

# III. Documentation

# A. Filing Notice of Proposed Regulatory Action

1. Transmittal memorandum to  
OAL, August 14, 1984

# Memorandum

85

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

Date :

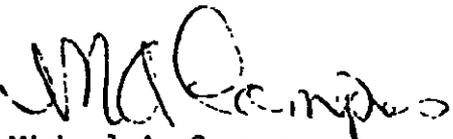
From : STATE WATER RESOURCES CONTROL BOARD

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 14 1984 -- AUG 24 1984

Office of Administrative Law

Attachments

## 2. Face Sheet for Filing Administrative Regulations

FACE SHEET

(OAL-4)

8507113

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 The attached are true and correct copies of regulations adopted, amended or repealed by: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: Michael A. Campos  
(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

HAROLD YONG 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:

SECTIONS AMENDED

Title: 23

SECTIONS ADOPTED

2610-2714

SECTIONS REPEALED

3. Type of Order:

a.  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  None

e. Is this order a resubmittal of previously disapproved or withdrawn regulations?

Yes  No

f. Do these regulations contain building standards as defined in Section 18909 of the Health and Safety Code?

Yes  No

g. Are these fire and panic safety regulations requiring state Fire Marshal approval?

Yes  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.  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).)

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 WATER RESOURCES CONTROL BOARD

PAUL R. BONDERSON BUILDING  
101 P STREET  
P. O. BOX 100  
SACRAMENTO, CALIFORNIA 95801



## 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 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 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.

	<u>INITIAL COST</u>	<u>PER YEAR</u>	<u>ANNUAL COST</u>	<u>PERCENTAGE OF PROGRAM ONBOARD</u>	
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.

	<u>INITIAL COST</u>	<u>PER YEAR</u>	<u>ANNUAL COST</u>	<u>PERCENTAGE OF PROGRAM ONBOARD</u>		
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.

	<u>INITIAL COST</u>	<u>PER YEAR</u>	<u>ANNUAL COST</u>	<u>PERCENTAGE OF PROGRAM ONBOARD</u>		
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.

<u>INITIAL COST</u>	<u>PER YEAR</u>	<u>ANNUAL COST</u>	<u>PERCENTAGE OF PROGRAM ONBOARD</u>	
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 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 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 purchase 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 dischargers 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, 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 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 Monitoring 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 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 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 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 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 what information 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 accomplished by analysing 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 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

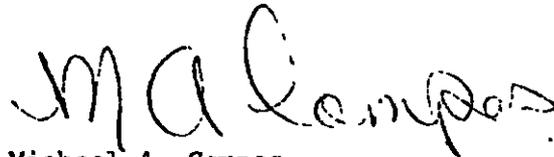
Health and Safety Code Section 25288.3(b) allows local agencies to request State Board authorization for implementing more stringent standards than those set by Articles 3 and 4. The proposed regulations describe request procedures which include identifying information needed to evaluate the request, 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, 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:

STATE WATER RESOURCES CONTROL BOARD

A handwritten signature in black ink, appearing to read "Michael A. Campos". The signature is written in a cursive, flowing style.

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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Storage of Hazardous Substances  
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Article 1 General

Adopt new section to read

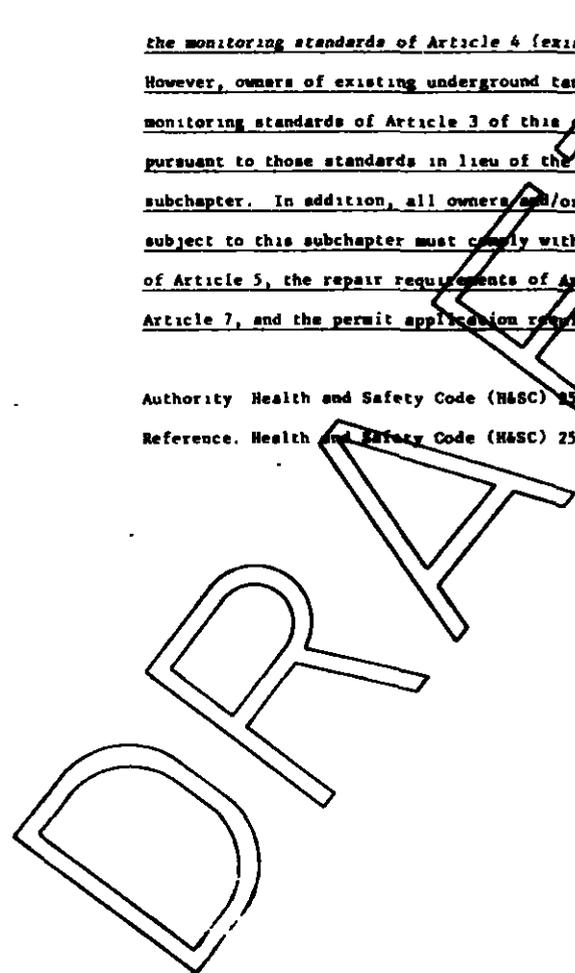
2610 Applicability

- (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) 25282.2

Reference. Health and Safety Code (H&SC) 25282, 25283, 25286, 25288.2



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 jurisdiction 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, contains 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 22916 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

