposed monitoring alternative cannot be approved, then the local agency may request the submittal of another proposed monitoring alternative or may specify the implementation of a monitoring alternative.

(c) The optional monitoring alternatives are as follows:

(1) Underground Storage Tank Testing

(A) This monitoring alternative shall at a minimum utilize the procedures specified in Section 2643 of this Article and shall be performed monthly at a minimum.

(2) Vapor or other Vadose Zone Monitoring and Ground Water Monitoring with Soil Sampling

(A) This monitoring alternative shall at a minimum include vadose zone monitoring, ground water monitoring, and soil sampling at the time the boring(s) and well(s) are installed.

(B) The vadose zone monitoring shall be designed and installed pursuant to the procedures specified in Section 2646 and 2648 of this Article. Vadose zone monitoring shall be performed either continuously or daily.

(C) Ground water monitoring wells shall be designed and installed according to the procedures specified in Section 2647 and 2648 of this Article and monitored semi-annually at a minimum. The minimum number of wells shall be as specified on Table 4.1 for alternative

TABLE 4.1 MONITORING ALTERNATIVES*

ALTERNATIVE	METHOD	MINIMUM MONITORING FREQUENCY	REFERENCE SECTION	COMMENTS AND CONDITIONS PROHIBITING USE OF ALTERNATIVE*
1	Tank Testing	Monthly	Section 2643	None
2	Vapor or Other Vadose Zone Monitoring Method and Ground Water and Soils	Daily Semi-annual One-Time	Section 2646 Section 2647 Section 2645	1. Must be able to do both vadose and ground water monitoring. 2. Ground water should normally be less than 100 feet deep to use this alternative. 3. Minimum number of ground water monitoring wells a. Ground water equal to or less than 50 feet deep. o Single tank (<1,000 gal) - one downgradient well. o Single tank (>1,000 gal) - two wells, one of which shall be downgradient. o Three tanks (same excavation) -one well per tank equally spaced, at least one of which shall be downgradient. o Four or more tanks (same excavation) or tank(s) in closely spaced excavations - four wells, at least two of which shall be downgradient and the remainder equally spaced. o Pipelines - additional wells as determined by the local agency. b. Ground water greater than 50 feet deep. o Single tank -one downgradient well. o Multiple tanks or closely spaced tank excavations - three wells uniformly spaced. o Pipelines - additional wells as determined by the local agency.
3	Vadose and Soils and Tank Testing	Daily One-Time Annual	Section 2646 Section 2645 Section 2643	This alternative shall not be used when first ground water is less than 100 feet deep and: 1. First ground water has actual or potential beneficial uses (municipal, domestic, industrial, or agricultural supply, or 2. First ground water is hydraulically connected to ground water which has or potentially has beneficial uses.
4	Ground Water and Soils	Weekly One-Time	Section 2647 Section 2645	1. Use of this alternative shall be limited to the following situations: a. Perennial ground water is normally less than 30 feet deep, and b. The ground water being monitored does not have any actual or potential beneficial use, municipal, domestic, agricultural, or industrial supply), and c. The ground water being monitored is not hydraulically connected to ground water which has any actual or potential beneficial uses (municipal, domestic, agricultural, industrial supply), and d. The monitoring well can be screened in the area 10 feet above the highest perennial ground water level and 20 feet below the lowest ground water level. 2. Minimum number of ground water monitoring wells - See Section 3a. of Alternative No. 2.

TABLE 4.1 MONITORING ALTERNATIVES*

ALTERNATIVE	METHOD	MINIMUM MONITORING FREQUENCY	REFERENCE SECTION	COMMENTS AND CONDITIONS PROHIBITING USE OF ALTERNATIVE*
5	Inventory Reconciliation and Tank Testing and Pipeline Leak Detectors	Daily Annually Continuous	Section 2644 Section 2643	1. Must use approved meters for tank inputs and withdrawals. 2. Inventory reconciliation which exceeds an allowable measurement error plus 0.15 percent of throughput at any time during a 30-day period shall require further investigation: Tank Size — Allowable Measurement Error <4000 — 25 gallons 4000 to <8000 — 50 gallons 8000 to <12,000 — 75 gallons >12,000 — 100 gallons 3. Limited to motor vehicle fuels storage tanks.
6	Inventory Reconciliation and Tank Testing and Pipeline Leak Detectors and Vadose Monitoring or Ground Water Monitoring	Daily Annual Continuous Variable Variable	Section 2644 Section 2643 Section 2646 Section 2647	1. Must use approved meters for tank inputs and withdrawals. 2. Inventory reconciliation which exceeds any of the following shall require further investigation a. Daily variation - >150 gallons b. Weekly variation - >0.5 percent of throughput but no greater than 350 gallons c. Monthly variation - >0.5 percent of throughput no less than 150 gallons 3. Minimum number of ground water wells - See Alternative No. 2. 4. Limited to motor vehicle fuels storage tanks.
7	Tank Gauging and Tank Testing	Weekly Annually	Section 2644 Section 2643	This alternative is limited to use on small tanks that normally do not have any input or withdrawals (e.g., standby generator fuel tanks) in which the liquid level in the tank can be measured to the accuracy of ½ gallons.
8	Tank Testing and Inventory Reconciliation or Tank Gauging	Annually Daily Daily or Weekly	Section 2643 Section 2644 Section 2644	1. This is an interim monitoring alternative that can be implemented for up to three years. 2. Inventory reconciliation shall utilize approved meters for inputs and withdrawals and shall maintain variations within the limits specified in Alternative No. 6. 3. Tank gauging is limited to use on tanks described in Alternative No. 7 and to those tanks that can eliminate inputs and withdrawals three times per week for 12 hours each. A liquid level difference of 1 percent of the tank volume but not greater than 50 gallons shall be cause for further investigation.

* This table is provided as a summary of the various monitoring alternatives. Section 2641 shall be used to determine the actual requirements for each monitoring alternative.

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no. 3. Analysis of samples collected can be by visual observation or field or laboratory analysis as determined by the local agency depending on the constituents being evaluated.

(D) The soil sampling and analysis shall be performed as specified in Sections 2645 and 2648 of this Article. Samples shall be taken from all boring(s) and well(s) installed.

(3) Vadose Zone Monitoring, Soil Sampling and Underground Storage Tank Testing

(A) This monitoring alternative shall at a minimum include vadose zone monitoring and soil sampling at the time the boring(s) are installed. This alternative shall not be approved if first perennial ground water, including perched ground water, is less than 100 feet deep and this ground water has actual or potential beneficial uses (domestic, municipal, agricultural or industrial supply) or is hydraulically connected to ground water which has actual or potential beneficial uses.

(B) The determination of first ground water shall be by on-site boring constructed according to

the specifications of of Subsection (1) of Section 2648 of this Article or by evidence based on recently constructed nearby wells or borings that first ground water is significantly deeper than 100 feet.

(C) Vadose zone monitoring shall be designed and installed pursuant to the procedures specified in Section 2646 and 2648 of this Article. Vadose zone monitoring shall be performed either continuously or daily.

(D) The soil sampling and analysis shall be performed as specified in Section 2645 and 2648 of this Article. Samples shall be taken from all borings installed.

(E) Underground storage tank testing shall be performed yearly at a minimum according to the procedures specified in Section 2643 of this Article.

(4) Ground Water and Soil Testing

(A) This monitoring alternative shall, at a minimum, utilize ground water sampling and soils sampling and analysis at the time of

well installation. This alternative shall not be approved if any of the following conditions exist:

(i) Perennial ground water is normally greater than 30 feet deep; or

(ii) The ground water being monitored has actual or potential beneficial uses (domestic, municipal, industrial or agricultural supply) or is hydraulically connected to ground water which has actual or potential beneficial uses; or

(iii) The ground water monitoring well cannot be screened within the interval 10 feet above the highest perennial ground water to 20 feet below the lowest perennial ground water level.

(B) Ground water monitoring wells shall be designed and installed according to the procedures specified in Sections 2647 and 2648 of this Article and shall be monitored monthly at a minimum. The minimum number of monitoring wells shall be as specified in Table 4.1 for alternative no. 4. Analysis of samples collected can be by visual observation

or field or laboratory analysis as determined by the local agency depending on the constituents being evaluated.

(C) The soils sampling and analysis shall be performed as specified in Sections 2645 and 2648 of this Article. Samples shall be taken from all wells installed.

(5) Inventory Reconciliation, Underground Storage Tank Testing and Pipeline Leak Detectors

(A) This monitoring alternative shall, at a minimum, utilize inventory reconciliation, underground storage tank testing and pipeline leak detectors. The use of this alternative is limited to those underground storage tanks which contain motor vehicle fuels.

(B) Inventory reconciliation shall be performed according to the procedures specified in Section 2644 of this Article. The owner or operator of an underground storage tank that experiences a variation in inventory reconciliation in excess of allowable variation(s) shall implement the evaluation procedures specified in Subsection (f) of

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Section 2634 of Article 3 within the times specified.

(i) The daily variation in inventory reconciliation shall be the difference between the calculated volume in storage and the actual volume in storage.

(ii) If the calculated variation is absed on the previous day's physically measured inventory, the sum of the daily variations (considering positive and negative values) shall not exceed the allowable variation.

(iii) If the calculated variation is based on the previous day's calculated inventory, then the daily variation shall not exceed the allowable variation. The calculated inventory on any given day shall be based on continuous calculations from the base day which utilized the physical inventory. The period of continuous calculations shall be no greater than 30 days.

(iv) The throughput error shall be measured throughput during the period under consideration times .15 percent (.0015).

(v) The allowable variation shall be the sum of the measurement error from Table 4.2 and the throughput error calculated in accordance with Subsection (iv) of this Subsection.

Table 4.2

Tank Size*	Allowable Measurement Error*
<4000	25
4000 to <8000	20
8000 to <12000	75
>12000	100

* all values in gallons

(C) Underground storage tank testing shall be performed yearly at a minimum according to the procedures specified in Section 2643 of this Article.

(D) All pressurized pipelines shall be monitored using an automatic on-line pressure loss

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detector and flow restriction device. The detector shall be connected to a visual or audible alarm system unless it provides for at least a 50 percent reduction from the normal flow rates. Suction pipelines shall be monitored daily for indications of possible leaks.

(6) Inventory Reconciliation, Underground Storage Tank Testing, Pipeline Leak Detectors, Vadose Zone or Ground Water Monitoring and Soil Testing

(A) This monitoring alternative shall, at a minimum, utilize inventory reconciliation, underground storage tank testing, and pipeline leak detectors. In addition, either vadose zone or ground water monitoring shall be included and soil sampling at the time of borings or well installation.

(B) Inventory reconciliation shall be performed according to the procedures specified in Section 2644 of this Article. The owner or operator of an underground storage tank that experiences a variation in excess of any of the following shall implement the evaluation procedures specified in Section 2634 of

Article 3 within the times specified.

(i) daily variation ± 100 gallons

(ii) 7-day variation ± 5% of throughput or 100 gallons whichever is greater but, in no case, greater than 350 gallons

(iii) greater than 30-day variation ± 0.5% of throughput or 100 gallons whichever is greater

(C) Underground storage tank testing shall be performed yearly at a minimum according to the procedures specified in Section 2643 of this Article.

(D) All pressurized pipelines and suction pipelines shall be monitored as provided for in Subsection (d) of Subsection (5) of this Subsection.

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(E) Vadose zone monitoring, if used, shall be designed and installed according to the procedures specified in Sections 2646 and 2648 of this Article. The frequency of monitoring shall be based on the number and proximity of monitoring locations to the underground storage tank and type of sampling and analysis; however, in no case shall monitoring be less frequent than semi-annually.

(F) Ground water monitoring, if used, shall be designed and installed according to the procedures specified in Sections 2647 and 2648 of this Article. The minimum number of monitoring wells shall be as specified in alternative no. 6 on Table 4.1. Analysis of samples collected can be by visual observation or field or laboratory analysis as determined by the local agency depending on the constituents being evaluated. Ground water samples shall be collected and analyzed at least semi-annually.

(G) The soil sampling and analysis shall be performed as specified in Sections 2645 and 2648 of this Article. Samples shall be taken from all borings and wells installed.

(7) Underground Storage Tank Gauging and Testing

(A) This monitoring alternative shall, at a minimum, utilize gauging and testing of the underground storage tank. This alternative shall only be utilized for tanks which do not normally have frequent inputs or withdrawals and where the liquid level in the tank can be measured to an accuracy of ± 5 gallons or less when the liquid is at the most sensitive measuring level in the underground storage tank.

(B) The underground storage tank gauging shall be performed according to the following specifications:

(i) The underground storage tank shall be capable of being secured to prevent unauthorized inputs or withdrawals; and

(ii) Tank liquid level measurements shall be taken at the beginning and end of consecutive periods, each lasting at least 5 days. No input or withdrawals shall occur during these periods. The liquid level measurement at the

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of this Article according to the following:

(1) Whenever possible, a method of monitoring other than ground water monitoring shall be performed monthly at a minimum.

(2) In cases where the underground storage tank is in a recharge area and the ground water has an actual or potential use (domestic, municipal, agricultural, or industrial supply), a monitoring method other than ground water monitoring shall be utilized on a monthly or more frequent basis for leak detection monitoring. Furthermore, ground water monitoring shall be implemented in these situations if ground water is less than 100 feet deep.

Authority: H&SC 25288.2

Reference: H&SC 25284.1

Adopt new section to read:

2642. 2641 Visual Monitoring

(a) Visual monitoring shall be utilized as the principal leak detection monitoring method, where feasible, for all or a portion of the exterior surfaces of an underground storage tank. All owners of existing underground tank owners shall implement visual monitoring for any exposed portion of an underground tank unless they demonstrate to the local agency that at least one of the exemption criteria of subsection (b) of this section is applicable. If visual monitoring is to be implemented, then the provisions of subsections (c) and (d) of this section shall be followed.

(b) If any one of the following conditions are met the owner is exempted from implementing visual monitoring for that portion to the tank which the condition applies.

(1) An owner may be exempted from visually monitoring any portion of an underground storage tank that is in contact with the ground, surfaced a floor or pad such that it cannot be seen. A tank in a saddle should not typically qualify for an exemption.

(2) If the act of visually inspecting the exterior of

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beginning and end of each period shall be performed by the same person.

(iii) Underground storage tank testing shall be performed yearly at a minimum according to the procedures specified in Section 2643 of this Article.

(8) Interim Alternate Monitoring

(A) This alternative monitoring method shall, at a minimum, utilize underground storage tank testing and either inventory reconciliation or tank gauging. This alternative shall only be used by any of the following catagories of owners for a period of up to 3 years after the effective date of these regulations.

(i) Small businesses as defined in Subsection 11342(e) of the Government Code, non-profit organizations which would meet the criteria for a small business, provided the owner of the small business demonstrates to the local agency that sufficient funds will be available to properly close the underground storage tank pursuant to this Article or to implement one of the first 7 monitoring

alternatives within the three year period; or

(ii) Any underground storage tank owner who provides a written commitment to the local agency that the underground storage tank will be closed according to the procedures specified in Article 7 within 3 years (following closure, the underground storage tank can be replaced with a new underground storage tank complying with the provisions of Article 4 of this Subchapter). The local agency shall not issue a permit allowing this monitoring alternative for longer than three years and shall not renew the permit.

(iii) Any governmental agency that demonstrates to the local agency that, due to budgetary constraints the governmental agency needs additional time to implement one of the first 7 monitoring alternatives. The local agency shall not issue a permit allowing this monitoring alternative for longer than 3 years and shall not renew the permit.

(d) The local agencies shall evaluate each monitoring alternative proposed to determine if it achieves the objectives specified in Subsection (b) of Section 2640

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the underground storage tank would put a person in a physically unsafe environment.

(3) If a person would be required to use personal protection equipment (other than normal protective equipment, such as steel-toed shoes, hard hats, eye or ear protection, etc.) in order to visually inspect the entire of the underground storage tank

(4) If the underground storage tank is located at a facility which is not staffed on a daily basis.

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

(1) Provisions that all accessible exterior surfaces of a tank and the surface of the floor directly beneath the tank shall be monitored by direct viewing.

(2) A written routine monitoring procedure shall be prepared **and be available at the facility** which includes: the frequency of visual inspections, the location(s) from which observations will be made, the name(s) or title(s) of the person(s) responsible for performing the observations, and

the reporting format.

(3) Visual inspections shall be performed daily at a minimum, and shall be more frequent if necessary. **The inspection schedule shall be established such that inspections occur on a routine basis or least one inspection shall be performed when the liquid level in the underground storage tank is at its highest.** The inspection frequency shall be selected such that any unauthorized release will remain observable on the exterior of or the surface immediately beneath the underground storage tank between visual inspections. The evaluation of how long the hazardous substance remains observable shall consider the volatility of the hazardous substance and the porosity and slope of the surface immediately beneath the underground storage tank or portion thereof being visually monitored.

(4) Recordation and reporting of the observations made and the liquid level in the tank at the time of the inspection.

(d) The observation of any liquid on the exterior of or the surface immediately beneath the underground storage tank being visually monitored shall cause the owner or operator to implement all or a portion of the following

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actions. The applicable actions and their timing shall be based on the site-specific situation; shall be intended to determine if the observed liquid constitutes an unauthorized release; and shall be included in the permit.

(2) Laboratory or field analysis of the observed liquid.

(3) Testing of the underground storage tank utilizing the procedures described in Section 2643 ~~2642~~ of this Article.

(3) Removing all hazardous substances from the underground storage tank.

(e) Visual monitoring of the exposed portion of a partially concealed tank shall not relieve an owner from implementing monitoring for the concealed portion of the tank using a the other monitoring alternative specified methods described in Section 2641 this Article.

Authority: H&SC 25288.2

Reference: H&SC 25284.1, 25288.2

Add new section to read

2643. ~~2642~~ Underground Storage Tank Testing

(a) All owners of existing underground storage tanks implementing a monitoring alternative in Section 2641 of this Article which specifies tank testing pursuant to this subchapter shall, except as provided in subsection (b) of this section implement a testing program pursuant to Subsections (b) (c) through (f) (g) of this section.

~~(b) Owners of existing underground storage tanks are exempted from implementing an underground storage tank testing program if they can demonstrate to the local agency that at least one of the following conditions applies:~~

~~(1) If visual monitoring pursuant to Section 2641 of this Article is implemented;~~

~~(2) If any test which meets the conditions described in subsection (c) of this section cannot be performed without significant excavation;~~

(b) (c) Testing of underground storage tanks shall utilize a method capable of detecting a release of a hazardous substance loss of at a rate of least 0.05 gallons per

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hour (gph) or less. These methods are limited to those tests that make adjustments for all of the following, if applicable:

(1) the presence of vapor pockets

(2) thermal expansion or contraction of the hazardous substance, which include any density considerations.

(3) temperature stratification in the tank.

(4) evaporation

(5) pressure variations in the tank, and

(6) deflection of the tank ends.

(c) Testing of pipelines which have been isolated may utilize a hydrostatic pressure test in lieu of the test required in Subsection (b) of this Section. This hydrostatic pressure test shall be conducted at a pressure of between 35 and 50 psi (2600 mm Hg). A pressure drop of more than 5 psi (260 mm Hg) per minute indicates a leaking pipeline. A pressure drop of less than 5 psi (260 mm Hg) but greater than zero is inconclusive and a test pursuant to Subsection (b) of

this Section shall be performed. The test shall be performed for at least five minutes.

(d) The test required in this Section shall be performed by personnel who have received training in appropriate test procedures. The person performing the test shall certify that the test procedure utilized takes into account the variables specified in Subsection (b) of this Section and is capable of measuring leaks of 0.05 gallons per hour or less. Additionally, within one year after the development of a listing or certification procedure for this type of test, only listed or certified tests shall be accepted.

(e) Underground storage tanks shall be tested according to the following schedule:

Category A: Corrosion resistant tanks without corrosion protection - within one year of permit issuance and yearly beginning ten (10) years after tank installation.

Category B: Corrosion resistant tanks (1) - within one year of permit issuance and yearly beginning fifteen (15) years after tank installation.

(1) Corrosion resistant tanks include fiberglass reinforced plastic (FRP), cathodically

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protected steel, and FRP-clad steel tanks.

(e) Within thirty days of completion of the leak detection test, the underground tank owner shall provide the local agency with a report presenting the following information:

(1) The procedures used (including any deviations from those recommended by the developer of the tank test procedure manufacturer) for the leak detection method;

(2) The test results used in determining the volumetric rate of product loss; and

(3) The volumetric rate of product loss.

(4) The information shall be presented in written and/or tabular format as appropriate and shall be at a level of detail appropriate for the test procedure used.

(f) Underground tanks which are found to lose product at a rate greater than or equal to 0.05 dpa shall be repaired or replaced as specified in Articles 6 and 7, respectively.

(g) The results of any tests, other than those required by this Article, performed on the underground storage tank at any other interval to determine if the underground storage tank is leaking shall be reported by the tank owner to the local agency within thirty days of completion, as specified in subsection (e)(4) above.

(h) Underground storage tanks or pipelines containingflammable or combustible liquids shall not be pressure tested using air or other gases.

(i) All pressurized portions of an underground storage tank shall be monitored utilizing an on-line pressure loss detector and flow reduction device. The detector shall be connected to a visual or audible alarm system. The flow reduction device shall reduce the the flow to no more than 50 percent of the minimum flow under non pressure loss situations (i.e., normal operations).

Unity: H&SC 25288.2

Reference: H&SC 25284, 25284.1, 25284.2

Adopt new section to read:

2644. ~~2643~~ Inventory Reconciliation ~~Control~~

(a) All owners of existing underground storage tanks implementing a monitoring alternative in Section 2641 of this Article which specified inventory reconciliation ~~subject to this subchapter~~ shall ~~except as provided for in subsection (b) of this section~~ implement an inventory reconciliation control program as described in subsections (b) ~~(e)~~ through (f) of this section. This requirement may be transferred to the operator pursuant to provisions of Section 25284.2 of the Health and Safety Code.

~~(b) Owners of existing underground storage tanks are exempted from implementing an inventory control program if they can demonstrate to the local agency that the hazardous substance is not susceptible to accepted technologically available metering.~~

(b) ~~(c)~~ All tanks shall be individually monitored utilizing a daily inventory reconciliation ~~control~~ system that takes into account: daily tank quantity measurements for both tank contents and any water layer; and, daily ~~retail~~ meter readings for tank input and withdrawals. ~~delivery records for outgoing product; and daily wholesale meter delivery records for incoming product~~ Tank input meters shall be calibrated within the accuracy required for meters used for wholesale transactions in California. Meters for tank withdrawals shall be calibrated within the accuracy required for meters used for retail sales transactions in California. Meters shall be approved for use by the County Department of Weights and Measures or be a person licensed by the County Department of Weights and Measures.

(c) For the purpose of this section, "daily" shall be defined as days during which inputs or withdrawals are made to or from the underground storage tank. This shall be a minimum of 5 days per week. This minimum may be reduced for public holidays that fall on Monday through Friday, provided no inputs or withdrawals are made on the holiday.

(d) Tank quantity measurements shall be based on liquid elevation measurements which are:

~~(1) Capable of measuring to one-eighth of an inch;~~

(1) ~~(2)~~ Performed during periods of no tank additions or withdrawals;

(2) [3] Performed by the tank owner, operator or other designated managerial personnel who have had appropriate training;

(3) [4] Based on the average of two readings if stick or tape gage measurements are used;

(4) [5] Capable of detecting a water layer at the lowest end of the tank, if possible,

(5) [6] 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 initial measurements at both ends, if possible, to determine if any tank tilt exists and, if so, its magnitude; and

(6) [7] Converted to volume measurements based on a calibration chart provided by the tank manufacturer or supplier. This chart shall, if possible, take into account the actual tilt of the tank as determined initially as described in Subsection (6) above.

(e) Wholesale meter deliveries delivery records shall be verified according to the following procedure which

utilizes the criteria described in Subsection (d) of this Section. All liquid level measurements, conversion to liquid volumes, and meter readings shall be recorded and maintained as part of the inventory reconciliation records.

(1) Prior to any delivery, the volume of actual tank content shall be determined and, if product is to be removed from the tank during delivery, the retail meter totalizer reading(s) shall be recorded.

(2) Following a delivery, the volume of the actual tank content shall be determined and, if product was removed from the tank during the delivery, the retail meter totalizer reading(s) shall be recorded.

(3) Based on the above readings, a determination shall be made of the increase or decrease in the volume of water in the tank and the increase or decrease in the volume of product in the tank. This figure shall be compared with the metered volume of the product delivery. The volume shall be temperature corrected, if necessary.

(4) A difference of more than the greater lesser of

one-half percent of the delivery volume or 100 50 gallons shall be cause for a reevaluation of the measurements. This reevaluation shall initially include collection of the information required in Subsection (e)(2) of this Section.

~~(f) Underground tanks used for storage of motor vehicle fuels that have a loss or gain of product or water as determined by daily dowing and inventory control of greater than any of the following shall be evaluated according to the methods and time schedules provided for in Subsection (f) of Section 2634 of Article 3:~~

~~(1) Daily loss or gain of 50 gallons; or~~

~~(2) Seven (7) day loss or gain of five percent of the volume of motor vehicle fuel delivered over the seven days; or~~

~~(3) Cumulative (calculated over a period of at least thirty (30) days) loss or gain of one-half percent of the volume of motor vehicle fuel delivered over the period that the cumulative loss or gain is calculated.~~

(f) The owner or operator shall, on a quarterly basis, submit a statement to the local agency, under penalty of

perjury, that the person signing the statement has reviewed the inventory reconciliation data and that either: the data is within allowable variations, or a listing of the dates and varations that exceed the allowable.

Authority: H&SC 25288.2

Reference: H&SC 25284, 25284.1

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Adopt new section to read:

2645. 2644 Soil Testing and Exploratory Boring

(a) Except for those tanks that have been granted an exemption under subsection (b) of this section. All owners of existing underground storage tanks implementing one of the monitoring alternatives described in Section 2641 of this Article which requires borings for vadose zone and ground water monitoring shall implement soil testing pursuant to subject to this subchapter shall implement an evaluation as described in Subsections (b) (1) through (n) (a) of this Section. To determine if prior usage of the underground storage tank has resulted in an unauthorized release.

(b) Exemptions to soil testing at specific underground storage tank locations may be granted by the local agency if any of the following situations exist and if they are confirmed by the local agency.

(1) Proximity to physical obstacles prevent the positioning and operation of drilling equipment within a horizontal distance of 15 feet from the tank.

(2) Soil conditions prevent drilling by any generally

existing technique.

(c) At least one slant boring shall be drilled as close as possible to the tank and shall be directed so as to intercept a point that has been projected vertically downward from the midpoint of the tank and is 50 feet below the invert of the tank. If slant drilling and soils collection is not possible, then vertical borings pursuant to subsection (a) of this section shall be drilled.

(d) At those sites where slant drilling is precluded but vertical drilling is feasible, at least one vertical boring shall be drilled on each long dimensional side of the tank. The borings shall be located within 10 feet of the tank opposite the midpoint of the long dimension of the tank and shall be drilled to a depth of at least 50 feet below the invert of the tank. Soil samples shall be obtained in accordance with Subsection (e) of this section.

(e) Soil samples shall be obtained from the boring(s) according to the following procedures.

(1) Undisturbed soil samples shall be obtained at vertical intervals no greater than 5 feet beginning at the ground surface and proceeding to the target

depth of the boring or to the ground water level in borings encountering ground water, whichever occurs first.

(2) The soil samples shall be collected, transported, stored, and analyzed according to approved EPA methods.

(3) Analysis of the individual soil samples shall be as follows:

(A) If more than one boring is utilized, samples from the same depth from each boring may be composited for analysis, if such possible without loss of constituents prior to analysis.

(b) Undisturbed (intact) soil samples shall be recovered from all borings used for the implementation of vadose zone or ground water monitoring.

(c) Soil samples shall be taken at intervals of 5 feet or less beginning at the ground surface, but sampling shall not be required below the water table nor in unweathered bedrock which has little or no primary permeability.

(d) A soil sample shall also be obtained at the termination

depth of a dry boring regardless of the spacing interval.

(e) Borings shall be drilled and sampled by techniques that do not introduce liquids into the boring and that allow the accurate detection of perched and saturated zone ground water.

(f) Borings shall be described in accordance with the provisions of Sections 2648(p) and (q) of this Article.

(g) Soil samples shall be of sufficient volume to perform the designated analyses including soil vapor and soil extract analyses and to provide replicate analyses, if specified.

(h) If more than one boring is utilized, composite samples consisting of material from the same depth from each boring may be used for laboratory analysis if such samples can be made without loss of constituents prior to analysis.

(i) Samples shall be prepared, stored, and transported by appropriate EPA methods or other similar or superior methods approved by the local agency.

(j) Samples shall be analyzed by field or laboratory methods

that provide quantitative results. EPA-approved methods or other methods of similar or superior precision and accuracy that are approved by the local agency shall be used.

(k) 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, then analysis shall be 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.

(l) ~~(B) Samples may be analyzed in any order of depth.~~ If levels of hazardous substances known or suspected to have been be contained in the underground storage tank are detected at concentrations in excess of ~~above~~ background concentrations if the constituent occurs naturally at the site ~~then further soils analysis is not necessary pursuant to this subsection. However, the following additional actions will be required (1)~~ the hazardous substance(s) shall ~~will~~ be assumed to have originated from the underground storage tank. ~~and~~ A permit shall not be granted unless ~~A permit may be granted~~ if further detailed investigation clearly

establishes that the underground storage tank is not the source of the hazardous substance, or that the tank has been properly repaired since the unauthorized release, and that any subsequent unauthorized release from the tank can be detected despite ~~adequately monitored with~~ the presence of the hazardous substance already in the environment.

~~(2) (1) Further investigation pursuant to Sections 13267(b) and 13304 of the California Water Code will be needed to determine the significance and extent of any soil or ground water contamination due to the unauthorized release. This may involve, but is not limited to, analysis of the remaining soil samples and/or ground water sampling and analysis.~~

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

and/or transformation-constituents.

(h) All borings shall be logged in detail and the soils described according to the Unified Soils Classification System by a registered civil engineer or registered geologist competent in soils engineering or a certified engineering geologist.

(i) All wet zones above the free water zone shall be noted and accurately logged.

(m) (f) If soil analysis indicates that an unauthorized release has occurred, the permittee shall report the release pursuant to Article 5 of this Subchapter and shall repair or abandon the underground storage tank pursuant to Article 6 or 7 of this Subchapter.

(n) (g) If evidence of an unauthorized release is not detected, an alternative leak detection monitoring system shall be installed pursuant to Section 2641 of this Article. 2645 or 2646 and an assurance monitoring system shall be installed according to Section 2647.

Authority: H&SC 25288.2

Reference: H&SC 25284.1

Adopt new section to read:

2646. (2647) Vadose Zone Detection Monitoring

(a) All owners of existing underground storage tanks implementing one of the monitoring alternatives described in Section 2641 of this Article which requires vapor or another form of vadose zone monitoring shall subject to this subchapter shall either as provided in subsection (b) of this section implement the a vadose zone detection monitoring system pursuant to Subsections (b) (c) through (h) of this Section.

(b) Owners of existing underground storage tanks are exempted from implementing a vadose zone monitoring system if they can demonstrate to the local agency that at least one of the following conditions apply:

(1) Proximity to physical constraints prevent the positioning and operation of drilling equipment, including hand equipment if required, within a horizontal distance of 15 feet from the underground storage tank;

(2) Ground water is periodically above a point 5 feet below the invert of the underground storage tank and vadose zone monitoring is not possible due to

the characteristics (e.g., volatility) of the hazardous substance(s) stored. Vapor monitoring is required when possible to complement leak detection ground water monitoring as described in Section 2260 of this article.

(2) Vadose zone monitoring is not required if the hazardous substance(s) being stored is not susceptible to detection by vadose zone monitoring methods.

(3) Visual monitoring of the entire tank pursuant to Section 2261 of this article has been implemented.

(b) (c) Vadose zone monitoring shall may consist of vapor monitoring, or soil-pore liquid monitoring, or other forms of vadose zone monitoring, or a Combinations of these both methods may be used.

(c) Wells for vapor monitoring shall be fully perforated except for that portion opposite a surface seal and that portion of the bottom of a well where a plugged, blank section of casing is used as a free liquid trap.

(d) The number, location and depths of vadose zone monitoring points shall be selected so as to give the earliest possible warning of any unauthorized release

from the underground storage tank.

(e) Subsurface systems shall, if possible, be located within the backfill surrounding the tank. If possible

(f) Vapor monitoring for underground storage tanks may be used in accordance with the following criteria if the vapor characteristics of the stored product are susceptible to detection:

(1) Before any method of vapor monitoring is approved for a specific site, it shall be demonstrated by an actual on-site demonstration, using an appropriate tracer substance, that vapor would actually be detected by the installed system.

(2) The location and depth at which each sensor is placed relative to the tank shall be determined according to the most probable movement of vapor through the backfill or surrounding soil.

(3) Vapor Vaporing monitoring wells placed in the backfill shall be constructed so that any leakage that may pond at the horizontal interface between the backfill and natural soils soils can be detected in the vapor well.

(g) Soil-pore liquid monitoring and other forms of the

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vadose zone monitoring may be approved if the discharger can clearly show that:

(1) The stored substance is susceptible to detection by the proposed technique.

(2) The stored substance will not attack the materials from which the detector system is constructed or otherwise render the detector system inoperable.

(3) The site and soil characteristics will not prevent detection of an unauthorized release by the monitoring system. Using a soil-pore liquid monitoring system

(4) The proposed technique will be effective in providing early detection of tank leakage.

(h) Borings shall be described in accordance with the provisions of the Sections 2648(p) and (q) of this article.

(i) Vadose zone monitoring shall be continuous where feasible and connected to an above-ground alarm system. Where continuous monitoring is infeasible, monitoring shall be performed weekly.

Authority: H&SC 25288.2

Reference: H&SC 25284.1

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Adopt new Section to read:

2647. [2646] Ground Water Leak Detection Monitoring

(a) All owners of existing underground storage tanks implementing one of the monitoring alternatives in Section 2641 of this Article which requires ground water monitoring subject to this Subchapter shall except as provided for in Subsection [b] of this Section implement a ground water leak detection monitoring system pursuant to Subsections (b)[c] through (h) [f] of this Section.

[b] Owners of existing underground storage tanks are exempted from implementing a ground leak detection monitoring system if they can demonstrate to the local agency that at least one of the following conditions apply:

[1] Visual monitoring of the entire tank pursuant to Section 2641 of this Article have been implemented;

[2] A vadose monitoring system pursuant to Section 2643 of this Article has been implemented and ground water is and will remain at least 5 feet below the invert of the underground storage tank;

[3] The proximity to physical obstacles prevent the positioning and operation of drilling equipment within a horizontal distance of 50 feet from the tank;

[4] Soil conditions prevent drilling by any generally existing technique;

[c] At those sites at which vadose zone monitoring is feasible and the ground water level fluctuates above and below a point 5 feet below the tank invert, a combination of ground water monitoring and vadose monitoring shall be used. The ground water monitoring wells shall extend 20 feet below the lowest anticipated ground water level in order to provide assurance monitoring pursuant to Section 2647 during periods of low ground water;

[d] When the ground water level is continuously above a point 5 feet below the tank invert, ground water monitoring shall be used as the principal leak detection technique; and vapor monitoring will also be used in conjunction with ground water monitoring whenever possible;

[e] The ground water monitoring network shall be designed and constructed according to the following criteria:

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(1) Three ground water monitoring wells shall be installed around the underground storage tank or facility at spacings of 120° of arc around the central point of the underground storage tank or facility. Additional borings shall be installed at closer angular spacings if the straight line distance between wells exceeds 30 feet. If it can be demonstrated that the radii of influence of fewer monitoring wells overlap and that the entire area of the underground storage tank or facility is under the influence of at least one well under all anticipated hydraulic conditions, fewer wells may suffice. All wells should be located as close as possible to the underground storage tank or the perimeter of the facility.

(2) One of the three wells shall be located such that it represents the best estimate of the downgradient direction.

(3) The ground water monitoring wells shall be constructed as gravel packed water wells with a minimum 4-inch inside diameter (ID) casing and in accordance with the provisions of Section 2848.

(4) All wells shall be provided with the minimum surface seal necessary to prevent infiltration of

surface water but the seal shall extend to a depth of at least 5 feet.

(5) Monitoring wells at which the ground water elevation is above the the base of the surface seal shall be sized and equipped with a pump capable of drawing the ground water level down to an elevation 10 feet below the base of the surface seal.

(6) The ground water monitoring wells shall extend to an elevation that is at least 10 feet below the tank invert and shall be perforated from the base of the surface seal to the bottom of the well.

(f) Ground water shall be monitored at least once per week from each well. More frequent monitoring may be required by the local agency. Sampling and analysis, if applicable shall be according to Section 2848 of this Article.

(b) All ground water monitoring wells shall be located as close as possible to the underground storage tank or the perimeter of the tank cluster.

(c) Ground water monitoring wells shall extend at least 20 feet below the lowest anticipated ground water level and at least 15 feet below the tank bottom. However, wells

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shall not extend through clay layers that are below the water table, extensive and at least 5 feet thick. In these situations, the well shall be terminated 1 to 2 feet into this clay layer.

(d) Ground water monitoring well casings shall extend to the bottom of the boring and be factory perforated from a point 5 feet above the bottom cap to a point 10 feet above the highest anticipated ground water level.

(e) Ground water monitoring wells shall be constructed as filter-packed wells that will prevent the migration of the natural soil into the well and with factory perforated screens that are sized to prevent migration of filter material into the well.

(f) All well casings shall have a bottom cap or plug.

(g) Filter packs shall extend 2 feet above the top of the perforated zone.

(h) Ground water monitoring wells shall be constructed with casings having a minimum inside diameter (ID) of 2 inches which is installed in a boring whose diameter is at least 4 inches greater than the outside diameter (OD) of the casings.

(i) Ground water monitoring wells shall be sealed from the ground surface to the top of the filter pack.

(j) Borings shall be described in accordance with the provisions of Sections 2648 (p) and (q) of this Article.11.

Authority: H&SC 25288.2

Reference: H&SC 25284.1

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Adopt new Section to read:

2847. Assurance Ground Water Monitoring

(a) All owners of existing underground storage tanks subject to this Subchapter shall, except as provided in subsection (b) of this Section, implement an assurance ground water monitoring system pursuant to subsections (c) through (g) of this Section.

(b) Owners of existing underground storage tanks are exempted from implementing an assurance ground water monitoring system if they can demonstrate to the Chief Agency that at least one of the following conditions applies:

(1) Ground water monitoring pursuant to Section 2848 of this Article is used as the principal means of leak detection;

(2) The highest ground water level possible during the life of the facility is at a depth greater than 200 feet;

(3) Proximity to physical obstacles prevents the possibility and operation of drilling equipment within a horizontal distance of 500 feet of the tank or tank cluster perimeter;

(4) Soil conditions prevent drilling by any generally existing technique;

(c) Assurance ground water monitoring networks shall be evaluated according to the following criteria:

(1) At those underground tank facilities at which the highest anticipated ground water elevation is between a depth of 5 feet below the tank invert and a point 100 feet below the ground surface, a ground water monitoring system as described in Section 2848(d), subsections (1) through (5) of this Article shall be performed from 48 feet above the highest anticipated ground water elevation to the bottom of the well;

(d) In order to implement subsection (c) of this Section, the depth to ground water must be accurately determined. This shall be accomplished either by documentation of the ground water elevation in all, but not less than three, existing wells within 500 feet of the facility or an exploratory boring constructed as follows:

(1) An exploratory boring shall be drilled in the anticipated down-gradient direction from the

underground storage tank. More than one exploratory boring may be required under geographical conditions are complex or where more than one boring is needed to adequately cover a facility that occupies a large area.

(2) The exploratory boring may be of any diameter capable of allowing the detection of first water and the recovery of undisturbed soil samples.

(3) The exploratory boring shall be drilled by a dry drilling technique that permits the detection of wet zones and first water.

(4) The exploratory boring shall be within 10 feet of the tank. If physical constraints preclude drilling within 10 feet of the tank, the boring shall be drilled as near as possible to the tank but no further than 50 feet from the tank.

(5) The exploratory boring shall be drilled to a minimum depth of 200 feet if ground water is not encountered at a depth of less than 200 feet.

(6) If ground water is encountered within a depth of 200 feet, in addition to the requirements of subsection (6) of this section, the following shall also apply.

(A) The exploratory boring shall be modified if necessary and constructed as a gravel-packed water well with a minimum 4-inch ID casing.

(B) In the case of unconfined ground water aquifers, the exploratory well shall extend a minimum of 20 feet below the ground water surface or 20 feet below the lowest known historical ground water level in the area, whichever is lowest. The well shall be perforated from the tank bottom elevation to 20 feet below the ground water surface or the lowest known historical ground water level in the area, whichever is lowest.

(C) In the case of confined aquifers, the well shall extend to the bottom of the aquifer and shall be perforated from the top of the aquifer to the bottom of the well.

(7) If the exploratory boring does not encounter ground water within a depth of 200 feet, the exploratory boring shall be backfilled and sealed with bentonite grout or slurry.

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(e) Wells shall be sampled semi-annually at a minimum. More frequent sampling may be required by the local agency. Samples shall be taken after sufficient volumes of water have been removed from the well such that pH, temperature and conductivity are stabilized. Sampling equipment shall not donate, capture, mask or alter the sample constituents.

(f) Analysis shall be performed for all constituents stored in the underground storage tank and their degradation or transformation products.

(g) Samples shall be collected, stored, transported, and analyzed according to approved methods.

Authority: H&SC 25288.2

Reference: H&SC 25284.1

Adopt new Section to read:

2648. General Well Construction and Sampling Methods

(a) Soil and water The sampling equipment and materials used to construct a well shall be compatible with the stored hazardous substance product and shall not donate, capture, mask, nor alter the product constituents for which analyses will be made.

(b) Representative samples of all imported materials used for filter to gravel packs or backfill wells and to construct form seals shall be evaluated tested to determine their acceptability with regard to Subsection (a) of this Section.

(c) All drilling tools shall be thoroughly cleaned immediately before a boring is started. and immediately after a boring is completed.

(d) All well casings, casing fittings, screens gravel packs and all other components that are installed in the well shall to be thoroughly cleaned before installation in the boring.

(e) All soil and water samplers shall be cleaned before each sample is taken.

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(f) Drilling fluid additives shall be limited to inorganic, non-hazardous materials which conform to the provisions of Subsection (a) of this Section. All additives used and the depth in which they were used shall ~~are to~~ be precisely recorded ~~precisely~~ in the boring log.

(g) Representative samples of additives, cement, bentonite, and filter media ~~grouts~~ shall be retained for 90 days for possible analysis ~~analyses~~ for contaminating or interfering constituents.

~~(h) All well casings shall have a bottom cap or plug.~~

~~(i) All wells shall have a surface seal. Ground water monitoring wells shall be sealed from the ground surface to the top of the perforations. The depth of surface seals for water wells shall be the minimum necessary to prevent intrusion of surface water but shall not be less than 5 feet deep.~~

(h) ~~(j)~~ All ground water monitoring wells shall be ~~properly~~ appropriately developed until the discharge water contains less than 10 ppm solids.

(i) ~~(k)~~ Well heads shall be provided with a ~~locking~~ water tight cap.

(j) ~~(l)~~ Well heads shall be enclosed in a surface security structure that will protect the well from the entry of surface water, accidental damage, unauthorized access and vandalism. This may be accomplished by providing a locked well cap or by wells within a secure facility.

(k) ~~(m)~~ Pertinent well information including well identification, well type, well depth, ~~boring and~~ well casing diameters if more than one size is used, and perforated depths 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.

~~(n) Initial borings or wells to determine the depth to ground water shall be capable of yielding the collection of undisturbed soil samples and shall utilize a dry drilling technique that facilitate the determination of wet zones and first water.~~

(l) Surface seals for vapor wells that are completed no more than 5 feet below the bottom of the underground storage tank and which are above any free water zones shall be required at the discretion of the local agency on a site-specific basis.

(m) Surface seals for vapor wells that are completed in or below a free water zone shall be required but shall not extend below the top of the tank.

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

(o) Surface seals for other types of vadose zone installations shall be required on a case-by-case basis.

(p) In order to implement monitoring Alternatives 2, 3, 4, and the ground portion of 6, the highest anticipated ground water level and existing ground water level shall be determined. Historic high ground water levels shall be determined by a review of all water level measurements on record for wells within 5 miles of the site. Existing site ground water levels shall be established by either water level measurements taken within the last 2 years in all, but not less than 3, existing wells within 500 feet of the facility which are perforated in the zone of interest or by drillingat least one exporatory boring constructed as follows:

(1) The exploratory boring shall be drilled downgradient if possible and as near as possible to

the tank, but no further than 500 feet from the tank.

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

(3) The exploratory boring shall be drilled to first perennial ground water, or to a minimum depth of 100 feet for Alternatives 2, 3, 5, and 6 or to a minimum depth of 30 feet for Alternative 4.

(4) If ground water is encountered, the boring shall be converted to a ground water monitoring well consistent with the provisions of Sections 2647 and 2648 of this Article.

(5) If the exploratory boring does not encounter ground water, it shall be sealed in accordance with the provisions of Section 2648(m) and (n).

(q) All borings that are not used for ground water or vadose zone monitoring shall be sealed from the ground surface to the bottom of the boring with bentonite grout.

(r) All borings that are converted to vadose zone monitoring wells in which the monitored interval is shallower than the total depth of the boring shall have the portion of

the boring which below the monitored interval sealed with bentonite grout.

(s) All slurry-type grounts used to abandon boring or for well seals shall be emplaced by the tremie method.

(t) All borings shall be described in detail using the Unified Soil Classification System and shall be logged by a professional geologist, civil engineer, or engineering geologist who is registered or certified by the State of California and who is experienced in the use of the Unified Soil Classification system. 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 shall be deemed qualified to log borings, provided the aforementioned professional reviews the logs and assumes responsibility for the accuracy and completeness of the logs.