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## Article 2. Definition of Terms

Adopt new section to read:

2620. DefinitionsThe 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

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and Combustible Liquids Code 1981 (NFPA 30)."Installed" means the point in time when all necessary permits have been issued allowing the placement of the underground tank or, if no permits are necessary, the point in time when actual placement 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 leakage 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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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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Authority: H&BC 25288.2

Reference: H&BC 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&C 25285-2

Reference: H&C 25280, 26284

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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 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 or 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 750 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 Sections (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 10 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&C 25280, 2

Reference: H&C 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 covered with a locked, weatherproof cap.

(d) The casing shall be of thickness 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:

- (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 test 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&C 25280.2

Reference: H&C 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:

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- (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 or the movement of any leak of hazardous substance; and,
  - (5) The nature and timing of the response plan to clean-up the hazardous substance 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&amp;SC 25280.2

Reference: H&amp;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.

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(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 through-put 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

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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 (a) (2).

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(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 (a) (3).

(5) All dispenser meters associated with hazardous substance withdrawal shall be checked for calibration within 24 hours of completion of subsection (a) (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", 1903 (NFPA 325), within 24 hours of completion of subsection (a) (5). This step may be completed after the step described in subsection (a) (7) if excoriation is necessary to perform the tests and if the step described in subsection (a) (7) is completed within 48 hours of the completion of subsection (a) (5). If this occurs, then this subsection shall be completed within 24 hours of the completion of subsection (a) (7).

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

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.
- (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-5615-1977, 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 compatibility with the hazardous substances to be stored using applicable sections of American Society for Testing and Materials (ASTM) D4021-84 "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.
- (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 back-filled, the backfill material shall not preclude the vertical movement or 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

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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.

- (12) 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

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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

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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 HMSC 25288.2

Reference: HMSC 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.

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- (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

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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 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.

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(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&C 25288.2

Reference: H&C 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,

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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 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

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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

DRRAFT

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 meter 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: 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<sup>1</sup> - within one year of permit issuance and yearly beginning fifteen (15) years after tank installation.

<sup>1</sup> 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 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

DRAFT

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 exempt 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.

(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 (c)(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 2536 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

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 (a) of this section.

(a) 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:

(1) 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.

(2) 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, the 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 25283.2

Reference: H&SC 25284.1

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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 an 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 cell.

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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.

Authority: 48C 25288.2

Reference: 48C 25284.1

4.22

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 detector 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 2646.
- (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 fitted 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.
- (7) 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 2646 of this article.

Authority: BSC 25288.2

Reference: BSC 25284.1

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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 100 feet of the tank or tank cluster perimeter.
  - (4) Soil conditions prevent drilling by any generally existing techniques.
- (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 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.

Authority: HASC 25288.2

Reference: HASC 25284.1

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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 casing, casing fittings, screens, gravel packs and all other components are to be thoroughly cleaned before installation in the boring.

(e) All soil and water sampling 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 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 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

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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 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).

(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 10 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 W&SC 25284.2

Reference W&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 a 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.

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(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 time, 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 (a)(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 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

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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 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 25284.2

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

6.3

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Adopt new section to read

2562. 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

6.4

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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 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).

Authority: H&S 25288.2

Reference: H&S 25284.5

## 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.

7.1

- (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

7.2

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 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.

Authority H&SC 25206.2

Reference: H&SC 25206

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 of 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 contains, and the closure method.

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(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

7.8

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.

- (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 that 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.

(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 25288.5

Reference: H&SC 25288.5

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 to 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.

(j) 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

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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 (f) 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 persons 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 attending 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.

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 in Articles 3 and 4 of the Subchapter.

Authority H&SC 25288.2

Reference H&SC 25288.2

9.1

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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.
- (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 25200.2

Reference H&SC 25200.3

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 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 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.

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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.

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(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.

(12) 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&C 25288.2

Reference H&C 25283.2

10.4

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 and 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

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 and 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 (1) 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

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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), 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

10.10

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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 regarded 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 in this basis of the definition of "trade secrets" contained in Health and Safety Code Section 5283.6(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.

Authority: H&SC 25206.2  
Reference: H&SC 25203.6

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

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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

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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 25298.2 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 25298.2, 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 25298.2, 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 degradation 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

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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 relies 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 capital 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

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remedial action associated with the discovery of past leakage. Given the high percentage of leaking tanks already found it is probable that 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 sponsors 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

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associated with implementation of these regulations for underground tanks that they own or operate. Such costs 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 tanks that 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 and 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

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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 ordinances which were adapted and implemented under the provisions of Health and Safety Code Section 25285.

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 involves 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 such a burden 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 substance 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 25234 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,

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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 enhances 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

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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 structurally 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 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 2531(d)

Specific Purpose

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

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volumetric requirements for the secondary 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 secondary container accommodate 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 accommodate 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)

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#### 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 secondary 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 accommodate the volumes specified. These requirements specifically apply to secondary 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 25290(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 2531(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

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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 25234(e) requires that if water could enter into the secondary container by precipitation or infiltration, 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.

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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. Undesired settlement of the secondary container could adversely affect the integrity of the liner system by creating leaks through which an unauthorized release from the primary container could pass. The primary container could also be adversely affected as settlement of the tank could provide undue strain on both the tank and connections to 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 otherwise) and providing a temporary storage volume for a sub-

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quent 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 vaporism from entering a concentration.

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 anticipated stresses with a 2 safety factor and (2) constructed

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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.

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

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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 continuous 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 continuous 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, precipitation) are not normally expected to be present in the secondary container. Consequently, detecting liquid in the secondary

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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.

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 continuously 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 25234(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

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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 25234(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 structurally 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

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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 satisfy the requirements of Sections 2631(d) through (f), then the unauthorized release from the primary container is assumed to overtop the secondary

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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 occurred. 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

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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 presence 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 occurred 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 leaks from the

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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 overflow 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

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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

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Inventory control can be a very effective tool to detect large  
sudden losses or small daily losses 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 4-1 or 4-3 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 update of

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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 (e) 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 (8) 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 continuous 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

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(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)

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##### 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, a dip stick would not result in damage when used to determine the liquid level in the tank. If the stick is dropped into the primary container, it can result in a crack or hole in the container, consequently, installation of a strike plate under the accessible openings where measurements are taken will eliminate this problem. The strike plate also provides 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 not be used underground. The

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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 compatibility. Underwriters Laboratories in turn certifies only that the tank is compatible with certain chemicals.

The 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 compatibility. Under no circumstances should products be switched from tank to tank unless the manufacturer provides assurance that the new product is compatible with the tank. ASTM D4021-81 provides recognized standards for testing the compatibility 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 requirement results from the volumetric requirements for the secondary container mandated in Health and Safety Code Section 25284.2(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) delineates 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

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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 minimal 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 satisfied. 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 accommodate 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

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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 (e)(1) 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.

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(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 manufacturer's 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

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 overflow protection, including an overflow 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 overflow 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 liquid 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.

Overflow protection is accomplished by measuring and controlling the liquid level in the tank. An ideal underground tank overflow 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 overflow 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

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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 shutting 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 liquid 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

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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

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 (n) 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 (1) 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.

#### References

- [1] American Petroleum Institute, *Underground Leak Survey results* as reported by F.B. Killian to API to Underground Leak Task Force, American Petroleum Institute, Washington D.C., February 5, 1981.
- [2] National Fire Protection Association, *Flammable and Combustible Liquids Code (NFPA 30)*, Quincy, MA, 1981.

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Article 4. Existing Underground Storage  
Tank Monitoring Criteria

Pursuant to Health and Safety Code Section 25264.1, 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.

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 be 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 contaminated, 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

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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 25264.1 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

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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

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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 323, 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 (f).

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.

Section 25443. Inventory Control

Specific Purpose

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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 economic 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.

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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 losses 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 recommended 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 or withdrawal of liquid and the turbulence 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

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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 midpoint 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

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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

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recoried. 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 contaminated 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

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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-

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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 consistent with the concept of early detection out 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 monitoring 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

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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.

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#### 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.

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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.

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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 assurance 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 contaminate 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.

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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 occurrence. 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 2526.4 (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 2552(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

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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 assurance 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

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#### 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

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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 (NFPA 30-191) 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.