(u) All wet zones above the free water zone shall be noted and accurately logged.

(v) If evidence of contamination is detected by sight, smell, or other field analytical method, drilling shall be halted until the responsible professional determines if drilling deeper is advisable.

Authority: H&SC 25288.2

Reference: H&SC 25284.1

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Article 5. Release Reporting Requirements

Adopt new section to read:

2650 Applicability

(a) All unauthorized releases from the primary or secondary container ~~must meet the~~ shall be reported ~~reporting~~ according to the ~~cleanup and disposal~~ requirements of Sections 25284.3 and 25283.4 of the Health and Safety Code and this Article. ~~section~~

(b) Certain unauthorized releases to secondary containers, as described in Section 25284.3 of the Health and Safety Code, shall be recorded on the operator's monitoring reports according to Section 2651 of this Article. No other report shall be required if the leak detection monitoring system in the space between the primary and secondary containers can be reactivated within 8 hours. This provision shall be applicable only to new underground storage tanks as defined in Article 2 of this Subchapter.

~~(b) All unauthorized releases shall be reported. The nature and timing of reporting is divided into two groups depending on the threat to contaminate soil and water as a result of the release. This article describes the various reporting requirements and actions which must be implemented by the owner or permittee and the local agency.~~

~~(c) Unauthorized releases requiring only initial recording with reporting completed as part of the normal operating reports are defined in Section 2651 of this article.~~

(c) ~~(d)~~ All other unauthorized releases ~~requiring immediate reporting~~ shall be reported within 24 hours after the release has been, or should have been, detected according to ~~are defined in~~ Section 2652 of this Article.

Authority: H&SC 25288.2

Reference: H&SC 25284.3, 25284.4

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Adopt new section to read:

2651. Unauthorized Release Reporting Exception

(a) The report required by Subsection (b) of Section 2650 of this Article shall include:

(a) A recordable unauthorized release is any unauthorized release of a hazardous substance which meets all the following criteria:

(1) The hazardous substance released is from the primary container;

(2) The hazardous substance released does not escape from the secondary container or cause any deterioration of the secondary container;

(3) The hazardous substance released can be cleaned up within eight hours;

(4) The hazardous substance released does not increase the hazard of fire or explosion;

(b) All recordable unauthorized releases shall be contained and the released hazardous substance shall be safely transported disposed of in an appropriate manner by the permittee. Each occurrence shall be reported in the permittee's monitoring reports as required in the permit and shall include:

(1) List of type, quantities, and concentration of hazardous substance released.

(2) Method of clean-up, and cost.

(3) Method and location of disposal of the released hazardous substances (include copy of hazardous waste manifest(s) if utilized).

(4) Method of future leak prevention or repair. If this involves a change as defined in Article 10, Section 2712, 2702 Subsection (a) of this Subchapter, then appropriate reports pursuant to that Article shall also be filed.

(5) If the primary container is to continue to be used, then a description of how the monitoring system between the primary and secondary container has been reactivated.

(6) Facility operator's name and telephone number.

(7) The estimated cost for clean-up to be submitted

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voluntarily.

(b) (c) The local agency shall review the information submitted pursuant to Subsection (a) (1) of this Section and shall review the permit and may inspect the underground storage tank pursuant to the provisions of Article 10, Section 2712, 2702 Subsections (g) and (h) of this Subchapter. The local agency shall find that the containment and monitoring standards of Article 3 of this subchapter can continue to be achieved or the local agency shall revoke the permit until appropriate modifications are made to allow compliance with the standards.

(c) (d) Deterioration of the secondary container is likely when any of the following conditions exist:

(1) The secondary container will have some loss of integrity due to contact with the stored hazardous substances; or

(2) The mechanical means used to clean-up the released hazardous substance could damage the secondary container; or

(3) Hazardous substances, other than those stored in the primary container, are added to the secondary

container for treatment or neutralization of the released hazardous substance as part of the clean-up process.

(d) (e) If a recordable unauthorized release becomes a reportable unauthorized release lean due to initially unanticipated facts, the release shall immediately be treated as a reportable release pursuant to Section 2652 of this Article.

Authority: H&SC 25288.2

Reference: H&SC 25284.3

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Adopt new section as follows:

25532. Unauthorized Releases Requiring Immediate Reporting

(a) All other unauthorized releases which are described by either Subsection (1) or (2) of this subsection shall be reported as specified in Subsection (b) of this Section. In addition the requirements of Subsections (c)(1) (c)(2) and (d) of this Section shall be followed:

(1) A reportable unauthorized release is any unauthorized release of hazardous substance which meets any of the following criteria:

(A) The released hazardous substance escapes from the secondary container assuming that a secondary container exists:

(B) The released hazardous substance increases the danger of fire or explosion:

(C) The released hazardous substance causes any deterioration of the secondary container:

(2) An unauthorized release of a hazardous substance that occurs from an underground storage tank that does not have a secondary container. This includes

unauthorized releases from pressurized piping which is monitored by a pressure loss detector as described in Article 3, Section 25222, Subsection (f) of this subchapter.

(b) All unauthorized releases meeting the criteria of Subsection (a) of this section shall be reported. Within 24 hours after the release has been detected or should have been detected, the operator or permittee shall notify the local agency, and the State Office of Emergency Services or the and regional board Regional Water Quality Control Board.

(c) Within 5 working days of detection the release, occurrence the operator or permittee shall submit to the local agency a full written report to include all of the following information which is known at the time of filing the report:

(1) List of type, quantity, and concentration of hazardous substances released.

(2) The results of all investigations completed at that time to determine the extent of soil or ground water or surface water contamination due to the release.

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(3) Method of clean-up implemented to-date, proposed clean-up actions, and approximate cost, and proposed cleanup actions

(4) Method and location of disposal of the released hazardous substance and any contaminated soils or ground water or surface water (include whether a copy of hazardous waste manifest(s) is if utilized).

(5) Proposed method of repair or replacement of the primary and secondary containers. If this involves a change as defined in Subsection 2712(a) 2702(a) of Article 10, then appropriate reports pursuant to that article shall also be filed.

(6) Facility operator's name and telephone number.

(d) Until clean-up is complete, the operator or permittee shall submit reports every 3 months or at a more frequent interval specified by a responsible agency the local agency or Regional Board to the local agency and the regional board. The reports shall include the information requested in Subsections (c)(2), (c)(3), and (c)(4) of this Section.

(e) The local agency shall review the permit whenever there

has been an unauthorized release or when it determines that the underground storage tank is unsafe. In determining whether to modify or terminate the permit, the local agency shall consider the age of the tank, the methods of containment, the methods of monitoring, the feasibility of any required repairs, the concentration of the hazardous substances stored in the tank, the severity of potential unauthorized releases, and suitability of any other long-term preventive measures.

(e) (f) The reporting requirements of this section are in addition to any reporting requirements specified by Section 13271 of the Water Code and other laws and regulations.

(g) The local agency, Regional Board, and Department of Health Services or other governmental agency may, pursuant to other laws or regulations, request the permittee to investigate the extent of soil, groundwater or surface water contamination that resulted from the unauthorized release and to implement appropriate remedial action

Authority: H&SC 25288.2

Reference: H&SC 25284.4

Article 6. Allowable Repairs

Adopt new section to read:

2660. Applicability

(a) This article describes the conditions which must be met to allow primary container repairs of underground storage tanks containing motor vehicle fuel not under pressure, to allow the use of interior coating of hazardous substance storage tanks in order to repair the tank, the required repair methodology, and the required tank testing following repair.

(b) Section 2661 lists the required evaluations which must be completed in order to allow the repair of a primary container. A satisfactory demonstration of each part of Section 2661 shall be made prior to approval by the local agency of the repair process.

(c) Section 2662 describes the required methodology which must be utilized in the interior coating repair process.

(d) Section 2663 lists the required primary container monitoring which shall be implemented by amendment of the permit by the local agency following primary container repair. Subsections (a) and (b) describe the

monitoring which shall be performed prior to placing the underground storage tank back in service.

Authority: H&SC 25288.2

Reference: H&SC 25284.4

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Adopt new section to read:

2661. Repair Evaluation

(a) The evaluations described in Subsections (b) through (d) of this Section must be completed before a primary container repair can be authorized by the local agency. ~~allowed~~ Failure to adequately demonstrate that the repaired primary container will provide continued containment based on the evaluations described below shall be adequate rationale for a local agency to deny the proposed repair.

(b) It shall be determined if the failure mechanism is isolated to the actual failure or is affecting other areas of the tank or if any other failure mechanism is affecting the primary container.

(c) If interior lining is the proposed repair method, a demonstration that the actual failure may not have resulted from any one or more of the following conditions shall be made:

(1) a linear split of more than three (3) inches;

(2) a single hole with a diameter of greater than one and one-half (1-1/2) inch; ~~one (1) inch~~ or

(3) more than ten (10) small perforations, or,

(4) any failure or opening within six inches of any seam or wall.

(d) If interior lining or plate replacement of a steel tank is the proposed repair method, then it shall be demonstrated to the satisfaction of the local agency based on an ultrasonic or comparable test that a serious corrosion problem does not exist. If a serious corrosion problem exists, an interior lining repair may be allowed by the local agency if it can be demonstrated 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 tank.

(e) If interior lining is the proposed repair method, then it shall be demonstrated that the primary container has never been repaired using an interior lining.

Authority: H&SC 25284.2

Reference: H&SC 25284.5

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Adopt new section to read:

2663. Repair Methodology

(a) If a tank repair is approved based on satisfactory demonstration of the issues raised in Section 2661, then the repair must be accomplished according to the applicable Subsections of this Section.

(b) If interior coating is the method of repair, the material used in the repair shall be applied in accordance with nationally recognized engineering practices. An example of such a practice is the American Petroleum Institute's recommended practice No. 1631.

(c) The repair material and any adhesives used shall be compatible with the existing tank materials and shall not be subject to deterioration due to contact with the hazardous substance being stored.

(d) The repair material and lining process shall be listed or certified by a nationally recognized independent testing organization. The requirement shall become effective 1 year after the effectivedate of these regulations or 1 year after a listing or certification procedure is available.

Authority: H&SC 25288.2

Reference: H&SC 25284.5

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Adopt new section to read

2632 Primary Container Monitoring

(a) After any repair, the primary container shall be demonstrated to be capable of containing the stored hazardous substance by satisfactorily passing the tank test as described in Section 2643 of Article 4. The tank shall also be vacuum tested at a vacuum of 5.3 inches (135 mm) Hg for one minute. The vacuum test shall not be required if technology is not available for testing the tank on site using accepted engineering practices. Standard installation tests specified in Section 2472 of the Flammable and Combustible Liquids Code adopted by the National Fire Protection Association on November 20, 1981 (NFPA 30-1981).

(b) All pipelines shall be pressure tested following repair to assure the adequacy of the repair. The testing shall be accomplished using accepted procedures. Acceptable procedures for pressure testing are provided in Appendix 1, described in the applicable sections of ANSI B31, American National Standard Code of Pressure Piping or National Fire Protection Association Flammable and Combustible Liquids Code (NFPA 30).

Authority: H&SC 25288.2

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Article 7. Closure Requirements

Adopt new Section to read:

2670. Applicability

(a) This Article defines temporary and permanent closure and describes the nature of activities which must 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 ~~waste~~ substances ~~MATERIALS~~ has ceased but where the tank owner or operator proposes to retain the ability to use the tank within two years for the storage of hazardous substances. ~~MATERIALS~~ Section 2671 does not apply to tanks that are empty as a result of the withdrawal of all stored material during normal operating practice prior to the planned input of additional hazardous substances ~~MATERIAL~~ consistent with permit conditions.

(c) The permanent closure requirements of Section 2672 shall apply to those underground storage tanks in which the storage of hazardous substances ~~MATERIALS~~ has ceased and where the owner or operator has no intent within the

next two years to use the underground storage tank for storage of hazardous substances. ~~MATERIALS~~

(d) The requirements of this Article do not apply to those underground storage tanks in which hazardous substances ~~MATERIALS~~ are continued to be stored even though there is no use being made of the stored substance. ~~MATERIAL~~ In these cases, the applicable containment and monitoring requirements of Articles 3 or 4 of this Subchapter shall continue to apply.

(e) During the period of time between cessation of hazardous substance ~~MATE~~ storage and actual completion of underground storage tank closure pursuant to Sections 2671 or 2672, the applicable containment and monitoring requirements of Articles 3 or 4 of this SubChapter shall continue to apply.

(f) ~~At least 90 days~~ Prior to closure, ~~cessation of storage of hazardous materials, unless such cessation occurs as a result of an unauthorized release or in order to prevent an unauthorized release or minimize its effect,~~ the underground storage tank owner shall submit to the local agency a proposal describing how the owner intends to comply with Section 2671 or 2672 of this Article, as appropriate. The requirement for prior submittal is waived if the storage of hazardous substances ceases as

a result of an unauthorized release or to prevent or minimize the effects of an unauthorized release. In this situation, the underground storage tank owner shall submit the required proposal within 14 days of the discovery of an unauthorized release or actions taken to prevent or minimize its effects.

(g) Underground storage tanks that have experienced an unauthorized release do not qualify for temporary closure pursuant to Section 2671 of this Article until the tank owner demonstrates to the local agency's satisfaction that appropriate authorized repairs have been made which ~~that~~ would allow the underground storage tank to be capable of storing hazardous substances ~~materials~~ pursuant to the permit issued by the local agency.

(h) Underground storage tanks that have experienced an unauthorized release and that cannot be repaired by authorized methods must be permanently closed pursuant to requirements of Section 2672 of this Subchapter.

Authority: H&SC 25288.2
Reference: H&SC 25286

Adopt new Section to read:

2671. Temporary Closure

(a) This Section applies to those underground storage tanks in which storage has ceased but where the owner or operator proposes to retain the ability to use the underground storage tank within two years for the storage of hazardous substances.

(b) The owner or operator shall comply with all of the following.

(1) All residual liquid, solids, or sludges shall be removed and handled pursuant to the applicable provisions of Chapter 6.5 of Division 20 of the Health and Safety Code. ~~As follows:~~

~~(A) product is legally stored for future use or handled as a hazardous waste;~~

~~(B) hazardous waste is legally received or disposed of as a hazardous waste;~~

(2) If the underground storage tank contained a hazardous substance that could produce flammable vapors at standard temperature and pressure, then

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the underground storage tank, either in part or as a whole, shall be completely purged of the flammable vapors to levels that would preclude on explosion or such lower levels as may be 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 must be tested and results submitted to the local agency prior to its being removed 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 utilizing locked caps or concrete plugs.

(5) Power service shall be disconnected from all pumps associated with the use of the underground storage tank except if the pump services some other equipment which is not being closed.

(c) The monitoring required pursuant to the permit may be modified or eliminated during the temporary closure period by the local agency. The local agency shall consider, in making the above decision, 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 reached the monitoring locations and been detected.

(d) All monitoring required pursuant to Article 4, except visual monitoring, shall be continued. The frequency of this monitoring may be reduced.

(d) The underground storage tank shall be inspected at least once every three months to assure that the temporary closure actions are still in place. This shall include:

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

(2) If locked caps are utilized, then 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 (b)(3) of this Section.

Authority: H&SC 25288.2

Reference: H&SC 25286

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Adopt new Section to read:

2672. Permanent Closure Requirements

(a) Underground storage tanks subject to permanent closure shall comply with either Subsection (b) for underground storage tank system removal or Subsection (c) for closure in-place. It is not essential that all portions of an underground storage tank system be permanently closed in the same manner; however, all actions shall comply with the appropriate Subsection. Subsection (d) regarding no discharge demonstration applies to all underground storage tanks subject to permanent closure.

(b) Removal of underground storage tanks shall comply with applicable provisions of Chapter 6.5 of Division 20 of the Health and Safety Code, in addition to the following: Subsections (1) and (2) and either subsections (3), (4), or (5) as appropriate

(1) All residual liquid, solids, or sludges shall be removed. and handled as follows:

(A) product + legally stored for future use or handled as a hazardous waste

(B) hazardous waste + legally recycled or disposed of as a hazardous waste;

(2) If the underground storage tank contained a hazardous substance material that could produce flammable vapors at standard temperature and pressure, then the underground storage tank, either in part or as a whole, shall be completely purged of the flammable vapors to levels that would preclude explosion or such lower levels as may be required by the local agency.

(3) When an underground storage tank or any part of an underground storage tank is to be disposed of, that is destined for disposal shall be handled, transported and disposed of as a hazardous waste. The tank system or any part of the tank system may be handled, transported or disposed as a nonhazardous waste after it has been properly cleaned. In either case, the owner must document to the local agency that proper disposal has been completed.

(4) An owner of an underground storage tank or any part of an underground storage tank that is destined for a specific reuse shall identify to the local agency the future underground storage tank owner, operator, location of use, and nature of use.

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comply with all of the following:

(A) Reuse shall not be inconsistent with other laws or regulations which may exist as they may relate to the nature of the hazardous material in the underground storage tank or the nature of the proposed reuse; and

(B) The owner of an existing underground storage tank shall identify to the local agency the future underground storage tank owner/operator; location of use and nature of use;

(5) An owner of an underground storage tank or any part of an underground storage tank that is destined for reuse as scrap material shall identify this reuse to the local agency. Comply with all of the following before the underground storage tank or any part of the underground storage tank is removed from the facility unless such removal is done according to the provisions of subsection (b)(1) of this section:

(A) The tank system shall be thoroughly cleaned;

(B) The tank system shall be cut or punctured in sufficient locations to render it obviously unfit for use;

(C) Apply appropriate warnings to the tank;

(c) Closure of underground storage tanks in place shall comply with the applicable provisions of Chapter 6.5 of Division 20 of the Health and Safety Code, in addition to all of the following:

(1) All residual liquid, solids, or sludges shall be removed. and Managed as follows:

(A) Produce a legally stable for future use or Managed as a Hazardous Waste;

(B) Hazardous waste is legally recycled or disposed of as a Hazardous Waste;

(2) All piping associated with the tank shall be removed Managed 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. as a Hazardous Waste;

(3) The underground storage tank, except for the piping that is closed pursuant to Subsection (2) of this

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Subsection, shall be completely filled with an inert solid that cannot be removed, such as sand or concrete, unless the owner intends to use the tank for the storage of a nonhazardous substance which is compatible with the previous use of the tank.

(4) A notice shall be placed in the deed to the property. The notice shall describe the exact vertical and areal location of the closed tank, the hazardous substances it contained, and the closure method.

(d) The owner 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 can be based on the ongoing leak detection monitoring, verification ground water monitoring or soils sampling performed during or immediately after closure activities.

If feasible, soil samples shall be taken and analyzed according to the following:

(1) If the underground storage tank or any portion thereof is removed then soil samples from the soils immediately beneath the removed portions shall be taken. A separate sample shall be taken for every

200 square feet for tanks or every 20 lineal feet for piping, at a minimum.

(2) If the underground storage tank or any portion thereof is not removed, then soils sampling pursuant to Section 2645 2646 of Article 4 shall be implemented, if feasible.

(3) Soils shall be analyzed for all constituents of contained in the previously stored hazardous substances and their breakdown or transformation products.

(e) The detection of any unauthorized release shall require compliance with the reporting requirements of Article 5.

Authority: H&SC 25288.2

Reference: H&SC 25286

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Article 8. Categorical and Site-Specific Variance Procedures

Adopt new section to read:

2680. Applicability

(a) This Article sets up procedures for categorical and site-specific variances from the requirements in Sections 25284 and 25284.4 of the Health and Safety Code and Articles 3 and 4 of this Subchapter. A site-specific variance, if approved, would apply only to the specific site(s) approved for a variance. A categorical variance, if approved, would apply to the region, area, or circumstances approved for a variance. A categorical variance application shall include more than one site or shall be non-site specific. These procedures are in addition to those established by Sections 25288.3(a) and (c) of the Health and Safety Code.

(b) Section 2681 specifies the procedures that must be followed by the applicant and the State Board for categorical variance requests.

(c) Section 2682 specifies the procedures that must be followed by the applicant, local agency, and the regional board for site-specific variance requests.

Authority: H&SC 25288.2

Reference: H&SC 25288.3

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Adopt new section to read:

2681. Categorical Variances

(a) A categorical variance allows ~~is~~ an alternative method of construction or monitoring which is applicable to more than one local agency jurisdiction. ~~site~~ Application for a categorical variance shall be made by the permittee to the State Board ~~on a form provided by the State Board.~~

(b) Application for a categorical variance shall ~~be made on a state application form provided by the State Board and shall~~ include, but not be limited to:

(1) Provision from which the variance is requested.

(2) Description of the proposed alternative program, method, device or process.

(3) Description of the region, area, or circumstances under which the variance would apply.

(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) A list including names and addresses of all ~~local agencies and~~ persons who may be affected by or may be interested in the variance request.

(6) ~~A fee of $20,000~~ An initial payment of $11,000.

(c) The applicant will be required to pay a fee based on the actual costs of considering the application. The State Board will bill the applicant for additional anticipated costs, if necessary, before the public hearing and before preparation of a decision on the application.

(d) ~~(c)~~ The State Board shall review all applications submitted and shall notify the applicant in writing within 30 days of receipt of the application as to whether or not the application is complete.

(e) ~~(d)~~ The State Board shall complete any documents necessary to satisfy the California Environmental Quality Act (Division 13, commencing with Section 21000, of the Public Resources Code).

(f) ~~(e)~~ The State Board shall remand the application to the appropriate regional board if it determines that the application ~~(s)~~ is within Section 2682.

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(g) ~~(f)~~ The State Board shall hold at least two public hearings in different areas of the state within 180 days of receipt of a complete variance application to consider the request for a categorical variance. ~~Notice of the hearings shall be provided at least 10 days in advance to any person who requests such notice in writing. Notice shall also be provided to all affected local agencies and to any person known to be interested in the proceedings. The notice shall specify the date, time, and location of the hearing and shall include a description of the proposed categorical variance. When the notice is mailed, it shall be placed in the mail at least 11 days in advance of the hearing.~~

~~(g) All hearings shall be conducted according to the regulations governing adjudicatory proceedings which are contained in Subchapter [illegible] of this Chapter. The State Board in its discretion may require that, not later than 10 days prior to the hearing, all interested parties intending to participate shall submit to the State Board in writing the name of each witness who will appear, together with a statement of the qualifications of each [illegible] witness, the subject of the proposed testimony, [illegible] testimony. The State Board may also require that copies of proposed exhibits be supplied to [illegible]~~

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~~[illegible]~~

~~(h) An applicant for a categorical variance must demonstrate by clear and convincing evidence that the proposed alternative will adequately protect the soil and the beneficial uses of water of the state from an unauthorized release.~~

(h) ~~(i)~~ ~~The decision of the State Board will be based on that evidence and testimony in the record of the hearings. The record may be supplemented by any other evidence and testimony accepted by the State Board pursuant to the procedure outlined in section [illegible] of Subchapter 6 of this chapter.~~ Upon the close of a hearing, the presiding officer may keep the hearing record open for a definite time, not to exceed 30 days, to allow any interested person to file additional exhibits, reports or affidavits.

~~(j) The State Board may discuss a proposed decision in response to a request for a categorical variance at a workshop meeting. The regulations governing workshop meetings and formal disposition of State Board matters for decision which are contained in Subchapter 6 of this Chapter shall apply.~~

(i) ~~(k)~~ If the State Board grants the variance, it will

prescribe the conditions the applicant must maintain and will describe the specific alternative for which the variance is being granted.

(j) ~~(I)~~ All permit applicants who intend to utilize an approved categorical variance shall attach a copy of the approved variance to the permit application submitted to the local agency. The local agency shall review the application and categorical variance to determine if the variance applies to the specific site. If the variance applies, the local agency shall issue a permit to the applicant which includes the conditions prescribed by the State Board **provided all other permit conditions are met.**

(k) ~~(M)~~ The State Board shall modify or revoke a categorical 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 State Board **shall** ~~will~~ not modify or revoke a categorical variance until it has followed procedures comparable to those **prescribed in this Section and Subchapters 5 and 6 of this Chapter.** ~~outlined herein for approval of a categorical variance~~ The State Board shall notify all affected local agencies of the modification or revocation. ~~and shall require the~~ Local agencies to modify or revoke all site permits

which were based on the categorical variance.

Authority: H&SC 25200.6

Reference: H&SC 25200.7

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Adopt new section to read:

1682. Site-Specific Variances

(a) A site-specific variance allows ~~is an~~ alternative method of construction or monitoring which would be applicable at one or more sites within one local agency's jurisdiction. ~~facility location~~ Application for a site-specific variance shall be made by the permittee to the appropriate regional board on a form provided by the regional board.

(b) At least 60 days prior to applying to the regional board, the permittee 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 days of its receipt of the permittee's complete construction and monitoring, the permittee may proceed with a variance application.

~~(c) At least 30 days prior to applying to the Regional Board, the permittee must request the local agency and the city, county or city and county having land use jurisdiction over the permittee's site to join the applicant in the variance request. The local agency shall also be requested to prepare any documents required by California Environmental Quality Act (Division 13, commencing with Section 21000, of the Public Resources Code).~~

~~(d) The local agency shall have 30 days after completion of the documents or the receipt of the Regional Board's staff recommendation and analysis, whichever is later, to decide whether to join the applicant in the variance request.~~

(c) ~~(e)~~ Application for a site-specific variance shall ~~be made on a state application form provided by the appropriate Regional Board and shall~~ include, but not be limited to:

(1) Provision from which the variance is requested.

(2) 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) Clear and convincing evidence demonstrating that:~~

~~(A) Due to special circumstances not generally applicable to other property or facilities, including size, shape, design, topography, location or surroundings the strict application of Articles 2 or 4 of this chapter would be unnecessary to adequately protect the soil and beneficial uses of the waters of the state from an unauthorized release; or~~

~~(B) The strict application of Articles 2 or 4 of this chapter would create practical difficulties not generally applicable to other facilities or property.~~

(3) Any special circumstances on which the applicant would rely to justify the findings necessary for the variance, as prescribed by Subsection (c) of Section 25288.3 of the Health and Safety Code.

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

(5) Any documents necessary to satisfy the California Environmental Quality Act (Division 13, commencing with Section 21000, of the Public Resources Code).

(6) A fee of $2,750 ~~$7,720~~ for variance requests at one site. A fee of $5,500 for variance request at more than one site within one local agency's jurisdiction.

(d) ~~(f)~~ The regional board shall review all applications submitted and shall notify the applicant in writing within 30 days of receipt of the application as to whether or not the application is complete.

(e) ~~(d)~~ The regional board shall hold a hearing on the proposed alternative within 60 ~~120~~ days after receiving a complete variance application; however, the hearing shall be held after the 30-day period allowed by Subsection (c) of Section 25288.3 of the Health and Safety Code for local agencies to join in the application. ~~described in subsection (d) of this section has expired. Notice of the hearing shall be provided at least 10 days in advance to any person who requests such notice in writing. Notice shall also be provided to all affected local agencies and to any person known to be interested in the proceedings. The notice shall specify the date, time and location of the hearing and shall include a description of the proposed categorical variance. When the notice is mailed, it shall be placed in the mail at least 11 days in advance of the hearing.~~

(h) All hearings shall be conducted according to the regulations governing adjudicatory proceedings which are contained in Subchapter 1.5 of this Chapter. The Regional Board in its discretion may require that, not later than 10 days prior to the hearing, all interested parties intending to participate shall submit to the Board in writing the name of each witness who will appear, together with a statement of the qualifications of each expert witness, the subject of the proposed testimony and the estimated time required by the witness to present his direct testimony. The Regional Board may also require that copies of proposed exhibits be supplied to adverse parties and seven copies be supplied to the Regional Board not later than 10 days prior to the hearing.

(f) (i) Any site-specific variance shall be issued will prescribe appropriate additional the conditions the applicant must maintain and shall will describe the specific alternative system for which the variance is being granted. The regional board shall notify the applicant and the local agency of its decision.

(g) (i) The regional board shall consider the local agency's and the city, county, or city and county's recommendations in rendering its decision. The regional board shall consider the completeness and accuracy of

the information provided by the applicant in Subsection (e) of this Section in rendering its decision.

(h) (i) If the variance request is approved, the local agency shall issue a permit to the applicant which includes the conditions prescribed by the regional board. A local agency shall not modify the permit unless it determines that the modification is consistent with the variance that has been granted.

(i) (i) The regional 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 board will not modify or revoke the variance until it has followed procedures comparable to those prescribed in this Section and Subchapters 1.5 and 6 of this Chapter. ~~outlined herein for approval of a variance~~ The regional board shall notify the local agency of the modification or revocation. ~~and shall require~~ The local agency shall to modify or revoke the permit for the site.

Authority: H&SC 25288.2

Reference: H&SC 25288.3

Article 9. Local Agency Additional Standards Request Procedures

Adopt new section to read:

2690. Applicability

(a) This Article sets up procedures for local agencies to request State Board authorization for more stringent standards than those set by Article 3 ~~and 4~~ of this ~~Chapter~~ Subchapter. These procedures are in addition to those established by Subsection 25288.3(b) of the Health and Safety Code.

Authority: H&SC 25288.2

Reference: H&SC 25288.3

Adopt new section to read:

2691. Additional Standards Request Procedures

(a) Local agency application for additional standards shall include:

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

(2) Clear and convincing evidence that the additional standards are necessary. Clear and convincing evidence that the additional standards ~~and~~ would adequately 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) ~~A fee of $11,500~~ An initial fee of $5,500.

(b) The applicant will be required to pay a fee based on the actual costs of considering the application. The State Board will bill the applicant for additional anticipated costs, if necessary, before the public hearing and

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before preparation of a decision on the application.

(c) *(b)* The board will conduct an investigation and public hearing on the proposed standards and their need to protect the soil and beneficial uses of the water before determining whether to authorize the local agency to implement additional standards. *THE NOTICE AND OTHER PROCEDURAL REQUIREMENTS CONTAINED IN SECTIONS (d) THROUGH (j) OF ARTICLE 8 OF THIS SUBCHAPTER SHALL APPLY.*

(c) THE BOARD SHALL MAKE ITS DETERMINATION WHETHER TO AUTHORIZE A LOCAL AGENCY TO IMPLEMENT ADDITIONAL STANDARDS WITHIN SIX MONTHS OF THE RECEIPT OF A COMPLETE APPLICATION.

(d) SHOULD THE BOARD AUTHORIZE THE LOCAL AGENCY TO IMPLEMENT ADDITIONAL STANDARDS, THE STANDARDS SHALL BE EFFECTIVE AS OF THE DATE THE BOARD MADE THE DETERMINATION.

(e) SHOULD THE BOARD NOT AUTHORIZE THE LOCAL AGENCY TO IMPLEMENT ADDITIONAL STANDARDS, THE ADDITIONAL STANDARDS WILL NOT GO INTO EFFECT.

(d) *(f)* The 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 board will not modify or revoke the authorization until it has followed procedures comparable to those presented in Subchapters 1.5 and 6 of this Chapter. *OUTLINED HEREIN FOR ISSUANCE OF THE AUTHORIZATION.*

Authority. H&SC 25288.2

Reference: H&SC 25288.3

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Article 10. Permit Application, Annual Report and Trade Secret Requirements

Adopt new section to read:

2710. Applicability

(a) This Article describes specific administrative actions that must be accomplished by all tank owners, local agencies, and the State Board relative to issuing permits for underground storage tanks. These actions are in addition to those established by Sections 25283, 25283.1, 25283.2, 25283.4, 25283.5, 25283.6, and 25284.2 of the Health and Safety Code.

(b) Section 2711 lists the information that must be submitted by the tank owner to the local agency as part of the permit application and the requirements for the local agency to submit the permit application to the State Board.

(c) Section 2712 describes the conditions that local agencies must include in all permits issued and conditions local agencies must meet prior to permit issuance.

(d) Section 2713 describes the annual report requirements

for both tank owners and local agencies.

(e) Section 2714 specifies conditions that must be met by a tank owner when requesting trade secret provisions for any information submitted to the local agency or State Board or regional board. It also specifies how the local agency, the State Board, or regional board shall consider the request and how they shall maintain the information if the trade secret request is accepted.

Authority: H&SC 25288.2

Reference: H&SC 25283, 25283.1, 25283.2, 25283.4, 25283.5, 25283.6, 25284.2

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Adopt new section to read:

2711. Permit Application and Information

~~(a) An application for a permit to operate an underground storage tank, or for renewal of the permit or for transfer of a permit shall be made by the owner on a form prepared by the State Board and provided by the local agency. The local agency shall provide the Board with a copy of the completed approved application.~~

(a) ~~(b)~~ The permit application shall include, but not be limited to, the following information if it is accurately known to the permit applicant:

(1) The name and address of the person who ~~firm, corporation or public agency which~~ owns the underground storage tank or tanks.

(2) The name, location, mailing address, and phone number ~~and type of facility~~ where the underground storage tank is located and type of business.

(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) Description of the underground storage tank ~~description~~ including, but not limited to, tank and auxiliary equipment manufacturer, year of manufacture, capacity, history of repairs, and operation methods schedule.

(6) ~~The underground storage tank (tank, piping and auxiliary equipment)~~ Construction details of the underground storage tank and any auxiliary equipment including, but not limited to, type and thickness of primary containment, type and thickness of secondary containment (if applicable), installation procedures and backfill, lining, wrapping, and cathodic protection methods (if applicable).

(7) A diagram or design or as-built drawing which indicates the location of the underground storage tank (tank, piping, auxiliary equipment) with respect to buildings or other landmarks.

(8) The description of the proposed monitoring program including, but not limited to, the following where applicable:

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(A) visual;

(B) tank testing or inspection procedures;

(C) inventory reconciliation controls including gaging and reconciliation methods;

(D) soils sampling locations and methods and analysis procedures;

(E) vadose zone sampling locations and methods and analysis procedures;

(F) ground water well(s) locations, construction and completion methods, sampling, and analysis procedures; and

(G) frequency and sensitivity of any monitoring method sensing instrument, or analytical method.

(9) A list of all the substances which previously, currently, or are proposed to be stored in the underground storage tank or tanks.

(10) 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 tank.

(11) The permit application must be signed by (A) a principal executive officer at the level of vice-president or by an authorized representative. The representative must be responsible for the overall operation of the facility where the tank(s) are located, (B) a general partner proprietor, or (C) a principal executive officer, ranking elected official, or authorized representative of a public agency.

(c) The application shall be accompanied by the a fee set by the local agency. ~~The local agency may require a fee to cover necessary and reasonable costs of permitting and inspection of the underground storage tank. This fee shall include a surcharge determined annually by the legislature to cover the costs of State Board in carrying out its responsibilities under these regulations.~~

Authority: H&SC 25288.2

Reference: H&SC 25283.2

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Adopt new section to read:

2712. Permit Conditions

(a) As a condition of any permit to operate an underground storage tank, the permittee shall report to the local agency which has permitting authority within ~~at least 30~~ days after ~~prior to the change~~ any changes in the usage of any underground storage tanks, including:

(1) the storage of new hazardous substances; or

(2) changes in monitoring procedure; or

(3) the replacement or repair of all or part of any underground storage tank.

(b) As a condition of any permit to operate an underground storage tank, the permittee shall report to the local agency any unauthorized release occurrences (as defined in Article 8 within the time frame specified in Subsections 2652(b) and (c)).

(c) Written records of all monitoring performed shall be maintained by the operator for a period of at least 3 years from the date the monitoring was performed. This 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;

(5) The logs of all readings of gages or other monitoring equipment, ground water elevations, or other test results; and

(6) The results of inventory readings and reconciliations.

(d) A permit to operate issued by the local agency shall be effective for 5 years. A local agency shall not issue a permit to operate an underground storage tank until the local agency inspects the tank and determines that the tank complies with the provisions of these regulations. The tank owner shall apply for renewal at least 180 days prior to the expiration of the permit.

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(e) The local agency shall have 18 months after it establishes a program implementing this Subchapter to issue permits for all existing underground storage tanks.

(f) ~~(e)~~ Permits may be transferred to new tank owners if the new tank owner does not change any conditions of the permit; and the transfer is registered with the local agency within 30 days of the change in ownership; ~~by submittal of a revised permit application listing the new owner~~ and any necessary modifications are made to the information in the initial permit application due to the change in ownership. A local agency may review, modify, or terminate the transfer of the permit to operate the underground storage tank upon receiving the transfer request.

~~(f) If an underground storage tank does not completely conform with Articles 3 or 4 of this subdivision, a local agency, at its discretion, may issue a provisional permit subject to conditions specified by the local agency and providing such a permit would not be detrimental to the public's interest. The conditions shall, at a minimum, include a time schedule for upgrading the underground storage tank such that it conforms with Articles 3 or 4 of this subdivision or is closed pursuant to Article 7 of this subdivision. These time schedules shall not exceed beyond the duration of the provisional permit. A provisional permit will be issued for no longer than one year with a one-time extension of six months three months and cannot be renewed or extended. The local agency shall inspect the underground storage tank pursuant to the provisions of subsection (g) of this section within 90 15 days of the expiration of the provisional permit to assure that the permit conditions have been met.~~

(g) The local agency shall not renew an underground storage tank permit unless the underground storage tank has been inspected within the prior 3 years and the inspection revealed that the underground storage tank complies with Articles 3 or 4, as applicable of this Subchapter and with all existing permit conditions. The inspection shall be conducted as specified in Subsection (h) of this Section. If the inspection revealed noncompliance, then the local agency must verify by a follow-up inspection pursuant to Subsection (h) of this Section that all required corrections have been implemented.

(h) The local agency shall inspect every underground storage tank within its jurisdiction at least once every 3 years. The inspection which shall evaluate the items listed in Subdivision (i) of this Section may be performed by the local agency or by a special inspector

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employed by the permit holder as required by the local agency, or both. If a special inspector conducts any or all of the inspection, a copy of the special inspector's report which may contain recommendations concerning the safe storage of hazardous substances materials shall be filed with the local agency at the same time as it is submitted to the permit holder. Any deficiencies or items of noncompliance found shall be addressed as described in Subsection (j) of this Section.

~~(i) The purpose of the inspection described in subsection (h) of this section is to:~~

~~(1) Determine whether the underground storage tank complies with the applicable standards of Article 3 or Article 4 of this subchapter;~~

~~(2) Determine whether the operator has monitored and tested the underground storage tank as required by the permit; and~~

~~(3) Determine whether the underground storage tank is in a safe operating condition.~~

(i) ~~(j)~~ Within 30 days of receiving an inspection report from either the local agency or the special inspector, the permit holder shall file with the local agency a

plan and time schedule to implement any required modifications to the underground storage tank or to the monitoring plan needed to achieve compliance with either Article 3 or Article 4 of this Subchapter, as appropriate, or the permit conditions. This plan and time schedule shall also implement all the recommendations of the special inspector. The local agency may exempt 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 the failure to implement the recommendation will not cause an unauthorized release.

Authority: H&SC 25288.2

Reference: H&SC 25283, 25283.1, 25283.4, 25283.5, 25284.2

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Adopt new section to read:

2713. Annual Report

(a) The local agency shall notify the State Board of any changes in permits as defined in subsections (a) or (d) of Section 2712 of this Article or any unauthorized releases as defined in Article 2 annually on the State Board annual report forms or other methods determined by the State Board. This information shall be submitted to the State Board by March 1 of each year covering the prior calendar year.

Authority: H&SC 25288.2

Reference: H&SC 25283.2

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Adopt new section to read:

2714. Trade Secret Provisions

(a) Any person providing information in an application for a permit to operate an underground storage tank, or for renewal of the permit or application for a categorical or site-specific variance, shall, at the time of its submission, identify all information which the person believes is a trade secret and submit a legal justification for the request for confidentiality. The information which must be submitted includes:

(1) Which portions of the information submitted are actually a trade secret;

(2) How long 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 a trade secret including references to statutory and case law as appropriate.

(b) If the local agency or the State Board or the regional

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board determines that a request for confidentiality is clearly valid, the material will be given trade secret protection as discussed in Subsection (f) of this section.

(c) If the local agency or State Board or the regional board determines that the request for confidentiality is clearly frivolous, it will send a letter to the applicant stating that the information will not be treated as a trade secret unless the local agency or the State Board or the regional board is instructed otherwise by a court within 10 days of the date of the letter.

(d) If the validity of the request for confidentiality *trade secrecy* is unclear, the local agency or the State Board or the regional board will inform the person claiming trade secrecy that the burden is on him to justify the claim. The applicant will be given a fixed period of time to submit such additional information as the local agency or the State Board or the regional board may request. The local agency or the State Board or the regional board shall then evaluate the request on the *in this* basis of the definition of "trade secrets" contained in Section 25283.6(a) of the Health and Safety Code and issue its decision. If the local agency or the State Board or the regional board determines that the

information is not a trade secret, it will act in accordance with Subsection (c) of this Section. *SEND A LETTER TO THE APPLICANT STATING THAT THE LOCAL AGENCY OR THE STATE BOARD OR REGIONAL BOARD WILL TREAT THE INFORMATION AS SUCH UNLESS THE LOCAL AGENCY OR THE STATE BOARD OR THE REGIONAL BOARD IS INSTRUCTED OTHERWISE BY A COURT WITHIN 10 DAYS OF THE DATE OF THE LETTER.*

(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 regarding which a final determination has not been made, 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 should be filed with the remainder of the 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 only in connection with the State Board's, the regional board's or local 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 ~~obtain~~prevent ~~prevention of~~ disclosure of information pursuant to other provisions of law.

Authority: H&SC 25288.2

Reference: H&SC 25283.6

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5. Draft dated December 28, 1984

UNDERGROUND TANK REGULATIONS

CALIFORNIA ADMINISTRATIVE CODE
TITLE 23 WATERS
CHAPTER 3 WATER RESOURCES CONTROL BOARD
SUBCHAPTER 16 UNDERGROUND TANK REGULATIONS

PROPOSED REGULATIONS, BASED ON COMMENTS FROM THE 15-DAY COMMENT PERIOD. (NEW TEXT IS DOUBLE-UNDERLINED; DELETED TEXT IS CROSSED OUT.)

DECEMBER 28, 1984

Article 1	General
Article 2	Definition of Terms
Article 3	New Tank Construction and Monitoring Standards
Article 4	Existing Underground Storage Tank Monitoring Standards
Article 5	Release Reporting Requirements
Article 6	Allowable Repairs
Article 7	Closure Requirements
Article 8	Categorical and Site-Specific Variances
Article 9	Local Agency Additional Standards Request Procedures
Article 10	Permit Application, Annual Report, and Trade Secret

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UNDERGROUND TANK REGULATIONS

CALIFORNIA ADMINISTRATIVE CODE
TITLE 23 WATERS
SUBCHAPTER 16 UNDERGROUND TANK REGULATIONS

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Article 1. General

Adopt new section to read:

2610. Applicability

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

(b) Persons who own one or more underground storage tanks storing hazardous substances shall comply with these regulations except as provided in Section 2611 of this article. If the operator of the tank is not the owner, then the owner shall enter into a written contract with the operator requiring the operator to: monitor the tank; maintain appropriate records, implement reporting procedures as required by the permit, and properly close the tank as required by the permit.

(c) Counties shall implement the regulations in this subchapter within both the incorporated and unincorporated areas of the county ~~except as provided in Section 25111(a) of this Article or Article 8 and 9 of this subchapter~~ through the issuance of permits to underground storage tank owners. A permit may be issued for each underground storage tank, several underground storage tanks, or for a facility. A city may, by ordinance, assume the responsibility for implementing the provisions of this subchapter within its bourdaries.

(d) All owners of underground storage tanks subject to these regulations must comply with the construction and monitoring standards of Article 3 (new underground storage tanks) or the monitoring standards of Article 4 (existing underground storage tanks) of this subchapter. However, owners of existing underground storage tanks which meet the construction and monitoring standards of Article 3 of this subchapter may be issued permits pursuant to ~~these~~ the standards of Article 3 in lieu of the standards of Article 4 of this subchapter. In addition, all owners and/or operators of underground storage tanks subject to this subchapter must comply with the release reporting requirements of Article 5 of

this subchapter, the repair requirements of Article 6, the closure requirements of Article 7 of this subchapter, and the permit application requirements of Article 10 of this subchapter.

Authority: Health and Safety Code (H&SC) 25288.2

Reference. Health and Safety Code (H&SC) 25282, 25283, 25288, 25288.2

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Adopt new section to read

26.1. Exemptions

(a) The owners of underground storage tanks that meet any of the following conditions shall be exempt from the provisions of this subchapter:

(1) Underground storage tanks that are located within the jurisdictions of counties or cities where the county or city had, prior to January 1, 1984, adopted an ordinance which, at a minimum, ~~meets the requirements of Article 3 and Article 4 of this subchapter or~~ implements the requirements of Subchapter 6.7 of Division 20 of the Health and Safety Code pertaining to construction and monitoring standards for new and existing underground storage tanks ~~Sections 25284 and 25284.1~~ provided that:

(A) The ordinance, as it may be amended, continues to meet, at a minimum, ~~the requirements of Article 3 and Article 4 of this subchapter or implements~~ the requirements of Chapter 6.7 of Division 20 of the Health and Safety Code;

~~Sections 25284 and 25284.1~~; and

(B) The county or city issues permits for underground storage tanks pursuant to the ordinance. ~~and submits a copy of the permit application to the State Board as specified in Article 10 of this subchapter.~~

~~(2) The county or city submits information on all unauthorized releases as specified in Article 5 of this subchapter.~~

~~(3) The county or city submits information on any permit changes or renewals as specified in Section 2108 of Article 10 of this subchapter.~~

~~(2) Underground storage tanks that are used for the storage of hazardous substances used for the control of external parasites of cattle and subject to the supervision of the county agricultural commissioner if the county agricultural commissioner determines, by inspection prior to use, that the tank provides a level of protection equivalent to that required by Section 25284 of the Health and Safety Code, if the tank was installed~~

after June 30, 1984, or protection equivalent to that provided by Section 25284.1 of the Health and Safety Code if the tank was installed on or before June 30, 1984.