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 25286. 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 cessation 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 cessation 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 withdrawals) 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

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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 267A (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

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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 accessible empty tank can create problems during the temporary 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

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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.

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Subsection (e) requires the reporting of an unauthorized release if the demonstration performed as part of Subsection (c) 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 on 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.

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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 contaminants remain in the soils. Soils testing is the best method to demonstrate that no leakage has occurred.

DRAFT

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; identifying 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 categorical variance application. Information required by Section 25288.3(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 system 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.

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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 25228.3(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 bank 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

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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.

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Subsection (d) allows the local agency 30 days after completion of documents or receipt of Regional Board recommendation to decide 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 system, special circumstances that strict application of Articles 30&24 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 Regional Board to describe the specific alternative and any conditions in granting the variance. The Regional Board must notify the applicant and local agency of

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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 completeness 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.

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 categorical 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 =	<u>6,000</u>
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 25288.3(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(b) of the Health and Safety Code supports this idea.

Subsection (f) allows the State Board to modify or revoke any

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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 25283.2 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.

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 charged 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.(a) of the Health and Safety Code for verifying compliance is necessary before issuing a permit.

Subsection (n) 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

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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 inspector 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

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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.

6. Initial Fiscal Impact  
Statement dated 08/10/1984

STATE ADMINISTRATIVE MANUAL

BUDGETING

FISCAL IMPACT STATEMENT (REGULATIONS AND ORDERS)

STD 399 (NEW 1-81)

SEE 3 A M SECTION EGAS FOR INSTRUCTIONS



STATE OF CALIFORNIA

AGENCY: Water Resources Control Board; CONTACT PERSON: Stephen Fagundes; PHONE NUMBER: 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)

- 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)
b. will be requested in the 1985-86 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. of the election;
d. is issued only in response to a specific request from the which are the only local entity(ies) affected;
e. is more appropriately financed from the (FEES, REVENUES, ETC.) authorized by Section of the Codes;
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)

- 1. Additional expenditures of approximately \$ See Attachment 1 annually. It is anticipated that State agencies will:
a. be able to absorb these additional costs within their existing budgets and resources.
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: [Signature]; TITLE: Executive Director

DEPT. OF FINANCE; APPROVAL/CONCURRENCE; PROJECT BUDGET MANAGER - DDP; DATE: August 10, 1984

Attachment 1

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 ordinance 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 fuel facility.
- (4) Thirty (30) percent of existing and new underground tanks are used for 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 gal)
<b>Underground Storage Tank</b>											
Single: Steel-walled (6,000 gal)	3,800		3,800				3,800		15,000		
Steel-walled (10,000 gal)	5,000										
Fiberglass (6,000 gal)	4,000	4,000				4,000					
Fiberglass (10,000 gal)	5,500			16,500				16,500			
Double: Steel-walled (6,000 gal)	7,800										26,400
Steel-walled (10,000 gal)	10,800										
Fiberglass (6,000 gal)	8,000									34,800	
Fiberglass (10,000 gal)	11,500										
<b>Installation<sup>(1)</sup></b>											
Single: Steel-walled (6,000 gal)	8,500		8,500								
Steel-walled (10,000 gal)	10,500 <sup>(1)</sup> 13,000 <sup>(3)</sup>										
Fiberglass (6,000 gal)	10,500 <sup>(1)</sup> 15,000 <sup>(3)</sup>	10,500				10,500					
Fiberglass (10,000 gal)	12,500 <sup>(1)</sup>			16,000				16,000			16,000
Double: Steel-walled (6,000 gal)	9,500 <sup>(1)</sup>										18,000
Steel-walled (10,000 gal)	11,500 <sup>(1)</sup> 16,000 <sup>(3)</sup>										
Fiberglass (6,000 gal)	11,500 <sup>(1)</sup>										
Fiberglass (10,000 gal)	12,500 <sup>(1)</sup> 18,000 <sup>(3)</sup>										
<b>Secondary Container System<sup>(2)</sup></b>											
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		
<b>Continuous Monitoring System<sup>(3)</sup></b>											
Single Tank (includes access casing(s) and installation)	2,200					2,200	2,200			3,100	3,100
Three single-tank cluster (includes access casing and installation)	3,100										
One double-walled tank	1,900										
Three double-walled tanks	3,000										
<b>Cost of Precision Test as per NFPA 329</b>											
Single Tank	400	400	400	400	400	400	400	400	400	400	400
Three Tanks	1,200										
Estimated Cost for Complete Installation (dollars)		14,900	12,700	31,800	28,400	23,100	22,800	47,100	46,200	55,600	51,800
Average Per Tank Cost for Installation (dollars)		14,900	12,700	10,600	9,500	23,100	22,800	15,700	15,700	18,500	17,200
		Weighted Average Cost per Tank (dollars)				14,200					
		Average Per Tank Increase (dollars)				7,400					

(1) Includes cost of installing associated piping.  
 (2) Appendix Section 20.33(f) specifies that pressured piping systems for motor vehicle fuel tank 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 20.32) provide that the secondary container can be monitored by either a water level indicating device or a sensing device that can distinguish between motor 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
<b>TOTAL</b>	<b>10,000</b>	<b>N/A</b>	<b>74,000,000</b>

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, inventory 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	Annual	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	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	-0-	300
Visual Monitoring(4)	-0-	250	-0-	250	-0-	250	N/A	N/A								
Ground Water Leak Detection Monitoring (5)	2,100 - 6,300 (35 ft.) 2,920 - 8,750 (65 ft.)	150 - 14,200 150 - 14,200					2,950	2,960	4,100	2,960	N/A	N/A	N/A	N/A	N/A	N/A
- Pore Liquid Vadose Zone Monitoring(6) - Vapor	750 - 1,500 2,450-4,900	4,900- 8,900 150					1,470	75	1,900	2,900	1,900	2,900	1,900	2,900	1,900	2,900
Ground Water Assurance Monitoring(7)	Variable depending on depth	150									11,000		5,900			
<b>TOTAL COST</b>			<b>1,700</b>	<b>300</b>	<b>1,700</b>	<b>250</b>	<b>6,120</b>	<b>3,340</b>	<b>7,700</b>	<b>6,160</b>	<b>14,700</b>	<b>3,500</b>	<b>9,500</b>	<b>3,500</b>	<b>3,600</b>	<b>3,200</b>

Footnotes for Table 4.1

- (1) Based on costs provided by drilling contractors for (1) one slant boring intercepting a point that has been projected 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 Association [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 monitoring 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

Percentage of Underground Storage Tanks	MONITORING ALTERNATIVE				
	Visual Monitoring of Entire Tank	Alternative #1	Alternative #2	Alternative #3	Alternative #4
2.00	21.56	39.22	27.45	7.85	1.94

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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

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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			Initial Cost	Annual Cost
		Tanks	IC	AC	Tanks	IC	AC	Tanks	IC	AC	Tanks	IC	AC	Tanks	IC	AC	Tanks	IC	AC		
Private Industry	190,400	3,800	6,460	950	41,050	251,225	137,107	74,640	574,728	252,058	52,250	768,075	182,875	14,830	141,835	52,255	3,730	13,428	11,936	1,756,572	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	8,388
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	60	85	12.5	580	3,550	1,938	1,080	8,315	3,573	740	10,078	2,590	210	1,995	735	40	144	128	24,868	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	988	43,125	283,925	144,039	78,430	603,911	263,888	54,890	806,883	192,115	15,690	149,065	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 accomplished 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 somewhat 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	=	<u>\$15,000</u>
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	=	<u>\$5,000</u>
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 county 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	=	<u>\$6,000</u>
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 underground tank owner must provide the following information in the required permit application, 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 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 (8,900 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 localities 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	Number of Cities with Existing Permitting Programs	Population of Areas with Existing Permitting Programs	Percentage of State Population with Permitting Programs	Number of City Owned Tanks With Fee Waiver	Number of City Owned Tanks Subject to Initial County Permit Fee	Number of City Owned Tanks Subject to Annual County Inspection Fee	Total Cost of Initial Permitting to City Government (dollars)	Total of Annual Inspection to City Government (dollars)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(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 (dollars 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
<b>TOTAL</b>	<b>2,000</b>	<b>24,526</b>	<b>5,520</b>	<b>30,046</b>	<b>9,810</b>	<b>1,235</b>	<b>690</b>	<b>1,104</b>	<b>4,905</b>	<b>17,745</b>

(1) Includes cost of permit (\$100) plus additional costs (\$25) for developing 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 repermited 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 located 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)									TOTAL Annual COST
		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	
Private Industry	190,400	19,040	1,755,572	5,255	1,779,867	9,520	844,905	70,448	1,190	657	1,051	4,760	6,188	595	939,344
State of California	2,500	250	23,123	89	23,442	125	11,907	925	16	9	14	63	78	0	13,137
City Government	2,980	180	26,812	88	27,072	90	12,874	1,073	19	10	16	45	91	0	16,743
County Government	2,700	0	24,968	75	25,043	0	12,067	990	0	9	15	0	91	115	13,277
School Districts	1,500	150	13,853	41	14,044	75	6,663	655	10	5	8	38	52	0	7,445
<b>TOTAL</b>	<b>200,000</b>	<b>19,620</b>	<b>1,844,328</b>	<b>5,520</b>	<b>1,869,468</b>	<b>9,810</b>	<b>886,406</b>	<b>74,000</b>	<b>1,235</b>	<b>690</b>	<b>1,194</b>	<b>4,906</b>	<b>6,500</b>	<b>710</b>	<b>987,252</b>