(3) Underground storage tanks that are located on a farm and only store motor vehicle fuel which is used only to propel vehicles used primarily for agricultural purposes. Vehicles used primarily for agricultural purposes is meant to include non-licensed vehicles and vehicles utilized in the production of agriculture at the farm site.

(4) Underground storage tanks that are used for aviation or motor vehicle fuel storage and are located within one mile of a farm and the tank is used by a licensed pest control operator, as defined in Section 11705 of the Food and Agricultural Code, who is primarily involved in agricultural pest control activities.

(2) (3) Underground storage tanks containing hazardous wastes as defined in Section 25316 of the Health and Safety Code if the person owning or operating the tank has been issued a hazardous waste

facilities permit for the underground storage tank by the Department of Health Services pursuant to Section 25200 of the Health and Safety Code or granted interim status under Section 25200.5 of the Health and Safety Code.

(b) Structures such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation sumps, lined and unlined pits, sumps and lagoons are not considered underground tanks for the purpose of these regulations. Sumps which are a part of a monitoring system required under Article 3 of this subchapter are not exempted by this section. However, these sumps would be considered part of the secondary container or leak detection system of the primary container and are would be required to meet the appropriate construction criteria.

Authority: H&SC 25288.2

Reference: H&SC 25280, 25288

Article 2. Definition of Terms

Adopt new section to read:

2620. Applicability of Definitions

(a) Terms used in this subchapter shall have the definitions provided by ~~Section 25280~~ the appropriate section of Chapter 6.7 of Division 20 of the Health and Safety Code, or by Section 2621 of this article.

(b) The following terms are defined in the appropriate section of Chapter 6.7 of Division 20 ~~Section 25280~~ of the Health and Safety Code:

Board

Department

Facility

Hazardous substance

Local agency

Operator

Owner

Person

Pipe

Primary containment

Product-tight

Secondary containment

Single-walled

Special inspector

Storage/store

Unauthorized release

Underground storage tank

Authority: H&SC 25283.6

Reference: H&SC 25280, 25281, 25284

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2621. 26201 Additional Definitions

The following definitions shall apply to terms used in this subchapter.

"Board" means the State Water Resources Control Board.

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

"Double-walled tank" means a container with two complete shells which provide both primary and secondary containment. The outer shell must provide structural support and must be constructed primarily of non-earthen materials including, but not limited to, concrete, steel, and plastic.

"Existing underground storage tank" means any underground storage tank that is not a new underground storage tank. The term includes ary underground storage tank which has contained a hazardous substance in the past and, as of January 1, 1984, had the physical capability of being used again (i.e. it had not been removed or completely filled with an inert solid. That cannot be removed, such as concrete) substance

"Facility" means any one, or combination of, underground storage tanks used by a single business entity at a single location or site.

"Hazardous substance" means all of the following liquid and solid substances on the Department of Health Services' comprehensive master list which includes:

1. Substances on the list prepared by the Director of the Department of Industrial Relations pursuant to Section 6382 of the Labor Code.

2. Hazardous substances as defined in Section 25316 of the Health and Safety Code.

3. Any substance or material which is classified by the National Fire Protection Association (NFPA) as a flammable liquid, a Class II combustible liquid, or a Class III-A combustible liquid. This classified action is contained in the Flammable and Combustible Liquids Code 1981 (NFPA 30).

"Installed" means the point in time when all necessary permits have been issued allowing the implacement of the underground tank or, if no permits are necessary, the point in time when actual

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implementation of the tank permits.

"Local agency" means the county or city that is implementing the permit program. The local agency may also mean the department within the county or city designated to implement the program.

"Membrane liner" means any membrane sheet material fabricated into a system for secondary containment.

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

"Membrane liner fabricator" means the company which converts the liner membrane sheeting 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. *upon a highway, excepting a device moved exclusively by human power or used exclusively upon stationary rails or tracks.*

"Motor vehicle fuel tank" means a tank that contains a product which is intended to be used primarily to fuel motor vehicles or fuel an engine.

"New underground storage tank" means any underground storage tank subject to this subchapter which is installed after the effective date of this subchapter *[illegible]* or complies with the requirements of Article 3 of this subchapter, or was installed after January 1, 1984, and before the effective date of this subchapter pursuant to a permit issued by the local agency *if prior to adoption of these regulations, installed within a county, city, [illegible] or city where the county, city, and county or city has adopted an ordinance implementing the provisions of Section 25284 Chapter 6.7 of Division 20 of the Health and Safety Code relating to new underground storage tanks, and the tank was installed after the date of adoption of said ordinance.*

"Operator" means the operator of an underground storage tank.

"Owner" means the owner of an underground storage tank.

"Person" means an individual, trust, firm, joint stock company, corporation, including a government corporation, partnership, and association. "Person" also includes any city, county, district, the state, or any department or agency thereof. "Person" includes the United States, to the extent authorized by federal law.

"Pipe" means any pipeline or system of pipelines which is used in connection with the hazardous substances and which are not

intended to transport hazardous substances in interstate or intrastate commerce or to transfer hazardous materials in bulk to or from a marine vessel.

"Primary containment" means the first level of containment, such as the portion of a tank which comes into immediate contact on its inner surface with the hazardous substance being contained.

"Product-tight" means impervious to the substance which is contained, or is to be contained, so as to prevent the seepage of the substance from the primary containment. To be product-tight, the tank shall not be subject to physical or chemical deterioration by the substance which it contains over the useful life of the tank.

"Secondary containment" means the level of containment external to, and separate from, the primary containment.

"Single-walled" means construction with walls made of only one thickness of material. For the purpose of this subchapter, laminated, coated, or clad materials shall be considered single-walled.

"Special inspector" means a professional engineer, registered pursuant to Chapter 7 (commencing with Section 6700) of Division 3 of the Business and Professions Code, who is qualified to attest, at a minimum, to structural soundness, seismic safety, the compatibility of containment materials with contents, cathodic protection, and the mechanical compatibility of the structural elements.

"Storage" or "store" means the containment, handling or management of hazardous substances, either on a temporary basis or for a period of years.

"Substantially beneath the surface of the ground" means that at least 10 80 percent of the surface area of the underground storage tank volume, that can be in contact with the stored material including connected piping, is below the ground surface.

"Tank" means any single container including connecting piping which is for used the storage of hazardous substances and which is substantially or totally beneath the surface of the ground.

"Tank system" means any one or more tanks and is used synonymously with "underground storage tank".

"Unauthorized release" means any release or emission of any hazardous substance unless this release is authorized by the

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~~Grave Water Resources Control Board pursuant to Division 7 (commencing with Section 13000) of the Water Code.~~

"Unauthorized release" as defined in Chapter 5.7 of Division 20 of the Health and Safety Code does not include intentional withdrawals of hazardous substances for the purpose of legitimate sale, ~~or~~ use, or disposal.

~~Underground storage tank means any one or combination of tanks, including pipes connected thereto, which is used for the storage of hazardous substances and which is substantially or totally beneath the surface of the ground.~~

Authority: H&SC 25283.2*

Reference: H&SC 25280, 25281, 25284

Article 3. New Tank Construction and Monitoring Standards

Adopt new section to read.

2630. Applicability

(a) This article contains statewide minimum standards for the construction, installation, and monitoring of new underground storage tanks that contain hazardous substances.

(b) Sections 2631 and 2632 specify construction and monitoring standards for all new underground storage tanks. ~~systems~~ New underground storage tanks ~~systems~~ that only store motor vehicle fuels may be constructed and monitored pursuant to the standards specified in Sections 2633 and 2634 in lieu of those specified in Sections 2631 and 2632, respectively. However, if the construction standards in Section 2633 are used, then the monitoring standards of Section 2634 must also be used.

(c) All new underground storage tanks and secondary containers ~~tank systems~~ must comply with Section 2635.

Authority: H&SC 25288.2

Reference: H&SC 25280, 25284

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Adopt new section to read:

2631. Construction Standards for New Underground Storage Tanks

(a) Primary and secondary levels of containment shall be required for all new underground storage tanks used for the storage of hazardous substances as defined in Article 2.

(b) All primary containers shall be product-tight.

(c) All secondary containers shall be constructed of materials of sufficient thickness, density, and composition to prevent structural weakening of the secondary container as a result of contact with any released hazardous substance and shall be capable of containing any unauthorized release of ~~contain~~ the hazardous substance stored within the primary container(s) ~~for a period of at least time~~ for at least the maximum anticipated ~~time~~ period sufficient to allow detection and removal ~~recovery~~ of the unauthorized release. ~~of leakage from the primary container~~

(d) If a hazardous substance has come into contact with the

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secondary container and either additional primary containers exist within the secondary container or the leaking primary container is repaired as specified in Article 6 of this subchapter or closed as specified in Article 7 of this subchapter and replaced by a new primary container, the owner shall demonstrate to the satisfaction of the local agency that the requirements of Subsection (c) of this section are still achievable or replace the secondary container.

(e) *(d)* The secondary container shall have the ability to contain the following volumes:

(1) At least 100 percent of the volume of the primary container where only one primary container is within the secondary container;

(2) In the case of multiple primary containers within a single secondary container, the secondary container shall be large enough to contain 150 percent of the volume of the largest primary container placed in it, or 10 percent of the aggregate internal volume of all primary containers in the secondary container, *storage facility* whichever is greater.

(f) *(e)* If the secondary container *storage facility* is open to rainfall, then it *the secondary container must* shall be able to accommodate the volume of precipitation which could enter the secondary container during a 24-hour, 100-year storm in addition to the volume of hazardous substance storage required in Subsection (e) *(d) and (e)* of this section.

(g) *(f)* The volumetric *volume* requirements for the pore space of a granular material placed in the *a* secondary container as *which consists of the pore space in* backfill for the *placed around the* primary container shall be equal to or greater than *110 percent of* that required in *Sections (d) and (e)* Subsection 2631(e) of this section. The available pore space in the secondary container backfill shall be determined using appropriate engineering methods and safety factors and shall consider the specific retention and specific yield of the backfill material, the location of the primary container within the secondary container, and the proposed method of operation for the secondary container.

(h) The secondary container shall be equipped with a collection system *capable of removing* to accumulate,

temporarily store, and permit removal of any precipitation, subsurface infiltration, or hazardous substance released from the primary container.

(i) The floor of the secondary container 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 covered with a locked waterproof cap. If this access casing is within a secured facility, the requirements for a locked cap may be waived by the local agency. The casing shall be thick enough 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.

(j) Systems for secondary containment utilizing membrane liners shall meet the following requirements:

(1) The membrane liner shall have a permeability factor

of 0.25 ounces per square foot per 24 hours or less. Such permeability shall constitute the maximum rate of transport over time of the hazardous substance proposed for storage. Permeability shall be evaluated according to accepted engineering practices for materials testing. Acceptable methods for determining the permeability are provided in Appendix I.

(2) The membrane liner shall be considered to have satisfied the requirements of Subsection 2631(c) only if the liner material meets the following standards. The material properties specified in these standards shall be determined using accepted engineering practices for materials testing. Acceptable methods for determining these properties are provided in Appendix I.

(A) The volume swell after a 24-hour period of immersion in the stored hazardous substance shall not exceed 3 percent of the original liner membrane material thickness.

(B) The maximum change in elongation of the liner membrane material at break after 24 hours of

immersion in the stored hazardous substance shall not exceed 5 percent of the original elongation.

(C) The liner membrane material shall not harden (brittleness) after 24 hours of immersion in the hazardous substance shall be within 5 percent of the original hardness.

(D) For a containment test, the rate of transport through the liner membrane material of the hazardous substance after a period of 24 hours shall not exceed 6 percent by weight of the hazardous substance being tested. The liquid height for the test shall be no greater than that expected in actual site conditions.

(E) The rate of solubility of the liner membrane material in the hazardous substance for a period of 24 hours shall not exceed 0.1 percent by weight of the section of liner being tested.

(G) The liner seam strength shall be equal to the tensile strength of the parent material when tested in accordance with accepted engineering practices for materials testing. Acceptable methods for determining the liner seam strength are provided in Appendix I.

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(k) The liner shall be installed under the supervision of a representative of the membrane liner fabricator or a contractor certified by such fabricator.

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

(m) ~~(g)~~ Laminated, coated, or clad materials shall be considered single walled and shall not be construed to fulfill the requirements of both primary and secondary containment.

(n) ~~(h)~~ Double-walled underground storage tanks which satisfy the construction standards ~~requirements~~ of Sections 2631(b) and (c) of this article shall be considered to fulfill the volumetric requirements for secondary containment specified in Section 2631(e)(1) of this article. ~~2631(d)~~

(o) The design of double-walled tanks shall allow for monitoring of the annular space.

(p) "Sticking" the annular space of a double-walled underground storage tank as a monitoring method shall not be allowed unless a strike plate or other approved devices used to protect the underground storage tank are located directly under the monitoring opening.

(q) The double-walled underground storage tank shall be so designed and installed that any loss of hazardous substance from the primary container will drain to a ~~central~~ specific location within the annular space, as required, to be detected by a monitoring device or method.

(r) Any special accessories, fitting, coating, or lining not inherent within the initial design of the primary container or double-walled tank shall be approved by a nationally recognized, independent testing organization or a demonstration of integrity with the primary container or double-walled tank shall be required by the local agency.

(s) All primary containers and double-walled underground storage tanks subject to floatation shall be weighted or anchored using methods specified by the manufacturer or, if none exist, best engineering judgment.

Authority: H&SC 25288.2

Reference: H&SC 25280, 25284

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Adopt new section to read.

2632. Monitoring Standards for New Underground Storage Tanks

(a) This section is applicable only to those underground storage tanks constructed pursuant to the standards of Section 2631 of this article.

(b) The owners or operators of underground storage tanks subject to this section shall implement a monitoring program that is approved by the local agency and required in the permit. The program shall utilize one or more of the methods described in Subsection (c) of this section and shall address the items listed in Subsection (d) of this section.

(c) Monitoring of the space between the primary and secondary container shall utilize either visual monitoring of the primary container as described in Subsection (1) of this subsection or one or more of the methods listed in Subsection (2) of this subsection.

(1) A program which relies on the visual monitoring of the primary container shall incorporate all of the following:

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(A) Provisions that all exterior surfaces of the underground storage tank and the surface of the floor directly beneath the underground storage tank shall be monitored by direct viewing.

(B) Visual inspections shall be performed daily except on weekends and recognized state and/or federal holidays, and may be more frequent if ~~designated~~ required by the local agency. 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 tank are very infrequent. In these instances the minimum frequency shall be no less than once per week and shall take into account the minimum anticipated time which the secondary container is capable of containing any unauthorized release and the maximum length of time any hazardous substance released from the primary container will remain observable on the surface of the secondary container. The inspection schedule

shall be established such that inspections occur on a routine basis when the liquid level in the underground storage tank is at its highest. The inspection frequency shall be selected such that any unauthorized release will remain observable on the exterior of or the surface immediately beneath the underground storage tank between visual inspections. The evaluation of how long the hazardous substance remains observable shall consider the volatility of the hazardous substance and the porosity and slope of the surface immediately beneath the underground storage tank.

(C) Recordation of the liquid level in the underground storage tank at the time of inspection.

(D) The observation of any liquid on the exterior of or the surface immediately beneath the underground storage tank being visually monitored shall cause the owner or operator to implement all or a portion of the following actions. The applicable actions and their

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timing shall be based on the site-specific situation and be intended to determine if the observed liquid constitutes an unauthorized release; and shall be included in the permit.

(i) Laboratory or field analysis of the observed liquid.

(ii) Testing of the underground storage tank utilizing the procedures described in Section 26#3 of Article # of this Subchapter.

(iii) Removal of all hazardous substances from the underground storage tank and the secondary container. ~~[illegible]~~

(2) A program which relies on detecting the hazardous substance in the space between the primary and secondary container shall utilize one or more of the methods provided in Table 3.1. The following requirements shall apply when appropriate.

(A) Continuous monitoring devices shall be connected to an audible/visual alarm system.

(B) Manual monitoring shall be performed daily except on weekends and recognized state and/or federal holidays. Manual monitoring may be required on a more frequent basis as specified by the local agency.

(C) For methods of monitoring where the presence of the hazardous substance is not determined directly (i.e., liquid level measurements), the monitoring program shall specify the proposed method(s) for determining the presence of the hazardous substance if the indirect methods indicate a possible unauthorized release.

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Table 3.1

Methods of Monitoring for Hazardous Substances in the Secondary Container

Condition of the Secondary System [1]	Type of Substance Stored	Methods of Monitoring			
		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	X
Wet	Nonvolatile	X	X		X

[1] A "dry" system does not contain liquid within the secondary container during normal operating conditions while a "wet" system does.

[2] Includes: continuously operated mechanical or electronic devices, manual determinations using mechanical, electronic, or "stick" readings or visual determinations to detect the presence of any liquid in "dry" systems or a change in liquid levels in "wet" systems.

[3] Includes either qualitative or quantitative determinations of the presence of the hazardous substance.

[4] Primarily used for double-wall underground storage tanks to detect changes in pressure or vacuum between primary and secondary container. The use of pressure or vacuum must be approved as part of the primary and secondary container approval by a nationally recognized, independent testing organization.

(d) All monitoring programs shall include the following:

(1) A written routine monitoring procedure which includes, when applicable: the frequency of performing the monitoring method, the methods and equipment to be used for performing the monitoring, the location(s) from which the monitoring will be performed, the name(s) or title(s) of the person(s) responsible for performing the monitoring and/or maintaining the equipment, and the reporting format.

(2) A response plan developed by the permit applicant which demonstrates, to the satisfaction of the local agency, that any unauthorized release will be removed from the secondary container within the shortest possible time and no longer than the time consistent with the ability of the secondary container to contain the hazardous substance. 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 the hazardous substance, including the location and availability of the required equipment, if not permanently on-site, and an equipment

maintenance schedule for that the equipment located on-site.

(3) The name(s) or title(s) of the person(s) responsible for authorizing the work to be performed.

(b) Secondary containers shall be equipped with a collection system capable of removing any precipitation, subsurface infiltration, or hazardous substance and liquid leakage from the primary containment.

(c) The floor of the secondary containment shall be constructed on a firm base and sloped to a collection sump. The sump and the access casing shall be sized to allow removal of the collected liquid. The access casing shall be extended to the ground surface, perforated in the region of the sump, and covered with a locked water-proof cap.

(d) The casing shall be of thick enough to withstand all anticipated applied stresses with a 1/5 safety factor and constructed of materials that will not be structurally weakened by the stored product nor corrode, embrittle, or mask product constituents for which analyses will be made.

(e) The sump shall be monitored with a continuous sensor, which is removable on a semi-annual basis for calibration and maintenance if needed. The continuous sensor shall be capable of either:

(1) Detecting within the sump O/B levels of standing liquid and activating a strategically-located, above ground alarm system when any combination of a hazardous substance or water is present. All standing liquid shall be immediately sampled and analyzed within a time specified by the local agency to meet detection limits to determine the presence of hazardous substances. This system cannot be used when water is normally expected to be present within the secondary containment, or

(2) Detecting within the sump O/B levels of the hazardous substance stored in the primary container(s) and activating a strategically-located, above-ground alarm system.

(f) The interstitial space between the walls of a double-walled tank may be monitored continuously using a pressure sensor. The sensing devices shall be capable of activating a strategically located above-ground alarm system. Double-walled tanks which utilize this leak

~~detection system are exempt from the requirements of Sections 2632(d) through (f).~~

Authority: H&SC 25288.2

Reference: H&SC 25280, 25284

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Adopt new section to read:

2633. Construction Standards for New Motor Vehicle Fuel Underground Storage Tanks

(a) This section specifies alternate construction standards for new underground storage tanks which only contain motor vehicle fuels. This section may be utilized by permit applicants in lieu of Section 2631. If this section is used in lieu of Section 2631, then the monitoring standards specified in Section 2634 shall be used in lieu of those specified in Section 2632.

(b) Primary containers used for the underground storage of motor vehicle fuel and constructed under this section shall ~~consist of product-tight tanks~~ be composed ~~constructed~~ of fiberglass reinforced plastic, cathodically protected steel, or steel clad with glass fibre reinforced plastic and be installed in conjunction with the leak interception and detection ~~secondary containment~~ system decribed in Subsection (d) through (f) of this section. ~~2633 and (e)~~

(c) Primary containers used for the underground storage of motor vehicle fuel and constructed of materials other

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to the requirements of Sections 2631 and 2632 of this article.

(d) The permit applicant ~~secondary container~~ shall be demonstrate to the satisfaction of the local agency that the leak interception and detection system achieves the ~~integrity and compatibility~~ criteria of Section 2631(e) of this article.

(e) Methods of construction for the leak interception and detection system for utilizing membrane liners shall be considered to have satisfied the requirements of 2631(e) if, and only if, the liner material meets the following standards:

(1) The membrane liner material shall have the permeability factor specified in subsection 2631(g)(1) as tested against ASTM Reference Fuel B.

(2) The membrane liner material shall be suitable for containment of the motor vehicle fuel in that such material shall meet the criteria set forth in subsections 2631(j)(2) A through (E) of this article as tested against the motor vehicle fuel to be stored considering its variability or against

ASTM reference fuel B.

(3) The membrane liner shall meet the requirements set forth in subsection 2631(j)(2) of this article.

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(4) The liner has been installed under the supervision of a representative of the membrane liner fabricator or a contractor certified by such fabricator.

(5) The excavation base and walls which will come into contact with the synthetic liner shall be prepared to the liner fabricator's specifications and shall be firm, smooth, and free of any sharp objects and protrusions.

(f) ~~(e)~~ The leak interception and detection system ~~(secondary container)~~ and the response plan shall preclude the contact of any leaked hazardous substance with ground water. At a minimum, the leak interception and detection system shall be above the highest anticipated ground water elevation. Proof that the leak interception and detection system ~~secondary container~~ and response plan will protect ground water must be demonstrated by the permit applicant to the satisfaction of the local agency. The requirement for this demonstration may be waived by the local agency for underground storage tanks that comply with the requirements of Subsections (e), (f), and (g) of Section 2631 of this article. The demonstration shall, at a minimum, consider the following:

(1) The containment volume of the leak interception and detection system, ~~secondary container~~

(2) The maximum leak which could go undetected under the monitoring ~~inventory reconciliation~~ method required ~~presented in subsection (e) of~~ Section 2634 of this article and the maximum period during which the leak will occur;

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

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

(5) ~~(3)~~ The nature of the unsaturated soils under the leak interception and detection system ~~secondary container~~ and their ability to adsorb contaminants or allow vertical movement of contaminants;

(6) ~~(4)~~ 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) ~~(6)~~ The nature and timing of the response plan to cleanup the hazardous substances which have been discharged from the primary container.

(g) ~~(f)~~ Pressurized piping systems that are connected to ~~include an automatic or line continuously operating pressure loss detector and flow restriction device and suction piping systems~~ an underground storage tank that is constructed pursuant to the requirements of this section and monitored pursuant to the requirements of Section 2634 of this article are exempt from the leak interception and detection system ~~secondary container~~ requirements of this section, provided that the pressurized piping system is monitored according to the appropriate section of Chapter 6.7 of Division 20 of the Health and Safety Code. ~~The article This detector shall be connected to a visual or audible alarm system unless it provides at least a 50 percent reduction from normal flow rates. Suction piping systems shall be evaluated at least once each day of operation to detect if a leak in the piping system exists.~~

Authority: H&SC 25288.2

Reference: H&SC 25280, 25284

Insert new section to read:

2634. Monitoring Standards for New Motor Vehicle Fuel Underground Storage Tanks

(a) ~~Monitoring of~~ Underground storage tanks used for the storage of motor vehicle fuel and constructed pursuant to the standards of Section 2633 of this article shall ~~consist of all of the following~~ be monitored according to the requirements of the appropriate Sections of Chapter 6.7 of Division 20 of the Health and Safety Code. In addition, ~~(1)~~ monitoring of the leak interception and detection ~~secondary containment~~ system shall be pursuant to Subsections (b), (c), and (d) of this section.

~~(2) Daily gauging and inventory reconciliation by the operator pursuant to Section 2644 2643 of Article 41~~

~~(3) Hydrostatic testing of the tank every two years according to the criteria specified in Section 2643 2642 of Article 41 and~~

~~(4) All pressurized piping systems shall be monitored~~

~~utilizing an online pressure loss detector and flow reduction device. The detector shall be connected to a visual or audible alarm system unless it provides for at least a 50 percent reduction from normal flow rates.~~

(b) The floor of the leak interception and detection system shall be constructed on a firm base and sloped to a ~~specific location or~~ collection sump.

(c) ~~(b)~~ ~~An~~ Access casing(s) shall be installed ~~to intercept~~ in the collection sump. ~~or specific location at each monitoring location.~~ The access casing shall be:

(1) Capable of allowing any liquid that may be moving along the upper surface of the leak interception and detection system ~~secondary container~~ to enter the casing;

(2) Sized to allow efficient removal of collected liquid and to withstand all anticipated applied stresses using appropriate engineering ~~with a~~ safety factors; ~~of 1/B~~

(3) Constructed of materials that will not be

structurally weakened by the stored hazardous substancs ~~product~~ nor donate, capture, or mask ~~product~~ 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; ~~secondary container~~

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

(6) Extended to the ground surface and 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 secure facility will satisfy the requirements for protection against unauthorized access and vandalism.

(d) Monitoring of the leak interception and detection system

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shall incorporate all of the following

(1) The use of a continuous monitoring device connected to an audible/visual alarm system or manual monitoring performed daily, except on weekends and recognized state and/or federal holidays. Monitoring may be required more frequently by the local agency based on an assessment of the available volume of the leak interception and detection system and the accuracy of the proposed monitoring method. ~~and the maximum leak which could go undetected under the inventory reconciliation method presented in Subsection (e)~~ Approved methods of monitoring the leak interception and detection system include liquid level indicators, hazardous substance sensors, and vapor monitors as specified for volatile hazardous substances in Table 3.1.

(2) A written routine monitoring procedure which includes: the frequency of performing the monitoring method, the methods and equipment to be used for performing the monitoring, the location(s) from which the monitoring will be performed, the name(s) or title(s) of the person(s) responsible

for performing the monitoring and/or maintaining the equipment, and the reporting format.

(3) For methods of monitoring where the presence of the hazardous substance is not determined directly (i.e., liquid level measurements), the monitoring program shall specify the proposed method(s) for determining the presence of the hazardous substance if the indirect method indicates the possible presence of the motor vehicle fuel.

~~(c) Monitoring of each casing described in Section 2[illegible](b) shall utilize a continuous sensor which is removable on a semi-annual basis for calibration and maintenance, if needed, and capable of detecting within the casing [illegible] inches of the hazardous substance stored in the primary container(s) and activating a strategically located above-ground alarm system.~~

~~(e) (a) An underground tank used for the storage of motor vehicle fuels that has a loss or gain of hazardous substance or water as determined by daily gauging and inventory reconciliation control (as required in Subsection (a)(2) of this section) of greater than any of the following shall be tested according to the~~

procedures specified in subsection (6) of this section;

(1) Daily loss or gain of 100 US gallons; or

(2) Seven (7) day loss or gain of five percent of the underground storage tank throughput volume of hazardous substances delivered over the seven days or 700 gallons; whichever is greater; but not greater than 350 gallons; or

(3) Cumulative recalculated over a period of at least thirty 30 days loss or gain of one-half percent of the underground storage tank throughput volume of hazardous substance throughput over the period that the cumulative loss or gain is calculated or 700 gallons; whichever is greater;

(5) (a) If inventory reconciliation controls indicates a gain or loss of the hazardous substance greater than that specified in subsection (6) (a) of this section; then the following steps shall be implemented by the operator or permittee; The steps may be implemented sequentially or concurrently; however; they must be completed within the specified time periods Reporting as required in Article 3 of this subchapter shall be

followed;

If completion of the steps described in subsections (2); (3); or (5) of this subsection indicate inventory reconciliation errors that; when corrected cause the levels in subsection (6) (a) of this section not to be exceeded; then the remainder of the steps need not be completed; If completion of the steps described in subsections (4) or (6) through (8) of this subsection reveal the source of the loss or gain; then the remainder of the steps need not be completed;

Transfer of hazardous substances into and out of the underground storage tank may continue during implementation of the steps provided that the steps are completed within the specified time periods and any loss or gain did not exceed two times the levels specified in subsection (6) (a) of this section; Inventory control and daily reconciliation shall continue during throughout implementation of the steps;

(7) The operator shall notify the owner verbally or in writing of the fact that inventory reconciliation controls indicate a gain or loss of hazardous substances or water within 24 hours of the

completion of the daily reconciliation which indicates the loss or gain.

(2) The operator shall review the inventory records within two (2) hours to determine if an error exists which would cause the gain or loss to be less than that specified in Subsection (e) (d) of this section.

(3) The operator shall have performed by a qualified person a complete review of all inventory records from the last time a zero loss or gain condition existed. This shall be completed within 24 hours of the conclusion of Subsection (f) (e)(2).

(4) The readily accessible physical facilities shall be carefully inspected for leakage. This shall be completed by trained personnel within 24 hours of completion of Subsection (f)(e)(3).

(5) All dispenser meters associated with hazardous substance withdrawal shall be checked for calibration within 24 hours of completion of Subsection (f) (e)(4).

(6) All piping shall be tested using the methods specified in Sections 4-3.6 or 4-3.7 of the National Fire Protection Association (NFPA) publication entitled Underground Leakage of Flammable and Combustible Liquids, 1983 (NFPA 329), within 24 hours of completion of Subsection (f)(e)(5). This step may be completed after the step described in Subsection (f)(e)(7) if excavation is necessary to perform the tests and if the step described in Subsection (f)(e)(7) is completed within 48 hours of the completion of Subsection (f)(e)(5). If this occurs, then this Subsection shall be completed within 24 hours of the completion of Subsection (f)(e)(7).

(7) The bank shall be tested using the tests described in Section 2643 2642 of Article 4 within 48 hours of completion of Subsection (f)(e)(6).

(8) Additional tests or investigations as required by the local agency.

(e) (f) A response plan for an unauthorized release shall be developed prior to installation for any leak interception and detection system container which does

not meet the volumetric requirements of Sections 2631(e), (f), and (g) ~~(d) and (e)~~ of this article. For those underground storage tanks that meet the volumetric requirement of Sections 2631(e), (f), and(g), the local agency shall require the owner to develop a plan pursuant to the regirements of Section 2632(d)(2) of this article. The response plan shall consider the following:

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

(2) The amount of time the leak interception and detection systen ~~secondary container~~ must provide containment in relation to the period of time between detection of an unauthorized release and cleanup of the leaked materials;

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

(4) The nature of the unsaturated soils under the leak interception and detection system ~~secondary~~

~~container~~ and their ability to absorb contaminants or allow vertical movement of contaminants; and

(5) The methods and scheduling for removing all of the hazardous substances which 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 ~~secondary container~~ sump.

Authority: H&SC 25288.2

Reference: H&SC 25280, 25288

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Adopt new section to read.

2635. General Construction Standards

(a) The following sections shall apply to all primary and secondary containers including leak interception and detection systems.

(b) Primary containers and double-walled underground storage tanks shall be designed and constructed to comply with all of the following

(1) Cathodically protected steel tanks, steel tanks clad with glass fibre-reinforced plastic, and glass fibre plastic tanks shall be fabricated and designed to standards developed by a nationally recognized independent testing organization or be listed by the testing organization. Applicable design standards shall include, but are not limited to, those provided in Appendix I.

(2) Underground storage tanks shall be tested by the manufacturer or an independent testing organization for durability and chemical compatibility with the hazardous substances to be stored using recognized

engineering practices for materials testing. Acceptable methods for determining durability and chemical compatibility with the hazardous substances are provided in Appendix I.

(3) ~~(A)~~ Except for steel underground storage tanks a ~~MINIMUM THICK STEEL~~ wear plate (striker plate) shall be centered under all accessible openings of the underground storage tank. The plate shall be constructed of steel or, if the steel is not compatible with the hazardous substance stored, a material resistant to the stored hazardous substance. The width of the plate shall be at least 9 inches wide and have an area of 1 square-foot or 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 0.053 inch (1.35 mm) and those constructed of other materials (as required) shall be of sufficient thickness to provide equivalent protection. The plate shall be rolled to the contours of the tank and bonded or seam welded in place. ~~AND HAVE A MINIMUM AREA EQUAL TO THE OPENING OR A GUIDE TUBE, WHICHEVER IS SMALLER~~

(4) Single-wall primary containers of steel and the outer surface of double-walled underground storage tanks constructed of steel, with or without coatings, shall be protected by ~~either~~ a properly installed, maintained, and monitored cathodic protection system. ~~With or without coatings or listed corrosion resistant materials, non-metallic reinforced plastic coatings, composites or equivalent systems which have been checked using electrical holiday testing~~ Selection of the type of protection to be employed shall be based on a certification listing by a nationally recognized, independent testing organization or the judgment of a registered corrosion engineer or a National Association of Corrosion Engineers (NACE) accredited corrosion specialist taking into account the corrosion history of the area. underground storage tanks with listed corrosion resistant materials, non-metalic reinforced plastic coatings, composites, or equivalent systems shall be holiday tested immediately prior to installation.

~~When cathodic protection is selected, the system shall be designed by a registered corrosion engineer or a NACE corrosion specialist or in accordance with the certification listing, whichever is applicable. The cathodic protection system shall be initially tested by a registered corrosion engineer or NACE corrosion specialist.~~

~~Monitoring of~~ The cathodic protection system shall be ~~done~~inspected under the direction of a registered corrosion engineer or NACE corrosion specialist at the frequency specified in the certification or in accordance with the schedule prescribed by the system designer, but no less than semi-annually.

~~Vaulted~~ Underground storage tanks in a vault and not backfilled are exempted from the requirements of this subsection.

(5) All primary containers and double-walled tanks underground storage shall be installed according to the manufacturer's written recommendations or, if no written recommendations exist, best engineering practice.

(6) ~~(2)~~ All underground storage tanks shall be tested before being put into service in accordance with

the applicable sections of the Code under which they were built. The ASME code stamp, API monogram, or the Listing Mark of Underwriters Laboratories, Incorporated, (UL) or any other nationally recognized independent testing organization shall be evidence of compliance with this requirement. Guaranteed by the manufacturer to be product tight prior to leaving the factory.

(7) (A) Before being covered, enclosed, or placed in use, Following installation all underground storage tanks and piping shall be tested for tightness either hydrostatically or 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). Pressure piping shall be tested according to the requirements specified in Section 6111 of NFPA 30, Flammable and Combustible Liquids Code. Pressure piping shall be hydrostatically tested to 150 percent of the maximum anticipated pressure of the system, or pneumatically tested to 110 percent of the maximum anticipated pressure of the system, but not less than 5 pounds per square inch (34.48 kPa) gauge at the highest point of the system. This test shall be maintained for a sufficient time

to complete visual inspection of all joints and connections, but for at least 10 minutes. In lieu of the above, a test using accepted engineering practices shall be used. Acceptable test methods for testing pipelines are provided in Appendix I. Double-walled underground storage tanks are exempt from the requirements of this section provided that the annular space is monitored using either pressure or vacuum testing. In accordance with standards and procedures set forth in Article 4

(8) When required by the local agency, all underground storage tanks shall be equipped with an overflow protection system which includes the following elements:

(A) A spill catchment basin which surrounds the fill pipe and prevents the inflow of the hazardous substance into the subsurface environment. A level sensing device that continuously monitors and indicates the liquid level in the tank and either (B) or (C) (2) or (3) or both;

(B) An audible or visual alarm system triggered by

a liquid level sensor to alert the operator of an impending overfill condition; or

(C) An automatic shut-off device that stops the flow of product being delivered to the tank when the tank is full.

~~(D) A spill containment basin which surrounds the fill pipe and prevents the inflow of the hazardous substance into the subsurface environment~~

(9) The overflow protection system required in Subsection (b)(8) of this section shall be ~~satisfied~~ waived for underground storage tanks containing motor vehicle fuels in which a spill catchment basin surrounds the fill pipe and prevents the inflow of the motor vehicle fuel into the subsurface environment and:

(A) Both the fluid level is visually monitored and the filling operation is controlled by the facility operator during filling of the underground storage tank; or

(B) The available capacity of the underground storage tank to be filled is determined immediately prior to filling to be at least 103 percent of the volume of the entire tank compartment to be delivered or the volume of the entire tank compartment to be ~~filled~~ delivered plus 200 gallons, whichever is less, as determined by tank gauging; or

(C) The hazardous substance being delivered can be metered into the underground storage tank and the available underground storage tank capacity is determined immediately prior to filling.

~~(D) A spill containment basin surrounds the fill pipe and prevents the inflow of the motor vehicle fuel into the subsurface environment.~~

~~(10) Cathodically protected steel tanks and steel tanks clad with glass fibre reinforced plastic shall be fabricated and designed by the requirements in Underwriters Laboratories (UL) 58, Standards for Steel Underground Tanks for Flammable and~~

Combustible Liquids October 1978 or the American Society of Mechanical Engineers (ASME) Pressure Vessel Code, Section VIII, Division 1, Boiler and Pressure Vessel Code, 1983, and have a minimum thickness of at least 7 gauge (3/16 inch).

(b) Fiberglass reinforced plastic tanks shall be UL listed and designed in accordance with UL Standard 1316, Standard for Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum, July 1983, or Underwriter's Laboratory of Canada, Standard ULC-S615-1977, Standard for Reinforced Plastic Underground Tanks for Petroleum Products, March 1977.

(c) Fiberglass reinforced plastic tanks shall be designed based on tests by the manufacturer for durability and chemical compatability with the hazardous substances to be stored using applicable sections of American Society for Testing and Materials (ASTM) D4021-81 (Standard Specifications for Glass-Fiber-Reinforced Polyester Underground Storage Tanks), August 1981, and the manufacturer shall provide the owner with written assurance of the compatibility.

(c) Secondary containers including leak interception and detection systems installed pursuant to Section 1633 of this article shall comply with all of the following:

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

(2) ~~(1)~~ The secondary container must be capable of precluding the inflow of the highest ground water anticipated during the life of the underground storage tank into the space between the primary and secondary containers.

(3) ~~(B)~~ If the space between the primary and secondary containers is backfilled, the backfill material shall not preclude the vertical movement of leakage from any part of the primary container.

(4) The secondary container and any backfill material between the primary and secondry containers shall be designed and constructed to promote gravity drainage of a leak of hazardous substances from any part of the primary container to the monitoring locations(s).

(5) Two or more primary containers shall not utilize the same secondary container if the primary containers 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 a primary or secondary container. ~~SHALL BE SEPARATED IN WHEN THE PRIMARY AND SECONDARY CONTAINMENT SO AS TO AVOID POTENTIAL INTERMIXING~~

(6) Drainage of liquid from within a secondary container shall be controlled in a manner approved

by the local agency so as to prevent hazardous materials from being discharged. The liquid shall by analyzed to determine the presence of any of the hazardous substance(s) stored in the primary container prior to initial removal and monthly thereafter for any continuous discharge (removal) to determine the approriate method for final disposal. The liquid shall be sampled and analyzed immediately upon an indication of an unauthorized release from the primary container.

(7) For primary containers installed completely beneath the ground surface, the original excavation for the secondary container shall have a water-tight cover which extends at least 1 foot beyord 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. ~~Manways~~ Access openings shall be constructed as water-tight as practical. Double-walled underground storage tanks and open vaults are exempt from the requirements of this subsection.

(8) The actual location and orientation of the

underground storage 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.

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

(10) The secondary container and any backfill material between the primary and secondary container shall be designed and constructed to promote gravity drainage of a leak of hazardous substances from any part of the primary container to the monitoring location(s).

(11) The original excavation for the secondary container shall have a waterright cover which extends at least 1 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. Manways shall be constructed as waterright as practical. Doublewalled tanks are exempt from this requirement.

(c) All primary and secondary container systems shall be designed and constructed to comply with all of the following:

(1) Underground storage tanks shall be located outside the prism of bearing pressure from footings of existing or designed structures and a minimum of ten (10) feet away from these structures. Underground storage tanks may be located closer than ten (10) feet away from these structures provided a registered civil engineer reviews and approves of the design.

(2) The actual location and orientation of the underground 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.

(3) Materials that in combination may cause a fire or explosion, or the production of a flammable, toxic, or poisonous gas, or the deterioration of a primary or secondary container shall be separated in both the primary and secondary containment so as to avoid potential intermixing.

(4) Drainage of liquid from within a secondary container shall be controlled in a manner approved by the local agency so as to prevent hazardous materials from being discharged. The liquid shall be analyzed to determine the presence of any of the hazardous substance(s) stored in the primary container 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 an indication of an unauthorized release from the primary container.

(d) All primary containers and double-walled tanks shall be

installed according to the manufacturer's written recommendations or, if no written recommendations exist, best engineering practice.

(e) All primary containers and double-walled tanks subject to floatation shall be weighted or anchored using methods specified by the manufacturer or, if none exist, best engineering judgment.

(f) When required by the local agency, all underground storage tanks shall be equipped with an overflow protection system which includes the following elements:

(1) A-level sensing device that continuously monitors and indicates the liquid level in the tank and either (2) or (3) or both;

(2) An audible or visual alarm system triggered by a liquid level sensor to alert the operator of an impending overfill condition; or

(3) An automatic shut-off device that stops the flow of product being delivered to the tank when the tank is full.

(g) The overfill protection system required in subsection (f) of this section shall be satisfied for underground storage tanks containing motor vehicle fuels in which:

(1) Both the fill level is visually monitored and the filling operation is controlled by the facility operator during filling of the underground storage tank; or

(2) The available capacity of the tank to be filled is determined immediately prior to filling to be at least 10 percent of the volume of the entire tank compartment to be delivered as determined by tank gauging; or

(3) The maximum-substance being delivered can be metered into the tank and the available tank capacity is determined immediately prior to filling.

(h) All primary containers and double-walled tanks constructed of steel shall be protected by either:

(1) A properly installed, maintained, and monitored cathodic protection system with or without coating;

(2) Corrosion resistant materials of construction such as special alloys or fiberglass-reinforced plastic coating;

Selection of the type of protection to be employed shall be based on the corrosion history of the area and the judgment of a registered corrosion engineer.

Authority: RSA 25288.2

Reference: RSA 25280, 25288

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Article 4. Existing Underground Storage Tank Monitoring Standards ~~Criteria~~

Adopt new section to read:

2640. Applicability

(a) All owners of existing underground storage tanks subject to this subchapter shall implement ~~pursuant to the compliance date in Chapter 6.7 of Division 20 of the Health and Safety Code~~ a visual monitoring or alternative monitoring system that complies with this article and is approved by the local agency by the compliance date in Chapter 6.7 of Division 20 of the Health and Safety Code. A local agency shall not issue a permit ~~if the underground storage tank cannot be adequately monitored. To be adequate~~ unless the monitoring system ~~must be~~ is capable of: determining the containment ability of the underground storage tank and detecting ~~active and historic unauthorized releases~~ any active or future unauthorized releases. If the monitoring technique(s) selected is designed to ~~directly monitor for~~ detect the presence of the stored hazardous substance outside of the underground storage tank, then tests must be made to determine if the hazardous

substance or any interfering constituents exist in the soil or backfill surrounding the underground storage tank. ~~This may occur in the future, and, in certain situations, when monitoring depends on determining the presence of if hazardous substances are present in the area around the underground storage tank, then the monitoring system must initially be capable of determining their presence, be capable of measuring the ground water quality directly~~ The failure to implement an approved monitoring system shall be cause for the local agency to require closure of the underground storage tank pursuant to Article 7 of this subchapter.

(b) The objectives of the monitoring program for existing underground storage tanks are ~~to determine if unauthorized releases are occurring or have occurred in the past and~~ to detect unauthorized releases ~~that occur in the future~~ before ground water is affected. Ground water monitoring may be utilized as a primary means of monitoring when the ground water does not have actual or potential beneficial uses. ~~and to directly measure the quality of the ground water underlying the tank. Therefore, multiple monitoring systems, as described in Sections 2641 through 2647, shall be implemented where technically feasible to existing tanks that do not have~~

a secondary containment that meets the requirements of Article 8)

(b) The initial monitoring of all existing underground storage tanks shall, if feasible, be capable of determining if prior use of the underground storage tank has resulted in an unauthorized release. The soil sampling described in Section 2644 of this article shall be one method to meet this intent. Other methods which achieves this intent may be approved by a local agency)

(c) (d) All owners of existing underground storage tanks subject to this Subchapter shall implement visual monitoring as described in Section 2642 2641 of this article for all visible portions of the underground storage tank, whenever feasible. when if feasible. If the entire underground storage tank is not susceptible to visual monitoring but a significant portion of the underground storage tank can be visually monitored, then that portion of the underground storage tank shall be monitored visually. Visual monitoring that can only be implemented during a portion of the year due to flooding or the presence of other liquids shall be utilized during those portions of the year. when feasible If However, unless visual monitoring cannot be is

implemented for the entire underground storage tank throughout the entire year then one of the other forms of monitoring alternatives specified in Section 2641 of this article shall also be implemented. The monitoring alternative shall be operative during those times when visual monitoring is not feasible or for those portions of the underground storage tank which are not susceptible to visual monitoring.

(d) (e) All owners of existing underground storage tanks subject to this Subchapter who are not able to implement visual monitoring as specified in Section 2642 2641 of this article shall implement one of the monitoring alternative each alternate monitoring method as specified in Section 2641 2642 through 2645 of this article. Soils monitoring specified in Section 2644 of this article shall not be exempted based on the ability to implement visual monitoring unless an alternative monitoring method is approved by the local agency which meets the intent of subsection (b) of this section. If an owner demonstrates to the local agency that the exemption criteria should apply, the owner shall be relieved of the obligation to implement soils monitoring.

(e) The monitoring methods and frequencies specified in each monitoring alternative listed in Section 2641 of this article are minimums. Local agencies, as a condition of approval of a specific monitoring alternative, shall require additional or more frequent monitoring if necessary to comply with the objectives specified in Subsection (b) of this section and Subsection (d) of Section 2641 of this article.

(f) Local agencies shall reduce the monitoring frequency for visual monitoring or a monitoring alternative listed in Section 2642 of this article in situations where environmental conditions make it impracticable, physically impossible, or life threatening to complete the required monitoring.

(f) Additional monitoring methods that are equivalent to or better than the methods specified in this article may be approved by a local agency pursuant to the intent of subsections (b) and (c) of this section. Requests for the use of additional monitoring methods shall be subject to the applicable sections of Article 8. These additional methods may, upon the discretion of the local agency, remove the necessity to implement any or all of the alternatives described in Sections 2642 through 2648 provided that all monitoring objectives can be achieved with the additional methods.

(g) All owners of underground storage tanks shall, if feasible, install an assurance monitoring system which monitors ground water beneath the underground storage tank. Underground storage tank owners are exempt from this requirement if they meet the exemption criteria contained in Section 2647 of this article.

(h) All borings and wells constructed and sampled pursuant to this article shall utilize the construction and sampling methods specified in Section 2648 of this article.

(i) All exploratory borings or soil sample collection borings that are not converted to a cased monitoring well shall be backfilled with bentonite grout or slurry.

Authority: H&SC 25288.2

Reference: H&SC 25282, 25284, 25284.1

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Adopt new section to read:

2641 Monitoring Alternatives

(a) All owners of existing underground storage tanks subject to this subchapter who cannot implement visual monitoring for the entire underground storage tank during all periods of the year shall implement, ~~within the time allowed,~~ by the statutory deadline, one of the monitoring alternatives specified in Subsection (c) of this section.

(b) The local agency shall base its review of the proposed monitoring alternative ~~proposed based~~ on the specification contained in Subsection (d) of this section and shall approve the monitoring alternative if it ~~they~~ finds that all aspects of the monitoring alternative can be implemented and that the monitoring alternative will satisfy the objectives listed in Subsection (b) of Section 2640 of this article. If the proposed monitoring alternative cannot be approved, then the local agency may request the submittal of another proposed monitoring alternative or may specify the implementation of a another monitoring alternative.

(c) The optional monitoring alternatives are as follows:

(1) Underground Storage Tank Testing: ~~(A)~~ This monitoring alternative shall at a minimum utilize the procedures specified in Section 2643 of this article and shall be performed monthly at a minimum.

(2) Vapor or other Vadose Zone Monitoring and Ground Water Monitoring with Soil Sampling.

(A) This monitoring alternative shall at a minimum include vadose zone monitoring, ground water monitoring, and soil sampling. Soil sampling is required only at the time the boring(s) and well(s) are installed.

(B) The vadose zone monitoring program shall be designed and installed pursuant to the procedures specified in Section 2646 and 2648 of this article. Vadose zone vapor monitoring shall be performed either continuously or daily, at a minimum. Other vadose zone monitoring shall be performed weekly, at a

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minimum.

(C) Ground water monitoring wells shall be designed and installed according to the procedures specified in Section 2647 and 2648 of this article and monitored semi-annually at a minimum. The minimum number of wells shall be as specified on Table 4.1 of this section for alternative no. 2. Analysis of samples collected ~~can~~ shall be by visual observation, or field or laboratory analysis as determined by the local agency depending on the constituents being evaluated. The local agency shall require laboratory verification at periodic intervals if visual or field analysis cannot achieve levels of detection equivalent to laboratory analysis.

(D) The soil sampling and analysis shall be performed as specified in Sections 2645 and 2648 of this article. Samples shall be taken from all boring(s) and well(s) installed.

(3) Vadose Zone Monitoring, Soil Sampling and Underground Storage Tank Testing:

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TABLE 4.1 MONITORING ALTERNATIVES*

ALTERNATIVE	METHOD	MINIMUM MONITORING FREQUENCY	REFERENCE SECTION	COMMENTS AND CONDITIONS PROHIBITING USE OF ALTERNATIVE*
1	Tank Testing	Monthly	Section 2643	None
2	Vapor or Other Vadose Zone Monitoring Method and Ground Water and Soils	Daily/Continuous	Section 2646	1. Must be able to do both vadose and ground water monitoring. 2. Ground water should normally be less than 100 feet deep to use this alternative. 3. Minimum number of ground water monitoring wells: a. Ground water equal to or less than 50 feet deep o Single or multiple tanks (all <1,000 gal, same or closley spaced excavations) - one downgradient well per tank minimum up to three wells. o Single tank (≥1,000 gal) - two wells minimum one of which shall be downgradient. o Two or three tanks (at least one ≥1,000 gal, same or closely spaced excavations) - three wells, minimum at least one of which shall be downgradient. o Four or more tanks (at least one ≥1,000 gal, same or closely spaced excavations) - four wells minimum, at least two of which shall be downgradient and the remainder equally spaced. Pipelines - additional wells, if needed, as determined by the local agency. b. Ground water greater than 50 feet deep. o Single tank -one downgradient well. o Multiple tanks or closely spaced tank excavations - three wells uniformly spaced. unless the ground water gradient can be accurately determined, in which case, one
	Semi-annual	Section 2647		
	One-Time	Section 2645		

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				downgradient well. o Pipelines - additional wells, if needed, by the local agency.
3	Vadose and Soils and Tank Testing	Daily/Weekly One-Time Annual	Section 2646 Section 2645 Section 2643	This alternative shall not be used when first ground water is less than 100 feet deep and: 1. First ground water has actual or potential beneficial uses (municipal, domestic, industrial, or agricultural supply); or 2. First ground water is hydraulically connected to ground water which had or potentially has beneficial uses.
4	Ground Water and Soils	Weekly One-Time	Section 2647 Section 2645	1. Use of this alternative shall be limited to the following situations: a. Perennial ground water is normally less than 30 feet deep, and b. The ground water being monitored does not have any actual or potential beneficial uses (municipal, domestic, agricultural, or industrial supply), and c. The ground water being monitored is not hydraulically connected to ground water which has any actual or potential beneficial uses (municipal, domestic, agricultural, industrial supply), and d. The monitoring well can be screened in the area 10 feet above the highest perennial ground water level and 20 feet below the lowest ground water level. 2. Minimum number of ground water monitoring wells--See Section 3a. of Alternative No. 2.
5	Inventory Reconciliation	Daily	Section 2644	1. Must use approved meters for tank inputs and and withdrawals.

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	and Tank Testing and Pipeline Leak Detectors	 Annual Continuous	 Section 2643	2. Inventory reconciliation which exceeds an allowable measurement error plus 0.15 percent of throughput at any time during a 30-day period shall require further investigation: Tank Size — Allowable Measurement Error <4000 — 25 gallons 4000 to < 8000 — 50 gallons 8000 to <12000 — 75 gallons ≥12000 — 100 gallons 3. Limited to motor vehicle fuels storage tanks.
6	Inventory Reconciliation and Tank Testing and Pipeline Leak Detectors and Soils and Vadose Monitoring or Ground Water Monitoring	Daily Annual Continuous Variable Variable	Section 2644 Section 2643 Section 2646 Section 2647	1. Must use approved meters for tank inputs and withdrawals. 2. Inventory reconciliation which exceeds any of the following shall require further investigation: a. Daily variation - ≥100 gallons b. Weekly variation - ≥5 percent of throughput but no greater than 350 gallons c. Monthly variation - ≥0.5 percent of throughput no less than 100 gallons 3. Minimum number of ground water wells--See Alternative No. 2. 4. Limited to motor vehicle fuels storage tanks.
7	Tank Gauging and Tank Testing	Weekly Annually	Section 2644 Section 2643	1. This alternative is limited to use on small tanks that normally do not have any input or withdrawals (e.g., standby generator fuel supply) and where the liquid level in the tank can be measured to the accuracy of + or -5 gallons. A liquid level difference of 1 percent of the tank volume or 50 gallons, whichever is less shall be cause for further investigation.

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8	Tank Testing and Inventory Reconciliation or Tank Guaging	Annually	Section 2643	1. This is an interim monitoring alternative that can be implemented for up to three years.
		Daily	Section 2644	2. Inventory reconciliation shall utilize approved meters for inputs and withdrawals and shall maintain variations within the limits specified in Alternative No. 6.
		Daily or Weekly	Section 2644	3. Tank gauging is limited to use on tanks described in Alternative No. 7 and to those tanks that can eliminate inputs and withdrawals three times per week for 12 hours each. A liquid level difference of 1 percent of the tank volume but not greater than 50 gallons shall be cause for further investigation.

** This table is provided as a summary of the various monitoring alternatives.*

Section 2641 shall be used to determine the actual requirements for each monitoring alternative.

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(A) This monitoring alternative shall, at a minimum, include vadose zone monitoring and analysis of soil samples taken at the time from the boring(s) made for vadose zone monitoring, and tank testing. ~~are installed~~ This alternative shall not be approved if first ~~perennial~~ ground water, including intermittent, perched ground water, is less than 100 feet deep and this ground water has actual or potential beneficial uses (domestic, municipal, agricultural, or industrial supply) or is hydraulically connected to ground and surface water which has actual or potential beneficial uses.

(B) The determination that first ground water is significantly deeper than 100 feet shall be by an on-site boring(s) constructed according to the specifications in Subsection (p) ~~(1)~~ of Section 2648 of this article or by evidence based on an evaluation pursuant to Subsection (p) of Section 2648 of this article. ~~recently constructed nearby wells or borings that first ground water is significantly deeper than 100~~

~~feet.~~

(C) Vadose zone monitoring shall be designed and installed pursuant to the procedures specified in Sections 2646 and 2648 of this article. Vadose zone vapor monitoring shall be performed either continuously or daily, at a minimum. ~~either continuously or daily~~ Other vadose zone monitoring shall be performed weekly, at a minimum..

(D) The soil sampling and analysis shall be performed as specified in Section 2645 and 2648 of this article. Samples shall be taken from all borings installed.

(E) Underground storage tank testing shall be performed yearly at a minimum according to the procedures specified in Section 2643 of this article.

(4) Ground Water and Soil Testing:

(A) This monitoring alternative shall, at a minimum, utilize ground water sampling and

~~soils sampling and~~ analysis of soil samples taken at the time of well installation. This alternative shall not be approved if any of the following conditions exist:

(i) ~~Perennial~~ First ground water including intermittent, perched ground water is normally greater than 30 feet deep;

(ii) The ground water ~~being~~ proposed for monitoring has actual or potential beneficial uses (domestic, municipal, industrial or agricultural supply) or is hydraulically connected to ground or surface water which has actual or potential beneficial uses; or

(iii) The ground water monitoring well cannot be ~~screened~~ perforated within the interval from 10 feet above the highest anticipated ground water level to 20 feet below the lowest perennial ground water level. The 10-foot requirement may be waived by the local agency if ground water is less than 10 feet deep. If the local agency waives this requirement the well must still be capable of being perforated

above the highest anticipated ground water level.

(B) Ground water monitoring wells shall be designed and installed according to the procedures specified in Sections 2647 and 2648 of this article and shall be monitored monthly at a minimum. The minimum number of monitoring wells shall be as specified in Table 4.1 of this article for alternative no. 4. Analysis of samples collected ~~can~~ shall be by visual observation, or field or laboratory analysis as determined by the local agency depending on the constituents being evaluated. If visual observation or field analysis is used the local agency shall require periodic laboratory analysis if the visual observation or field analysis do not provide a degree of detection equal to that of laboratory analysis

(C) The soils sampling and analysis shall be performed as specified in Sections 2645 and 2648 of this article. Samples shall be taken from all wells installed.

(5) Inventory Reconciliation, Underground Storage Tank Testing, and Pipeline Leak Detectors

(A) This monitoring alternative shall, at a minimum, utilize inventory reconciliation, underground storage tank testing, and pipeline leak detectors. The use of this alternative is limited to those underground storage tanks which contain motor vehicle fuels.

(B) Inventory reconciliation shall be performed according to the procedures specified in Section 2644 of this Article. The owner or operator of an underground storage tank that experiences a variation in inventory reconciliation in excess of allowable variation(s) shall implement the evaluation procedures specified in Subsection (f) of section 2644 of this article, within the times specified.

(i) The daily variation in inventory reconciliation shall be the difference between the calculated volume in storage and the actual volume in storage.

(ii) If the calculated variation is based on the previous day's physically measured inventory, the sum of the daily variations (considering positive and negative values) shall not exceed the allowable variation described in Subsection (v) of this subsection.

(iii) If the calculated variation is based on the previous day's calculated inventory, then the daily variation shall not exceed the allowable variation described in Subsection (v) of this subsection. The calculated inventory on any given day shall be based on continuous calculations from the base day on which the physical inventory was used. utilized the physical inventory. The period of continuous calculations shall be no greater than 30 days.

(iv) The allowable variation shall be the sum of the measurement error from Table 4.2 of

this article and the throughput error calculated in accordance with Subsection (v) of this subsection.

Table 4.2

Tank Size*	Allowable Measurement Error*
less than 4000	25
4000 to less than 8000	50
8000 to less than 12000	75
12000 or greater	100

* all values in gallons

(v) The throughput error shall be 0.15 percent (0.0015) of the measured throughput during the period under consideration as described in either Subsection (ii) or Subsection (iii) of this subsection. ~~Times 15 percent (.0015)~~

(C) Underground storage tank testing shall be performed yearly at a minimum according to the procedures specified in Section 2643 of this article.

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(D) All pressurized pipelines shall be monitored using an automatic on-line pressure loss detector and flow restriction device. The detector shall be connected to a visual or audible alarm system unless it provides for at least a 50 percent reduction from the normal flow rates. Suction pipelines shall be monitored daily for indications of possible leaks.

(6) Inventory Reconciliation, Underground Storage Tank Testing, Pipeline Leak Detectors, Vadose Zone, or Ground Water Monitoring and Soil Testing:

(A) This monitoring alternative shall, at a minimum, utilize inventory reconciliation, underground storage tank testing, and pipeline leak detectors. In addition, either vadose zone or ground water monitoring shall be included and analysis of soil samples taken at the time of boring or well installation.

(B) Inventory reconciliation shall be performed according to the procedures specified in Section 2644 of this article. The owner or

operator of an underground storage tank that experiences a variation in excess of any of the following shall implement the evaluation procedures specified in Subsection (f) of Section 2644 of this article & within the times specified.

(i) daily variation: ± 100 gallons

(ii) 7-day variation: ± 5% of throughput or 100 gallons which ever is greater but, in no case, greater than 350 gallons

(iii) more greater than 30-day variation: ± 0.5% of throughput or 30-day variation 100 gallons whichever is greater

(C) Underground storage tank testing shall be performed yearly at a miniumum according to the procedures specified in Section 2643 of this article.

(D) All pressurized pipelines and suction pipelines shall be monitored as provided for in subsection (d) of SUBSECTION (5) of this

subsection.

(E) Vadose zone monitoring, if used, shall be designed and installed according to the procedures specified in Sections 2646 and 2648 of this article. The frequency of monitoring shall be based on the number and proximity of monitoring locations to the underground storage tank and type of sampling and analysis; however, in no case shall monitoring be no less frequent than semi-annually.

(F) Ground water monitoring, if used, shall be designed and installed according to the procedures specified in Sections 2647 and 2648 of this article. The minimum number of monitoring wells shall be as specified in alternative no. 6 on Table 4.1 of this article. Analysis of samples collected can be by visual observation, or field or laboratory analysis as determined by the local agency depending on the constituents being evaluated. Ground water samples shall be collected and analyzed at least semi-annually. If samples are analyzed by visual observation or field

analysis the local agency shall require laboratory analysis if the results of the visual or field analysis are less accurate than laboratory methods.

(G) The soil sampling and analysis shall be performed as specified in Sections 2645 and 2648 of this article. Samples shall be taken from all borings and wells installed.

(7) Underground Storage Tank Gauging and Testing:

(A) This monitoring alternative shall, at a minimum, utilize gauging and testing of the underground storage tank. This alternative shall only be utilized for underground storage tanks which do not normally have frequent inputs or withdrawals and where the liquid level in the underground storage tank can be measured to an accuracy of ± 5 gallons or less when the liquid level is at the most sensitive measuring level highest in the underground storage tank is such that where a unit change in underground storage tank contents causes the smallest liquid level variation.

(B) The underground storage tank gauging shall be performed according to the following specifications:

(i) The underground storage tank shall be capable of being secured to prevent unauthorized inputs or withdrawals;

(ii) Tank liquid level measurements shall be taken at the beginning and end of consecutive periods, each lasting ~~at least~~ up to 5 days. No input or withdrawals shall occur during these periods. The liquid level measurement at the beginning and end of each period shall, if possible, be performed by the same person, and

(iii) Underground storage tank testing shall be performed yearly at a minimum according to the procedures specified in Section 2643 of this article.

(iv) If the liquid level varies by more than 1 percent of the underground storage tank's

volume or 5 gallons, whichever is less, between measurements, an authorized release shall be assumed to have occurred. The reporting requirements of Article 5 of this subchapter shall be followed and further evaluations shall be performed to verify or disprove the variations.

(8) Interim ~~ALTERNATE~~ Monitoring

(A) This alternative monitoring method shall, at a minimum, utilize underground storage tank testing and either inventory reconciliation or tank gauging. This alternative shall be available only to ~~BE USED BY~~ any of the following catagories of owners for a period of up to 3 years after the effective date of these regulations:

(i) Small businesses as defined in Subsection 11342(e) of the Government Code and non-profit organizations which would meet the criteria for a small business, provided the owner ~~OF THE SMALL BUSINESS~~ demonstrates to the local agency that sufficient funds will be

available to ~~properly~~ close the underground storage tank pursuant to ~~this~~ Article 7 of this subchapter or to implement one of the first 7 monitoring alternatives of this subsection within the 3-year period; or

(ii) Any underground storage tank owner who provides a written, legally binding, commitment to the local agency that the underground storage tank will be closed according to the procedures specified in Article 7 of this subchapter within 3 years from the statutory compliance date or ~~following closure, the underground storage tank can be~~ replaced with a new underground storage tank which complies with the provisions of Article 3 of this subchapter). The local agency shall not issue a permit pursuant to this subsection ~~allowing the implementation of this monitoring alternative~~ for longer than 3 years and shall not renew the permit.

(iii) Any governmental agency that demonstrates to the local agency that, due to budgetary constraints the governmental agency

needs additional time to close or replace the underground storage tank pursuant to Article 7 of this subchapter or to implement one of the first 7 monitoring alternatives of this subsection. The local agency shall not issue a permit pursuant to this subsection ~~allowing the implementation of this monitoring alternative~~ for longer than 3 years and shall not renew the permit.

(B) Underground storage tank testing shall be performed according to the procedures specified in Section 2643 of this article and shall be performed yearly at a minimum.

(C) Inventory reconciliation shall be performed according to the procedures specified in Section 2644 of this article. The owner or operator of an underground storage tank that experiences a variation in excess of the levels specified in Subsection (c)(6)(B) of this section shall implement the evaluation procedures specified in Subsection (f) of section 2634 of this article within the time specified.

(D) Underground storage tank gauging shall be performed according to the specifications of Subsection (c)(7)(B) of this section. Variations in excess of 1 percent of the underground storage tank volume or 50 gallons, whichever is less, shall be cause for further evaluation.

(d) The local agencies shall evaluate each monitoring alternative proposed to determine if it achieves the objectives specified in Subsection b of Section 2640 of this article according to the following:

(1) Whenever possible, a primary method of monitoring other than ground water monitoring shall be performed monthly at a minimum.

(2) ~~In cases~~ Where the underground storage tank is in an ~~recharge~~ area where precipitation or surface runoff provides direct recharge of the ground water and the ground water being recharged has an actual or potential use (domestic, municipal, agricultural, or industrial supply), a monitoring method other than ground water monitoring shall be

utilized on a monthly or more frequent basis for leak detection monitoring.

(3) ~~Furthermore~~ In addition, ground water monitoring may ~~shall~~ be required by the local agency in the areas described in Subsection (2) above. ~~Implemented in these situations if ground water is less than 100 feet deep~~ The local agency shall review and approve the number and location of the monitoring well(s). More than 1 underground storage tank or facility may be monitored using the same well provided the well is directly downgradient of all underground storage tanks or facilities being monitored and is within 1,000 feet of all underground storage tanks being monitored.

Authority: H&SC 25288.2

Reference: H&SC 25284.1

2642. ~~2641~~ Visual Monitoring

(a) Visual monitoring shall be utilized as the principal leak detection monitoring method, where feasible, for all visible ~~or a portion of the~~ exterior surfaces of an underground storage tank ~~All owners of existing underground storage tank owners shall implement visual monitoring for any exposed portion of an underground tank~~ unless the owner demonstrates to the local agency that at least one of the exemption criteria of subsection (b) of this section is applicable. If visual monitoring is required ~~to be implemented~~ then the provisions of Subsections (c) and (d) of this section shall be followed.

(b) ~~If any one of the following conditions are met~~ The owner is exempt from ~~implementing~~ visual monitoring for that portion to the underground storage tank to which the following conditions apply.

(1) ~~An owner may be exempted from visually monitoring~~ Any portion of an underground storage tank that is in contact with the ground, ~~surface~~ a floor, or pad such that it cannot be seen. An underground storage tank in a saddle should not typically

qualify for an exemption.

(2) ~~If the act of~~ Visual inspection ~~the exterior~~ of the underground storage tank would put a person in a physically unsafe environment.

(3) ~~If a person would be required to use~~ Visual inspection of the underground storage tank would require the use of extraordinary personal protection equipment (other than normal protective equipment, such as steel-toed shoes, hard hat, eye or ear protection, etc.). ~~In order to visually inspect all or a portion of the entire of the underground storage tank~~

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

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

(1) Provisions for routine direct visual inspection of all accessible exterior surfaces of an underground storage tank and the horizontal surface ~~of the floor~~ directly beneath the underground storage tank

shall be monitored by direct viewing.

(2) A written routine monitoring procedure shall be prepared and be available at the facility which includes: the frequency of visual inspections, the location(s) from which observations will be made, the name(s) or title(s) of the person(s) responsible for performing the observations, and the reporting format.

(3) Visual inspections shall be performed daily at a minimum, and shall be more frequent if necessary. The inspection schedule shall be established such that some of the inspections occur ~~on a routine basis at least one inspection shall be performed~~ when the liquid ~~level~~ in the underground storage tank is at its highest level. The inspection frequency shall be ~~selected~~ determined such that any unauthorized release will remain observable on the exterior of or the horizontal surface immediately beneath the underground storage tank between visual inspections. The evaluation of how long the hazardous substance remains observable shall consider the volatility of the hazardous substance and the porosity and slope of the surface

immediately beneath the underground storage tank or portion thereof being visually monitored.

(4) Recordation ~~and reporting~~ of the observations made and the liquid level in the underground storage tank at the time of the inspection.

(d) The observation of any liquid on the exterior of or the horizontal surface immediately beneath the underground storage tank being visually monitored shall cause the owner or operator to implement all or a portion of the following actions. The applicable actions and their timing shall be based on the site-specific situation, shall be intended to determine if the observed liquid constitutes an unauthorized release; and shall be included in the permit.

(1) Laboratory or field analysis of the observed liquid which shall include minimum levels of detection.

(2) Testing of the underground storage tank utilizing the procedures described in Section 2643 ~~2642~~ of this article.

(3) Removing all hazardous substances from the

underground storage tank.

(e) Visual monitoring of the exposed portion of a partially concealed underground storage tank shall not relieve an owner from implementing monitoring for the concealed portion of the tank using a ~~the other~~ monitoring alternative specified ~~methods described~~ in Section 2641 this article.

Authority: H&SC 25288.2

Reference: H&SC 25284.1, 25284.2

Adopt new section to read

2643. ~~2642~~ Underground Storage Tank Testing

(a) All owners of existing underground storage tanks implementing a monitoring alternative in Section 2641 of this article which specifies underground storage tank testing ~~subject to this subchapter~~ shall ~~except as provided in subsection (b) of this section~~ implement a testing program pursuant to Subsections (b) ~~(c)~~ through (g) ~~(g)~~ of this section.

~~(b) Owners of existing underground storage tanks are exempted from implementing an underground storage tank testing program if they can demonstrate to the local agency that at least one of the following conditions applies:~~

~~(1) If visual monitoring pursuant to Section 2641 of this article is implemented;~~

~~(2) If any test which meets the conditions described in subsection (c) of this section cannot be performed without significant excavation;~~

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(b) ~~(a)~~ Testing of underground storage tanks shall utilize a method capable of detecting a release of a hazardous substance ~~loss of~~ at a rate of ~~least~~ 0.05 gallons per hour or less. These methods are limited to those tests that make adjustments for all of the following, if applicable:

(1) The presence of vapor pockets;

(2) Thermal expansion or contraction of the hazardous substance, which include any density considerations;

(3) Temperature stratification in the underground storage tank;

(4) Evaporation;

(5) Pressure variations in the underground storage tank; and

(6) Deflection of the underground storage tank ends.

(c) Testing of pipelines which have been isolated may utilize a hydrostatic pressure test in lieu of the test

required in Subsection (b) of this section. This hydrostatic pressure test shall be conducted at a pressure of ~~between 35 and~~ 50 psi (2600 mm Hg) or greater. The test shall be performed for at least 5 minutes. A pressure drop of more than 5 psi (260 mm Hg) per minute indicates the probability of a leaking pipeline. A pressure drop of less than 5 psi (260 mm Hg) but greater than zero is inconclusive and a test pursuant to Subsection (b) of this section shall be performed. ~~The test shall be performed for at least five minutes~~

(d) The tests required in this section shall be performed by personnel who have received training in appropriate test procedures. The person performing the test described in Subsection (b) of this section shall certify that the test procedure utilized takes into account the variables specified ~~in subsection (b) of this section~~ and is capable of measuring leaks of 0.05 gallons per hour or less. Additionally, within 1 year after the development of a listing or certification procedure which evaluates the accuracy of the test for the type of test described in Subsection (b) of this section, only listed or certified tests shall be accepted.

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(d) Underground storage tanks shall be tested according to the following schedule:

Category A: Unclad steel tanks without corrosion protection - within one year of permit issuance and yearly beginning ten (10) years after tank installation;

Category B: Corrosion resistant tanks (1) I - within one year of permit issuance and yearly beginning fifteen (15) years after tank installation;

(1) Common corrosion resistant tanks include: fiberglass reinforced plastic (FRP); cathodically protected steel; and FRP-clad steel tanks;

(e) Within 30 days of completion of either of the leak detection test described in Subsections (b) or (c) of this section, the underground storage tank owner shall provide the local agency with a report presenting which includes the following information, if applicable:

(1) The procedures used (including any deviations from those recommended by the developer of the underground storage tank test procedure manufacturer) for the leak detection method;

(2) The test results used in determining the volumetric rate of product loss;

(3) The volumetric rate of product loss;

(4) The information shall be presented in written and/or tabular format as appropriate and shall be at a level of detail appropriate for the test procedure used.

(f) Underground storage tanks which are found to lose product at a rate greater than or equal to 0.05 gph shall be repaired or replaced as specified in Articles 6 and 7 of this subchapter, respectively.

(g) The results of any tests, other than those required by this article, performed on the underground storage tank at any other interval to determine if the underground storage tank is leaking shall be reported by the underground storage tank owner to the local agency within 30 days of completion of the test. as specified in subsection (e)(3) above

(h) Underground storage tanks or pipelines containing

~~flammable or combustible liquids shall not be pressure tested using air or other gases.~~

~~(h) All pressurized portions of an underground storage tank shall be monitored utilizing an on-line pressure loss detector and flow reduction device. The detector shall be connected to a visual or audible alarm system. The flow reduction device shall reduce the the flow to no more than 50 percent of the minimum flow under non pressure loss situations (i.e., normal operations).~~

Authority: H&SC 25288.2

Reference: H&SC 25284, 25284.1, 25284.2

Adopt new section to read:

2644. ~~2643~~ Inventory Reconciliation ~~Control~~

(a) All owners of existing underground storage tanks implementing a monitoring alternative in Section 2641 of this article which specifies inventory reconciliation ~~subject to this subchapter~~ shall ~~except as provided for in subsection (b) of this section~~ implement an inventory reconciliation ~~control~~ program as described in Subsections (b) ~~(d)~~ through (f) of this section. This requirement may be transferred to the operator pursuant to the appropriate provisions of Chapter 6.7 of Division 20 ~~Section 25284.2~~ of the Health and Safety Code.

~~(b) Owners of existing underground storage tanks are exempted from implementing an inventory control program if they can demonstrate to the local agency that the hazardous substance is not susceptible to accepted technologically available metering.~~

(b) ~~(d)~~ All underground storage tanks shall be individually monitored utilizing a daily inventory reconciliation ~~control~~ system that takes into account: separate daily underground storage tank quantity measurements for both

the stored hazardous substance ~~tank contents~~ and any water layer; and daily ~~total~~ meter readings for underground storage tank input and withdrawals. Underground storage tanks that are connected by a manifold ~~together~~ may be monitored as a unit instead of individually. ~~delivery records for outgoing product, and daily wholesale meter delivery records for incoming product~~ Underground storage tank input meters shall be calibrated within the accuracy required for meters used for wholesale transactions in California. Meters for underground storage tank withdrawals shall be calibrated within the accuracy required for meters used for retail sales transactions in California. Meters shall be approved for use by the County Department of Weights and Measures or by a person licensed by the County Department of Weights and Measures.

(c) For the purpose of this section, "daily" shall be defined as at least 5 days per week. ~~during which inputs or withdrawals are made to or from the underground storage tank. This shall be a minimum of 5 days per week.~~ This minimum may be reduced during weeks that a ~~for~~ public holiday occurs ~~that fall~~ on Monday through Friday. ~~provided no inputs or withdrawals are made on the holiday~~ Local agencies may reduce the frequency of

monitoring to no less than once every three days at facilities that are not staffed on a regular basis provided that the monitoring is performed on every day the facility is staffed or that inputs or withdrawals are made from the underground storage tank.

(d) Underground storage tank quantity measurements shall be based on liquid elevation measurements which are:

~~(1) Capable of measuring to one-eighth of an inch;~~

(1) ~~(2)~~ Performed during periods ~~of~~ ~~no~~ when no additions or withdrawals are being made to the underground storage tank. ~~additions or withdrawals~~

(2) ~~(3)~~ Performed by the underground storage tank owner, operator, or other designated ~~managerial~~ personnel who have had appropriate training;

(3) ~~(4)~~ Based on the average of two readings if stick or tape ~~gage~~ measurements are used;

(4) ~~(5)~~ Capable of detecting a water layer at the bottom ~~lowest end~~ of the underground storage tank, if possible. If the underground storage tank is

not level, then the measurement should occur at the lowest end of the underground storage tank.

(5) [(6)] Measured at the center of the longitudinal axis of the underground storage tank if access is available or measured at the lowest end of the underground storage tank with a calibration [initial] measurement at both ends, if possible, to determine if any underground storage tank tilt exists and, if so, its magnitude; and

(6) [(7)] Converted to volume measurements based on a calibration chart provided by the underground storage tank manufacturer or supplier. This chart shall, if possible, take into account the actual tilt of the underground storage tank as determined initially as described in Subsection (5) above.

[(d)] Wholesale meter deliveries delivery records shall be verified according to the following procedure which utilizes the criteria described in Subsection [(d)] of this Section: All liquid level measurements, conversion to liquid volumes, and meter readings shall be recorded and maintained as part of the inventory reconciliation

records:

[(1)] Prior to any delivery, the volume of actual tank content shall be determined and, if product is to be removed from the tank during delivery, the retail meter totalizer reading(s) shall be recorded;

[(2)] Following a delivery, the volume of the actual tank content shall be determined and, if product was removed from the tank during the delivery, the retail meter totalizer reading(s) shall be recorded;

[(3)] Based on the above readings, a determination shall be made of the increase or decrease in the volume of water in the tank and the increase or decrease in the volume of product in the tank. This figure shall be compared with the metered volume of the product delivery. The volume shall be temperature corrected, if necessary;

[(4)] A difference of more than the greater lesser of one-half percent of the delivery volume or 100 50 gallons shall be cause for a reevaluation of the

~~measurements. This reevaluation shall initially include collection of the information required in Subsection (e)(2) of this Section.~~

~~(f) Underground tanks used for storage of motor vehicle fuels that have a loss or gain of product or water as determined by daily gauging and inventory control of greater than any of the following shall be evaluated according to the methods and time schedules provided for in Subsection (f) of Section 2634 of Article 3.~~

~~(1) Daily loss or gain of 50 gallons, or~~

~~(2) Seven (7) day loss or gain of five percent of the volume of motor vehicle fuel delivered over the seven days, or~~

~~(3) Cumulative (calculated over a period of at least thirty (30) days) loss or gain of one-half percent of the volume of motor vehicle fuel delivered over the period that the cumulative loss or gain is calculated.~~

(e) ~~(f)~~ The owner or operator shall, on a quarterly basis, submit a statement to the local agency, under penalty of

perjury, ~~that the data and~~ that either: the data is within allowable variations; or a listing of the dates and variations that exceed the allowable.

(f) If inventory reconciliation indicates a loss of the hazardous substance greater than that specified, the operator or permittee shall implement the following. If inventory reconciliation indicates a gain of hazardous substances greater than that specified, the operator or permittee shall inplement Subsections (1), (2), (3) and (5). The steps may be implemented sequentially or concurrently; however, they must be completed within the specified time periods. Reporting as required in Article 5 of this subchapter shall be followed.

If completion of the steps described in Subsections (2), (3), or (5) of this Subsection indicates inventory reconciliation error that, when corrected cause the levels specified not to be exceeded, then the remainder of the steps need not be completed. If completion of the steps described in Subsections (4) or (6) through (8) of this subsection reveal the source of the loss or ~~gain~~ then the remainder of the steps need not be completed.

Transfer of hazardous substances into and out of the underground storage tank may continue during implementation of the steps provided that the steps are completed within the specified periods and any loss or gain did not exceed two times the specified levels. ~~Inventory control and~~ Daily reconciliation shall continue during implementation of the steps.

(1) The operator shall notify the owner verbally or in writing of the fact that inventory reconciliation indicates a loss of hazardous substances or gain of water within 24 hours of the completion of the daily reconciliation which indicates the loss or gain.

(2) The operator shall review the inventory records within 2 hours to determine if an error exists which would cause the gain or loss to be less than that specified.

(3) The operator shall have performed, by a qualified person, a complete review of all inventory records from the last time a zero loss or gain condition existed. This shall include a new inventory reconciliation which was taken t least 8 hours

after the inventory reconciliation which triggered this evaluation. This shall be completed within 24 hours of the conclusion of Subsection (f)(2).

(4) The readily accessible physical facilities shall be carefully inspected for leakage. This shall be completed by trained personnel within 24 hours of completion of Subsection (f)(3).

(5) All dispenser meters associated with hazardous substance withdrawal shall be checked for calibration within 24 hours of completion of Subsection (f)(4).

(6) All piping shall be tested within 24 hours of completion of Subsection (f)(5). The piping shall be isolated and hydrostatically pressure tested at 50 psi (2,600 mm Hg) or greater. If the pressure drops more than 5 psi (260 mm Hg) per minute, it indicates the probability of a leak in the line. Repeat the test at least once to ensure against compression of entrained air. Any pressure drop less than 5 psi (260 mm Hg) per minute is inconclusive as it may be caused by cooling. This step may be completed after the step described in

Subsection(f)(7) if excavation is necessary to perform the tests and if the step described in Subsection (f)(7) is completed within 48 hours of the completion of Subsection (f)(5). If this occurs, then this subsection shall be completed within 24 hours of the completion of Subsection (f)(7).

(7) The underground storage tank shall be tested using the tests described in Section 2643 of this article within 48 hours of completion of Subsection (f)(6).

(8) Additional tests or investigations as required by the local agency.

Authority: H&SC 25288.2

Reference: H&SC 25284, 25284.1

Adopt new section to read:

2645. ~~2644~~ Soil Testing ~~and Exploratory Boring~~

(a) ~~Except for those tanks that have been granted an exemption under subsection (b) of this section~~ All owners of existing underground storage tanks implementing one of the monitoring alternatives described in Section 2641 of this article which requires borings for vadose zone or ground water monitoring shall implement soil testing pursuant to ~~subject to this subchapter shall implement an evaluation as described in~~ Subsections (b) ~~(c)~~ through (n) ~~(d)~~ of this section. ~~to determine if prior usage of the underground storage tank has resulted in an unauthorized release.~~

~~(b) Exemptions to soil testing at specific underground storage tank locations may be granted by the local agency if any of the following situations exist and if they are confirmed by the local agency:~~

~~(1) Proximity to physical obstacles prevent the positioning and operation of drilling equipment within a horizontal distance of 15 feet from the tank.~~

(2) Soil conditions preventing drilling by any generally existing technique/

(c) At least one giant boring shall be drilled as close as possible to the tank and shall be directed so as to intercept a point that has been provided vertically downward from the midpoint of the tank and is 50 feet below the invert of the tank/ If giant drilling and soils collection is not possible/ then vertical borings pursuant to subsection (d) of this section shall be drilled/

(d) At those sites where giant drilling is precluded but vertical drilling is feasible/ at least one vertical boring shall be drilled on each long dimensional side of the tank/ The borings shall be located within 10 feet of the tank opposite the midpoint of the long dimension of the tank and shall be drilled to a depth of at least 50 feet below the invert of the tank/ Soil samples shall be obtained in accordance with subsection (e) of this section/

(e) Soil samples shall be obtained from the boring(s) according to the following procedures/

(1) Undisturbed soil samples shall be obtained at vertical intervals no greater than 5 feet beginning at the ground surface and proceeding to the target depth of the boring or to the ground water level in borings encountering ground water/ whichever occurs first/

(2) The soil samples shall be collected/ transported/ stored/ and analyzed according to approved EPA methods/

(3) Analysis of the individual soil samples shall be as follows/

(A) If more than one boring is utilized/ samples from the same depth from each boring may be composited if analytically possible without loss of contaminant prior to analysis/

(b) Undisturbed (intact) soil samples shall be recovered from all borings used for the implementation installation of vadose zone or ground water monitoring. This requirement may be waived by the local agency when borings cannot be drilled and sampled using accepted

techniques that do not introduce liquids into the boring.

(c) Soil samples shall be taken at intervals of 5 feet or less beginning at the ground surface, but sampling shall not be required below the water table nor in unweathered bedrock which has little or no primary permeability.

(d) A soil sample shall also be obtained at the termination depth of a dry boring regardless of the spacing interval.

(e) Borings shall be drilled and sampled by techniques that do not introduce liquids into the boring and that allow the accurate detection of perched and saturated zone ground water. If this cannot be accomplished using accepted techniques, the requirement for soil sampling may be waived by the local agency; however, the vadose zone or ground water monitoring system shall still be installed. Furthermore, once below the water table, it is not required that the wells be advanced using the same method that was used in the vadose zone.

(f) Borings shall be described in accordance with the provisions of Subsections (t) and (u) Sections 2648(p)

and (q) of this article.

(g) Soil samples shall be of sufficient volume to perform the designated analyses including soil vapor and soil extract analyses and to provide replicate analyses, if specified.

(h) If more than one boring is utilized, composite samples consisting of material from the same depth from each boring may be used for laboratory analysis if such samples can be made without loss of constituents prior to analysis.

(i) Samples shall be prepared, stored, and transported by appropriate EPA methods or other similar or superior methods approved by the local agency.

(j) Samples shall be analyzed by field or laboratory methods that provide quantitative or qualitative results. If qualitative methods are used, then their lower detection limits shall be verified by the test manufcturer or actual field tests for sensory-type tests. EPA-approved methods or other methods of similar or superior precision and accuracy that are approved by the local agency shall be used. The local agency shall approve

the analysis method if it provides a lower level of detection that is below that which would ~~impact~~ interfer with future monitoring methods.

(k) 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, then analysis shall be 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.

(l) ~~(B)~~ Samples may be analyzed in any order of depth. If levels of hazardous substances known or suspected to have been ~~be~~ contained in the underground storage tank are detected at concentrations in excess of ~~above~~ background concentrations if the constituent occurs naturally at the site ~~However, the following additional actions will be required (1)~~ further soils analysis is not necessary pursuant to this subsection and the hazardous substance(s) shall ~~will~~ be assumed to have originated from the underground storage tank. ~~and~~ In this situation, the remainder of the soil samples need

not be analyzed pursuant to these regulations. A permit shall not be granted unless ~~A permit may be granted if~~ further detailed investigation clearly establishes that the underground storage tank is not the source of the hazardous substance or ~~that the underground storage tank~~ has been properly repaired since the unauthorized release and that any subsequent unauthorized release from the underground storage tank can be detected despite ~~adequately monitored with~~ the presence of the hazardous substance already in the environment.

~~(iii) Further investigation will be needed to determine the magnitude and extent of any soil or ground water contamination due to the unauthorized release. This may involve, but is not limited to, analysis of the remaining soil samples and/or ground water sampling and analysis.~~

~~(2)~~ Samples shall be analyzed for one or more of the most conservative constituents that have been stored in the underground storage tank. If the use of the underground storage tank has historically changed, then analysis shall be for at least one constituent from each period of use. If the stored hazardous substance is

known to degrade or transform to other constituents in the soil environment, their analysis shall include these degradation and/or transformation constituents.

(k) All borings shall be logged in detail and the soils described according to the Unified Soils Classification System by a registered civil engineer or registered geologist competent in soils engineering or a certified engineering geologist.

(l) All wet zones above the free water zone shall be noted and accurately logged.

(m) (f) If soil analysis indicates that an unauthorized release has occurred, the permittee shall report the release pursuant to Article 5 of this subchapter and shall repair or abandon close the underground storage tank pursuant to Article 6 or 7 of this subchapter.

(n) (g) If evidence of an unauthorized release is not detected, an alternative leak detection monitoring system shall be installed pursuant to Section 2641 of this article. 2648 or 2648 and an assurance monitoring

system shall be installed according to Section 2647.

Authority: H&SC 25288.2

Reference: H&SC 25284.1

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Adopt new section to read:

2646. ~~2645.~~ Vadose Zone ~~Detection~~ Monitoring

(a) All owners of existing underground storage tanks implementing one of the monitoring alternatives described in Section 2641 of this Article which requires vapor or another form of vadose zone monitoring shall ~~subject to this subchapter shall, except as provided in subsection (b) of this section~~ implement the ~~a~~ vadose zone detection monitoring system pursuant to Subsections (b) ~~(c)~~ through (h) of this Section.

~~(b) Owners of existing underground storage tanks are exempted from implementing a vadose zone monitoring system if they can demonstrate to the local agency that at least one of the following conditions apply:~~

~~(1) Proximity to physical obstacles prevent the positioning and operation of drilling equipment, including hand equipment if suitable, within a horizontal distance of 15 feet from the underground storage tank;~~

~~(2) Ground water is periodically above a point 5 feet below the invert of the underground storage tank and vadose zone monitoring is not possible due to the characteristics (e.g., monitorability) of the hazardous substance(s) stored; (vapor monitoring is required when possible to complement leak detection ground water monitoring as described in Section 2646 of this article);~~

~~(3) Vadose zone monitoring is not required if the hazardous substance being stored is not susceptible to detection by vadose zone monitoring methods;~~

~~(4) Visual monitoring of the entire tank pursuant to Section 2647 of this article has been implemented;~~

(b) ~~(d)~~ Vadose zone monitoring shall ~~may~~ consist of vapor monitoring, ~~or~~ soil-pore liquid monitoring, or other forms of vadose zone monitoring. ~~or a~~ Combinations of these ~~both~~ methods may be used.

(c) Wells for vapor monitoring shall be fully perforated except for that portion ~~opposite~~ adjacent to a surface seal and that portion of the bottom of a well where a plugged, blank segment ~~section~~ of casing is used as a

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free liquid trap.

(d) The number, location, and depths of vadose zone monitoring points shall be selected so as to give the earliest possible warning of any unauthorized release from the underground storage tank.

(e) Subsurface vadose zone monitoring systems shall, if possible, be located within the backfill surrounding the underground storage tank. ~~if possible~~

(f) Vapor monitoring for underground storage tanks ~~may~~ shall be used in accordance with the following criteria if the vapor characteristics of the stored product are susceptible to detection:

(1) Before any method of vapor monitoring is approved for a specific site, it shall be demonstrated by an actual on-site demonstration, using an appropriate tracer substance, that vapor would actually be detected by the installed system. This requirement may be waived by the local agency based on a demonstration by the applicant that the proposed monitoring system has been proven to be effective in detecting unauthorized releases from underground

storage tanks in equal or less ~~ideal~~ favorable situations. The following factors shall be considered in comparing the demonstration to the actual on-site conditions:

(A) Backfill materials and grain size distribution.

(B) Type and homogenity of native soils.

(C) Range of moisture contents of the backfill and native soils that will be encountered and their effect on vapor migration and detection.

(2) The location and depth at which each sensor is placed relative to the underground storage tank shall be determined according to the most probable movement of vapor through the backfill or surrounding soil.

(3) Vapor ~~vaporing~~ monitoring wells placed in the backfill shall be constructed so that any ~~leakage~~ unauthorized release that may pond at the horizontal interface between the backfill and natural soils ~~soils~~ can be detected in the vapor

well.

(g) Soil-pore liquid monitoring and other forms of ~~the~~ vadose zone monitoring may be approved if the discharger can clearly show that:

(1) The stored substance is susceptible to detection by the proposed technique.

(2) The stored substance will not attack the materials from which the detector system is constructed or otherwise render the detector system inoperable.

(3) The site and soil characteristics will not prevent detection of an unauthorized release by the monitoring system. ~~Using a soil-pore liquid monitoring system~~

(4) The proposed technique will be effective in providing early detection of underground storage tank leakage.

(h) Borings shall be described in accordance with the provisions of the Subsections 2648(t) and (u) of this Article.