Table 5.2 Summary of Fiscal Impact of Underground Tank Storage Regulations Assuming All Existing Underground Storage Tanks Subject to Monitoring Requirements of Article 6

Owner of Existing Underground Storage Tanks	Number of Existing Underground Storage Tanks Considered (1)	INITIAL COST (dollars x 1000)				ANNUAL COST (dollars x 1000)									TOTAL ANNUAL COST
		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	
Private Industry	190,400 (77,380)	7,738	1,755,572	5,339	1,768,649	3,869	844,906	28,630	484	267	427	1,934	2,515	595	823,626
State of California	2,500 (1,000)	102	23,123	70	23,296	51	11,097	376	7	4	6	26	32	0	11,599
City Government	2,900 (1,100)	118	26,812	83	27,013	59	12,874	436	8	4	7	18	37	0	13,442
County Government	2,700 (1,100)	0	24,968	76	25,044	0	12,057	402	0	4	6	0	37	115	17,662
School Districts	1,400 (600)	60	13,853	41	13,954	30	6,643	226	4	2	3	15	21	0	7,074
<b>TOTAL</b>	<b>200,300 (81,280)</b>	<b>8,018</b>	<b>1,844,328</b>	<b>5,607</b>	<b>1,857,953</b>	<b>4,009</b>	<b>887,596</b>	<b>30,070</b>	<b>503</b>	<b>281</b>	<b>449</b>	<b>1,993</b>	<b>2,642</b>	<b>710</b>	<b>911,252</b>

Table 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	"Oil Act" C.S.
Private Industry	77,380	7,738	713,444	5,339	726,541	3,869	343,369	28,630	484	287	427	1,934	2,415	SP	382,050
State of California	1,020	102	9,397	70	9,569	51	4,510	376	7	4	6	26	32	0	5,112
City Government	1,180	118	10,896	81	11,095	99	94,232	436	8	4	7	18	37	0	5,301
County Government	1,100	0	10,147	76	10,223	0	4,900	402	0	4	6	0	37	115	5,114
School Districts	600 (600)	60	5,630	41	5,731	30	2,708	226	4	2	3	15	21	0	3,079
TOTAL	81,280	8,018	749,534	5,607	756,189	4,009	360,719	30,070	603	281	449	1,993	2,642	710	801,316

**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, 1984 and no later than January 1, 1985 for tanks used on farms)

**Definition of Underground Containers:** The law applies to concrete sumps, vaulted buried tanks or other underground containers. (Water Code, Section 13173) All containers including earthen walled pits, ponds, lagoons, and sumps that do not have the normal ground surface level must register. A tank sitting on the ground is not included. Containers partially below the surface are included. Leaks or spills of pits, 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 fungicides. 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 fabricate 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 (If person, individual or Public Agency)			
Street Address	City	State	ZIP

**II Facility**

Facility Name		Owner/Foreman/Supervisor	
Street Address		Nearest Cross Street	
City	County	ZIP	
State	City	State	ZIP
Phone or Area Code		Type of Business	
		<input type="checkbox"/> Motor Vehicle Fuel Station <input type="checkbox"/> or Other _____	
Number of Tanks at this Facility	Rural Area Only	Ownership	Range
			Section

**III 24 Hour Emergency Contact Person**

Name (Last, first, middle initial) and Phone or area code	Address (Last name, first and Phone or area code)
---	---