~~(h) Vadose zone monitoring shall be continuous where feasible and connected to an above-ground alarm system. Where continuous monitoring is infeasible, monitoring shall be performed weekly.~~

Authority: H&SC 25288.2

Reference: H&SC 25284.1

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Adopt new Section to read:

2647. 2847/ Ground Water Leak Detection Monitoring

(a) All owners of existing underground storage tanks implementing one of the monitoring alternatives in Section 2641 of this article which requires ground water monitoring subject to this subchapter shall except as provided for in subsection (b) of this section implement a ground water leak detection monitoring system pursuant to Subsections (b)(c) through (j) (f) of this section.

(b) Owners of existing underground storage tanks are exempted from implementing a ground leak detection monitoring system if they can demonstrate to the local agency that at least one of the following conditions apply/

(1) Visual monitoring of the entire tank pursuant to Section 2847 of this article have been implemented/

(2) A vadose monitoring system pursuant to Section 2845 of this article has been implemented and ground water is and will remain at least 5 feet below the inverts of the underground storage tank/

(3) The proximity to physical obstacles prevent the positioning and operation of drilling equipment within a horizontal distance of 50 feet from the tank/

(4) Soil conditions prevent drilling by any generally existing technique/

(c) At those sites at which vadose zone monitoring is feasible and the ground water level fluctuates above and below a point 5 feet below the tank invert/ a combination of ground water monitoring and vadose monitoring shall be used/ The ground water monitoring wells shall extend 20 feet below the lowest anticipated ground water level in order to provide assurance monitoring pursuant to Section 2847 during periods of low ground water/

(d) When the ground water level is continuously above a point 5 feet below the tank invert/ ground water monitoring shall be used as the principal leak detection technique/ and vapor monitoring will also be used in conjunction with ground water monitoring whenever possible/

(e) The ground water monitoring network shall be designed and constructed according to the following criteria:

(1) Three ground water monitoring wells shall be installed around the underground storage tank or facility at spacings of 120n of arc around the central point of the underground storage tank or facility. Additional borings shall be installed at closer angular spacings if the straight line distance between wells exceeds 20 feet. If it can be demonstrated that the radii of influence of fewer monitoring wells overlap and that the entire area of the underground storage tank or facility is under the influence of at least one well under all anticipated hydraulic conditions, fewer wells may suffice. All wells should be located as close as possible to the underground storage tank or the perimeter of the facility.

(2) One of the three wells shall be located such that it represents the best estimate of the downgradient direction.

(3) The ground water monitoring wells shall be

constructed as gravel packed water wells with a minimum 4-inch inside diameter (IP) casing and in accordance with the provisions of Section 2040.

(4) All wells shall be provided with the minimum surface seal necessary to prevent infiltration of surface water but the seal shall extend to a depth of at least 5 feet.

(5) Monitoring wells at which the ground water elevation is above the the base of the surface seal shall be sized and equipped with a pump capable of drawing the ground water level down to an elevation 10 feet below the base of the surface seal.

(6) The ground water monitoring wells shall extend to an elevation that is at least 10 feet below the tank invert and shall be perforated from the base of the surface seal to the bottom of the well.

(f) Ground water shall be monitored at least once per week from each well. More frequent monitoring may be required by the local agency. Sampling and analysis, if applicable shall be according to Section 2040 of this Article.

(b) All ground water monitoring wells shall be located as close as possible to the underground storage tank or the perimeter of the underground storage tank cluster.

(c) Ground water monitoring wells shall extend at least 20 feet below the lowest anticipated ground water level and at least 15 feet below the underground storage tank bottom. However, wells shall not extend through laterally extensive clay layers that are below the water table and are at least 5 feet thick. In these situations, the well shall be terminated 1 to 2 feet into this clay layer.

(d) Ground water monitoring well casings shall extend to the bottom of the boring and be factory perforated from a point 1 foot above the bottom of the casing to an elevation ~~point~~ which is either 10 feet above the highest anticipated ground water level or to the bottom of the surface seal or to the ground surface, whichever is the lowest point above the highest anticipated ground water level. ~~The 10-foot requirement may be waived by the local agency when the highest anticipated ground water elevation is less than 10 feet deep~~

(e) Ground water monitoring wells shall be constructed as filter-packed wells that will prevent the migration of the natural soil into the well and with factory perforated casing ~~screens~~ that is sized to prevent migration of filter material into the well.

(f) All well casings shall have a bottom cap or plug.

(g) Filter packs shall extend at least 2 feet above the top of the perforated zone except where the ground surface is less than 10 feet above the highest ground water level in which case this requirement may be waived by the local agency provided the filter pack extends to the top of the perforated zone.

(h) Ground water monitoring wells shall be constructed with casings having a minimum inside diameter of 2 inches which is installed in a boring whose diameter is at least 4 inches greater than the ~~outside~~ inside diameter of the casing.

(i) Ground water monitoring wells shall be sealed from the ground surface to the top of the filter pack.

(j) Borings shall be described in accordance with the

Provisions of Sections 2[illegible] (a) and (b) of this article.

Authority: H&SC [illegible]

Reference: H&SC [illegible]

Adopt new Section to read:

2847. Assurance Ground Water Monitoring

(a) All owners of existing underground storage tanks subject to this Subchapter shall, except as provided in subsection (b) of this Section, implement an assurance ground water monitoring system pursuant to subsections (c) through (g) of this Section.

(b) Owners of existing underground storage tanks are exempted from implementing an assurance ground water monitoring system if they can demonstrate to the local agency that at least one of the following conditions apply:

(1) Ground water monitoring pursuant to Section 2847 of this Article is used as the principal means of leak detection;

(2) The highest ground water level possible during the life of the facility is at a depth greater than 200 feet;

(3) Proximity to physical obstacles prevents the

positioning and operation of drilling equipment within a horizontal distance of 300 feet of the tank or tank cluster perimeter.

(4) Soil conditions prevent drilling by any generally existing technique.

(c) Assurance ground water monitoring networks shall be established according to the following criteria:

(1) At those underground tank facilities at which the highest anticipated ground water elevation is between a depth of 5 feet below the tank invert and a point 100 feet below the ground surface, a ground water monitoring system as described in Section 2646(e), subsections (1) through (3) of this Article shall be perforated from 10 feet above the highest anticipated ground water elevation to the bottom of the well.

(d) In order to implement subsection (c) of this Section, the depth to ground water must be accurately determined. This shall be accomplished either by documentation of the ground water elevation in all, but not less than three, existing wells within 300 feet of the facility or

an exploratory boring constructed as follow:

(1) An exploratory boring shall be drilled in the anticipated down-gradient direction from the underground storage tank. More than one exploratory boring may be required wher geogydrologic conditions are complex or where more than one boring is needed to adequately cover a facility that occupies a large area.

(2) The exploratory boring may be of any diameter capable of allowing the detection of first water and the recovery of undisturbed soil samples.

(3) The exploratory boring shall be drilled by a dry drilling technique that permits the detection of wet zones and first water.

(4) The exploratory boring shall be within 10 feet of the tank. If physical constraints preclude drilling within 10 feet of the tank, the boring shall be drilled as near as possible to the tank, but no further than 30 feet from the tank.

(5) The exploratory boring shall be drilled to a

minimum depth of 200 feet if ground water is not encountered at a depth of less than 200 feet.

(d) If ground water is encountered within a depth of 200 feet, in addition to the requirements of subsection (c) of this section, the following shall also apply:

(A) The exploratory boring shall be modified if necessary and constructed as a gravel-packed water well with a minimum 4-inch ID casing.

(B) In the case of unconfined ground water aquifers, the exploratory well shall extend a minimum of 20 feet below the ground water surface or 20 feet below the lowest known historical ground water level in the area, whichever is lowest. The well shall be perforated from the tank bottom elevation to 20 feet below the ground water surface or the lowest known historical ground water level in the area, whichever is lowest.

(C) In the case of confined aquifers, the well shall extend to the bottom of the aquifer and

shall be perforated from the top of the aquifer to the bottom of the well.

(i) If the exploratory boring does not encounter ground water within a depth of 200 feet, the exploratory boring shall be backfilled and sealed with bentonite grout or slurry.

(e) Wells shall be sampled semi-annually at a minimum. More frequent sampling may be required by the local agency. Samples shall be taken after sufficient volumes of water have been removed from the well such that pH, temperature and conductivity are stabilized. Sampling equipment shall not bypass, capture, mask or alter the sample constituents.

(f) Analysis shall be performed for all constituents stored in the underground storage tank and their degradation or transformation products.

(g) Samples shall be collected, stored, transported, and analyzed according to approved EPA methods.

Authority: H&SC 25288.2

Reference: H&SC 25284.1

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Adopt new Section to read:

2648. General ~~Well~~ Construction and Sampling Methods

(a) Soil and water ~~The~~ sampling equipment and materials used to construct a well shall be compatible with the stored hazardous substance ~~product~~ and shall not donate, capture, mask, or alter the ~~product~~ constituents for which analyses will be made.

(b) Representative samples of all imported materials used for filter ~~to gravel~~ packs ~~or backfill~~ wells and to construct ~~form~~ seals shall be evaluated ~~tested~~ to determine their acceptability with regard to Subsection (a) of this section.

(c) All drilling tools shall be thoroughly cleaned immediately before a boring is started. ~~and immediately after a boring is completed.~~

(d) All well casings, casing fittings, screens ~~gravel packs~~ and all other components that are installed in the well shall ~~to~~ be thoroughly cleaned before installation in the boring.

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(e) All tool and water samplers shall be cleaned before each sample is taken.

(f) Drilling fluid additives shall be limited to inorganic, non-hazardous materials which conform to the provisions of Subsection (a) of this section. All additives used and the depth in which they were used shall ~~are to~~ be ~~precisely~~ accurately recorded ~~precisely~~ in the boring log.

(g) Representative samples of additives, cement, bentonite, and filter media ~~grouts~~ shall be retained for 90 days for possible analysis ~~analyzed~~ for contaminating or interfering constituents.

~~(h) All well casings shall have a bottom cap or plug.~~

~~(i) All wells shall have a surface seal. Ground water monitoring wells shall be sealed from the ground surface to the top of the perforations. The depth of surface seals for vapor wells shall be the minimum necessary to prevent infiltration of surface water but shall not be less than 5 feet deep.~~

(n) ~~(j)~~ All ground water monitoring wells shall be ~~properly~~

appropriately developed until the discharge water contains less than 10 gpm settleable solids.

(o) ~~(k)~~ Well heads shall be provided with a locking water-tight cap.

(p) ~~(l)~~ Well heads shall be enclosed in a surface security structure that ~~will~~ protects the well from the entry of surface water, accidental damage, unauthorized access, and vandalism. This may be accomplished by providing a locked well cap or by securing the facility within which a well is located. ~~wells within a secure facility~~

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

~~(n) Initial borings or wells to determine the depth to ground water shall be capable of allowing the collection of undisturbed soil samples and shall utilize a dry~~

drilling technique that permits the detection of wet zones and first water/

(l) Surface seals for vapor wells that are completed no more than 5 feet below the bottom of the underground storage tank and which are above any free water zones shall be required at the descretion of the local agency on a site-specific basis.

(m) If surface seals for vapor wells that are completed in or below a free water zone are shall be required the seal shall not extend below the top of the underground storage tank.

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

(o) The need for surface seals for other types of vadose zone installations shall be determined required on a case-by-case basis.

(p) In order to implement monitoring Alternatives 2, 3, 4, and the ground water monitoring portion of 6, the

highest anticipated ground water level and existing ground water level shall be determined. Historic Highest anticipated ground water levels shall be determined by a review of all water level measurements on record for wells within 5 1 mile of the site. Existing site ground water levels shall be established by either water level measurements taken within the last 2 years in all, but not less than 3 existing well(s) including at least 1 downgradient wells within 500 feet of the facility which are perforated in the zone of interest or by drilling at least one exporatory 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 500 feet from the underground storage tank.

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

(3) The exploratory boring shall be drilled to first perennial ground water or to a minimum depth of 100

feet for Alternatives 2, 3, 5, and 6 or to a minimum depth of 30 feet for Alternative 4.

(4) If ground water is encountered and ground water monitoring is part of the monitoring alternative, the boring shall be converted to a ground water monitoring well consistent with the provisions of this Section and Section 2647 and 2648 of this article.

(5) If ground water is encountered but monitoring is not required or if the exploratory boring does not encounter ground water, it shall be sealed in accordance with the provisions of Sections 2648(q) and (s) of this article.

(q) All borings that are not used for ground water or vadose zone monitoring shall be sealed from the ground surface to the bottom of the boring with bentonite grout.

(r) All borings that are converted to vadose zone monitoring wells in which the monitored interval is shallower than the total depth of the boring, shall have the portion of the boring which is below the monitored interval sealed with bentonite grout.

(s) All slurry-type grouts used to abandon boring or for well seals shall be emplaced by the tremie method.

(t) All borings shall be described in detail using the Unified Soil Classification System and shall be logged by a professional geologist, civil engineer, or engineering geologist who is registered or certified by the State of California and who is experienced in the use of the Unified Soil Classification System. 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 shall be deemed qualified to log borings, provided the aforementioned professional reviews the logs and assumes responsibility for the accuracy and completeness of the logs.

(u) All wet zones above the free water zone shall be noted and accurately logged.

(v) If evidence of contamination is detected by sight, smell, or other field analytical method, drilling shall be halted until the responsible professional determines if drilling deeper is advisable.

Authority: H&SC 25288.2

Reference. H&SC 25284.1

Article 5. Release Reporting Requirements

Adopt new section to read:

2650 Applicability

(a) All unauthorized releases from the primary or secondary container ~~must meet the~~ shall be reported ~~reporting~~ according to the ~~timeline and disposal~~ requirements of the appropriate sections of Chapter 6.7 of Division 20 ~~25288.3 and 25283.4~~ of the Health and Safety Code and this article. ~~section~~

(b) Certain unauthorized releases to secondary containers, as described in Section 25284.3 of the Health and Safety Code, shall be recorded on the operator's monitoring reports according to Section 2651 of this article. No other report shall be required if the leak detection monitoring system in the space between the primary and secondary containers can be reactivated within 8 hours. This provision shall be applicable only to new underground storage tanks as defined in Article 2 of this subchapter.

~~(b) All unauthorized releases shall be reported. The nature~~

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and timing of reporting is divided into two groups depending on the threat to contaminate soil and water as a result of the release. This article describes the various reporting requirements and actions which must be implemented by the owner or permittee and the local agency.

(c) Unauthorized releases requiring only initial recording with reporting completed as part of the normal operating reports are defined in Section 2651 of this article.

(c) (d) All other unauthorized releases requiring immediate reporting shall be reported within 24 hours after the release has been, or should have been, detected according to are defined in Section 2652 of this article.

Authority: H&SC 25283.2

Reference: H&SC 25284.3, 25284.4

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Adopt new section to read

2651. Unauthorized Release Requiring Recording

(a) The report required by Subsection (b) of Section 2650 of this article shall include:

(a) A recordable unauthorized release is any unauthorized release of a hazardous substance which meets all the following criteria:

(1) The hazardous substance released is from the primary container.

(2) The hazardous substance released does not escape from the secondary container or cause any deterioration of the secondary container.

(3) The hazardous substance released can be cleaned up within eight hours.

(4) The hazardous substance released does not increase the hazard of fire or explosion.

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(b) All recordable unauthorized releases shall be contained and the released hazardous substance shall be safely transported disposed of in an appropriate manner by the permittee. Such an occurrence shall be reported in the permittee's monitoring reports as required in the permit and shall include:

(1) List of type, quantities, and concentration of hazardous substances released.

(2) Method of cleanup. and cost

(3) Method and location of disposal of the released hazardous substances (indicate whether a included copy of hazardous waste manifest[s] is utilized).

(4) Method of future leak prevention or repair. If this involves a change as defined in Article 10, Section 2712, 2702 Subsection (a) of this subchapter, then appropriate reports pursuant to that Article shall also be filed.

(5) If the primary container is to continue to be used, then a description of how the monitoring system between the primary and secondary container has

been re-activated.

(6) Facility operator's name and telephone number.

(7) The appropriate estimated approximate costs for cleanup to be submitted voluntarily.

(b) (c) The local agency shall review the information submitted pursuant to Subsection (a) (b) of this section and shall review the permit and may inspect the underground storage tank pursuant to the provisions of Article 10, Section 2712, 2702 Subsections (g) and (h) of this subchapter. The local agency shall find that the containment and monitoring standards of Article 3 of this Subchapter can continue to be achieved or the local agency shall revoke the permit until appropriate modifications are made to allow compliance with the standards.

(c) (d) Deterioration of the secondary container is likely when any of the following conditions exist:

(1) The secondary container will have some loss of integrity due to contact with the stored hazardous substances;

(2) the mechanical means used to cleanup the released hazardous substance could damage the secondary container, or

(3) hazardous substances, other than those stored in the primary container, are added to the secondary container for treatment or neutralization of the released hazardous substance as part of the cleanup process.

(4) (e) If a recordable unauthorized release becomes a reportable unauthorized release ~~LEAK~~ due to initially unanticipated facts, the release shall immediately be treated as a reportable release pursuant to Section 2652 of this Article.

Authority. H&SC 25288.2

Reference: H&SC 25284.3

Adopt new section as follows:

2672. Unauthorized Releases Requiring Immediate Reporting

(a) All other unauthorized releases which are described by either subsection (1) or (2) of this subsection shall be reported as specified in subsection (b) of this section. In addition the requirements of subsections (c), (d), and (e) of this section shall be followed.

(1) A reportable unauthorized release is any unauthorized release of hazardous substance which meets any of the following criteria:

(A) The released hazardous substance escapes from the secondary container assuming that a secondary container exists.

(B) The released hazardous substance increases the hazard of fire or explosion.

(C) The released hazardous substance causes any deterioration of the secondary container.

(2) An unauthorized release of a hazardous substance

that occurs from an underground storage tank that does not have a secondary container. This includes unauthorized releases from pressurized piping which is monitored by a pressure loss detector as described in Article 3, Section 2633, Subsection (f) of this subchapter.

(b) All unauthorized releases meeting the criteria of Subsection (a) of this section shall be reported. Within 24 hours after the release has been detected, or should have been detected, using required monitoring, the operator or permittee shall notify the local agency and the State Office of Emergency Services or the and regional board Regional Water Quality Control Board.

(c) Within 5 working days of detecting the release, discovered the operator or permittee shall submit to the local agency a full written report to include all of the following information which is known at the time of filing the report:

(1) List of type, quantity, and concentration of hazardous substances released.

(2) The results of all investigations completed at that

time to determine the extent of soil or ground water or surface water contamination due to the release.

(3) Method of cleanup implemented to date, proposed cleanup actions, and approximate cost of actions taken to date. and proposed cleanup actions

(4) Method and location of disposal of the released hazardous substance and any contaminated soils or ground water or surface water (include indicate whether a copy of hazardous waste manifest[s] is if utilized).

(5) Proposed method of repair or replacement of the primary and secondary containers. If this involves a change as defined in Subsection 2712(a) 2702(a) of Article 10 of this subchapter, then appropriate reports pursuant to that article shall also be filed.

(6) Facility operator's name and telephone number.

(d) Until cleanup is complete, the operator or permittee shall submit reports to the local agency and the

regional board every 3 months or at a more frequent interval specified by a responsible agency. ~~the local agency or Regional Board to the local agency and the regional board~~ The reports shall include the information requested in subsections (c)(2), (c)(3), and (c)(4) of this Section.

~~(e) The local agency shall review the permit whenever there has been an unauthorized release or when it determines that the underground storage tank is unsafe. In determining whether to modify or terminate the permit, the local agency shall consider the age of the tank, the methods of containment, the methods of monitoring, the feasibility of any required repairs, the concentration of the hazardous substances stored in the tank, the severity of potential unauthorized releases, and suitability of any other long-term preventive measures.~~

(e) ~~(f)~~ The reporting requirements of this section are in addition to any reporting requirements specified by Section 13271 of Division 7 of the Water Code and other laws and regulations.

~~(g) The local agency, Regional Board, and Department of Health Services or other governmental agency may,~~

~~pursuant to other laws or regulations, request the permittee to investigate the extent of soil, groundwater or surface water contamination that resulted from the unauthorized release and to implement appropriate remedial action~~

Authority H&SC 25238.2

Reference H&SC 25251.4

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Article 6. Allowable Repairs

Adopt new section to read:

2660. Applicability

(a) This article describes the conditions which must be met to allow primary container repairs of underground storage tanks containing motor vehicle fuel not under pressure utilizing the ~~to allow the use of~~ interior coating process ~~of hazardous substance underground storage tanks in order to repair the underground storage tank;~~ the required repair methodology, and the required underground storage tank testing following repair.

(b) Section 2661 of this article lists the required evaluations which must be completed in order to allow the repair of a primary container. A satisfactory demonstration of each part of Section 2661 of this article shall be made prior to approval by the local agency of the repair process.

(c) Section 2662 of this article describes the required methodology which must be utilized in the interior coating repair process.

(d) Section 2663 of this article lists the required primary container monitoring which shall be implemented by amendment of the permit by the local agency following primary container repair. Subsections (a) and (b) of Section 2663 of this article describe the monitoring which shall be performed prior to placing the underground storage tank back in service.

Authority: H&SC 25288.2

Reference: H&SC 25284.4

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Adopt new section to read:

2661. Repair Evaluation

(a) The evaluations described in Subsections (b) through (d) of this Section must be completed before a primary container repair can be authorized by the local agency. ~~Failure~~ Failure to adequately demonstrate that the repaired primary cortainer will provide continued containment based on the evaluations described below shall be grounds ~~adequate reasonable~~ for a local agency to deny the proposed repair.

(b) It shall be determined if the failure mechanism is isolated to the actual failure or is affecting other areas of the underground storage tank, or if any other failure mechanism is affecting the primary container.

(c) ~~If interior lining is the proposed repair method,~~ One of the following tests shall be conducted to determine the thickness of the underground storage tank:

(1) An ultrasonic test.

(2) Certification by a special inspector that the shell

will provide structural support for the interior lining. The special inspector shall make this certification by entering and inspecting the entire interior surface of the underground storage tank and shall base this certification upon the following procedures and criteria:

(A) If the underground storage tank is made of fiberglass, the underground storage tank shall be cleaned so that no residue remains on the underground storage tank wall surface. The special inspector shall take interior diameter measurements and, if the cross-section has compressed more than 1 percent of the original diameter, the underground storage tank shall not be certified and shall also not be returned to service. The special inspector shall also conduct an interior inspection to identify any area where compression or tension cracking is occurring and shall determine whether additional glass fiber reinforcing is required for certification before the underground storage tank may be lined.

(B) If the underground storage tank is made of

steel, the underground storage tank interior surface shall be abrasive blasted completely free of scale, rust, and foreign matter. Acceptable procedures for metal blasting are provided in Appendix I. The special inspection shall sound any perforations or areas showing corrosion pitting with a brass ballpeen hammer to enlarge the perforation or break through a potentially thin steel area. Undergrund storage tanks that have any of the following defects shall not be certified or returned to service.

(i) An underground storage tank which has an open seam or a split longer than 3 inches.

(ii) An underground storage tank which has a perforation larger than 1-1/2 inches in diameter or below a gauging opening larger than 2-1/2 inches in diameter.

(iii) An underground storage tank with 5 or more perforations in any 1 square-foot area and any 1 perforation is none larger than 1/2 inch in diameter. In any 1 square-foot area

(iv) An underground storage tank with 20 or more perforations in a 500 square-foot area and any 1 perforation is none larger than 1/2 inch in diameter. In a 500 square-foot area

(v) Any failure or opening within 6 inches of any seam or weld.

(3) A test approved by the board as comparable to the tests specified in subparagraph (A) or (B).

(6) If interior lining is the proposed repair method, a demonstration that the actual failure may not have resulted from any one or more of the following conditions shall be made:

(1) a linear split of more than three (3) inches;

(2) a single hole with a diameter of greater than one and one-half (1-1/2) inch; one (1) inch; or

(3) more than ten (10) small perforations; or;

(4) any failure or opening within six inches of any

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seam or wall.

(d) ~~If interior lining or plate replacement of a fiberglass or steel underground storage tank is the proposed repair method, then~~ It shall be demonstrated to the satisfaction of the local agency based on ~~an ultrasonic or comparable test~~ one of the tests in (c) above that a serious corrosion problem does not exist. If a serious corrosion problem exists, an interior lining repair may be allowed by the local agency if it can be demonstrated 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.

(e) If interior lining is the proposed repair method, then it shall be demonstrated that the primary container has never been repaired using an interior lining.

Authority: H&SC 25284.2

Reference: H&SC 25284.5

Adopt new section to read:

2662. Repair Methodology

(a) If an interior lining of an underground storage tank ~~repair~~ is approved by the local agency based on satisfactory demonstration of the issues raised in Section 2661 of this article, then the repair must be accomplished according to the applicable subsections of this section.

(b) If interior coating is the method of repair, the material used in the repair shall be applied in accordance with nationally recognized engineering practices. ~~An example of such a practice is the American Petroleum Institute's recommended practice No. 1631.~~

(c) The repair material and any adhesives used shall be compatible with the existing tank materials and shall not be subject to deterioration due to contact with the hazardous substance being stored.

(d) The repair material and lining process shall be listed or certified by a nationally recognized independent

testing organization. The requirement shall become effective 1 year after the effective date of these regulations or 1 year after a listing or certification procedure is available, whichever is later.

Authority: H&SC 25288.2

Reference: H&SC 25284.5

Adopt new section to read:

2663. Primary Container Monitoring

(a) After any repair, the primary container shall be demonstrated to be capable of containing the stored hazardous substance by satisfactorily passing the underground storage tank test as described in Section 2643 of Article 4 of this subchapter. The underground storage tank shall also be vacuum tested at a vacuum of 5.3 inches (135 mm) Hg for 1 minute. The vacuum test shall not be required if technology is not available for testing the underground storage tank on-site using accepted engineering practices. ~~Standard installation tests specified in Section 2473 of the Flammable and Combustible Liquids Code adopted by the National Fire Protection Association on November 20, 1981 (NFPA 30-1981).~~

(b) All pipelines shall be pressure tested following repair to assure the adequacy of the repair. The testing shall be accomplished using accepted procedures. Acceptable procedures for pressure testing are provided in Appendix I. ~~Described in the applicable sections of ANSI B31, American National Standard Code of Pressure Piping or~~

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National Fire Protection Association Flammable and Combustible Liquids Code (NFPA 30)

Authority. H&SC 25288.2

Reference: H&SC 25284.5

Adopt new Section to read:

2670. Applicability

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

(b) The temporary closure requirements of Section 2671 of this article shall apply to those underground storage tanks in which the storage of hazardous substances has ceased but where the underground storage tank owner or operator proposes to retain the ability to use the underground storage tank within 2 years for the storage of hazardous substances. Section 2671 of this article does not apply to underground storage tanks that are empty as a result of the withdrawal of all stored material during normal operating practice prior to the planned input of additional hazardous substances consistent with permit conditions.

(c) The permanent closure requirements of Section 2672 of this article shall apply to those underground storage

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tanks in which the storage of hazardous substances ~~materials~~ has ceased and where the owner or operator has no intent within the next 2 years to use the underground storage tank for storage of hazardous substances. ~~materials~~

(d) The requirements of this article do not apply to those underground storage tanks in which hazardous substances ~~materials~~ are continued to be stored even though there is no use being made of the stored substance. ~~material~~ In these cases, the applicable containment and monitoring requirements of Article 3 or 4 of this subchapter shall continue to apply.

(e) During the period of time between cessation of hazardous substance ~~waste~~ storage and actual completion of underground storage tank closure pursuant to Sections 2671 or 2672 of this article, the applicable containment and monitoring requirements of Article 3 or 4 of this subchapter shall continue to apply.

(f) ~~At least 45 days~~ Prior to closure, ~~cessation of storage of hazardous materials, unless such cessation occurs as a result of an unauthorized release or in order to prevent an unauthorized release or minimize its effect,~~ the underground storage tank owner shall submit to the local agency a proposal describing how the owner intends

to comply with Section 2671 or 2672 of this Article, as appropriate. The requirement for prior submittal is waived if the storage of hazardous substances ceases as a result of an unauthorized release or to prevent or minimize the effects of an unauthorized release. In this situation, the underground storage tank owner shall submit the required proposal within 14 days of either the discovery of an unauthorized release or the implementation of actions taken to prevent or minimize the effects of the unauthorized release.

(g) Underground storage tanks that have experienced an unauthorized release do not qualify for temporary closure pursuant to Section 2671 of this article until the underground storage tank owner demonstrates to the local agency's satisfaction that appropriate authorized repairs have been made which ~~that~~ would allow the underground storage tank to be capable of storing hazardous substances ~~materials~~ pursuant to the permit issued by the local agency.

(h) Underground storage tanks that have experienced an unauthorized release and that cannot be repaired by authorized methods must be permanently closed pursuant to requirements of Section 2672 of this article ~~subchapter.~~

Authority: H&SC 25288.2

Reference. H&SC 25286

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Adopt new Section to read:

2671. Temporary Closure

(a) This section applies to those underground storage tanks in which storage has ceased but where the owner or operator proposes to retain the ability to use the underground storage tank within 2 years for the storage of hazardous substances.

(b) The owner or operator shall comply with all of the following:

(1) All residual liquid, solids, or sludges shall be removed and handled pursuant to the applicable provisions of Chapter 6.5 of Division 20 of the Health and Safety Code. *as follows:*

(A) product is legally stored for future use or marketed as a hazardous waste;

(B) hazardous waste is legally recycled or disposed of as a hazardous waste;

(2) If the underground storage tank contained a hazardous substance that could produce flammable vapors at standard temperature and pressure, then

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the underground storage tank, either in part or as a whole, shall be completely purged of the flammable vapors to levels that would preclude an explosion or such lower levels as may be 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 must be tested and results submitted to the local agency prior to its being removed 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 utilizing locked caps or concrete plugs.

(5) Power service shall be disconnected from all pumps associated with the use of the underground storage tank except if the pump services some other equipment which is not being closed.

(c) The monitoring required pursuant to the permit may be modified or eliminated during the temporary closure period by the local agency. The local agency shall consider, in making the above decision, 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 reached the monitoring locations and been detected.

(e) All monitoring required pursuant to Article 4, except visual monitoring, shall be continued. The frequency of this monitoring may be reduced.

(d) The underground storage tank shall be inspected by the owner or operator at least once every 3 months to assure that the temporary closure actions are still in place. This shall include.

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

(2) If locked caps are utilized, then 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 (b)(3) of this section.

Authority: H&SC 25288.2

Reference: H&SC 25286

Adopt new Section to read:

2672. Permanent Closure Requirements

(a) Owners of underground storage tanks subject to permanent closure shall comply with either Subsection (b) of this section for underground storage tank ~~system~~ removal or Subsection (c) of this section for closure in-place. It is not essential that all portions of an underground storage tank ~~system~~ be permanently closed in the same manner; however, all actions shall comply with the appropriate subsection of this section. Subsection (d) and (e) of this section regarding no discharge demonstration applies to all underground storage tanks subject to permanent closure.

(b) Owners of ~~Removal of~~ underground storage tanks proposing to remove the underground storage tank shall comply with applicable provisions of Chapter 6.5 of Division 20 of the Health and Safety Code, in addition to the following: ~~Subsections (1) and (2) and either Subsections (3), (4), or (5) as appropriate~~

(1) All residual liquid, solids, or sludges shall be removed. ~~and handled as follows:~~

~~(A) product illegally stored for future use or~~

~~handled as a hazardous waste~~

~~(B) hazardous waste illegally received or disposed of as a hazardous waste;~~

(2) If the underground storage tank contained a hazardous substance ~~material~~ that could produce flammable vapors at standard temperature and pressure, then the underground storage tank, either in part or as a whole, shall be ~~completely~~ purged of the flammable vapors to levels that would preclude explosion or such lower levels as may be required by the local agency.

(3) When an underground storage tank or any part of an underground storage tank is to be disposed of, ~~that is destined for disposal shall be handled, transported and disposed of as a hazardous waste. The tank system or any part of the tank system may be handled, transported or disposed as a nonhazardous waste after it has been properly cleaned. In either case,~~ the owner must document to the local agency that proper disposal has been completed.

(4) An owner of an underground storage tank or any part of an underground storage tank that is destined for

a specific reuse shall identify to the local agency the future underground storage tank owner, operator, location of use, and nature of use. comply with all of the following:

(A) Reuse shall not be inconsistent with other laws or regulations which may exist as they may relate to the nature of the hazardous material in the underground storage tank or the nature of the proposed reuse; and

(B) The owner of an existing underground storage tank shall identify to the local agency the future underground storage tank owner, operator, location of use and nature of use;

(5) An owner of an underground storage tank or any part of an underground storage tank that is destined for reuse as scrap material shall identify this reuse to the local agency. Comply with all of the following before the underground storage tank or any part of the underground storage tank is removed from the facility unless such removal is done according to the provisions of subsection (b)(1) of this section:

(A) The tank system shall be thoroughly cleaned;

(B) The tank system shall be cut or punctured in sufficient locations to render it obviously unfit for use;

(C) Apply appropriate warnings to the tank;

(c) Closure of underground storage tanks in place shall comply with the applicable provisions of Chapter 6.5 of Division 20 of the Health and Safety Code, in addition to all of the following:

(1) All residual liquid, solids, or sludges shall be removed. and handled as follows:

(A) product - legally stored for future use or handled as a hazardous waste;

(B) hazardous waste - legally recycled or disposed of as a hazardous waste;

(2) All piping associated with the underground storage tank shall be removed handled 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. as a hazardous waste;

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(3) The underground storage tank, except for the piping that is closed pursuant to Subsection (2) of this subsection, shall be completely filled with an inert solid, ~~that cannot be removed, such as sand or concrete~~ unless the owner intends to use the underground storage tank for the storage of a nonhazardous substance which is compatible with the previous use of the underground storage tank.

(4) A notice shall be placed in the deed to the property. The notice shall describe the exact vertical and areal location of the closed underground storage tank, the hazardous substances it contained, and the closure method.

(d) The owner 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 can be based on the ongoing leak detection monitoring, ~~verification~~ ground-water monitoring, or soils sampling performed during or immediately after closure activities.

If feasible, soil samples shall be taken and analyzed according to the following:

(1) If the underground storage tank or any portion thereof is removed, then soil samples from the soils immediately beneath the removed portions shall be taken. A separate sample shall be taken for every 200-square feet for underground storage tanks or every 20 lineal feet of trench for piping, at a minimum.

(2) If the underground storage tank or any portion thereof is not removed, then soils sampling pursuant to Section 2645 ~~2644~~ of Article 4 of this subchapter shall be implemented, if feasible.

(3) Soils shall be analyzed for all constituents of ~~contained in~~ the previously stored hazardous substances and their breakdown or transformation products.

(e) The detection of any unauthorized release shall require compliance with the reporting requirements of Article 5 of this subchapter.

Authority: H&SC 25288.2

Reference H&SC 25286

Article 8. Categorical and Site-Specific Variance Procedures

Adopt new section to read:

2680. Applicability

(a) This article sets up procedures for categorical and site-specific variances from the requirements ~~Section 25288 and 25288.1~~ 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 subchapter. A site-specific variance, if approved, would apply only to the specific site(s) approved for a variance. A categorical variance, if approved, would apply to the region, area, or circumstances approved for a variance. A categorical variance application shall include more than one site or shall be non-site specific. These procedures are in addition to those established by the appropriate section of Chapter 6.7 of Division 20 of the Health and Safety Code. ~~25288.1(a) and (c)~~

(b) Section 2681 of this article specifies the procedures that must be followed by the applicant and the State Board for categorical variance requests.

(c) Section 2682 of this article specifies the procedures that must be followed by the applicant, local agency, and the regional board for site-specific variance requests.

Authority: H&SC 25288.2

Reference: H&SC 25288.3

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Adopt new section to read:

2681. Categorical Variances

(a) A categorical variance allows ~~is~~ an alternative method of construction or monitoring which is applicable to more than one local agency jurisdiction. ~~site~~ Application for a categorical variance shall be made by the permittee to the State Board or a form provided by the State Board.

(b) Application for a categorical variance shall ~~be made on a state application form provided by the State Board and shall~~ include, but not be limited to:

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

(2) A description of the proposed alternative program, method, device, or process.

(3) A description of the region, area, or circumstances under which the variance would apply.

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

(6) ~~A fee of $25,000~~ An initial payment of $11,000.

(c) The applicant will be required to pay a fee based on the actual costs of considering the application. The State Board will bill the applicant for ~~additional~~ anticipated costs or refund any remaining part of the initial fee, if necessary. ~~Before the public hearing and before preparation of a decision on the application~~

(d) ~~(d)~~ The State Board shall review all applications submitted and shall notify the applicant in writing within 30 days of receipt of the application as to whether or not the application is complete.

(e) ~~(d)~~ The State Board shall complete any documents necessary to satisfy the California Environmental

Quality Act (Division 13, commencing with Section 21000, of the Public Resources Code).

(f) (e) The State Board shall remand the application to the appropriate regional board if it determines that the application falls within Section 2682 of this article.

(g) (f) The State Board shall hold at least 2 public hearings in different areas of the state within 180 days of receipt of a complete variance application to consider the request for a categorical variance. Notice of the hearings shall be provided at least 10 days in advance to any person who requests such notice in writing. Notice shall also be provided to all affected local agencies and to any person known to be interested in the proceedings. The notice shall specify the date, time, and location of the hearing, and shall include a description of the proposed categorical variance. When the notice is mailed, it shall be placed in the mail at least 14 days in advance of the hearing.

(g) All hearings shall be conducted according to the regulations governing adjudicatory proceedings which are contained in Subchapter 4.5 of this Chapter. The State Board in its discretion may require that, not later than 10 days prior to the hearing, all interested parties intending to participate shall submit to the State Board in writing the name of each witness who will appear, together with a statement of the qualifications of each expert witness, the subject of the proposed testimony, and the estimated time required by the witness to present this direct testimony. The State Board may also require that copies of proposed exhibits be supplied to adverse parties and seven copies be supplied to the Board not later than 10 days prior to the hearing.

(h) An applicant for a categorical variance must demonstrate by clear and convincing evidence that the proposed alternative will adequately protect the soil and the beneficial uses of water of the state from an unauthorized release.

(h) (i) The decision of the State Board will be based on that evidence and testimony in the record of the hearings. The record may be supplemented by any other evidence and testimony accepted by the State Board pursuant to the procedure outlined in Section 2068 of Subchapter 8 of this Chapter. Upon the close of a hearing, the presiding officer may keep the hearing record open for a definite time, not to exceed 30 days,

to allow any interested person to file additional exhibits, reports, or affidavits.

~~(j) The State Board may discuss a proposed decision in response to a request for a categorical variance at a workshop meeting. The regulations governing workshop meetings and formal disposition of State Board matters for decision which are contained in Subchapter 8 of this chapter shall apply.~~

(i) ~~(k)~~ If the State Board grants the variance, it will prescribe the conditions the applicant must maintain and will describe the specific alternative for which the variance is being granted.

(j) ~~(l)~~ All permit applicants who intend to utilize an approved categorical variance shall attach a copy of the approved variance to the permit application submitted to the local agency. The local agency shall review the application and categorical variance to determine if the variance applies to the specific site. If the variance applies, the local agency shall issue a permit to the applicant which includes the conditions prescribed by the State Board provided all other permit conditions are met.

(k) ~~(m)~~ The State Board shall modify or revoke a categorical 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 State Board shall ~~will~~ not modify or revoke a categorical variance until it has followed procedures comparable to those prescribed in this section and Subchapters 5 and 6 of this chapter. ~~outlined herein for approval of a categorical variance~~ The State Board shall notify all affected local agencies of the modification or revocation. ~~and shall require the~~ Local agencies shall ~~to~~ modify or revoke all ~~site~~ permits which were based on the categorical variance.

Authority: H&SC 25288.2

Referenced: H&SC 25288.3

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Adopt new section to read:

2682. Site-Specific Variances

(a) A site-specific variance allows *is* an alternative method of construction or monitoring which would be applicable at one or more sites within one local agency's jurisdiction. *Facility location* Application for a site-specific variance shall be made by the permittee to the appropriate regional board on a form provided by the regional board.

(b) At least 60 days prior to applying to the regional board, the permittee 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 days of its receipt of the permittee's complete construction and monitoring plan, the permittee may proceed with a variance application.

(c) At least 30 days prior to applying to the Regional

Board, the permittee must request the local agency and the city, county or city and county having land use jurisdiction over the permittee's site to join the applicant in the variance request. The local agency shall also be requested to prepare any documents required by California Environmental Quality Act (division 13) commencing with Section 21000) of the Public Resources Code.

(d) The local agency shall have 30 days after completion of the documents or the receipt of the Regional Board's staff recommendation and analysis, whichever is later, to decide whether to join the applicant in the variance request.

(c) *(e)* Application for a site-specific variance shall *be made on a state application form provided by the appropriate Regional Board and shall* include, but not be 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.

~~(B) Clear and convincing evidence demonstrating that:~~

~~(A) Due to special circumstances not generally applicable to other property or facilities, including size, shape, design, topography, location or surroundings the strict application of Articles 3 or 4 of this subchapter would be unnecessary to adequately protect the soil and beneficial uses of the waters of the state from an unauthorized release, or~~

~~(B) The strict application of Articles 3 or 4 of this subchapter would create practical difficulties not generally applicable to other facilities or property.~~

(3) Any special circumstances on which the applicant would rely to justify the findings necessary for the variance, as prescribed by the appropriate ~~subsection (c)~~ of section ~~25288.8~~ of Chapter 6.7 of Division 20 of the Health and Safety Code.

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

(5) Any documents necessary to satisfy the California Environmental Quality Act (Division 13, commencing with Section 21000, of the Public Resources Code).

(6) A fee of $2,750 ~~$7,750~~ for variance requests at one site. A fee of $5,500 for variance request at more than one site within one local agency's jurisdiction.

(d) ~~(1)~~ The regional board shall review all applications submitted and shall notify the applicant in writing within 30 days of receipt of the application as to whether or not the application is complete.

(e) ~~(2)~~ The regional board shall hold a hearing on the proposed alternative within 60 ~~120~~ days after receiving a complete variance application; however, the hearing shall be held after the 30-day period allowed by the appropriate section of Chapter 6.7 of Division 20 ~~subsection (c) of section 25288.8~~ of the Health and Safety Code for local agencies to join in the

application. described in subsection (d) of this section. Notice of the hearings shall be provided at least 10 days in advance to any person who requests such notice in writing. Notice shall also be provided to all affected local agencies and to any person known to be interested in the proceedings. The notice shall specify the date, time and location of the hearing, and shall include a description of the proposed categorical variance. When the notice is mailed, it shall be placed in the mail at least 11 days in advance of the hearing.

(h) All hearings shall be conducted according to the regulations governing administrative proceedings which are contained in Subchapter 1/2 of this Chapter. The Regional Board in its discretion may require that, not later than 10 days prior to the hearing, all interested parties intending to participate shall submit to the Board in writing the name of each witness who will appear, together with a statement of the qualifications of each expert witness, the subject of the proposed testimony and the estimated time required by the witness to present his direct testimony. The Regional Board may also require that copies of proposed exhibits be supplied to adverse parties and seven copies be supplied to the Regional Board not later than 10 days prior to

the hearing.

(f) (i) Any site-specific variance shall be issued with prescribe appropriate additional the conditions the applicant must maintain and shall with describe the specific alternative system for which the variance is being granted. The regional board shall notify the applicant and the local agency of its decision.

(g) (j) The regional board shall consider the local agency's, and the city's, county's, or city and county's recommendations in rendering its decision. The regional board shall consider the completeness and accuracy of the information provided by the applicant in Subsection (e) of this Section in rendering its decision.

(h) (k) If the variance request is approved, the local agency shall issue a permit to the applicant which includes the conditions prescribed by the regional board. A local agency shall not modify the permit unless it determines that the modification is consistent with the variance that has been granted.

(i) (l) The regional 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 board shall ~~will~~ not modify or revoke the variance until it has followed procedures comparable to those prescribed in this Section and Subchapters 1.5 and 2 of this chapter. ~~Additional Review for approval of a variance~~ The regional board shall notify the local agency of the modification or revocation. ~~and shall require~~ The local agency shall ~~to~~ modify or revoke the permit for the site.

Authority: H&SC 25[illegible]

Reference: H&SC 25[illegible]88.3

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Article 9. Local Agency Additional Standards Request Procedures

Adopt new section to read.

2690. Applicability

(a) This Article sets up procedures for local agencies to request State Board authorization for more stringent standards than those set by Article 2 ~~and 4~~ of this ~~the~~ subchapter. These procedures are in addition to those established by Chapter 6.7 of Division 20 ~~Subsection 25288.1(b)~~ of the Health and Safety Code.

Authority: H&SC 25[illegible]88.2

Reference: H&SC 25[illegible]88.3

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Adopt new section to read:

2691. Additional Standards Request Procedures

(a) Local agency application for additional standards shall include:

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

(2) Clear and convincing evidence that the additional standards are necessary. Clear and convincing evidence that the additional standards ~~and~~ would adequately 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) ~~A fee of $11,500~~ An initial fee of $5,500.

(b) The applicant shall ~~will~~ be required to pay a fee based on the actual costs of considering the application. The

State Board will bill the applicant for additional anticipated costs or refund any remaining part of the initial fee, if necessary. ~~Before the public hearing and before preparation of a decision on the application~~

(c) ~~(b)~~ The board shall ~~will~~ conduct an investigation and public hearing on the proposed standards and their need to protect the soil and beneficial uses of the water before determining whether to authorize the local agency to implement additional standards. ~~The notice and other procedural requirements contained in Sections (d) through (j) of Article 8 of this subchapter shall apply.~~

~~(d) The board shall make its determination whether to authorize a local agency to implement additional standards within six months of the receipt of a complete application.~~

~~(e) Should the board authorize the local agency to implement additional standards, the standards shall be effective as of the date the board made the determination.~~

~~(f) Should the board not authorize the local agency to implement additional standards, the additional standards will not go into effect.~~

(d) ~~(f)~~ The board may modify or revoke a previously issued authorization allowing the implementation of additional standards if it finds that, based or 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 board shall ~~will~~ not modify or revoke the authorization until it has followed procedures comparable to those presented in Subchapters 1.5 and 6 of this chapter. ~~outlined herein for issuance of the authorization.~~

Authority: H&SC 25288.2

Reference: H&SC 25288.3

Article 10. Permit Application, Annual Report and Trade Secret Requirements

Adopt new section to read:

2710. Applicability

(a) This article describes specific administrative actions that must be accomplished by all underground storage tank owners, local agencies, and the State Board relative to issuing permits for underground storage tanks. These actions are in addition to those established by ~~Sections 25283, 25283.1, 25283.2, 25283.4, 25283.5, 25283.6, and 25284.2~~ Chapter 6.7 of Division 20 of the Health and Safety Code.

(b) Section 2711 of this article lists the information that must be submitted by the underground storage tank owner to the local agency as part of the permit application. ~~and the requirements for the local agency to submit the permit application to the State Board~~

(c) Section 2712 of this article describes the conditions that local agencies must include in all permits issued and conditions which local agencies must meet prior to

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permit issuance.

(d) Section 2713 of this article describes the annual report requirements for ~~both tank owners and~~ local agencies.

(e) Section 2714 of this article specifies conditions that must be met by a tank owner when requesting trade secret provisions for any information submitted to the local agency, State Board, regional board. It also specifies how the local agency, the State Board, or regional board shall consider the request and how they shall maintain the information if the trade secret request is accepted.

Authority: H&SC 25288.2

Reference: H&SC 25283, 25283.1, 25283.2, 25283.4, 25283.5, 25283.6, 25284.2

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Adopt new section to read:

2711. Permit Application and Information

~~(a) An application for a permit to operate an underground storage tank, or for renewal of the permit or for transfer of a permit shall be made by the owner on a form prepared by the State Board and provided by the local agency. The local agency shall provide the Board with a copy of the completed approved application.~~

(a) ~~(b)~~ The permit application shall include, but not be limited to, the following information if it is accurately known to the permit applicant:

(1) The name and address of the person who ~~firm, corporation or public agency which~~ owns the underground storage tank or tanks.

(2) The name, location, mailing address, and phone number ~~and type of facility~~ where the underground storage tank is located and type of business.

(3) The name, address, and telephone numbers of the underground storage tank operator and 24-hour

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emergency contact person.

(4) The name and telephone number of the person making the application.

(5) Description of the underground storage tank ~~description~~ including, but not limited to, underground storage tank and auxiliary equipment manufacturer, year of manufacture, capacity, history of repairs, and operation methods schedule.

(6) In the case of new underground storage tanks installed with systems for secondary containment utilizing membrane liners, a certification by the membrane liner material manufacturer that the membrane liner meets the standards set forth in Section 2631 (c) and (j)(1) and (2) of Article 3, or if applicable, Section 2633 (e)(1) and (2) of Article 3, and a certification by the membrane liner fabricator that the membrane liner meets the standards set forth in Section 2631(c) and (j)(3) of Article 3.

(7) ~~(B) The underground storage tank (tank), piping and auxiliary equipment)~~ Construction details of the

underground storage tank and any auxiliary equipment including, but not limited to, type and thickness of primary containment, type and thickness of secondary containment (if applicable), installation procedures and backfill, lining, wrapping, and cathodic protection methods (if applicable).

(8) ~~(C)~~ A 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) ~~(D)~~ The description of the proposed monitoring program including, but not limited to, the following where applicable:

(A) Visual;

(B) Underground storage tank testing or inspection procedures;

(C) Invertory reconciliation ~~control~~ including gauging and reconciliation methods;

(D) Soils sampling locations and methods and analysis procedures;

(E) Vadose zone sampling locations and methods and analysis procedures;

(F) Ground water well(s) locations, construction and completion methods, sampling, and analysis procedures; and

(G) Frequency and sensitivity of any monitoring method sensing instrument or analytical method.

(10) ~~(9)~~ A list of all the substances which previously, currently, or are proposed to be stored in the underground storage tank or tanks.

(11) ~~(10)~~ 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.

(12) ~~(11)~~ The permit application must be signed by:

(A) A principal executive officer at the level of vice-president or by an authorized representative. The representative must be responsible for the overall operation of the facility where the underground storage tank(s) are located;

(B) A general partner proprietor; or

(C) A principal executive officer, ranking elected official, or authorized representative of a public agency.

(b) The application shall be accompanied by the ~~a~~ fee set by the local agency. ~~The local agency may require a fee to cover necessary and reasonable costs of permitting and inspection of the underground storage tank. This fee shall include a surcharge determined annually by the Legislature to cover the costs of State Board in carrying out its responsibilities under these regulations.~~

Authority: H&SC 25288.2

Reference: H&SC 25283.2

Adopt new section to read

2112. Permit Conditions

(a) As a condition of any permit to operate an underground storage tank, the permittee shall report to the local agency, which has permitting authority within ~~at least~~ 30 days after ~~prior to the change~~ any changes in the usage of any underground storage tanks, including:

(1) The storage of new hazardous substances;

(2) Changes in monitoring procedure; or

(3) The replacement or repair of all or part of any underground storage tank.

(b) As a condition of any permit to operate an underground storage tank, the permittee shall report to the local agency any unauthorized release occurrences, as defined in Article 2 of this subchapter, within the time frame specified in subsections 2052(b) and (c) of Article 5 of this subchapter.

(c) Written records of all monitoring performed shall be

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maintained on-site by the operator for a period of at least 3 years from the date the monitoring was performed. The local agency may require the submittal of the monitoring records or a summary at a frequency that they may establish. The written records of all monitoring performed in the past 3 years shall be shown to the local agency, regional board, of State Board or duly authorized representative upon demand during any site inspection. Monitoring records ~~This~~ 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;

(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.

(d) A permit to operate issued by the local agency shall be effective for 5 years. A local agency shall not issue a permit to operate an underground storage tank until the local agency inspects the underground storage tank and determines that the underground storage tank complies with the provisions of these regulations. The underground storage tank owner shall apply to the local agency for permit renewal at least 180 days prior to the expiration of the permit.

(e) The local agency shall have 18 months after it establishes a program implementing this subchapter to issue permits for all existing underground storage tanks.

(f) ~~(e)~~ Permits may be transferred to new underground storage tank owners if the new underground storage tank owner does not change any conditions of the permit, ~~and~~ the transfer is registered with the local agency within 30 days of the change in ownership, ~~by submittal of a revised permit application listing the new owner~~ and any necessary modifications are made to the information in

the initial permit application due to the change in ownership. A local agency may review, modify, or terminate the transfer of the permit to operate the underground storage tank upon receiving the ownership transfer request.

(f) If an underground storage tank does not completely conform with Articles 3 or 4 of this subdivision, a local agency, at its discretion, may issue a provisional permit subject to conditions specified by the local agency and providing such a permit would not be detrimental to the public's interest. The conditions shall, at a minimum, include a time schedule for upgrading the underground storage tank such that it conforms with Articles 3 or 4 of this subdivision or is closed pursuant to Article 7 of this subdivision. These time schedules shall not exceed beyond the duration of the provisional permit. A provisional permit will be issued for no longer than one year with a one-time extension of six months three months and cannot be renewed or extended. The local agency shall inspect the underground storage tank pursuant to the provisions of subsection (g) of this section within 60 15 days of the expiration of the provisional permit to assure that the permit conditions have been met.

(g) The local agency shall not renew an underground storage tank permit unless the underground storage tank has been inspected within the prior 3 years and the inspection revealed that the underground storage tank complies with Article 3 or 4, as applicable, of this subchapter, as applicable, and with all existing permit conditions. The inspection shall be conducted as specified in the appropriate subsection of Chapter 6.7 of Division 20 of the Health and Safety Code. Subsection (h) of this Section If the inspection revealed noncompliance, then the local agency must verify by a follow-up inspection pursuant to subsection (h) of this Section that all required corrections have been implemented before renewing the permit.

(h) The local agency shall inspect every underground storage tank within its jurisdiction at least once every 3 years. The inspection which shall evaluate the items listed in Subdivision (i) of this Section may be performed by the local agency or by a special inspector employed by the permit holder as required by the local agency, or both. If a special inspector conducts any or all of the inspection, a copy of the special inspector's report which may contain recommendations concerning the

safe storage of hazardous substances materials shall be filed with the local agency at the same time as it is submitted to the permit holder. Any deficiencies or items of noncompliance found shall be addressed as described in subsection (j) of this section.

(i) The purpose of the inspection described in subsection (h) of this section is to:

(1) Determine whether the underground storage tank complies with the applicable standards of Article 3 or Article 4 of this subchapter;

(2) Determine whether the operator has monitored and tested the underground storage tank as required by the permit; and

(3) Determine whether the underground storage tank is in a safe operating condition.

(h) (1) (A) Within 30 days of receiving an inspection report from either the local agency or the special inspector, the permit holder shall file with the local agency a plan and time schedule to implement any required modifications to the underground storage tank or to the

monitoring plan needed to achieve compliance with either Article 3 or Article 4 of this subchapter, as appropriate, or the permit conditions. This plan and time schedule shall also implement all the recommendations of the special inspector. The local agency may exempt 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 the failure to implement the recommendation will not cause an unauthorized release.

Authority: H&SC 25288.2

Reference: H&SC 25283, 25283.1, 25283.4, 25283.5, 25284.2

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Adopt new section to read:

2713. Annual Report

(a) The local agency shall notify the State Board of any changes in permits as defined in Subsections (a) or (f) ~~(d)~~ of Section 2712 of this article or any unauthorized releases as defined in Article 2 of this subchapter annually on the State Board annual report forms or other methods determined by the State Board. This information shall be submitted to the State Board by March 1 of each year covering the prior calendar year.

Authority: H&SC 25288.2

Reference: H&SC 25283.2

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Adopt new section to read:

2714. Trade Secret Provisions

(a) Any person providing information in an application for a permit to operate an underground storage tank or for renewal of the permit or application for a categorical or site-specific variance, shall, at the time of its submission, identify all information which the person believes is a trade secret and submit a legal justification for the request for confidentiality. The information which must be submitted includes:

(1) Which portions of the information submitted are believed to be ~~[illegible]~~ a trade secrets;

(2) How long 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 a trade secret including references to statutory and case law as appropriate.

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(b) If the local agency, the State Board, or the regional board determines that a request for confidentiality is clearly valid, the material shall ~~will~~ be given trade secret protection as discussed in Subsection (f) of this section.

(c) If the local agency, State Board, or the regional board determines that the request for confidentiality is clearly frivolous, it will send a letter to the applicant stating that the information will not be treated as a trade secret unless the local agency, State Board, or the regional board is instructed otherwise by a court within 10 days of the date of the letter.

(d) If the validity of the request for confidentiality ~~trade secret~~ is unclear, the local agency, the State Board, or the regional board will inform the person claiming trade secrecy that the burden is on him to justify the claim. The applicant will be given a fixed period of time to submit such additional information as the local agency, the State Board, or the regional board may request. The local agency, the State Board, or the regional board shall then evaluate the request on the ~~in this~~ basis of the definition of "trade secrets" contained in the

appropriate Section of Chapter 6.7 of Division 20 ~~Section 25283(b)(2)~~ of the Health and Safety Code and issue its decision. If the local agency, the State Board, or the regional board determines that the information is not a trade secret, it shall ~~will~~ act in accordance with Subsection (c) of this section. ~~Send a letter to the applicant stating that the local agency or the State Board or Regional Board will treat the information as such unless the local agency or the State Board or the Regional Board is instructed otherwise by a court within 10 days of the date of the letter.~~

(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 regarding which a final determination has not been made, 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 should be filed with the remainder of the 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 only in connection with the State Board's, the regional board's or local 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 ~~obtain~~ prevent ~~prevention of~~ disclosure of information pursuant to other provisions of law.

Authority: H&SC 25288.2

Reference: H&SC 25283.6

APPENDIX I, TABLE A
SUGGESTED SPECIFICATIONS APPLICABLE TO REGULATORY REQUIREMENTS

SECTION NUMBER		
2631(j)(1)	ASTM D-814,	"Rubber Property - Vapor Transmission of Volatile Liquids"
2631(j)(2)(A)	ASTM D-543,	"Resistance of Plastics to Chemical Reagents"
2631(j)(2)(B)	ASTM D-751,	"Coated Fabrics"
2631(j)(2)(C)	ASTM D-2240,	"Rubber Property - Durometer Hardness"
2631(j)(2)(D)	ASTM D-2684,	"Determining Permeability of Thermoplastic Containers"
2635(b)(1)	ASME,	"ASME Pressure Vessel Code, Section VIII, Division T, Boiler and Pressure Vessel Code"
	UL58,	"Steel Underground Tanks for Flammable and Combustible Liquids"
	UL1316,	"Glass Fiber Reinforced Plastic Underground Storage Tanks for Petroleum Products"
	ULC-3615-1977,	"Standard for Reinforced Plastic Underground Tanks for Petroleum Products"
2635(b)(2)	ASTM G-1-72,	"Standard Recommended Practice for Preparing, Cleaning, and Evaluating Test Specimens"
	ASTM G-31-72,	"Standard Recommended Practice for Laboratory Immersion Corrosion Testing of Metals"
	ASTM D-4021-81,	"Standard Specifications for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks"
	NACE TM-10-69,	"Laboratory Corrosion Testing of Metals for the Processing Industry"
	NACE TM-02-70,	"Method for Conducting Controlled Velocity Laboratory Corrosion Tests"
2661(c)(2)(B)	API 1631,	"Recommended Practice for the Interior Lining of Existing Steel Underground Storage Tanks"

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6. Draft regulation package as adopted by the SWRCB and disapproved by OAL

a. Transmittal memo to OAL and Face Sheet dated March 1, 1985

State of California

Submit File Copy

Memorandum

To : Linda Stoddale Brewer, Director
Office of Administrative Law
1414 K Street, Suite 600
Sacramento, CA 95814

Date : MAR 1 1985

From : STATE WATER RESOURCES CONTROL BOARD

Subject: SUBMISSION OF REGULATIONS GOVERNING UNDERGROUND STORAGE OF HAZARDOUS SUBSTANCES TO BE CODIFIED IN SUBCHAPTER 16 OF CHAPTER 3 OF TITLE 23 OF THE CALIFORNIA ADMINISTRATIVE CODE

On January 18, 1985, the State Water Resources Control Board (State Board) adopted regulations governing underground storage of hazardous substances pursuant to a Notice of Proposed Rulemaking published in the California Administrative Notice Register (Register) on August 24, 1984. Attached please find a copy of State Board Resolution Number 85-6, seven copies of the regulations adopted by that resolution, and a copy of the rulemaking file, as required by Government Code Section 11347.3.

Section 25299.3 of the Health and Safety Code [formerly Section 25288.2] directs the State Board to develop regulations which implement, interpret, and make specific the standards applicable to underground storage of hazardous substances pursuant to Chapter 6.7 of Division 20 of the Health and Safety Code [Underground Storage of Hazardous Substances, commencing with Section 25280]. These regulations contain requirements for underground storage tank construction and closure, monitoring alternatives, performance standards for underground storage tank repairs, and procedures for categorical, and site-specific variances from the prescribed standards. These regulations will be implemented through permit programs administered by local agencies.

Cities and counties which, prior to January 1, 1984, had adopted ordinances implementing the statutory standards and were issuing permits for underground storage tanks are exempt from any obligation to implement the provisions of the regulations. However, a number of cities and counties did not adopt such ordinances and will be required to follow and use these regulations. The statutory deadline for local agencies and existing underground storage tank owners to implement either the specified provisions of the statute or these regulations is July 1, 1985. The local agencies need these regulations as soon as possible to implement a regulatory program by the deadline. Therefore, the State Board asks that your staff accelerate its review of the regulations and that you grant the State Board's request for an immediate effective date on approval.

The State Board will notify local agencies implementing the underground tank program and affected underground storage tank owners that the regulations are in effect and alert them to the July 1, 1985 deadline. The State Board can use its extensive mailing list of all local agencies and interested

parties with respect to underground storage tanks for notification. The State Board also has the statewide underground storage container inventory from which underground storage tank owners can be notified. Local agencies have the means to notify underground storage tank owners through building permits and contact with trade associations. An early effective date for the regulations will greatly enhance the tank owners' ability to comply with the statutory deadline of July 1, 1985. Early availability of the regulations will facilitate local implementation as well as provide consistency and certainty to underground storage tank owners and operators.

Attached to this memorandum is an index to the rulemaking file. Please note that the rulemaking file incudes ancillary correspondence which was received after the various comment periods were closed or which was not relevant to issues related to the proposed rulemaking. Comments in such ancillary correspondence were not summarized or addressed in the final Statement of Reasons. Subsection 2672(c)(4) of the regulations as adopted on January 18, 1985 is not submitted to OAL at this time. In response to comments processed after the State Board adopted Resolution Number 85-6, staff will recommend amendment of the adopted regulations to delete requirements that deeds be altered to notify subsequent purchasers of the existence of closed underground storage tanks.

The State Board's formal rulemaking process has taken over six months and has involved two public hearings, a Board workshop, a public meeting, and an extensive amount of public participation, including six informal workshops with interested parties.

Please review this rulemaking package as required by Government Code Section 11349.1. If you have any questions regarding this matter, do not hesitate to call me at 445-1553, or John W. Richards of the State Board's Office of the Chief Counsel at 322-7732.

Michael A. Campos
Executive Director

Attachments

bcc: Board Members
Mike Campos
Walt Pettit
Bill Attwater

DWQ/pd

STATE OF CALIFORNIA
STD. 400 (7-82)

(See instructions on reverse)

FACE SHEET

(OAL-4)

FOR FILING ADMINISTRATIVE REGULATIONS WITH THE OFFICE OF ADMINISTRATIVE LAW

1. The attached are true and correct copies of regulations adopted, amended or repealed by:

State Water Resources Control Board
(Agency)

By: [signature]
(Agency Officer with Rule-making Authority)
Michael A. Campos, Executive Director

(Date)

LEAVE BLANK

LEAVE BLANK

AGENCY CONTACT PERSON AND POSITION: John W. Richards, Staff Counsel

TELEPHONE: 322-7732

2. Indicate California Administrative Code Title and specify sections to be amended, adopted, and/or repealed:

Title: 23

SECTIONS AMENDED:

SECTIONS ADOPTED: 2610-2714

SECTIONS REPEALED:

3. Type of Order:

a. [x] Regular b. [ ] Emergency (Attach Finding of Emergency)

c. Other Regulatory Actions:

[ ] Certificate of Compliance [ ] Procedural and Organizational Changes [ ] Editorial Correction [ ] Authority and Reference Citation Changes

d. How many of the regulatory changes in this order are the result of the agency's review of existing regulations? (See instructions in Part 3 on reverse.)

[ ] All [ ] Some [x] None

e. Is this order a resubmittal of previously disapproved or withdrawn regulations?

[ ] Yes [x] No

f. Do these regulations contain building standards as defined in Section 18909 of the Health and Safety Code?

[ ] Yes [x] No

g. Are these fire and panic safety regulations requiring state Fire Marshal approval?

[ ] Yes [x] No (If yes, attach State Fire Marshal approval)

h. For Conflict of Interest Regulations only

[ ] Contains FPPC approval stamp

4. Effective date of regulatory changes: (See Government Code Section 11346.2 and instructions on reverse)

a. [ ] Effective on the 30th day after filing with the Secretary of State.

b. [ ] Effective on _____ as required by statutes: (list) _____

c. [x] Effective on Approval (Designate effective date *earlier than* 30 days after filing with the Secretary of State pursuant to Government Code Section 11346.2(d).)

[x] Required statement attached (See cover letter)

d. [ ] Effective on _____ (Designate effective date *later than* 30 days after filing with the Secretary of State.)

INSTRUCTIONS FOR STD 400

(OAL-4)

Instructions for completing the Face Sheet for transmitting copies of regulations to the Office of Administrative Law for filing with the Secretary of State.

Part 1. Provide agency/department name, the signature of the agency officer with rule-making authority, and the date of submittal. Provide also the name of the agency contact person and agency telephone number.

Part 2. In the space provided indicate the Administrative Code Title of the regulations and list the sections to be amended, adopted, and/or repealed. (Attach additional sheets if necessary.)

Part 3. Check the appropriate box to indicate the type of order submitted. If other than a regular or emergency filing is submitted, check the appropriate box under "Other Regulatory Action." Note: Orders designated as Procedural and Organizational Changes, Editorial Corrections and Authority and Reference Citation Changes must all be reviewed by OAL and are subject to OAL approval.

If the regulation order contains changes which are a result of the review of existing regulations, the agency should clearly designate those portions of the order. This may be indicated in Part 2 of this Face Sheet or in a cover memo.

Part 4. Effective dates—check:

a. If regulations are to be effective 30 days after filing with the Secretary of State.

b. If an effective date other than a. is required by statute, provide the date and the statutory citations.

c. If an effective date earlier than a. is being requested under Government Code Section 11346.2(d), this file must contain a statement indicating why the early effective date is necessary; what steps if any the agency will take to notify affected persons; how affected persons will otherwise receive notice of the effective date; and the impact if any which the earlier effective date will have on the ability of affected persons to comply with the regulations.

d. If an effective date later than a. is requested, provide the date.

Filing Requirements

The following material must be submitted when filing regulations with OAL:

- Seven (7) copies of the regulations in underline/strikeout format with authority and reference citations beneath each regulation.
- A completed Face Sheet for Filing Regulations With the Office of Administrative Law, form STD 400 (OAL-4), attached to the front of each copy, with at least one Face Sheet containing an original signature.
- Complete rule-making file, with index and sworn statement, as required by Government Code Section 11347.3.

Rule-making file contents:

(1) Any copies of petitions received from interested persons proposing the adoption, amendment or repeal of the regulation.

(2) All published notices of proposed adoption, amendment, or repeal of the regulation.

(3) All of the requirements of Government Code Section 11346.7, including:

(a) An initial statement of reasons for proposing the adoption or amendment of a regulation;

(b) A final statement of reasons with a summary of objections or comments, together with the agency's response to the objections or comments; and

(c) An updated informative digest containing a clear and concise summary of already existing laws and regulations and the effect of the adopted, amended or repealed regulation.

(4) All data and other factual information, any studies or reports and written comments submitted to the agency in connection with the adoption, amendment, or repeal of the regulation.

(5) All data and other factual information, technical, theoretical, and empirical studies or reports, if any, upon which the agency is relying in the adoption, amendment, or repeal of a regulation.

(6) A transcript, recording or minutes of any public hearing connected with the adoption, amendment, or repeal of the regulation.

(7) Any other information, statement, report or data which the agency is required by law to consider or prepare in connection with the adoption, amendment, or repeal of a regulation, including a copy of the version of the regulations made available for public comment if different from the regulations as adopted.

b. SWRCB Resolution No. 85-6, dated January 18, 1984

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 85- 6

ADOPTION OF REGULATIONS GOVERNING STORAGE OF HAZARDOUS SUBSTANCES IN UNDERGROUND STORAGE TANKS TO BE CODIFIED IN SUBCHAPTER 16 OF CHAPTER 3 OF TITLE 23 OF THE CALIFORNIA ADMINISTRATIVE CODE (23 CAC SECTIONS 2610-2714)

WHEREAS:

1. Chapter 6.7 (commencing with Section 25280) was added to Division 20 of the Health and Safety Code by Chapter 1046 of the Statutes of 1983 (AB 1362, Sher).

2. Chapter 6.7 establishes standards for construction, repair, closure, and monitoring of underground storage tanks used for storage of hazardous substances and requires reporting of unauthorized releases. Chapter 6.7 was amended and recognized by Chapters 1038, 1537, and 1584 of the Statutes of 1984 (AB 3565, 3447, and 3781, Sher).

3. Sections 25299.3 of the Health and Safety Code directs the State Board to "develop regulations implementing the standards of Sections 25291, 24292, 25294, 25295, 25296, 25298, and 25299.4" by January 1, 1985.

4. Section 25299.3 of the Health and Safety Code authorizes the State Board to develop regulations implementing Sections 25287, 25290, and 25293.

5. A Notice of Proposed Rulemaking describing proposed regulations governing underground storage tanks was published in the California Administrative Notice Register on August 24, 1984. Over 3,000 copies of the notice, and over 2,000 copies of the proposed regulations and Initial Statement of Reasons were distributed to interested persons and organizations.

6. Staff held a series of informal workshops in August and September 1984 to solicit input from the regulated community.

7. The State Board held a public hearing on October 23, 1984 and a workshop on November 2, 1984 to hear testimony and discuss the comments of interested persons. Over 158 persons submitted written comments and 36 persons testified at the hearing.

8. A draft of the proposed regulations, as modified to reflect many of the comments received, was made available to the public on November 9, 1984 and additional comments were solicited. The State Board held a second public hearing on November 27, 1984.

9. Staff has further modified the text of the proposed regulations in response to comments received. This text was made available to the public before the end of 1984, more than 15 days before date of this Board Meeting, for review and comments.

10. All modifications are sufficently related to the text made available to the public in the Notice published on August 24, 1984 that there was adequate notice to the public that the modifications could have resulted from the original proposed regulations through the rulemaking process.

11. Staff has proposed non-substantive editorial changes in the final text of the proposed regulations. A list of these changes was made available at the Board Meeting held on January 18, 1985.

THEREFORE BE IT RESOLVED:

1. That the proposed regulations governing storage of hazardous substances in underground storage tanks, as modified and attached to this resolution as Attachment 1, be adopted and codified as Subchapter 16 of Chapter 3 of Title 23 of the California Administrative Code (23 CAC Sections 2610-2714, together with Appendix I).

2. That the Executive Director transmit the proposed regulations as adopted to the Office of Administrative Law, together with the final Statement of Reasons and a copy of the State Board's rulemaking file.

CERTIFICATION

The undersigned, Executive Director of the State Water Resources Control Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on January 18, 1985.

Michael A. Campos
Executive Director

c. Text of draft regulations adopted by the SWRCB on January 18, 1985

UNDERGROUND TANK REGULATIONS

CALIFORNIA ADMINISTRATIVE CODE
TITLE 23 WATERS
CHAPTER 3 WATER RESOUORCES CONTROL BOARD
SUBCHAPTER 16 UNDERGROUND TANK REGULATIONS

JANUARY 18, 1985

Article 1	General
Article 2	Definition of Terms
Article 3	New Underground Storage Tank Construction and Monitoring Standards
Article 4	Existing Underground Storage Tank Monitoring Standards
Article 5	Release Reporting Requirements
Article 6	Allowable Repairs
Article 7	Closure Requirements
Article 8	Categorical and Site-Specific Variances
Article 9	Local Agency Additional Standards Request Procedures
Article 10	Permit Application, Annual Report, and Trade Secret

UNDERGROUND TANK REGULATIONS

CALIFORNIA ADMINISTRATIVE CODE
TITLE 23 WATERS
SUBCHAPTER 16 UNDERGROUND TANK REGULATIONS

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Article 1. General

Adopt new section to read:

2610. Applicability

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

(b) Persons who own one or more underground storage tanks storing hazardous substances shall comply with these regulations except as provided in Section 2611 of this article. If the operator of the underground storage tank 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; implement reporting procedures as required by the permit; and properly close the underground storage tank as required by the permit.

(c) Counties shall implement the regulations in this subchapter within both the incorporated and unincorporated areas of the county through the issuance of permits to underground storage tank owners. A permit may be issued for each underground storage tank, several underground storage tanks, or for a facility. A city may, by ordinance, assume the responsibility for implementing the provisions of this subchapter within its boundaries.

(d) All owners of underground storage tanks subject to these regulations must comply with the construction and monitoring standards of Article 3 (new underground storage tanks) or the monitoring standards of Article 4 (existing underground storage tanks) of this subchapter. However, owners of existing underground storage tanks which meet the construction and monitoring standards of Article 3 of this subchapter may be issued permits pursuant to the standards of Article 3 in lieu of the standards of Article 4 of this subchapter. In addition, all owners and/or operators of underground storage tanks subject to this subchapter must comply with the release reporting requirements of Article 5 of this subchapter, the repair requirements of Article 6 of this subchapter, the closure requirements of Article 7 of this subchapter, and the permit application requirements of

Article 10 of this subchapter.

Authority: Health and Safety Code (H&SC) 25299.3

Reference: Health and Safety Code (H&SC) 25283, 25284, 25299.1, 25299.3

Adopt new section to read:

2611. Exemptions

(a) The owners of underground storage tanks that meet any of the following conditions shall be exempt from the provisions of this subchapter.

(1) Underground storage tanks that are located within the jurisdictions of counties or cities where the county or city had, prior to January 1, 1984, adopted an ordinance which, at a minimum, implements the requirements of Subchapter 6.7 of Division 20 of the Health and Safety Code pertaining to construction and monitoring standards for new and existing underground storage tanks provided that:

(A) The ordinance, as it may be amended, continues to meet, at a minimum, the requirements of Chapter 6.7 of Division 20 of the Health and Safety Code; and

(B) The county or city issues permits for underground storage tanks pursuant to the ordinance.

(2) 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 Health Services pursuant to Section 25200 of the Health and Safety Code or granted interim status under Section 25200.5 of the Health and Safety Code.

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

Authority: H&SC 25299.3

Reference: H&SC 25281, 25299.1

Article 2. Definition of Terms

Adopt new section to read:

2620. Applicability of Definitions

(a) Terms used in this subchapter 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 2621 of this article.

(b) The following terms are defined in the appropriate section of Chapter 6.7 of Division 20 of the Health and Safety Code:

Board

Department

Facility

Hazardous substance

Local agency

Operator

Owner

Person

Pipe

Primary containment

Product-tight

Secondary containment

Single-walled

Special inspector

Storage/store

Unauthorized release

Underground storage tank

Authority: H&SC 25299.3

Reference: H&SC 25281, 25282, 25291

Adopt new section to read:

2621. Additional Definitions

The following definitions shall apply to terms used in this subchapter.

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

"Double-walled tank" means a container with two complete shells which provide both primary and secondary containment. The outer shell must provide structural support and must be constructed primarily of non-earthen materials including, but not limited to, concrete, steel, and plastic.

"Existing underground storage tank" means any underground storage tank that is not a new underground storage tank. The term includes any underground storage tank which has contained a hazardous substance in the past and, as of January 1, 1984, had the physical capability of being used again (i.e., it had not been removed or completely filled with an inert solid.

"Membrane liner" means any membrane sheet material fabricated

into a system for secondary containment.

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

"Membrane liner fabricator" means the company which converts the liner membrane sheeting 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 product which is intended to be used primarily to fuel motor vehicles or fuel an engine.

"New underground storage tank" means any underground storage tank subject to this subchapter which is installed after the effective date of this subchapter or complies with the requirements of Article 3 of this subchapter; or was installed after January 1, 1984, and before the effective date of this subchapter pursuant to a permit issued by the local agency implementing the provisions of Chapter 6.7 of Division 20 of the Health and Safety Code relating to new underground storage tanks.

"Substantially beneath the surface of the ground" means that at least 10 percent of the underground storage tank volume, including connected piping, is below the ground surface.

"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.

Authority: H&SC 25299.3

Reference: H&SC 25281, 25282, 25283

Article 3. New Underground Storage Tank Construction and Monitoring Standards

Authority: H&SC 25299.3

Reference: H&SC 25281, 25291

Adopt new section to read:

2630. Applicability

(a) This article contains statewide minimum standards for the construction, installation, and monitoring of new underground storage tanks that contain hazardous substances.

(b) Sections 2631 and 2632 of this article specify construction and monitoring standards for all new underground storage tanks. New underground storage tanks that only store motor vehicle fuels may be constructed and monitored pursuant to the standards specified in Sections 2633 and 2634 of this article in lieu of those specified in Sections 2631 and 2632 of this article, respectively. However, if the construction standards in Section 2633 of this article are used, then the monitoring standards of Section 2634 of this article must also be used.

(c) All new underground storage tanks and secondary containers must comply with Section 2635 of this article.

Adopt new section to read:

2631. Construction Standards for New Underground Storage Tanks

(a) Primary and secondary levels of containment shall be required for all new underground storage tanks used for the storage of hazardous substances as defined in Article 2 of this subchapter.

(b) All primary containers shall be product-tight.

(c) All secondary containers shall be constructed of materials of sufficient thickness, density, and composition to prevent structural weakening of the secondary container as a result of contact with any released hazardous substance and shall be capable of containing any unauthorized release of the hazardous substance stored within the primary container(s) for at least the maximum anticipated period sufficient to allow detection and removal of the unauthorized release.

(d) If a hazardous substance has come into contact with the secondary container and either additional primary containers exist within the secondary container or the leaking primary container is repaired as specified in Article 6 of this

subchapter or closed as specified in Article 7 of this subchapter and replaced by a new primary container, the owner shall demonstrate to the satisfaction of the local agency that the requirements of Subsection (c) of this section are still achievable or replace the secondary container.

(e) The secondary container shall have the ability to contain the following volumes:

(1) At least 100 percent of the volume of the primary container where only one primary container is within the secondary container.

(2) In the case of multiple primary containers within a single secondary container, the secondary container shall be large enough to contain 150 percent of the volume of the largest primary container placed in it, or 10 percent of the aggregate internal volume of all primary containers in the secondary container, whichever is greater.

(f) If the secondary container is open to rainfall, then it shall be able to accommodate the volume of precipitation which could enter the secondary container during a 24-hour,

100-year storm in addition to the volume of hazardous substance storage required in Subsection (e) of this section.

(g) The volumetric requirements for the pore space of a granular material placed in the secondary container as backfill for the primary container shall be equal to or greater than that required in Subsection 2631(e) of this section. The available pore space in the secondary container backfill shall be determined using appropriate engineering methods and safety factors and shall consider the specific retention and specific yield of the backfill material, the location of the primary container within the secondary container, and the proposed method of operation for the secondary container.

(h) The secondary container shall be equipped with a collection system to accumulate, temporarily store, and permit removal of any precipitation, subsurface infiltration, or hazardous substance released from the primary container.

(i) The floor of the secondary container 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 covered with a locked waterproof cap. If this access casing is within a secured facility, the requirements for a locked cap may be waived by the local agency. The casing shall be thick enough 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.

(j) Systems for secondary containment utilizing membrane liners shall meet the following requirements:

(1) The membrane liner shall have a permeability factor of 0.25 ounces per square foot per 24 hours or less. Such permeability shall constitute the maximum rate of transport over time of the hazardous substance proposed for storage. Permeability shall be evaluated according to accepted engineering practices for materials testing. Acceptable methods for determining the permeability are provided in Appendix I of this subchapter.

(2) The membrane liner shall be considered to have

satisfied the requirements of Subsection 2631(c) of this section only if the liner material meets the following standards. The material properties specified in these standards shall be determined using accepted engineering practices for materials testing. Acceptable methods for determining these properties are provided in Appendix I of this subchapter.

(A) The volume swell after a 24-hour period of immersion in the stored hazardous substance shall not exceed 3 percent of the original liner membrane material thickness.

(B) The maximum change in elongation of the liner membrane material at break after 24 hours of immersion in the stored hazardous substance shall not exceed 2 percent of the original elongation.

(C) The liner membrane material Shore A hardness (brittleness) after 24 hours of immersion in the hazardous substance shall be within 5 percent of the original hardness.

(D) For a containment test, the rate of transport through the liner membrane material of the

hazardous substance after a period of 24 hours shall not exceed 6 percent by weight of the hazardous substance being tested. The liquid height for the test shall be no greater than that expected in actual site conditions.

(E) The rate of solubility of the liner membrane material in the hazardous substance for a period of 24 hours shall not exceed 0.1 percent by weight of the section of liner being tested.

(3) The liner seam strength shall be equal to the tensile strength of the parent material when tested in accordance with accepted engineering practices for materials testing. Acceptable methods for determining the liner seam strength are provided in Appendix I of this subchapter.

(k) The liner shall be installed under the supervision of a representative of the membrane liner fabricator or a contractor certified by such fabricator.

(l) The excavation base and walls for the synthetic liner shall be prepared to the liner fabricator's specifications and shall be firm, smooth, and free of any sharp objects or

protrusions.

(m) Laminated, coated, or clad materials shall be considered single walled and shall not be construed to fulfill the requirements of both primary and secondary containment.

(n) Double-walled underground storage tanks which satisfy the construction standards of Sections 2631(b) and (c) of this article shall be considered to fulfill the volumetric requirements for secondary containment specified in Section 2631(e)(1) of this article.

(o) The design of double-walled underground storage tanks shall allow for monitoring of the annular space.

(p) "Sticking" the annular space of a double-walled underground storage tank as a monitoring method shall not be allowed unless a strike plate or other approved devices used to protect the underground storage tank are located directly under the monitoring opening.

(q) The double-walled underground storage tank shall be so designed and installed that any loss of hazardous substance from the primary container will drain to a specific location within the annular space, as required, to be detected by a

monitoring device or method.

(r) Any special accessories, fitting, coating, or lining not inherent within the initial design of the primary container or double-walled underground storage tank shall be approved by a nationally recognized, independent testing organization or a demonstration of integrity with the primary container or double-walled underground storage tank shall be required by the local agency.

(s) All primary containers and double-walled underground storage tanks subject to floatation shall be weighted or anchored using methods specified by the manufacturer or, if none exist, best engineering judgment.

Authority: H&SC 25299.3

Reference: H&SC 25281, 25291

Adopt new section to read:

2632. Monitoring Standards for New Underground Storage Tanks

(a) This section is applicable only to those underground storage tanks constructed pursuant to the standards of Section 2631 of this article.

(b) The owners or operators of underground storage tanks subject to this section shall implement a monitoring program that is approved by the local agency and required in the permit. The program shall utilize one or more of the methods described in Subsection (c) of this section and shall address the items listed in Subsection (d) of this section.

(c) Monitoring of the space between the primary and secondary container shall utilize either visual monitoring of the primary container as described in Subsection (1) of this subsection or one or more of the methods listed in Subsection (2) of this subsection.

(1) A program which relies on the visual monitoring of the primary container shall incorporate all of the following:

(A) Provisions that all exterior surfaces of the underground storage tank and the surface of the floor directly beneath the underground storage tank shall be monitored by direct viewing.

(B) Visual inspections shall be performed daily, except on weekends and recognized state and/or federal holidays, and may be more frequent if required by the local agency. 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 tank are very infrequent. In these instances, the minimum frequency shall be no less then once per week and shall take into account the minimum anticipated time which the secondary container is capable of containing any unauthorized release and the maximum length of time any hazardous substance released from the primary container will remain observable on the surface of the secondary container. The inspection schedule shall be established such that inspections occur on a routine basis when the liquid level in the underground storage tank is at its highest. The inspection frequency shall be

selected such that any unauthorized release will remain observable on the exterior of or the surface immediately beneath the underground storage tank between visual inspections. The evaluation of how long the hazardous substance remains observable shall consider the volatility of the hazardous substance and the porosity and slope of the surface immediately beneath the underground storage tank.

(C) The recordation of the liquid level in the underground storage tank at the time of inspection.

(D) The observation of any liquid on the exterior of or the surface immediately beneath the underground storage tank being visually monitored shall cause the owner or operator to implement all or a portion of the following actions. The applicable actions and their timing shall be based on the site-specific situation, be intended to determine if the observed liquid constitutes an unauthorized release, and shall be included in the permit.

(i). Laboratory or field analysis of the

observed liquid.

(ii) Testing of the underground storage tank utilizing the procedures described in Section 2643 of Article 4 of this subchapter.

(iii) Removal of all hazardous substances from the underground storage tank and the secondary container (as specified in Subsection [d] of this section).

(2) A program which relies on detecting the hazardous substance in the space between the primary and secondary container shall utilize one or more of the methods provided in Table 3.1 of this article. The following requirements shall apply when appropriate.

Table 3.1

Methods of Monitoring for Hazardous Substances in the Secondary Container

Condition of the Secondary System [1]	Type of Substance Stored	Methods of Monitoring: 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	X
Wet	Nonvolatile	X	X		X

[1] A "dry" system does not contain liquid within the secondary container during normal operating conditions while a "wet" system does.

[2] Includes: continuously operated mechanical or electronic devices; manual determinations using mechanical, electronic, or "stick" readings; or visual determinations to detect the presence of any liquid in "dry" systems or a change in liquid levels in "wet" systems.

[3] Includes either qualitative or quantitative determinations of the presence of the hazardous substance.

[4] Primarily used for double-walled underground storage tanks to detect changes in pressure or vacuum between primary and secondary container. The use of pressure or vacuum must be approved as part of the primary and secondary container approval by a nationally recognized, independent testing organization.

(A) Continuous monitoring devices shall be connected to an audible/visual alarm system.

(B) Manual monitoring shall be performed daily except on weekends and recognized state and/or federal holidays. Manual monitoring may be required on a more frequent basis as specified by the local agency.

(C) For methods of monitoring where the presence of the hazardous substance is not determined directly (i.e., liquid level measurements), the monitoring program shall specify the proposed method(s) for determining the presence of the hazardous substance if the indirect methods indicate a possible unauthorized release.

(d) All monitoring programs shall include the following:

(1) A written routine monitoring procedure which includes, when applicable: the frequency of performing the monitoring method, the methods and equipment to be used for performing the monitoring, the location(s) from which the monitoring will be performed, the name(s) or title(s) of the person(s) responsible for performing the monitoring and/or maintaining the equipment, and

the reporting format.

(2) A response plan developed by the permit applicant which demonstrates, to the satisfaction of the local agency, that any unauthorized release will be removed from the secondary container within the shortest possible time and no longer than the time consistent with the ability of the secondary container to contain the hazardous substance. 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 the hazardous substance, 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) or title(s) of the person(s) responsible for authorizing the work to be performed.

Authority: H&SC 25299.3

Reference: H&SC 25281, 25291

Adopt new section to read:

2633. Construction Standards for New Motor Vehicle Fuel Underground Storage Tanks

(a) This section specifies alternate construction standards for new underground storage tanks which only contain motor vehicle fuels. This section may be utilized by permit applicants in lieu of Section 2631 of this article. If this section is used in lieu of Section 2631 of this article, then the monitoring standards specified in Section 2634 shall be used in lieu of those specified in Section 2632 of this article.

(b) Primary containers used for the underground storage of motor vehicle fuel and constructed under this section shall be composed of glass-fibre reinforced plastic, cathodically protected steel, or steel clad with glass fibre reinforced plastic and be installed in conjunction with the leak interception and detection system decribed in Subsections (d) through (f) of this section.

(c) Primary containers used for the underground storage of motor vehicle fuel and constructed of materials other than those specified in Subsection 2633(b) of this article shall be

subject to the requirements of Sections 2631 and 2632 of this article.

(d) The permit applicant shall demonstrate to the satisfaction of the local agency that the leak interception and detection system achieves the criteria of Section 2631(c) of this article.

(e) Methods of construction for the leak interception and detection system for utilizing membrane liners shall be considered to have satisfied the requirements of 2631(c) if, and only if, the liner material meets the following standards:

(1) The membrane liner material shall have the permeability factor specified in Subsection 2631(j)(1) of this article as tested against ASTM Reference Fuel B.

(2) The membrane liner material shall be suitable for containment of the motor vehicle fuel in that such material shall meet the criteria set forth in Subsections 2631(j)(2)(A) through (E) of this article as tested against the motor vehicle fuel to be stored considering its variability or against ASTM Reference Fuel B.

(3) The membrane liner shall meet the requirements set forth in Subsection 2631(j)(3) of this article.

(4) The liner has been installed under the supervision of a representative of the membrane liner fabricator or a contractor certified by such fabricator.

(5) The excavation base and walls which will come into contact with the synthetic liner shall be prepared to the liner fabricator's specifications and shall be firm, smooth, and free of any sharp objects and protrusions.

(f) The leak interception and detection system and the response plan shall preclude the contact of any leaked hazardous substance with ground water. At a minimum, the leak interception and detection system shall be above the highest anticipated ground water elevation. Proof that the leak interception and detection system and response plan will protect ground water must be demonstrated by the permit applicant to the satisfaction of the local agency. The requirement for this demonstration may be waived by the local agency for underground storage tanks that comply with the requirements of Subsections (e), (f), and (g) of Section

2631 of this article. The demonstration shall, at a minimum, 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 of this article and the maximum period during which the leak will occur;

(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 adsorb contaminants or allow vertical 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 to cleanup the hazardous substances which have been discharged from the primary container.

(g) Pressurized piping systems that are connected to an underground storage tank that is constructed pursuant to the requirements of this section and monitored pursuant to the requirements of Section 2634 of this article are exempt from the leak interception and detection system requirements of this section, provided that the pressurized piping system is monitored according to the appropriate section of Chapter 6.7 of Division 20 of the Health and Safety Code.

Authority: H&SC 25299.3

Reference: H&SC 25281, 25291

Adopt new section to read:

2634. Monitoring Standards for New Motor Vehicle Fuel Underground Storage Tanks

(a) Underground storage tanks used for the storage of motor vehicle fuel and constructed pursuant to the standards of Section 2633 of this article shall be monitored according to the requirements of the appropriate sections of Chapter 6.7 of Division 20 of the Health and Safety Code. In addition, monitoring of the leak interception and detection system shall be pursuant to Subsections (b), (c), and (d) of this section.

(b) The floor of the leak interception and detection system shall be constructed on a firm base and sloped to a collection sump.

(c) Access casing(s) shall be installed in the collection sump. The access casing shall be:

(1) Capable of allowing any liquid that may be moving along the upper surface of the leak interception and detection system to enter 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 substance nor donate, capture, nor 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 precluding leakage of any hazardous substance from the casing to areas outside of the leak interception and detection system; and

(6) Extended to the ground surface and 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 secure facility will satisfy the requirements for protection against unauthorized access and vandalism.