**COMPLETE THE FOLLOWING ON A SEPARATE FORM FOR EACH CONTAINER**

**IV Description**

A <input type="checkbox"/> Tank <input type="checkbox"/> Sump <input type="checkbox"/> Lagoon Pit or Pond <input type="checkbox"/> Other _____	Container Number (If the container has a number assign one)
B Manufacturer (if appropriate) _____ Year of Mfg _____	C Year Installed _____ <input type="checkbox"/> Unknown
D Container Capacity _____ gallons <input type="checkbox"/> Unknown	E Container Repairs <input type="checkbox"/> None <input type="checkbox"/> Unknown <input type="checkbox"/> Yes Year _____
F Is Container currently used? <input type="checkbox"/> Yes <input type="checkbox"/> No If No year of last use _____ <input type="checkbox"/> Unknown	
G Does the Container Store (Check One) <input type="checkbox"/> Waste <input type="checkbox"/> Product	
H Does the Container Store Motor Vehicle Fuel or Waste Oil? <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes Check appropriate box(es) <input type="checkbox"/> Unleaded <input type="checkbox"/> Regular <input type="checkbox"/> Premium <input type="checkbox"/> Diesel <input type="checkbox"/> Waste Oil <input type="checkbox"/> Other (List) _____	

**V Container Construction**

A Thickness of Primary Containment _____ <input type="checkbox"/> Gauge <input type="checkbox"/> Inches <input type="checkbox"/> cm <input type="checkbox"/> Unknown
B <input type="checkbox"/> Vaulted (Located in an underground Vault) <input type="checkbox"/> Non-vaulted <input type="checkbox"/> Unknown
C <input type="checkbox"/> Double Walled <input type="checkbox"/> Single Walled <input type="checkbox"/> Lined <input type="checkbox"/> Wrapped <input type="checkbox"/> Unknown <input type="checkbox"/> None
D <input type="checkbox"/> Carbon Steel <input type="checkbox"/> Stainless Steel <input type="checkbox"/> Fiberglass <input type="checkbox"/> Polyvinyl Chloride <input type="checkbox"/> Concrete <input type="checkbox"/> Aluminum <input type="checkbox"/> Steel Clad <input type="checkbox"/> Bronze <input type="checkbox"/> Composite <input type="checkbox"/> Non-metallic <input type="checkbox"/> Earthen Walls <input type="checkbox"/> Unknown <input type="checkbox"/> Other _____
E <input type="checkbox"/> Rubber Lined <input type="checkbox"/> Alkyd Lining <input type="checkbox"/> Epoxy Lining <input type="checkbox"/> Phenolic Lining <input type="checkbox"/> Glass Lining <input type="checkbox"/> Clay Lining <input type="checkbox"/> Unlined <input type="checkbox"/> Unknown <input type="checkbox"/> Other _____
F <input type="checkbox"/> Polyethylene Wrap <input type="checkbox"/> Vinyl Wrapping <input type="checkbox"/> Cathodic Protection <input type="checkbox"/> Unknown <input type="checkbox"/> None <input type="checkbox"/> Other _____

**VI Piping**

A. Associated Piping	<input type="checkbox"/> Above Ground	<input type="checkbox"/> Underground	<input type="checkbox"/> Vaulted
B. Underground Piping	<input type="checkbox"/> Gravity	<input type="checkbox"/> Pressure	<input type="checkbox"/> Suction <input type="checkbox"/> Unknown
C. Piping Repairs	<input type="checkbox"/> None	<input type="checkbox"/> Unknown	<input type="checkbox"/> Yes Year of most recent repair _____

**VII Leak Detection**

<input type="checkbox"/> Visual	<input type="checkbox"/> Stock Inventory	<input type="checkbox"/> Tile Drain	<input type="checkbox"/> Vapor Sniff Wells	<input type="checkbox"/> Sensor Instrument
<input type="checkbox"/> Ground Water Monitoring Wells	<input type="checkbox"/> Pressure Test	<input type="checkbox"/> Internal Inspection	<input type="checkbox"/> None	
<input type="checkbox"/> 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	(A.C.S. # if available)	Chemical Or Not Use Common Name (If Not Sure Leave Blank)
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		

Is Container located on an Agricultural Farm?  Yes  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 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

Payable To: _____	Project # _____
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For additional forms or more information call 916/324-1282

**FOR STATE USE ONLY**

Number	Accounting Number	Page
Date Rec'd		Time

# Permit Application



<b>New Permit</b>	<input type="checkbox"/> 01 Installed before July 1, 1984 <input type="checkbox"/> 02 Installed after July 1, 1984	<input type="checkbox"/> 03 Renewed Permit	<input type="checkbox"/> 04 Amended Permit
-------------------	---	--	--

### I Owner

Name (Company or Individual) _____			
Street Address _____	City _____	State _____	ZIP _____