(d) Monitoring of the leak interception and detection system shall incorporate all of the following:

(1) The use of a continuous monitoring device connected to an audible/visual alarm system or manual monitoring performed daily, except on weekends and recognized state and/or federal holidays. Monitoring may be required more frequently by the local agency based on an assessment of the available volume of the leak interception and detection system and the accuracy of the proposed monitoring method. Approved methods of monitoring the leak interception and detection system include liquid level indicators, hazardous substance sensors, and vapor monitors as specified for volatile hazardous substances in Table 3.1 of this article.

(2) A written routine monitoring procedure which includes: the frequency of performing the monitoring method, the methods and equipment to be used for performing the monitoring, the location(s) from which the monitoring will be performed, the name(s) or title(s) of the person(s) responsible for performing the monitoring and/or maintaining the equipment, and the reporting format.

(3) For methods of monitoring where the presence of the hazardous substance is not determined directly (i.e., liquid level measurements), the monitoring program shall specify the proposed method(s) for determining the presence of the hazardous substance if the indirect method indicates the possible presence of the motor vehicle fuel.

(e) A response plan for an unauthorized release shall be developed prior to installation for any leak interception and detection system which does not meet the volumetric requirements of Subsections 2631(e), (f), and (g) of this article. For those underground storage tanks that meet the volumetric requirement of Subsections 2631(e), (f), and(g) of this article, the local agency shall require the owner to develop a plan pursuant to the requirements of Subsection 2632(d)(2) of this article. 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 must provide containment in relation to the period of time between detection of an unauthorized release and cleanup of the leaked materials;

(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 allow vertical movement of contaminants; and

(5) The methods and scheduling for removing all of the hazardous substances which 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: H&SC 25299.3

Reference: H&SC 25281, 25299.1

Adopt new section to read:

2635. General Construction Standards

(a) The following subsections shall apply to all primary and secondary containers including leak interception and detection systems.

(b) Primary containers and double-walled underground storage tanks shall be designed and constructed to comply with all of the following:

(1) Cathodically protected steel underground storage tanks, steel underground storage tanks clad with glass fibre-reinforced plastic, and glass fibre plastic underground storage tanks shall be fabricated and designed to standards developed by a nationally recognized independent testing organization or be listed by the testing organization. Applicable design standards shall include, but are not limited to, those provided in Appendix I of this subchapter.

(2) Underground storage tanks shall be tested by the manufacturer or an independent testing organization for durability and chemical compatibility with the

hazardous substances to be stored using recognized engineering practices for materials testing. Acceptable methods for determining durability and chemical compatibility with the hazardous substances are provided in Appendix I of this subchapter.

(3) Except for steel underground storage tanks, a wear plate (striker plate) shall be centered under all accessible openings of the underground storage tank. The plate shall be constructed of steel or, if the steel is not compatible with the hazardous substance stored, a material resistant to the stored hazardous substance. The width of the plate shall be at least 9 inches wide and have an area of 1 square-foot or 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 0.053 inch (1.35 mm), and those constructed of other materials (as required) shall be of sufficient thickness to provide equivalent protection. The plate shall be rolled to the contours of underground storage tank and bonded or seam welded in place.

(4) Single-walled primary containers of steel and the outer surface of double-walled underground storage tanks

constructed of steel, with or without coatings, shall be protected by a properly installed, maintained, and monitored cathodic protection system. Selection of the type of protection to be employed shall be based on a certification listing by a nationally recognized, independent testing organization or the judgment of a registered corrosion engineer or a National Association of Corrosion Engineers (NACE) accredited corrosion specialist taking into account the corrosion history of the area. Underground storage tanks with listed corrosion resistant materials, non-metalic reinforced plastic coatings, composites, or equivalent systems shall be holiday tested immediately prior to installation.

The protection system shall be inspected under the direction of a registered corrosion engineer or NACE corrosion specialist at the frequency specified in the certification or in accordance with the schedule prescribed by the system designer, but no less than semi-annually.

Underground storage tanks in a vault and not backfilled are exempted from the requirements of this subsection.

(5) All primary containers and double-walled underground storage tanks shall be installed according to the manufacturer's written recommendations or, if no written recommendations exist, best engineering practice.

(6) All underground storage tanks shall be tested before being put into service in accordance with the applicable sections of the Code under which they were built. The ASME code stamp or Listing Mark of Underwriters Laboratories, Incorporated, (UL) or any other nationally recognized independent testing organization shall be evidence of compliance with this requirement.

(7) Before being covered, enclosed, or placed in use, all underground storage tanks and piping shall be tested for tightness hydrostatically or 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). Pressure piping shall be hydrostatically tested to 150 percent of the maximum anticipated pressure of the system, or pneumatically tested to 110 percent of the maximum anticipated pressure of the system, but not less than 5 pounds per square inch (34.48 kPa) gauge at

the highest point of the system. This test shall be maintained for a sufficient time to complete visual inspection of all joints and connections, but for at least 10 minutes. In lieu of the above, a test using accepted engineering practices shall be used. Acceptable test methods for testing pipelines are provided in Appendix I. Double-walled underground storage tanks are exempt from the requirements of this section provided that the annular space is monitored using either pressure or vacuum testing.

(8) When required by the local agency, all underground storage tanks shall be equipped with an overflow protection system which includes the following elements:

(A) A spill catchment basin which surrounds the fill pipe and prevents the inflow of the hazardous substance into the subsurface environment. A level sensing device that continuously monitors and indicates the liquid level in the underground storage tank and either (B) or (C) of this subsection or both;

(B) An audible/visual alarm system triggered by a

liquid level sensor to alert the operator of an impending overfill condition; or

(C) An automatic shut-off device that stops the flow of product being delivered to the underground storage tank when the underground storage tank is full.

(9) The overflow protection system required in Subsection (b)(8) of this section shall be waived for underground storage tanks containing motor vehicle fuels in which a spill catchment basin surrounds the fill pipe and prevents the inflow of the motor vehicle fuel into the subsurface environment and:

(A) Both the fluid level is visually monitored and the filling operation is controlled by the facility operator during filling of the underground storage tank;

(B) The available capacity of the underground storage tank to be filled is determined immediately prior to filling to be at least 103 percent of the volume of the entire tank compartment to be delivered or the volume of the entire tank

compartment to be delivered plus 200 gallons, whichever is less, as determined by underground storage tank guaging; or

(C) The hazardous substance being delivered can be metered into the underground storage tank and the available underground storage tank capacity is determined immediately prior to filling.

(c) Secondary containers including leak interception and detection systems installed pursuant to Section 2633 of this article shall comply with all of the following:

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

(2) The secondary container must be capable of precluding the inflow of the highest ground water anticipated during the life of the underground storage tank into the space between the primary and secondary containers.

(3) If the space between the primary and secondary containers is backfilled, the backfill material shall not preclude the vertical movement of leakage from any part of the primary container.

(4) The secondary container and any backfill material between the primary and secondry containers shall be designed and constructed to promote gravity drainage of a leak of hazardous substances from any part of the primary container to the monitoring locations(s).

(5) Two or more primary containers shall not utilize the same secondary container if the primary containers 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 a primary or secondary container.

(6) Drainage of liquid from within a secondary container shall be controlled in a manner approved by the local

agency so as to prevent hazardous materials from being discharged. The liquid shall by analyzed to determine the presence of any of the hazardous substance(s) stored in the primary container prior to initial removal and monthly thereafter for any continuous discharge (removal) to determine the approriate method for final disposal. The liquid shall be sampled and analyzed immediately upon an indication of an unauthorized release from the primary container.

(7) For primary containers installed completely beneath the ground surface, the original excavation for the secondary container shall have a water-tight cover which extends at least 1 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. Double-walled underground storage tanks and open vaults are exempt from the requirements of this subsection.

(8) The actual location and orientation of the underground storage 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.

Authority: H&SC 25299.3

Reference: H&SC 25281, 25299.1

Article 4. Existing Underground Storage Tank Monitoring Standards

Adopt new section to read:

2640. Applicability

(a) All owners of existing underground storage tanks subject to this subchapter shall implement a visual monitoring or alternative monitoring system that complies with this article and is approved by the local agency by the compliance date in Chapter 6.7 of Division 20 of the Health and Safety Code. A local agency shall not issue a permit unless the monitoring system is capable of: determining the containment ability of the underground storage tank and detecting any active or future unauthorized releases. If the monitoring technique(s) selected is designed to detect the presence of the stored hazardous substance outside of the underground storage tank, then tests must be made to determine if the hazardous substance or any interfering constituents exist in the soil or backfill surrounding the underground storage tank. The failure to implement an approved monitoring system shall be cause for the local agency to require closure of the underground storage tank pursuant to Article 7 of this subchapter.

(b) The objectives of the monitoring program for existing underground storage tanks are: to detect unauthorized releases before ground water is affected. Ground water monitoring may be utilized as a primary means of monitoring when the ground water does not have actual or potential beneficial uses.

(c) All owners of existing underground storage tanks subject to this subchapter shall implement visual monitoring as described in Section 2642 of this article for all visible portions of the underground storage tank, whenever feasible. If the entire underground storage tank is not susceptible to visual monitoring but a significant portion of the underground storage tank can be visually monitored, that portion of the underground storage tank shall be monitored visually. Visual monitoring that can only be implemented during a portion of the year shall be utilized during those portions of the year. If visual monitoring cannot be implemented for the entire underground storage tank throughout the entire year, then one of the monitoring alternatives specified in Section 2641 of this article shall also be implemented. The monitoring alternative shall be operative during those times when visual monitoring is not feasible or for those portions of the underground storage

tank which are not susceptible to visual monitoring.

(d) All owners of existing underground storage tanks subject to this subchapter who are not able to implement visual monitoring as specified in Section 2642 of this article shall implement one of the monitoring alternatives specified in Section 2641 of this article.

(e) The monitoring methods and frequencies specified in each monitoring alternative listed in Section 2641 of this article are minimums. Local agencies, as a condition of approval of a specific monitoring alternative, shall require additional or more frequent monitoring if necessary to comply with the objectives specified in Subsection (b) of this section and Subsection (d) of Section 2641 of this article.

(f) Local agencies shall reduce the monitoring frequency for visual monitoring or a monitoring alternative listed in Section 2642 of this article in situations where environmental conditions make it impracticable, physically impossible, or life threatening to complete the required monitoring.

Authority: H&SC 25299.3

Reference: H&SC 25283, 25291, 25292

Adopt new section to read:

2641. Monitoring Alternatives

(a) All owners of existing underground storage tanks subject to this subchapter who cannot implement visual monitoring for the entire underground storage tank during all periods of the year shall implement, by the statutory deadline, one of the monitoring alternatives specified in Subsection (c) of this section.

(b) The local agency shall base its review of the proposed monitoring alternative on the specification contained in Subsection (d) of this section and shall approve the monitoring alternative if it finds that all aspects of the monitoring alternative can be implemented and that the monitoring alternative will satisfy the objectives listed in Subsection (b) of Section 2640 of this article. If the proposed monitoring alternative cannot be approved, then the local agency may request the submittal of another proposed monitoring alternative or may specify the implementation of another monitoring alternative.

(c) The optional monitoring alternatives are as follows:

(1) Underground Storage Tank Testing: This monitoring alternative shall, at a minimum, utilize the procedures specified in Section 2643 of this article and shall be performed monthly at a minimum.

(2) Vapor or Other Vadose Zone Monitoring and Ground Water Monitoring with Soil Sampling:

(A) This monitoring alternative shall, at a minimum, include vadose zone monitoring, ground water monitoring, and soil sampling. Soil sampling is required only at the time the boring(s) and well(s) are installed.

(B) The vadose zone monitoring program shall be designed and installed pursuant to the procedures specified in Sections 2646 and 2648 of this article. Vadose zone vapor monitoring shall be performed either continuously or daily, at a minimum. Other vadose zone monitoring shall be performed weekly, at a minimum.

(C) Ground water monitoring wells shall be designed and installed according to the procedures specified in Sections 2647 and 2648 of this

article and monitored semi-annually, at a minimum. The minimum number of wells shall be as specified on Table 4.1 of this section for Alternative 2. Analysis of samples collected shall be by visual observation, or field or laboratory analysis as determined by the local agency depending on the constituents being evaluated. The local agency shall require laboratory verification at periodic intervals if visual or field analysis cannot achieve levels of detection equivalent to laboratory analysis.

(D) The soil sampling and analysis shall be performed as specified in Sections 2645 and 2648 of this article. Samples shall be taken from all boring(s) and well(s) installed.

(3) Vadose Zone Monitoring, Soil Sampling, and Underground Storage Tank Testing:

(A) This monitoring alternative shall, at a minimum, include vadose zone monitoring and analysis of soil samples taken from the boring(s) made for vadose zone monitoring and tank testing. This alternative shall not be approved if first ground

TABLE 4.1 MONITORING ALTERNATIVES*

ALTERNATIVE	METHOD	MINIMUM MONITORING FREQUENCY	REFERENCE SECTION	COMMENTS AND CONDITIONS PROHIBITING USE OF ALTERNATIVE*
1	Tank Testing	Monthly	Section 2643	None
2	Vapor or Other Vadose Zone Monitoring Method	Daily/Continuous	Section 2646	1. Must be able to do both vadose and ground water monitoring. 2. Ground water should normally be less than 100 feet deep to use this alternative. 3. Minimum number of ground water monitoring wells: a. Ground water equal to or less than 50 feet deep.
	and Ground Water	Semi-annual	Section 2647	o Single or multiple tanks (all <1,000 gal, same or closely spaced excavations) - one downgradient well per tank minimum up to three wells.
	and Soils	One-Time	Section 2645	o Single tank (≥1,000 gal) - two wells minimum one of which shall be downgradient. o Two or three tanks (at least one ≥1,000 gal, same or closely spaced excavations) - three wells, minimum at least one of which shall be downgradient. o Four or more tanks (at least one ≥1,000 gal, same or closely spaced excavations) - four wells minimum, at least two of which shall be downgradient and the remainder equally spaced. Pipelines - additional wells, if needed, as determined by the local agency. b. Ground water greater than 50 feet deep. o Single tank -one downgradient well. o Multiple tanks or closely spaced tank excavations - three wells uniformly spaced, unless the ground water gradient can be accurately determined, in which case, one downgradient well. o Pipelines - additional wells, if needed, by the local agency.
3	Vadose	Daily/Weekly	Section 2646	This alternative shall not be used when first ground water is less than 100 feet deep and:
	and Soils	One-Time	Section 2645	1. First ground water has actual or potential beneficial uses (municipal, domestic, industrial, or agricultural supply); or
	and Tank Testing	Annual	Section 2643	2. First ground water is hydraulically connected to ground water which had or potentially has beneficial uses.

4	Ground Water and Soils	Monthly One-Time	Section 2647 Section 2645	1. Use of this alternative shall be limited to the following situations: a. Perennial ground water is normally less than 30 feet deep, and b. The ground water being monitored does not have any actual or potential beneficial uses (municipal, domestic, agricultural, or industrial supply), and c. The ground water being monitored is not hydraulically connected to ground water which has any actual or potential beneficial uses (municipal, domestic, agricultural, industrial supply), and d. The monitoring well can be screened in the area 10 feet above the highest perennial ground water level and 20 feet below the lowest ground water level. 2. Minimum number of ground water monitoring wells--See Section 3a. of Alternative No. 2.
5	Inventory Reconciliation and Tank Testing and Pipeline Leak Detectors	Daily Annual Continuous	Section 2644 Section 2643	1. Must use approved meters for tank inputs and and withdrawals. 2. Inventory reconciliation which exceeds an allowable measurement error plus 0.15 percent of throughput at any time during a 30-day period shall require further investigation: Tank Size — Allowable Measurement Error ≤4000 — 25 gallons 4000 to ≤ 8000 — 50 gallons 8000 to ≤12000 — 75 gallons ≥12000 — 100 gallons 3. Limited to motor vehicle fuels storage tanks.
6	Inventory Reconciliation and Tank Testing and Pipeline Leak Detectors and Soils and Vadose Monitoring or Ground Water Monitoring	Daily Annual Continuous Variable Variable	Section 2644 Section 2643 Section 2646 Section 2647	1. Must use approved meters for tank inputs and withdrawals. 2. Inventory reconciliation which exceeds any of the following shall require further investigation: a. Daily variation - ≥100 gallons b. Weekly variation - ≥5 percent of throughput but no greater than 350 gallons c. Monthly variation - ≥0.5 percent of throughput no less than 100 gallons 3. Minimum number of ground water wells--See Alternative No. 2. 4. Limited to motor vehicle fuels storage tanks.

7	Tank Gauging and Tank Testing	Weekly Annually	Section 2644 Section 2643	1. This alternative is limited to use on small tanks that do not have frequent input or withdrawals (e.g., standby generator fuel supply) and where the liquid level in the tank can be measured to the accuracy of + or -5 gallons. A liquid level difference of 1 percent of the tank volume or 5 gallons, whichever is less shall be cause for further investigation.
8	Tank Testing and Inventory Reconciliation or Tank Gauging	Annually Daily Daily or Weekly	Section 2643 Section 2644 Section 2644	1. This is an interim monitoring alternative that can be implemented for up to three years. 2. Inventory reconciliation shall utilize approved meters for inputs and withdrawals and shall maintain variations within the limits specified in Alternative No. 6. 3. Tank gauging is limited to use on tanks described in Alternative No. 7 and to those tanks that can eliminate inputs and withdrawals three times per week for 12 hours each. A liquid level difference of 1 percent of the tank volume but not greater than 50 gallons shall be cause for further investigation.

* This table is provided as a summary of the various monitoring alternatives.

Section 2641 shall be used to determine the actual requirements for each monitoring alternative.

water, including intermittent, perched ground water, is less than 100 feet deep and this ground water has actual or potential beneficial uses (domestic, municipal, agricultural, or industrial supply) or is hydraulically connected to ground and surface waters which has actual or potential beneficial uses.

(B) The determination that first ground water is significantly deeper than 100 feet shall be by an on-site boring(s) constructed according to the specifications in Subsection (p) of Section 2648 of this article or by evidence based on an evaluation pursuant to Subsection 2648(p) of this article.

(C) Vadose zone monitoring shall be designed and installed pursuant to the procedures specified in Sections 2646 and 2648 of this article. Vadose zone vapor monitoring shall be performed either continuously or daily, at a minimum. Other vadose zone monitoring shall be performed weekly, at a minimum.

(D) The soil sampling and analysis shall be performed

as specified in Section 2645 and 2648 of this article. Samples shall be taken from all borings installed.

(E) Underground storage tank testing shall be performed yearly at a minimum according to the procedures specified in Section 2643 of this article.

(4) Ground Water and Soil Testing:

(A) This monitoring alternative shall, at a minimum, utilize ground water sampling and analysis of soil samples taken at the time of well installation. This alternative shall not be approved if any of the following conditions exist:

(i) First ground water, including intermittent, perched ground water, is normally greater than 30 feet deep;

(ii) The ground water proposed for monitoring has actual or potential beneficial uses (domestic, municipal, industrial, or agricultural supply) or is hydraulically connected to ground or surface

water which has actual or potential beneficial uses, or

(iii) The ground water monitoring well cannot be perforated within the interval from 10 feet above the highest anticipated ground water level to 20 feet below the lowest perennial ground water level. The 10-foot requirement may be waived by the local agency if ground water is less than 10 feet deep. If the local agency waives this requirement, the well must still be capable of being perforated above the highest anticipated ground water level.

(B) Ground water monitoring wells shall be designed and installed according to the procedures specified in Sections 2647 and 2648 of this article and shall be monitored monthly, at a minimum. The minimum number of monitoring wells shall be as specified in Table 4.1 of this article for Alternative 4. Analysis of samples collected shall be by visual observation, or field or laboratory analysis as determined by the local agency depending on the constituents being evaluated. If visual observation or field

analysis is used, the local agency shall require periodic laboratory analysis if the visual observation or field analysis does not provide a degree of detection equal to that of laboratory analysis

(C) The soils sampling and analysis shall be performed as specified in Sections 2645 and 2648 of this article. Samples shall be taken from all wells installed.

(5) Inventory Reconciliation, Underground Storage Tank Testing, and Pipeline Leak Detectors

(A) This monitoring alternative shall, at a minimum, utilize inventory reconciliation, underground storage tank testing, and pipeline leak detectors. The use of this alternative is limited to those underground storage tanks which contain motor vehicle fuels.

(B) Inventory reconciliation shall be performed according to the procedures specified in Section 2644 of this article. The owner or operator of an underground storage tank that experiences a

inventory reconciliation in excess of allowable variation(s) shall implement the evaluation procedures specified in Subsection (f) of Section 2644 of this article within the times specified.

(i) The daily variation in inventory reconciliation shall be the difference between the calculated volume in storage and the actual volume in storage.

(ii) If the variation is based on the previous day's physically measured inventory, the daily variation shall not exceed the allowable variation described in Subsection (iv) of this subsection.

(iii) If the variation is based on the previous day's calculated inventory, then the daily variation shall not exceed the allowable variation described in Subsection (iv) of this subsection. The calculated inventory on any given day shall be based on continuous calculations from the day on which the physical inventory was used. The period

of continuous calculations shall be no greater than 1 month.

(iv) The allowable variation shall be the sum of the measurement error from Table 4.2 of this article and the throughput error calculated in accordance with Subsection (v) of this subsection.

Table 4.2

Tank Size*	Allowable Measurement Error*
less than 4,000	25
4,000 to less than 8,000	50
8,000 to less than 12,000	75
12,000 or greater	100

* all values in gallons

(v) The throughput error shall be 0.15 percent (0.0015) of the measured throughput during the period under consideration as described in either

Subsection (ii) or Subsection (iii) of this subsection.

(C) Underground storage tank testing shall be performed yearly, at a minimum, according to the procedures specified in Section 2643 of this article.

(D) All pressurized pipelines shall be monitored using an automatic on-line pressure loss detector and flow restriction device. The detector shall be connected to an audible/visual alarm system unless it provides for at least a 50-percent reduction from the normal flow rates. Suction pipelines shall be monitored daily for indications of possible leaks.

(6) Inventory Reconciliation, Underground Storage Tank Testing, Pipeline Leak Detectors, Vadose Zone, or Ground Water Monitoring and Soil Testing:

(A) This monitoring alternative shall, at a minimum, utilize inventory reconciliation, underground storage tank testing, and pipeline leak detectors. In addition, either vadose zone or ground water

monitoring shall be included and analysis of soil samples taken at the time of boring or well installation. The use of this alternative is limited to those underground storage tanks which contain motor vehicle fuels.

(B) Inventory reconciliation shall be performed according to the procedures specified in Section 2644 of this article. The owner or operator of an underground storage tank that experiences a variation in excess of any of the following shall implement the evaluation procedures specified in Subsection (f) of Section 2644 of this article within the times specified.

(i) daily variation: ± 100 gallons

(ii) 7-day variation: ± 5 percent of throughput or 100 gallons whichever is greater but, in no case, greater than 350 gallons

(iii) more than 30-day variation: ± 0.5 percent of throughput or 100 gallons whichever is greater

(C) Underground storage tank testing shall be

performed yearly at a miniumum according to the procedures specified in Section 2643 of this article.

(D) All pressurized pipelines and suction pipelines shall be monitored as provided for in Subsection (5)(d) of this subsection.

(E) Vadose zone monitoring, if used, shall be designed and installed according to the procedures specified in Sections 2646 and 2648 of this article. The frequency of monitoring shall be no less frequent than semi-annually.

(F) Ground water monitoring, if used, shall be designed and installed according to the procedures specified in Sections 2647 and 2648 of this article. The minimum number of monitoring wells shall be as specified in Alternative 6 in Table 4.1 of this article. Analysis of samples collected can be by visual observation, or field or laboratory analysis as determined by the local agency depending on the constituents being evaluated. Ground water samples shall be collected and analyzed at least semi-annually. If

samples are analyzed by visual observation or field analysis, the local agency shall require laboratory analysis if the results of the visual or field analysis are less accurate than laboratory methods.

(G) The soil sampling and analysis shall be performed as specified in Sections 2645 and 2648 of this article. Samples shall be taken from all borings and wells installed.

(7) Underground Storage Tank Gauging and Testing:

(A) This monitoring alternative shall, at a minimum, utilize gauging and testing of the underground storage tank. This alternative shall only be utilized for underground storage tanks which do not have frequent inputs or withdrawals and where the liquid level in the underground storage tank can be measured to an accuracy of ± 5 gallons or less when the liquid level in the underground storage tank is such that a unit change in underground storage tank contents causes the smallest liquid level variation.

(B) The underground storage tank gauging shall be performed according to the following specifications:

(i) The underground storage tank shall be capable of being secured to prevent unauthorized inputs or withdrawals;

(ii) Tank liquid level measurements shall be taken at the beginning and end of consecutive periods, each lasting up to 5 days. No input or withdrawals shall occur during these periods. The liquid level measurement at the beginning and end of each period shall, if possible, be performed by the same person;

(iii) Underground storage tank testing shall be performed yearly at a minimum according to the procedures specified in Section 2643 of this article; and

(iv) If the liquid level varies by more than 1 percent of the underground storage tank's volume or 5 gallons, whichever is less, between measurements, an authorized release shall be

assumed to have occurred. The reporting requirements of Article 5 of this subchapter shall be followed and further evaluations shall be performed to verify or disprove the variations.

(8) Interim Monitoring

(A) This alternative monitoring method shall, at a minimum, utilize underground storage tank testing and either inventory reconciliation or tank gauging. This alternative shall be available only to any of the following catagories of owners for a period of up to 3 years after the effective date of these regulations.

(i) Small businesses as defined in Subsection 11342(e) of the Government Code and non-profit organizations which would meet the criteria for a small business, provided the owner demonstrates to the local agency that sufficient funds will be available to close the underground storage tank pursuant to Article 7 of this subchapter or to implement one of the first 7 monitoring alternatives of this subsection within the 3-year period;

(ii) Any underground storage tank owner who provides a written, legally binding, commitment to the local agency that the underground storage tank will be closed according to the procedures specified in Article 7 of this subchapter within 3 years from the statutory compliance date or replaced with a new underground storage tank which complies with the provisions of Article 3 of this subchapter. The local agency shall not issue a permit pursuant to this subsection for longer than 3 years and shall not renew the permit; or

(iii) Any governmental agency that demonstrates to the local agency that, due to budgetary constraints the governmental agency needs additional time to close or replace the underground storage tank pursuant to Article 7 of this subchapter or to implement one of the first 7 monitoring alternatives of this subsection. The local agency shall not issue a permit pursuant to this subsection for longer than 3 years and shall not renew the permit.

(B) Underground storage tank testing shall be

performed according to the procedures specified in Section 2643 of this article and shall be performed yearly, at a minimum.

(C) Inventory reconciliation shall be performed according to the procedures specified in Section 2644 of this article. The owner or operator of an underground storage tank that experiences a variation in excess of the levels specified in Subsection (c)(6)(B) of this section shall implement the evaluation procedures specified in Subsection (f) of Section 2634 of this article within the time specified.

(D) Underground storage tank gauging shall be performed according to the specifications of Subsection (c)(7)(B) of this section. Variations in excess of 1 percent of the underground storage tank volume or 50 gallons, whichever is less, shall be cause for further evaluation.

(d) The local agencies shall evaluate each monitoring alternative proposed to determine if it achieves the objectives specified in Subsection (b) of Section 2640 of this article according to the following:

(1) Whenever possible, a primary method of monitoring other than ground water monitoring shall be performed, monthly at a minimum.

(2) Where the underground storage tank is in an area where precipitation or surface runoff provides direct recharge of the ground water and the ground water being recharged has an actual or potential use (domestic, municipal, agricultural, or industrial supply), a monitoring method other than ground water monitoring shall be utilized on a monthly or more frequent basis for leak detection monitoring.

(3) In addition, ground water monitoring may be required by the local agency in the areas described in Subsection (2) above. The local agency shall review and approve the number and location of the monitoring well(s). More than 1 underground storage tank or facility may be monitored using the same well provided the well is directly downgradient of all underground storage tanks or facilities being monitored and is within 1,000 feet of all underground storage tanks being monitored.

Authority: H&SC 25299.3

Adopt new section to read:

2642. Visual Monitoring

(a) Visual monitoring shall be utilized as the principal leak detection monitoring method, where feasible, for all visible exterior surfaces of an underground storage tank unless the owner demonstrates to the local agency that at least one of the exemption criteria of subsection (b) of this section is applicable. If visual monitoring is required, the provisions of Subsections (c) and (d) of this section shall be followed.

(b) The owner is exempt from visual monitoring for that portion of the underground storage tank to which the following conditions apply.

(1) Any portion of an underground storage tank that is in contact with the ground, a floor, or pad such that it cannot be seen. An underground storage tank in a saddle should not typically qualify for an exemption.

(2) Visual inspection of the underground storage tank would put a person in a physically unsafe environment.

(3) Visual inspection of the underground storage tank would require the use of extraordinary personal protection equipment (other than normal protective equipment, such as steel-toed shoes, hard hat, eye or ear protection, etc.).

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

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

(1) Provisions for routine direct visual inspection of all accessible exterior surfaces of an underground storage tank and the horizontal surface directly beneath the underground storage tank shall be monitored by direct viewing.

(2) A written routine monitoring procedure shall be prepared and be available at the facility which includes: the frequency of visual inspections, the location(s) from which observations will be made, the name(s) or title(s) of the person(s) responsible for performing the observations and the reporting format.

(3) Visual inspections shall be performed daily, at a minimum, and shall be more frequent if necessary. The inspection schedule shall be established such that some of the inspections occur when the liquid in the underground storage tank is at its highest level. The inspection frequency shall be determined such that any unauthorized release will remain observable on the exterior of or the horizontal surface immediately beneath the underground storage tank between visual inspections. The evaluation of how long the hazardous substance remains observable shall consider the volatility of the hazardous substance and the porosity and slope of the surface immediately beneath the underground storage tank or portion thereof being visually monitored.

(4) Recordation of the observations made and the liquid level in the underground storage tank at the time of the inspection.

(d) The observation of any liquid on the exterior of or the horizontal surface immediately beneath the underground storage tank being visually monitored shall cause the owner or operator to implement all or a portion of the following actions. The applicable actions and their timing shall be

based on the site-specific situation, shall be intended to determine if the observed liquid constitutes an unauthorized release, and shall be included in the permit.

(1) Laboratory or field analysis of the observed liquid which shall include minimum levels of detection.

(2) Testing of the underground storage tank utilizing the procedures described in Section 2643 of this article.

(3) Removing all hazardous substances from the underground storage tank.

(e) Visual monitoring of the exposed portion of a partially concealed underground storage tank shall not relieve an owner from implementing monitoring for the concealed portion of the tank using a monitoring alternative specified in Section 2641 this article.

Authority: H&SC 25299.3

Reference: H&SC 25292, 25293

Adopt new section to read

2643. Underground Storage Tank Testing

(a) All owners of existing underground storage tanks implementing a monitoring alternative in Section 2641 of this article which specifies underground storage tank testing shall implement a testing program pursuant to Subsections (b) through (g) of this section.

(b) Testing of underground storage tanks shall utilize a method capable of detecting a release of a hazardous substance at a rate of 0.05 gallons per hour or less. These methods are limited to those tests that make adjustments for all of the following, if applicable:

(1) The presence of vapor pockets;

(2) Thermal expansion or contraction of the hazardous substance, which include any density considerations;

(3) Temperature stratification in the underground storage tank;

(4) Evaporation;

(5) Pressure variations in the underground storage tank; and

(6) Deflection of the underground storage tank ends.

(c) Testing of pipelines which have been isolated may utilize a hydrostatic pressure test in lieu of the test required in Subsection (b) of this section. This hydrostatic pressure test shall be conducted at a pressure of 50 psi (2600 mm Hg) or greater. The test shall be performed for at least 5 minutes. A pressure drop of more than 5 psi (260 mm Hg) per minute indicates the probability of a leaking pipeline. A pressure drop of less than 5 psi (260 mm Hg) but greater than zero is inconclusive, and a test pursuant to Subsection (b) of this section shall be performed.

(d) The tests required in this section shall be performed by personnel who have received training in appropriate test procedures. The person performing the test described in Subsection (b) of this section shall certify that the test procedure utilized takes into account the variables specified and is capable of measuring leaks of 0.05 gallons per hour or less. Additionally, within 1 year after the development of a listing or certification procedure which

evaluates the accuracy of the test for the type of test described in Subsection (b) of this section, only listed or certified tests shall be accepted.

(e) Within 30 days of completion of either of the leak detection test described in Subsection (b) or (c) of this section, the underground storage tank owner shall provide the local agency with a report which includes the following information, if applicable:

(1) The procedures used (including any deviations from those recommended by the developer of the underground storage tank test procedure) for the leak detection method;

(2) The test results used in determining the volumetric rate of product loss;

(3) The volumetric rate of product loss; and

(4) The information shall be presented in written and/or tabular format as appropriate and shall be at a level of detail appropriate for the test procedure used.

(f) Underground storage tanks which are found to lose product

shall be repaired or replaced as specified in Articles 6 and 7 of this subchapter, respectively.

(g) The results of any tests, other than those required by this article, performed on the underground storage tank to determine if the underground storage tank is leaking shall be reported by the underground storage tank owner to the local agency within 30 days of completion of the test.

Authority: H&SC 25299.3

Reference: H&SC 25291, 25292, 25293

Adopt new section to read:

2644. Inventory Reconciliation

(a) All owners of existing underground storage tanks implementing a monitoring alternative in Section 2641 of this article which specifies inventory reconciliation shall implement an inventory reconciliation program as described in Subsections (b) through (f) of this section. This requirement may be transferred to the operator pursuant to the appropriate provisions of Chapter 6.7 of Division 20 of the Health and Safety Code.

(b) All underground storage tanks shall be individually monitored utilizing a daily inventory reconciliation system that takes into account: separate daily underground storage tank quantity measurements for both the stored hazardous substance and any water layer, and daily meter readings for underground storage tank input and withdrawals. Underground storage tanks that are connected by a manifold may be monitored as a unit instead of individually. Underground storage tank input and withdrawal meters shall comply with California Administrative Code, Title 4, Chapter 9; Subchapter 9, "Tolerances and specifications for commerical weighing and measuring devices". 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

(c) For the purpose of this section, "daily" shall be defined as at least 5 days per week. This minimum may be reduced during weeks that a public holiday occurs on Monday through Friday. Local agencies may reduce the frequency of monitoring to no less than once every 3 days at facilities that are not staffed on a regular basis provided that the monitoring is performed on every day the facility is staffed or that inputs or withdrawals are made from the underground storage tank.

(d) Underground storage tank quantity measurements shall be based on liquid elevation measurements which are:

(1) Performed during periods when no additions or withdrawals are being made to the underground storage tank;

(2) Performed by the underground storage tank owner, operator, or other designated personnel who have had appropriate training;

(3) Based on the average of two readings if stick or tape measurements are used,

(4) Capable of detecting a water layer at the bottom of the underground storage tank, if possible. If the underground storage tank is not level, then the measurement should occur at the lowest end of the underground storage tank;

(5) Measured at the center of the longitudinal axis of the underground storage tank if access is available or measured at the lowest end of the underground storage tank with a calibration measurement at both ends, if possible, to determine if any underground storage tank tilt exists and, if so, its magnitude; and

(6) Converted to volume measurements based on a calibration chart for the underground storage tank. This chart shall, if possible, take into account the actual tilt of the underground storage tank as determined initially as described in Subsection (5) above.

(e) The owner or operator shall, on a quarterly basis, submit a statement to the local agency, under penalty of perjury, that either: the data is within allowable variations or a

listing of the dates and variations that exceed the allowable variations.

(f) If inventory reconciliation indicates a loss of the hazardous substance greater than that specified, the operator or permittee shall implement the following. If inventory reconciliation indicates a gain of hazardous substances greater than that specified, the operator or permittee shall inplement Subsections (1), (2), (3), and (5) of this section. The steps may be implemented sequentially or concurrently; however, they must be completed within the specified time periods. Reporting as required in Article 5 of this subchapter shall be followed.

If completion of the steps described in Subsections (2), (3), or (5) of this subsection indicates inventory reconciliation error that, when corrected cause the levels specified, not to be exceeded, then the remainder of the steps need not be completed. If completion of the steps described in Subsections (4) or (6) through (8) of this subsection reveal the source of the loss, then the remainder of the steps need not be completed.

The transfer of hazardous substances into and out of the underground storage tank may continue during implementation

of the steps provided that the steps are completed within the specified periods and any loss or gain did not exceed two times the specified levels. Daily reconciliation shall continue during implementation of the steps.

(1) The operator shall notify the owner verbally or in writing of the fact that inventory reconciliation indicates a loss of hazardous substances or gain of water within 24 hours of the completion of the daily reconciliation which indicates the loss or gain.

(2) The operator shall review the inventory records within 2 hours to determine if an error exists which would cause the gain or loss to be less than that specified.

(3) The operator shall have performed, by a qualified person, a complete review of all inventory records from the last time a zero loss or gain condition existed. This shall include a new inventory reconciliation which was taken at least 8 hours after the inventory reconcilition which triggered this evaluation. This shall be completed within 24 hours of the conclusion of Subsection (f)(2) of this section.

(4) The readily accessible physical facilities shall be

carefully inspected for leakage. This shall be completed by trained personnel within 24 hours of completion of Subsection (f)(3) of this section.

(5) All dispenser meters associated with hazardous substance withdrawal shall be checked for calibration within 24 hours of completion of Subsection (f)(4) of this section.

(6) All piping shall be tested within 24 hours of completion of Subsection (f)(5) of this section. The piping shall be isolated and hydrostatically pressure tested at 50 psi (2600 hmm Hg) or greater. If the pressure drops more than 5 psi (260 mm Hg) per minute, it indicates the probability of a leak in the line. Repeat the test at least once to ensure against compression of entrained air. Any pressure drop less than 5 psi (260 mm Hg) per minute is inconclusive as it may be caused by cooling. This step may be completed after the step described in Subsection(f)(7) of this section if excavation is necessary to perform the tests and if the step described in Subsection (f)(7) of this section is completed within 48 hours of the completion of Subsection (f)(5) of this section. If this occurs, then this subsection shall be completed within 24 hours

of the completion of Subsection (f)(7) of this section.

(7) The underground storage tank shall be tested using the tests described in Section 2643 of this article within 48 hours of completion of Subsection (f)(6) of this section.

(8) Additional tests or investigations as required by the local agency.

Authority: H&SC 25299.3

Reference: H&SC 25291, 25292

Adopt new section to read:

2645. Soil Testing

(a) All owners of existing underground storage tanks implementing one of the monitoring alternatives described in Section 2641 of this article which requires borings for vadose zone or ground water monitoring shall implement soil testing pursuant to Subsections (b) through (n) of this section.

(b) Undisturbed (intact) soil samples shall be recovered from all borings used for the installation. This requirement may be waived by the local agency when borings cannot be drilled and sampled using accepted techniques that do not introduce liquids into the boring.

(c) Soil samples shall be taken at intervals of 5 feet or less beginning at the ground surface, but sampling shall not be required below the water table nor in unweathered bedrock which has little or no primary permeability.

(d) A soil sample shall also be obtained at the termination depth of a dry boring regardless of the spacing interval.

(e) Borings shall be drilled and sampled by techniques that do not introduce liquids into the boring and that allow the accurate detection of perched and saturated zone ground water. If this cannot be accomplished using accepted techniques, the requirement for soil sampling may be waived by the local agency; however, the vadose zone or ground water monitoring system shall still be installed. Furthermore, once below the water table, it is not required that the wells be advanced using the same method that was used in the vadose zone.

(f) Borings shall be described in accordance with the provisions of Subsections 2648(t) and (u) of this article.

(g) Soil samples shall be of sufficient volume to perform the designated analyses including soil vapor and soil extract analyses and to provide replicate analyses, if specified.

(h) If more than one boring is utilized, composite samples consisting of material from the same depth from each boring may be used for laboratory analysis if such samples can be made without loss of constituents prior to analysis.

(i) Samples shall be prepared, stored, and transported by appropriate EPA methods or other similar or superior methods

approved by the local agency.

(j) Samples shall be analyzed by field or laboratory methods that provide quantitative or qualitative results. If qualitative methods are used, then their lower detection limits shall be verified by the test manufcturer or actual field tests for sensory-type tests. EPA-approved methods or other methods of similar or superior precision and accuracy that are approved by the local agency shall be used. The local agency shall approve the analysis method if it provides a lower level of detection that is below that which would interfere with future monitoring methods.

(k) 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, then analysis shall be 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.

(l) Samples may be analyzed in any order of depth. If levels of 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 soils analysis is not necessary pursuant to this subsection and 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. 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 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.

(m) If soil analysis indicates that an unauthorized release has occurred, the permittee shall report the release pursuant to Article 5 of this subchapter and shall repair or close the underground storage tank pursuant to Article 6 or 7 of this subchapter.

(n) If evidence of an unauthorized release is not detected, an alternative leak detection monitoring system shall be

installed pursuant to Section 2641 of this article.

Authority: H&SC 25299.3

Reference: H&SC 25292

Adopt new section to read:

2646. Vadose Zone Monitoring

(a) All owners of existing underground storage tanks implementing one of the monitoring alternatives described in Section 2641 of this article which requires vapor or another form of vadose zone monitoring shall implement the vadose zone detection monitoring system pursuant to Subsections (b) through (h) of this section.

(b) Vadose zone monitoring shall consist of vapor monitoring, soil-pore liquid monitoring, or other forms of vadose zone monitoring. Combinations of these methods may be used.

(c) Wells for vapor monitoring shall be fully perforated except for that portion adjacent to a surface seal and that portion of the bottom of a well where a plugged, blank segment of casing is used as a free liquid trap.

(d) The number, location, and depths of vadose zone monitoring points shall be selected so as to give the earliest possible warning of any unauthorized release from the underground storage tank.

(e) Subsurface vadose zone monitoring systems shall, if possible, be located within the backfill surrounding the underground storage tank.

(f) Vapor monitoring for underground storage tanks shall be used in accordance with the following criteria if the vapor characteristics of the stored product are susceptible to detection:

(1) Before any method of vapor monitoring is approved for a specific site, it shall be demonstrated by an actual on-site demonstration, using an appropriate tracer substance, that vapor would actually be detected by the installed system. This requirement may be waived by the local agency based on a demonstration by the applicant that the proposed monitoring system has been proven to be effective in detecting unauthorized releases from underground storage tanks in equal or less favorable situations. The following factors shall be considered in comparing the demonstration to the actual on-site conditions:

(A) Backfill materials and grain size distribution.

(B) Type and homogenity of native soils.

(C) Range of moisture contents of the backfill and native soils that will be encountered and their effect on vapor migration and detection.

(2) The location and depth at which each sensor is placed relative to the underground storage tank shall be determined according to the most probable movement of vapor through the backfill or surrounding soil.

(3) Vapor monitoring wells placed 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.

(g) Soil-pore liquid monitoring and other forms of vadose zone monitoring may be approved if the discharger can clearly show that:

(1) The stored substance is susceptible to detection by the proposed technique.

(2) The stored substance will not attack the materials from which the detector system is constructed or otherwise render the detector system inoperable.

(3) The site and soil characteristics will not prevent detection of an unauthorized release by the monitoring system.

(4) The proposed technique will be effective in providing early detection of underground storage tank leakage.

(h) Borings shall be described in accordance with the provisions of the Subsections 2648(t) and (u) of this article.

Authority: H&SC 25299.3

Reference: H&SC 25292

Adopt new Section to read:

2647. Ground Water Monitoring

(a) All owners of existing underground storage tanks implementing one of the monitoring alternatives in Section 2641 of this article which requires ground water monitoring shall implement a ground water monitoring system pursuant to Subsections (b) through (j) of this section.

(b) All ground water monitoring wells shall be located as close as possible to the underground storage tank or the perimeter of the underground storage tank cluster.

(c) Ground water monitoring wells shall extend at least 20 feet below the lowest anticipated ground water level and at least 15 feet below the underground storage tank bottom. However, wells shall not extend through laterally extensive clay layers that are below the water table and are at least 5 feet thick. In these situations, the well shall be terminated 1 to 2 feet into this clay layer.

(d) Ground water monitoring well casings shall extend to the bottom of the boring and be factory perforated from a point 1 foot above the bottom of the casing to an elevation which

is either 10 feet above the highest anticipated ground water level or to the bottom of the surface seal or to the ground surface, whichever is the lowest point above the highest anticipated ground water level.

(e) Ground water monitoring wells shall be 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.

(f) All well casings shall have a bottom cap or plug.

(g) Filter packs shall extend at least 2 feet above the top of the perforated zone except where the ground surface is less than 10 feet above the highest ground water level, in which case this requirement may be waived by the local agency provided the filter pack extends to the top of the perforated zone.

(h) Ground water monitoring wells shall be constructed with casings having a minimum inside diameter of 2 inches which is installed in a boring whose diameter is at least 4 inches greater than the inside diameter of the casing.

(i) Ground water monitoring wells shall be sealed from the ground surface to the top of the filter pack.

(j) Borings shall be described in accordance with the provisions of Sections 2648(t) and (u) of this article.

Authority: H&SC 25299.3

Reference: H&SC 25292

Adopt new Section to read:

2648. General Construction and Sampling Methods

(a) Soil and water sampling equipment and materials used to construct a well shall be compatible with the stored hazardous substance and shall not donate, capture, mask, nor alter the constituents for which analyses will be made.

(b) Representative samples of all imported materials used for filter packs and to construct seals shall be evaluated to determine their acceptability with regard to Subsection (a) of this section.

(c) All drilling tools shall be thoroughly cleaned immediately before a boring is started.

(d) All well casings, casing fittings, screens, and all other components that are installed in the well shall be thoroughly cleaned before installation in the boring.

(e) All soil and water samplers shall be cleaned before each sample is taken.

(f) Drilling fluid additives shall be limited to inorganic, non-

hazardous materials which conform to the provisions of Subsection (a) of this section. All additives used and the depth in which they were used shall be accurately recorded in the boring log.

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

(h) All ground water monitoring wells shall be appropriately developed until the discharge water contains less than 10 ppm settleable solids.

(i) Well heads shall be provided with a water-tight cap.

(j) Well heads shall be enclosed in a surface security structure that protects the well from the entry of surface water, accidental damage, unauthorized access, and vandalism. This may be accomplished by providing a locked well cap or by securing the facility within which a well is located.

(k) 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 afixed 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.

(l) Surface seals for vapor wells that are completed no more than 5 feet below the bottom of the underground storage tank and which are above any free water zones shall be required at the discretion of the local agency on a site-specific basis.

(m) If surface seals for vapor wells that are completed in or below a free water zone are required, the seal shall not extend below the top of the underground storage tank.

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

(o) The need for surface seals for other types of vadose zone installations shall be determined on a case-by-case basis.

(p) In order to implement monitoring Alternatives 2, 3, 4, and the ground water monitoring portion of 6, the highest anticipated ground water level and existing ground water

level shall be determined. Highest anticipated ground water levels shall be determined by a review of water level measurements on record for wells within 1 mile of the site. Existing site ground water levels shall be established by either water level measurements taken within the last 2 years in all existing well(s) including at least 1 downgradient well within 500 feet of the facility which is perforated in the zone of interest or by drilling at least 1 exporatory 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 500 feet from the underground storage tank.

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

(3) The exploratory boring shall be drilled to first perennial ground water or to a minimum depth of 100 feet for Alternatives 2, 3, and 6 or to a minimum depth of 30 feet for Alternative 4.

(4) If ground water is encountered and ground water

monitoring is part of the monitoring alternative, the boring shall be converted to a ground water monitoring well consistent with the provisions of this section and Section 2647 of this article.

(5) If ground water is encountered but monitoring is not required or if the exploratory boring does not encounter ground water, it shall be sealed in accordance with the provisions of Subsections 2648(q) and (s) of this article.

(q) All borings that are not used for ground water or vadose zone monitoirng shall be sealed from the ground surface to the bottom of the boring with bentonite grout.

(r) All borings that are converted to vadose zone monitoring wells in which the monitored interval is shallower than the total depth of the boring shall have the portion of the boring which is below the monitored interval sealed with bentonite grout.

(s) All slurry-type grouts used to abandon a boring or for well seals shall be emplaced by the tremie method.

(t) All borings shall be described in detail using the Unified Soil Classification System and shall be logged by a professional geologist, civil engineer, or engineering geologist who is registered or certified by the State of California and who is experienced in the use of the Unified Soil Classification System. 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 shall be deemed qualified to log borings, provided the aforementioned professional reviews the logs and assumes responsibility for the accuracy and completeness of the logs.

(u) All wet zones above the free water zone shall be noted and accurately logged.

(v) If evidence of contamination is detected by sight, smell, or other field analytical methods, drilling shall be halted until the responsible professional determines if drilling deeper is advisable.

Authority: H&SC 25299.3

Reference: H&SC 25292

Article 5. Release Reporting Requirements

Adopt new section to read:

2650 Applicability

(a) All unauthorized releases from the primary or secondary container shall be reported according to the requirements of the appropriate sections of Chapter 6.7 of Division 20 of the Health and Safety Code and this article.

(b) Certain unauthorized releases to secondary containers, as described in Section 25284.3 of the Health and Safety Code, shall be recorded on the operator's monitoring reports according to Section 2651 of this article. No other report shall be required if the leak detection monitoring system in the space between the primary and secondary containers can be reactivated within 8 hours. This provision shall be applicable only to new underground storage tanks as defined in Article 2 of this subchapter.

(c) All other unauthorized releases shall be reported within 24 hours after the release has been, or should have been, detected according to Section 2652 of this article.

Authority: H&SC 25299.3

Reference: H&SC 25294, 25285

Adopt new section to read.

2651. Unauthorized Releases Requiring Recording

(a) The report required by Subsection 2650(b) of this article shall include:

(1) List of type, quantities, and concentration of hazardous substances released.

(2) Method of cleanup.

(3) Method and location of disposal of the released hazardous substances (indicate whether a hazardous waste manifest[s] is utilized).

(4) Method of future leak prevention or repair. If this involves a change as defined in Article 10, Section 2712, Subsection (a), of this subchapter, then appropriate reports pursuant to that article shall also be filed.

(5) If the primary container is to continue to be used, then a description of how the monitoring system between the primary and secondary container has been re-

activated.

(6) Facility operator's name and telephone number.

(7) The approximate costs for cleanup to be submitted voluntarily.

(b) The local agency shall review the information submitted pursuant to Subsection (a) of this section and shall review the permit and may inspect the underground storage tank pursuant to the provisions of Article 10, Section 2712, Subsections (g) and (h), of this subchapter. The local agency shall find that the containment and monitoring standards of Article 3 of this subchapter can continue to be achieved or the local agency shall revoke the permit until appropriate modifications are made to allow compliance with the standards.

(c) Deterioration of the secondary container is likely when any of the following conditions exist:

(1) The secondary container will have some loss of integrity due to contact with the stored hazardous substances;

(2) The mechanical means used to cleanup the released hazardous substance could damage the secondary container; or

(3) Hazardous substances, other than those stored in the primary container, are added to the secondary container for treatment or neutralization of the released hazardous substance as part of the cleanup process.

(d) If a recordable unauthorized release becomes a reportable unauthorized release due to initially unanticipated facts, the release shall immediately be treated as a reportable release pursuant to Section 2652 of this article.

Authority: H&SC 25299.3

Reference: H&SC 25294

Adopt new section as follows:

2652. Unauthorized Releases Requiring Reporting

(a) All other unauthorized releases shall be reported as specified in this section.

(b) Within 24 hours after the release has been detected, or should have been detected, using required monitoring, the operator shall notify the local agency and the State Office of Emergency Services or the regional board.

(c) Within 5 working days of detecting the release, the operator or permittee shall submit to the local agency a full written report to include all of the following information which is known at the time of filing the report:

(1) List of type, quantity, and concentration of hazardous substances released.

(2) The results of all investigations completed at that time to determine the extent of soil or ground water or surface water contamination due to the release.

(3) Method of cleanup implemented to date, proposed cleanup

actions, and approximate cost of actions taken to date.

(4) Method and location of disposal of the released hazardous substance and any contaminated soils or ground water or surface water (indicate whether a hazardous waste manifest[s] is utilized).

(5) Proposed method of repair or replacement of the primary and secondary containers. If this involves a change as defined in Subsection 2712(a) of Article 10 of this subchapter, then appropriate reports pursuant to that article shall also be filed.

(6) Facility operator's name and telephone number.

(d) Until cleanup is complete, the operator or permittee shall submit reports to the local agency and the regional board every 3 months or at a more frequent interval specified by a responsible agency. The reports shall include the information requested in Subsections (c)(2), (c)(3), and (c)(4) of this section.

(e) The reporting requirements of this section are in addition to any reporting requirements specified by Section 13271 of Division 7 of the Water Code and other laws and regulations.

Authority: H&SC 25288.2

Reference: H&SC 25284.4

Article 6. Allowable Repairs

Adopt new section to read:

2660. Applicability

(a) This article describes the conditions which must be met to allow primary container repairs of underground storage tanks containing motor vehicle fuel not under pressure utilizing the interior coating process, the required repair methodology, and the required underground storage tank testing following repair.

(b) Section 2661 of this article lists the required evaluations which must be completed in order to allow the repair of a primary container. A satisfactory demonstration of each part of Section 2661 of this article shall be made prior to approval by the local agency of the repair process.

(c) Section 2662 of this article describes the required methodology which must be utilized in the interior coating repair process.

(d) Section 2663 of this article lists the required primary container monitoring which shall be implemented by amendment

of the permit by the local agency following primary container repair. Subsections (a) and (b) of Section 2663 of this article describe the monitoring which shall be performed prior to placing the underground storage tank back in service.

Authority: H&SC 25299.3

Reference: H&SC 25295

Adopt new section to read:

2661. Repair Evaluation

(a) The evaluations described in Subsections (b) through (d) of this section must be completed before a primary container repair can be authorized by the local agency. Failure to adequately demonstrate that the repaired primary container will provide continued containment based on the evaluations described below shall be grounds for a local agency to deny the proposed repair.

(b) It shall be determined if the failure mechanism is isolated to the actual failure or is affecting other areas of the underground storage tank, or if any other failure mechanism is affecting the primary container.

(c) One of the following tests shall be conducted to determine the thickness of the underground storage tank:

(1) An ultrasonic test.

(2) Certification by a special inspector that the shell will provide structural support for the interior lining. The special inspector shall make this

certification by entering and inspecting the entire interior surface of the underground storage tank and shall base this certification upon the following procedures and criteria:

(A) If the underground storage tank is made of glass fibre, the underground storage tank shall be cleaned so that no residue remains on the underground storage tank wall surface. The special inspector shall take interior diameter measurements and, if the cross-section has compressed more than 1 percent of the original diameter, the underground storage tank shall not be certified and shall also not be returned to service. The special inspector shall also conduct an interior inspection to identify any area where compression or tension cracking is occurring and shall determine whether additional glass fibre reinforcing is required for certification before the underground storage tank may be lined.

(B) If the underground storage tank is made of steel, the underground storage tank interior surface shall be abrasive blasted completely free of scale, rust, and foreign matter. Acceptable

procedures for metal blasting are provided in Appendix I of this subchapter. The special inspection shall sound any perforations or areas showing corrosion pitting with a brass ballpeen hammer to enlarge the perforation or break through a potentially thin steel area. Underground storage tanks that have any of the following defects shall not be certified or returned to service:

(i) An underground storage tank which has an open seam or a split longer than 3 inches.

(ii) An underground storage tank which has a perforation larger than 1-1/2 inches in diameter or below a gauging opening larger than 2-1/2 inches in diameter.

(iii) An underground storage tank with 5 or more perforations in any 1 square-foot area and any single perforation which is larger than 1/2 inch in diameter.

(iv) An underground storage tank with 20 or more perforations in a 500 square-foot area and any

single perforation which is larger than 1/2 inch in diameter.

(v) Any failure or opening within 6 inches of any seam or weld.

(3) A test approved by the board as comparable to the tests specified in subparagraph (A) or (B) of this subsection.

(d) It shall be demonstrated to the satisfaction of the local agency based on one of the tests in Subsection (c) of this section that a serious corrosion problem does not exist. If a serious corrosion problem exists, an interior lining repair may be allowed by the local agency if it can be demonstrated 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.

(e) If interior lining is the proposed repair method, then it shall be demonstrated that the primary container has never been repaired using an interior lining.

Authority: H&SC 25299.3

Reference: H&SC 25296

Adopt new section to read:

Authority: H&SC 25299.3

Reference: H&SC 25296

2662. Repair Methodology

(a) If an interior lining of an underground storage tank is approved by the local agency based on satisfactory demonstration of the issues raised in Section 2661 of this article, then the repair must be accomplished according to the applicable subsections of this section.

(b) If interior coating is the method of repair, the material used in the repair shall be applied in accordance with nationally recognized engineering practices.

(c) The repair material and any adhesives used shall be compatible with the existing tank materials and shall not be subject to deterioration due to contact with the hazardous substance being stored.

(d) The repair material and lining process shall be listed or certified by a nationally recognized independent testing organization. The requirement shall become effective 1 year after the effective date of these regulations or 1 year after a listing or certification procedure is available, whichever is later.

Adopt new section to read:

2663. Primary Container Monitoring

(a) After any repair, the primary container shall be demonstrated to be capable of containing the stored hazardous substance by satisfactorily passing the underground storage tank test as described in Section 2643 of Article 4 of this subchapter. The underground storage tank shall also be vacuum tested at a vacuum of 5.3 inches (135 mm) Hg for 1 minute. The vacuum test shall not be required if technology is not available for testing the underground storage tank on-site using accepted engineering practices.

(b) All pipelines shall be pressure tested following repair to assure the adequacy of the repair. The testing shall be accomplished using accepted procedures. Acceptable procedures for pressure testing are provided in Appendix I of this subchapter.

Authority: H&SC 25299.3

Reference: H&SC 25295

Article 7. Closure Requirements

Adopt new section to read:

2670. Applicability

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

(b) The temporary closure requirements of Section 2671 of this article shall apply to those underground storage tanks in which the storage of hazardous substances has ceased but where the underground storage tank owner or operator proposes to retain the ability to use the underground storage tank within 2 years for the storage of hazardous substances. Section 2671 of this article does not apply to underground storage tanks that are empty as a result of the withdrawal of all stored material during normal operating practice prior to the planned input of additional hazardous substances consistent with permit conditions.

(c) The permanent closure requirements of Section 2672 of this article shall apply to those underground storage tanks in which the storage of hazardous substances has ceased and where the owner or operator has no intent within the next 2

years to use the underground storage tank for storage of hazardous substances.

(d) The requirements of this article do not apply to those underground storage tanks in which hazardous substances are continued to be stored even though there is no use being made of the stored substance. In these cases, the applicable containment and monitoring requirements of Article 3 or 4 of this subchapter 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 of this article, the applicable containment and monitoring requirements of Article 3 or 4 of this subchapter shall continue to apply.

(f) Prior to closure, the underground storage tank owner shall submit to the local agency a proposal describing how the owner intends to comply with Section 2671 or 2672 of this article, as appropriate. The requirement for prior submittal is waived if the storage of hazardous substances ceases as a result of an unauthorized release or to prevent or minimize the effects of an unauthorized release. In this situation, the underground storage tank owner shall submit the required proposal within 14 days of either the discovery of an unauthorized release or the implementation of actions

taken to prevent or minimize the effects of the unauthorized release.

(g) Underground storage tanks that have experienced an unauthorized release do not qualify for temporary closure pursuant to Section 2671 of this article until the underground storage tank owner demonstrates to the local agency's satisfaction that appropriate authorized repairs have been made which would allow the underground storage tank to be capable of storing hazardous substances pursuant to the permit issued by the local agency.

(h) Underground storage tanks that have experienced an unauthorized release and that cannot be repaired by authorized methods must be permanently closed pursuant to requirements of Section 2672 of this article.

Authority: H&SC 25299.3

Reference: H&SC 25298

Adopt new section to read:

2671. Temporary Closure

(a) This section applies to those underground storage tanks in which storage has ceased but where the owner or operator proposes to retain the ability to use the underground storage tank within 2 years for the storage of hazardous substances.

(b) The owner or operator shall comply with all of the following:

(1) All residual liquid, solids, or sludges shall be removed and handled pursuant to the applicable provisions of Chapter 6.5 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, then the underground storage tank, either in part or as a whole, shall be purged of the flammable vapors to levels that would preclude an explosion or such lower levels as may be 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 must be tested and results submitted to the local agency prior to its being removed 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 utilizing locked caps or concrete plugs.

(5) Power service shall be disconnected from all pumps associated with the use of the underground storage tank except if the pump services some other equipment which is not being closed.

(c) The monitoring required pursuant to the permit may be modified or eliminated during the temporary closure period by the local agency. The local agency shall consider, in making the above decision, 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 reached the monitoring locations and been detected.

(d) The underground storage tank shall be inspected by the owner or operator at least once every 3 months to assure that the temporary closure actions are still in place. This shall

include:

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

(2) If locked caps are utilized, then 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 (b)(3) of this section.

Authority: H&SC 25299.3

Reference: H&SC 25298

Adopt new section to read:

2672. Permanent Closure Requirements

(a) Owners of underground storage tanks subject to permanent closure shall comply with either Subsection (b) of this section for underground storage tank removal or Subsection (c) of this section 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 actions shall comply with the appropriate subsection of this section. Subsections (d) and (e) of this section regarding no discharge demonstration applies to all underground storage tanks subject to permanent closure.

(b) Owners of underground storage tanks proposing to remove the underground storage tank shall comply with applicable provisions of Chapter 6.5 of Division 20 of the Health and Safety Code, in addition to the following:

(1) All residual liquid, solids, or sludges shall be removed.

(2) If the underground storage tank contained a hazardous substance that could produce flammable vapors at standard temperature and pressure, then the underground storage tank, either in part or as a whole, shall be

purged of the flammable vapors to levels that would preclude explosion or such lower levels as may be required by the local agency.

(3) When an underground storage tank or any part of an underground storage tank is to be disposed of, the owner must document to the local agency that proper disposal has been completed.

(4) An owner of an underground storage tank or any part of an underground storage tank that is destined for a specific reuse shall identify to the local agency the future underground storage tank owner, operator, location of use, and nature of use.

(5) An owner of an underground storage tank or any part of an underground storage tank that is destined for reuse as scrap material shall identify this reuse to the local agency.

(c) Closure of underground storage tanks in place shall comply with the applicable provisions of Chapter 6.5 of Division 20 of the Health and Safety Code, in addition to all of the following:

(1) All residual liquid, solids, or sludges shall be removed.

(2) 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.

(3) The underground storage tank, except for the piping that is closed pursuant to Subsection (2) of this subsection, 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 of the underground storage tank.

(4) A notice shall be placed in the deed to the property. The notice shall describe the exact vertical and areal location of the closed underground storage tank, the hazardous substances it contained, and the closure method.

(d) The owner 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 can be based on the ongoing leak detection monitoring, ground water

monitoring, or soils sampling performed during or immediately after closure activities.

If feasible, soil samples shall be taken and analyzed according to the following:

(1) If the underground storage tank or any portion thereof is removed, then soil samples from the soils immediately beneath the removed portions shall be taken. A separate sample shall be taken for every 200 square-feet for underground storage tanks or every 20 lineal-feet of trench for piping, at a minimum.

(2) If the underground storage tank or any portion thereof is not removed, soils sampling pursuant to Section 2645 of Article 4 of this subchapter shall be implemented, if feasible.

(3) Soils shall be analyzed for all constituents of the previously stored hazardous substances and their breakdown or transformation products.

(e) The detection of any unauthorized release shall require compliance with the reporting requirements of Article 5 of this subchapter.

Authority: H&SC 25299.3

Reference: H&SC 25298

Article 8. Categorical and Site-Specific Variance Procedures

Adopt new section to read:

2680. Applicability

(a) This article sets up procedures for categorical and 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 subchapter. A site-specific variance, if approved, would apply only to the specific site(s) approved for a variance. A categorical variance, if approved, would apply to the region, area, or circumstances approved for a variance. A categorical variance application shall include more than one site or shall be non-site specific. 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 of this article specifies the procedures that must be followed by the applicant and the State Board for categorical variance requests.

(c) Section 2682 of this article specifies the procedures that

must be followed by the applicant, local agency, and the regional board for site-specific variance requests.

Authority: H&SC 25299.3

Reference: H&SC 25299.4

Adopt new section to read:

2681. Categorical Variances

(a) A categorical variance allows an alternative method of construction or monitoring which is applicable to more than one local agency jurisdiction. Application for a categorical variance shall be made by the permittee to the State Board on a form provided by the State Board.

(b) Application for a categorical variance shall include, but not be limited to:

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

(2) A description of the proposed alternative program, method, device, or process.

(3) A description of the region, area, or circumstances under which the variance would apply.

(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) 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.

(6) An initial payment of $11,000.

(c) The applicant will be required to pay a fee based on the actual costs of considering the application. The State Board will bill the applicant for additional costs or refund any remaining part of the initial fee, if necessary.

(d) The State Board shall review all applications submitted and shall notify the applicant in writing within 30 days of receipt of the application as to whether or not the application is complete.

(e) The State Board shall complete any documents necessary to satisfy the California Environmental Quality Act (Division 13, commencing with Section 21000, of the Public Resources Code).

(f) The State Board shall remand the application to the appropriate regional board if it determines that the

application falls within Section 2682 of this article.

(g) The State Board shall hold at least 2 public hearings in different areas of the state within 180 days of receipt of a complete variance application to consider the request for a categorical variance.

(h) Upon the close of a hearing, the presiding officer may keep the hearing record open for a definite time, not to exceed 30 days, to allow any interested person to file additional exhibits, reports, or affidavits.

(i) If the State Board grants the variance, it will prescribe the conditions the applicant must maintain and will describe the specific alternative for which the variance is being granted.

(j) All permit applicants who intend to utilize an approved categorical variance shall attach a copy of the approved variance to the permit application submitted to the local agency. The local agency shall review the application and categorical variance to determine if the variance applies to the specific site. If the variance applies, the local agency shall issue a permit to the applicant which includes the conditions prescribed by the State Board provided all

other permit conditions are met.

(k) The State Board shall modify or revoke a categorical 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 State Board shall not modify or revoke a categorical variance until it has followed procedures comparable to those prescribed in this section and Subchapters 1.5 and 6 of this chapter. The State Board shall notify all affected local agencies of the modification or revocation. Local agencies shall modify or revoke all permits which were based on the categorical variance.

Authority: H&SC 25299.3

Reference: H&SC 25299.4

Adopt new section to read:

2682. 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 one local agency's jurisdiction. Application for a site-specific variance shall be made by the permittee to the appropriate regional board on a form provided by the regional board.

(b) At least 60 days prior to applying to the regional board, the permittee 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 days of its receipt of the permittee's complete construction and monitoring plan, the permittee may proceed with a variance application.

(c) Application for a site-specific variance shall include, but not be 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 would rely 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) That the proposed alternative will adequately protect the soil and the beneficial uses of waters of the state from an unauthorized release.

(5) Any documents necessary to satisfy the California Environmental Quality Act (Division 13, commencing with Section 21000, of the Public Resources Code).

(6) A fee of $2,750 for variance requests at one site. A fee of $5,500 for variance request at more than one site within one local agency's jurisdiction.

(d) The regional board shall review all applications submitted and shall notify the applicant in writing within 30 days of receipt of the application as to whether or not the application is complete.

(e) The regional board shall hold a hearing on the proposed alternative within 60 days after receiving a complete variance application; however, the hearing shall be held after the 30-day period allowed by the appropriate section of Chapter 6.7 of Division 20 of the Health and Safety Code for local agencies to join in the application.

(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 board shall notify the applicant and the local agency of its decision.

(g) The regional board shall consider the local agency's recommendations in rendering its decision. The regional board shall consider the completeness and accuracy of the information provided by the applicant in Subsection (e) of this section in rendering its decision.

(h) If the variance request is approved, the local agency shall issue a permit to the applicant which includes the conditions prescribed by the regional board. A local agency shall not modify the permit unless it determines that the modification is consistent with the variance that has been granted.

(i) The regional 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 board shall not modify nor revoke the variance until it has followed procedures comparable to those prescribed in this section and Subchapters 1.5 and 6 of this chapter. The regional board shall notify the local agency of the modification or revocation. The local agency shall modify or revoke the permit for the site.

Authority: H&SC 25299.3

Reference: H&SC 25299.4

Article 9. Local Agency Additional Standards Request Procedures

Adopt new section to read:

2690. Applicability

(a) This article sets up procedures for local agencies to request State Board authorization for more stringent standards than those set by Article 3 of this subchapter. These procedures are in addition to those established by Chapter 6.7 of Division 20 of the Health and Safety Code.

Authority: H&SC 25299.3

Reference: H&SC 25299.4

Adopt new section to read:

2691. Additional Standards Request Procedures

(a) Local agency application for additional standards shall include:

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

(2) Clear and convincing evidence that the additional standards are necessary. Clear and convincing evidence that the additional standards would adequately 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 board will

bill the applicant for additional costs or refund any remaining part of the initial fee, if necessary.

(c) The board shall conduct an investigation and public hearing on the proposed standards and their 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 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 board shall not modify nor revoke the authorization until it has followed procedures comparable to those presented in Subchapters 1.5 and 6 of this chapter.

Authority: H&SC 25299.3

Reference: H&SC 25299.4

Article 10. Permit Application, Annual Report and Trade Secret Requirements

Adopt new section to read:

2710. Applicability

(a) This article describes specific administrative actions that must be accomplished by all underground storage tank owners, local agencies, and the State Board relative to issuing permits for underground storage tanks. These actions are in addition to those established by Chapter 6.7 of Division 20 of the Health and Safety Code.

(b) Section 2711 of this article lists the information that must be submitted by the underground storage tank owner to the local agency as part of the permit application.

(c) Section 2712 of this article describes the conditions that local agencies must include in all permits issued and conditions which local agencies must meet prior to permit issuance.

(d) Section 2713 of this article describes the annual report requirements for local agencies.

(e) Section 2714 of this article specifies conditions that must be met by an underground storage tank owner when requesting trade secret provisions for any information submitted to the local agency, State Board, or regional board. It also specifies how the local agency, the State Board, or regional board shall consider the request and how they shall maintain the information if the trade secret request is accepted.

Authority: H&SC 25299.3

Reference: H&SC 25284, 25285, 25286, 25288, 25289, 25290, 25293

Adopt new section to read:

2711. Permit Application and Information

(a) The permit application shall include, but not be limited to, the following information if it is accurately 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 phone number where the underground storage tank is located and type of business.

(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) Description of the underground storage tank including, but not limited to, underground storage tank and auxiliary equipment manufacturer, year of manufacture,

capacity, history of repairs, and operation methods schedule.

(6) In the case of new underground storage tanks installed with systems for secondary containment utilizing membrane liners, a certification by the membrane liner material manufacturer that the membrane liner meets the standards set forth in Subsection 2631(c) and (j)(1) and (2) of Article 3 of this subchapter, or, if applicable, Subsection 2633(e)(1) and (2) of Article 3 of this subchapter; and a certification by the membrane liner fabricator that the membrane liner meets the standards set forth in Subsection 2631(c) and (j)(3) of Article 3 of this subchapter.

(7) Construction details of the underground storage tank and any auxiliary equipment including, but not limited to, type and thickness of primary containment, type and thickness of secondary containment (if applicable), installation procedures, backfill, lining, wrapping, and cathodic protection methods (if applicable).

(8) A 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;

(B) Underground storage tank testing or inspection procedures;

(C) Inventory reconciliation including gauging and reconciliation methods;

(D) Soils sampling locations and methods and analysis procedures;

(E) Vadose zone sampling locations and methods and analysis procedures;

(F) Ground water well(s) locations, construction and completion methods, sampling, and analysis procedures; and

(G) Frequency and sensitivity of any monitoring method

sensing instrument or analytical method.

(10) A list of all the substances which previously, currently, or are proposed to be stored in the underground storage tank or tanks.

(11) 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.

(12) The permit application must be signed by:

(A) A principal executive officer at the level of vice-president or by an authorized representative. The representative must be responsible for the overall operation of the facility where the underground storage tank(s) is located;

(B) A general partner proprietor; or

(C) A principal executive officer, ranking elected official, or authorized representative of a public agency.

(b) The application shall be accompanied by the fee set by the local agency.

Authority: H&SC 25299.3

Reference: H&SC 25286

Adopt new section to read:

2712. Permit Conditions

(a) As a condition of any permit to operate an underground storage tank, the permittee shall report to the local agency which has permitting authority within 30 days after any changes in the usage of any underground storage tank, including:

(1) The storage of new hazardous substances;

(2) Changes in monitoring procedure; or

(3) The replacement or repair of all or part of any underground storage tank.

(b) As a condition of any permit to operate an underground storage tank, the permittee shall report to the local agency any unauthorized release occurrences, as defined in Article 2 of this subchapter, within the time frame specified in Subsections 2652(b) and (c) of Article 5 of this subchapter.

(c) Written records of all monitoring performed shall be maintained on-site by the operator for a period of at least

3 years from the date the monitoring was performed. The local agency may require the submittal of the monitoring records or a summary at a frequency that they may establish. The written records of all monitoring performed in the past 3 years shall be shown to the local agency, regional board, State Board, or duly authorized representative upon demand during any site inspection. 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;

(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.

(d) A permit to operate issued by the local agency shall be effective for 5 years. A local agency shall not issue a permit to operate an underground storage tank until the local agency inspects the underground storage tank and determines that the underground storage tank complies with the provisions of these regulations. The underground storage tank owner shall apply to the local agency for permit renewal at least 180 days prior to the expiration of the permit.

(e) The local agency shall have 18 months after it establishes a program implementing this subchapter to issue permits for all existing underground storage tanks.

(f) Permits may be transferred to new underground storage tank owners if the new underground storage tank owner does not change any conditions of the permit, the transfer is registerd with the local agency within 30 days of the change in ownership, and any necessary modifications are made to the information in the initial permit application due to the change in ownership. A local agency may review, modify, or terminate the permit to operate the underground storage tank upon receiving the ownership transfer request.

(g) The local agency shall not renew an underground storage tank permit unless the underground storage tank has been inspected within the prior 3 years and the inspection revealed that the underground storage tank complies with Article 3 or 4 of this subchapter, as applicable, and with all existing permit conditions. The inspection shall be conducted as specified in the appropriate subsection of Chapter 6.7 of Division 20 of the Health and Safety Code. If the inspection revealed noncompliance then the local agency must verify by a follow-up inspection that all required corrections have been implemented before renewing the permit.

(h) Within 30 days of receiving an inspection report from either the local agency or the special inspector, the permit holder shall file with the local agency a plan and time schedule to implement any required modifications to the underground storage tank or to the monitoring plan needed to achieve compliance with either Article 3 or Article 4 of this subchapter, as appropriate, or the permit conditions. This plan and time schedule shall also implement all of the recommendations of the special inspector. The local agency may exempt 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 the

failure to implement the recommendation will not cause an unauthorized release.

Authority: H&SC 25299.3

Reference: H&SC 25284, 25285, 25288, 25289, 25293

Adopt new section to read:

2713. Annual Report

(a) The local agency shall notify the State Board of any changes in permits as defined in Subsections (a) or (f) of Section 2712 of this article or any unauthorized releases as defined in Article 2 of this subchapter annually on the State Board's annual report forms or other methods determined by the State Board. This information shall be submitted to the State Board by March 1 of each year covering the prior calendar year.

Authority: H&SC 25299.3

Reference: H&SC 25286

Adopt new section to read:

2714. Trade Secret Provisions

(a) Any person providing information in an application for a permit to operate an underground storage tank or for renewal of the permit or application for a categorical or site-specific variance, shall, at the time of its submission, identify all information which the person believes is a trade secret and submit a legal justification for the request for confidentiality. The information which must be submitted includes.

(1) Which portions of the information submitted are believed to be trade secrets;

(2) How long 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 a trade secret, including references to statutory and case law as appropriate.

(b) If the local agency, the State Board, or the regional board determines that a request for confidentiality is clearly valid, the material shall be given trade secret protection as discussed in Subsection (f) of this section.

(c) If the local agency, State Board, or the regional board determines that the request for confidentiality is clearly frivilous, it will send a letter to the applicant stating that the information will not be treated as a trade secret unless the local agency, State Board, or the regional board is instructed otherwise by a court within 10 days of the date of the letter.

(d) If the validity of the request for confidentiality is unclear, the local agency, the State Board, or the regional board will inform the person claiming trade secrecy that the burden is on him to justify the claim. The applicant will be given a fixed period of time to submit such additional information as the local agency, the State Board, or the regional board may request. The local agency, the State Board, or the regional board 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 issue its decision. If the

local agency, the State Board, or the regional board 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 regarding which a final determination has not been made 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 should be filed with the remainder of the 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 only in connection with the State Board's, the regional board's, or the local 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: [illegible] 25299.5

Reference: [illegible] 25290

APPENDIX I, TABLE A

SUGGESTED SPECIFICATIONS
APPLICABLE TO REGULATORY REQUIREMENTS

SECTION NUMBER		
2631(j)(1)	ASTM D-814,	"Rubber Property - Vapor Transmission of Volatile Liquids"
2631(j)(2)(A)	ASTM D-543,	"Resistance of Plastics to Chemical Reagents"
2631(j)(2)(B)	ASTM D-751,	"Coated Fabrics"
2631(j)(2)(C)	ASTM D-2240,	"Rubber Property--Durometer Hardness"
2631(j)(2)(D)	ASTM D-2684,	"Determining Permeability of Thermoplastic Containers"
2635(b)(1)	ASME,	"ASME Pressure Vessel Code, Section VIII, Division T, Boiler and Pressure Vessel Code"
	UL58,	"Steel Underground Tanks for Flammable and Compustible Liquids"
	UL1316,	"Glass Fiber Reinforced Plastic Underground Storage Tanks for Petroleum Products"
	ULC-3615-1977,	"Standard for Reinforced Plastic Underground Tanks for Petroleum Products"
2635(b)(2)	ASTM G-1-72,	"Standard Recommended Practice for Preparing, Cleaning, and Evaluating Test Specimens"
	ASTM G-31-72,	"Standard Recommended Practice for Laboratory Immersion Corrosion Testing of Metals"
	ASTM D-4021-81,	"Standard Specifications for Glass-Fiber- Reinforced Polyester Underground Petroleum Storage Tanks"
	NACE TM-10-69,	"Laboratory Corrosion Testing of Metals for the Processing Industry"
	NACE TM-02-70,	"Method for Conducting Controlled Velocity Laboratory Corrosion Tests"
2661(c)(2)(B)	API 1631,	"Recommended Practice for the Interior Lining of Existing Steel Underground Storage Tanks"
2663(b)	NFPA 329-1983	"Recommended Practice for Handling Underground Leakage of Flammable and Combustable Liquid"

APPENDIX I, TABLE B

ORGANIZATIONS PROVIDING SPECIFICATIONS APPLICABLE TO REGULATORY REQUIREMENTS

ANSI American National Standards Institute
1430 Broadway
New York, NY 10018
(212) 354-3473

API American Petroleum Institute
2101 L Street, N.W.
Washington, D.C. 20037
(202) 457-7000

ASME The American Society of Mechanical Engineers
345 East 47th Street
New York, NY 10017
(215) 299-5400

ASTM American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103
(215) 299-5400

NACE National Association of Corrosion Engineers
P.O. Box 986
Katy, TX 77450
(713) 492-0535

NFPA National Fire Protection Association
Batterymarch Park
Quincy, MA 02269
(617) 328-9290

UL Underwriters Laboratories
333 Pfingsten Road
Northbrook, IL 60062
(312) 272-8800

ULC Underwriters Laboratories of Canada, Inc.
7 Crouse Road
Scarborough, Ontario

STI Steel Tank Institute
666 Dundee Road, Suite 705
Northbrook, IL 60062
(312) 498-1980

C. Errata Sheets

1. Errata sheet draft dated November 9, 1984

Vol 4

UNDERGROUND TANK REGULATIONS

CALIFORNIA ADMINISTRATIVE CODE
TITLE 23 WATERS
CHAPTER 3 WATER RESOURCES CONTROL BOARD
SUBCHAPTER 16 UNDERGROUND TANK REGULATIONS

ERRATA: November 9, 1984 DRAFT

page 3.4 Subsection (h) should read

"Secondary containers shall be equipped with a collection system capable of removing for the removal of any precipitation, subsurface infiltration, or hazardous substance released from the primary container.

page 3.19 The reference to "Section 2631 (j)(1)" in Subsection (e)(1) should be "Section 2631 (j)(1)".

page 3.22 The references to "Sections 2632 and 2633" in this paragraph should be "Sections 2633 and 2634".

page 3.24 Subsections (b) and (c) should read, in part:

"(b) The floor of the leak interception and detection system shall be constructed on a firm base and sloped to a specific location or collection sump.

(c) Access casing(s) shall be installed to intercept in the collection sump or specific location. The access casing shall be:...."

page 3.26 The first sentence in Subsection (g) should be replaced with the following:

"(g) All piping shall be tested using one of the following methods within 24 hours of completion of Subsection (f)(5).

A. Isolate the piping and conduct a hydrostatic pressure test at 50 psi (2600 mm Hg) or greater. If the pressure drops more than 5 psi (260 mm Hg) per minute, it indicates the probability of a leak in the line. Repeat the test at least once to ensure against compression of entrained air. Any pressure drop less than 5 psi (260 mm Hg) per minute is inconclusive as it may be caused by cooling. If the test continues to indicate a leak, appropriate action must be taken.

B. Quite often pumps are located in the tank, or, on some rare occasions, just above the tank but remote from the dispensing devices. In such cases, the pipe to the dispensing equipment operates under pressure. A leak in this line will cause rapid loss of pressure after the pump is turned off. This can be checked in the following manner.

page 3.30 The second line of Subsection (g) should read

"... developed prior to installation for any leak interception and detection ..."

page 3.35 The second sentence of Subsection (7) should be replaced with the following:

Pressure piping shall be hydrostatically tested to 150 percent of the maximum anticipated pressure of the system, or pneumatically tested to 110 percent of the maximum anticipated pressure of the system, but not less than 5 lbs per sq in (34.48 kPa) gage at the highest point of the system. This test shall be maintained for a sufficient time to complete visual inspection of all joints and connections, but for at least 10 minutes. In lieu of the above a test using accepted engineering practices shall be used. Acceptable test methods for testing pipelines are provided in Appendix I.

page 3.36 Subsection (A) should read as follows and Subsection (D) should be deleted

"(A) A level sensing devise that continuously monitors and indicates the liquid level in the tank and either (B) or (C) or both. A spill catchment basin which surrounds the fill pipe and prevents the inflow of the hazardous substance into the subsurface environment."

page 3.37 Subsection (B) should read as follows:

"(B) The available capacity of the tank to be filled is determined immediately prior to filling to be at least 103 percent of the volume of the entire tank compartment to be delivered or the volume of the entire tank compartment to be filled plus 200 gallons, whichever is less, as determined by tank guaging, or"

page 3.39 The last sentence in Subsection (1) should read:

"The secondary containment shall extend an additional distance beyond the vertical planes described above equal to the radius of lateral spread plus one foot."

page 4.6 through 4.14 should be deleted. They are duplicative of pages 4.32 through 4.40.

page 4.19 The reference to "No. 3." in the first line on the page should be "No. 2."

page 4.20 The reference to "Subsection (l)" in the first line on the page should be "Subsection (p)."

page 4.23 The first line in Subsection (iv) should read

"(iv) The throughput error shall be the measured ..."

page 4.24 Table 4.2 should read

Tank Size*	Allowable Measurement Error*
<4000	25
4000 to <8000	50
8000 to <12000	75
≥12000	100

* all values in gallons"

page 4.26 The reference to "Subsection (d) of Subsection (5)" in Subsection (D) should be "Subsection (5)(D) of this Subsection."

page 4.43 The reference to "Subsection (g)" in Subsection (g) should be "Subsection (5)."

page 4.50 The reference to "Sections 2648 (p) and (q)" in Subsection (f) should be

"Subsections (t) and (u) of Section 2648 of this Article."

page 4.55 The word "section" in the last line of Subsection (c) should be "segment."

page 4.56 Subsection (e) should read:

"(e) Subsurface vadose zone monitoring systems shall, if possible, be located within the backfill surrounding the tank."

page 4.57 — The reference to "Sections 2648 (p) and (q)" should be "Subsections (t) and (u) of Section 2648."

page 4.63 — The second line on the page should read:

"... water table, laterally extensive and at least 5 feet thick. In ..."

page 4.63 — The "5 feet" in Subsection (d) should be "1 foot".

page 4.63 — The word "screens" in the fourth line of Subsection (e) should be "casing".

page 4.63 — Subsection (g) should read:

"(g) Filter pecks shall extend at least 2 feet above the tope of the perforated zone."

page 4.64 — Subsection (j) should read:

"(j) Borings shall be described in accordance with the provisions of Subsections (t) and (h) of Section 2648 of this Article."

page 4.74 — The reference to "Sections 2647 and 2648" in Subsection (4) should be "this Section and Section 2647."

page 4.84 — The reference to "Section 2648 (m) and (n)" in Subsection (5) should be

"Subsections (q) and (s) of Section 2648 of this Article."

page 4.75 — The first line on the page should read:

"... the boring which is below the monitoring interval sealed..."

page 5.6 — The word "leak" in the second line of the Subsection (d) should be deleted.

page 5.8 — The fourth line in Subsection (b) should read:

"... have been detected using required monitoring, the operator shall ..."

page 5.9 The third and fourth line of Subsection (4), should read:

"... ground water or surface water (include an indication of whether a hazardous waste manifest(s) is ..."

page 6.3 The words "adequate retionale" in the seventh line of Subsection (a) should be replaced with "grounds".

page 6.4 The word "wall" in Subsection (4) shoud be "weld."

page 6.5 The first line of Subsection (c) should read:

"If a tank repair is approved by the local agency based on satisfactory ..."

page 6.5 The last sentence in Subsection (b) should be deleted.

page 6.5 The words "whichever is later" should be added to the last sentence of Subsection (d).

page 7.3 The last sentence in the first paragraph on the page should read:

"In this situation, the underground storage tank owner shall submit the required proposal within 14 days of either the discovery of an unauthorized release, or actions taken to prevent or minimize the effects of the unauthorized release.

page 8.4 Subsection (5) should read:

"(5) 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."

page 8.4 The following part of Subsection (c) should be deleted:

"before the public hearing ... on the application."

page 8.7 The last line on the page should read:

"Local agencies shall modify or revoke all permits ..."

page 9.2 The word "will" in the first line of Subsection (b) should be "shall".

page 9.2	The following part of Subsection (b) should be deleted: "before the public hearing ... on the application."
page 9.4	The word "will" in the second line on the page should be "shall".
page 10.1	The following part of Subsection (b) should be deleted: "and the requirements ... State Board."
page 10.1	The third line of Subsection (c) should read: "... conditions <u>which</u> local agencies must meet prior to permit ..."
page 10.2	The words "both tank owners and" should be deleted from the first line on the page.
page 10.10	Subsection (h) should be deleted.

2. Errata sheet draft dated December 28, 1984

ERRATA: DECEMBER 28, 1984 DRAFT
UNDERGROUND TANK REGULATIONS

CALIFORNIA ADMINISTRATIVE CODE
TITLE 23 WATERS
CHAPTER 3 WATER RESOURCES CONTROL BOARD
SUBCHAPTER 16 UNDERGROUND TANK REGULATIONS

Page 3.22: The following should be added to subsection (c) at the end of this page:

"than those specified in 2633(b) shall be subject to "

Page 3.40: The first and third sentences of subsection (4) should read:

"(4) Single-wall primary containers of steel which are not clad with glass fibre reinforced plastic, ~~with or without coatings~~, shall be protected by either a properly installed, maintained, and monitored cathodic protection system.
...
Underground storage tanks with listed corrosion resistant materials, non-metalic glass fibre reinforced plastic coatings, composites, or equivalent systems shall be holiday tested immediately prior to installation."

Table 4.1: The minimum frequency for ground water monitoring in Alternative 4 shall be "monthly" instead of weekly as shown. This corresponds to the text on page 4.13.

Table 4.1: The last sentence in comment no. 1 in Alternative 7 should read as follows to correspond to the text:

"A liquid level difference of 1 percent of the tank volume or ~~50~~ 5 gallons, whichever is less shall be cause for further investigation."

Page 4.15: The last sentence in subsection (iii) should read:

"The period of continuous calculation shall be no greater than ~~30 days~~ one month."

Page 4.19: Subsection (iii) should read:

"(iii) more greater than 30-day variation: 0.5% of throughput or ~~30-day variation~~ 100 gallons whichever is less."

Page 4.42: The first sentence in subsection (6) should read:

"Converted to volume measurements based on a calibration chart ~~provided by~~ for the underground storage tank. ~~manufacturer or supplier.~~"

Page 8.4: The second sentence in subsection (c) should read:

"The State Board will bill the applicant for additional ~~anticipated~~ costs or refund any remaining part of the initial fee, if necessary."

Page 8.14: The first sentence in subsection (g) should read:

"(g) The regional board shall consider the local agency's, ~~and the city's, county's, or city and county's~~ recommendations in rendereing its decision."

Page 9.2: The second sentence in subsection (b) should read:

"The State Board will bill the applicant for additional ~~anticipated~~ costs or refund any remaining part of the initial fee, if necessary."

APPENDIX I, TABLE B

ORGANIZATIONS PROVIDING SPECIFICATIONS APPLICABLE TO REGULATORY REQUIREMENTS

ANSI American National Standards Institute
1430 Broadway
New York, NY 10018
(212) 354-3473

API American Petroleum Institute
2101 L Street, N.W.
Washington, D.C. 20037
(202) 457-7000

ASME The American Society of Mechanical Engineers
345 East 47th Street
New York, NY 10017
(215) 299-5400

ASTM American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103
(215) 299-5400

NACE National Association of Corrosion Engineers
P.O. Box 986
Katy, TX 77450
(713) 492-0535

NFPA National Fire Protection Association
Batterymarch Park
Quincy, MA 02269
(617) 328-9290

UL Underwriters Laboratories
333 Pfingsten Road
Northbrook, IL 60062
(312) 272-8800

ULC Underwriters Laboratories of Canada, Inc.
7 Crouse Road
Scarborough, Ontario

STI Steel Tank Institute
666 Dundee Road, Suite 705
Northbrook, IL 60062
(312) 498-1980

3. Errata sheet draft dated January 18, 1985

AS ADOPTED ON JANUARY 18, 1985
ERRATA: JANUARY 18, 1985
UNDERGROUND TANK REGULATIONS

CALIFORNIA ADMINISTRATIVE CODE
TITLE 23 WATERS
CHAPTER 3 WATER RESOURCES CONTROL BOARD
SUBCHAPTER 16 UNDERGROUND TANK REGULATIONS

Page 3.30: The first and third sentences of subsection (4) should read:

"Single-wall primary containers of steel and the outer surface of double-walled underground storage tanks constructed of steel which are not clad with glass fibre reinforced plastic, ~~with or without coatings~~ shall be protected by either a properly installed, maintained, and monitored cathodic protection system."

"Underground storage tanks with listed corrosion resistant materials, non-metalic glass fibre reinforced plastic coatings, composites, or equivalent systems shall be holiday tested immediately prior to installation."

Page 4.15: Subsection (iii) should read:

"more than 30-day variation: ± 0.5 percent of throughput or 100 gallons whichever is less"

Page 4.16: Subsection (D) should read:

"All pressurized pipelines and suction pipelines shall be monitored as provided for in Subsection (5)(D) of this subsection."

Page 4.18: Subsection (iv) should read:

"If the liquid level varies by more than 1 percent of the underground storage tank's volume or 5 gallons, whichever is less, between measurements, an unauthorized release shall be..."

March 6, 1985