### II Facility

Facility Name _____		Dealer, Foreman, Supervisor _____	
Street Address _____			Nearest Cross Street _____
City _____		County _____ ZIP _____	
State _____		City _____ State _____ ZIP _____	
Phone w/area code _____		Type of Business <input type="checkbox"/> 01 Gasoline Station <input type="checkbox"/> 02 Other _____	
NUMBER OF CONTAINERS AT THIS FACILITY _____	Rural Area Only: _____	Elevation _____	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 <input type="checkbox"/> Tank <input type="checkbox"/> Other _____		Container Number (if this is a new container) _____
B Manufacturer (if appropriate) _____ Year of Mfg _____		C Year Installed _____ <input type="checkbox"/> Unknown
D Container Capacity _____ gallons <input type="checkbox"/> Unknown	E Does the Container Store (Check One) <input type="checkbox"/> 01 Waste <input type="checkbox"/> 02 Product	
F Does the Container Store Motor Vehicle Fuel or Waste Oil? <input type="checkbox"/> 01 Yes <input type="checkbox"/> 02 No    If Yes Check appropriate box(es) <input type="checkbox"/> 01 Unleaded <input type="checkbox"/> 02 Regular <input type="checkbox"/> 03 Premium <input type="checkbox"/> 04 Diesel <input type="checkbox"/> 05 Waste Oil <input type="checkbox"/> 06 Other (List) _____ If you answered yes, do not complete Part VIII.1		

### V Container Construction

A. Thickness of Primary Containment _____ <input type="checkbox"/> Gauge <input type="checkbox"/> Inches <input type="checkbox"/> cm <input type="checkbox"/> Unknown			
B <input type="checkbox"/> Vaulted (located in an underground Vault) <input type="checkbox"/> 02 Non-vaulted <input type="checkbox"/> 03 Unknown			
C <input type="checkbox"/> 01 Double Walled <input type="checkbox"/> 02 Single Walled <input type="checkbox"/> 03 Lined			
D <input type="checkbox"/> 01 Carbon Steel <input type="checkbox"/> 02 Stainless Steel <input type="checkbox"/> 03 Fiberglass <input type="checkbox"/> 04 Polyvinyl Chloride <input type="checkbox"/> 05 Concrete <input type="checkbox"/> 06 Aluminum			
<input type="checkbox"/> 07 Steel Clad <input type="checkbox"/> 08 Bronze <input type="checkbox"/> 09 Composite <input type="checkbox"/> 10 Non-metallic <input type="checkbox"/> 11 Earthen Walls			
<input type="checkbox"/> Unknown <input type="checkbox"/> 12 Other _____			

**Container Construction**

E  01 Rubber Lining  02 Alkyd Lining  03 Epoxy Lining  04 Phenolic Lining  05 Glass Lining  06 Clay Lining

07 Unlined  08 Unknown  09 Other \_\_\_\_\_

F  01 Polyethylene 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

Chemical Do Not Use Commercial Units Use additional paper for more room

currently stored	previously stored	CAS # (if known)																		
<input type="checkbox"/> 01	<input type="checkbox"/> 02																			
<input type="checkbox"/> 03	<input type="checkbox"/> 04																			
<input type="checkbox"/> 05	<input type="checkbox"/> 06																			

Is Container located on an Agricultural Farm?  01 Yes  02 No

Person Filing (Signature) \_\_\_\_\_ Date \_\_\_\_\_

**For Local Agency Use Only**

AGENCY NAME	CITY	COUNTY
CONTACT PERSON	PHONE WITH AREA CODE	
INSPECTION DATE (1ST INSPECTION)	PERMIT APPROVAL DATE	PERMIT ID NUMBER

**FOR STATE USE ONLY**

STATE ID NUMBER	AGENCY NAME	PERMIT ID
DATE	DATE	DATE

# 7. Affidavit of Mailing Notice

**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 WATER RESOURCES CONTROL BOARD

PAUL S. SONDERSON BUILDING  
901 P STREET  
P.O. BOX 100  
SACRAMENTO, CALIFORNIA 95801

FA



## 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 25290 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 25733.2 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 25280.2(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.

Obtention of Documents, 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) 324-1200.

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 District 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 ONSHORED	
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)	=	\$17.3 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

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.

	<u>INITIAL COST</u>	<u>PER YEAR</u>	<u>ANNUAL COST</u>	<u>PERCENTAGE OF PROGRAM ONBOARD</u>	
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.

	<u>INITIAL COST</u>	<u>PER YEAR</u>	<u>ANNUAL COST</u>	<u>PERCENTAGE OF PROGRAM ONBOARD</u>	
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.

	<u>INITIAL COST</u>	<u>PER YEAR</u>	<u>ANNUAL COST</u>	<u>PERCENTAGE OF PROGRAM ONBOARD</u>	
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)	= \$774 million
3rd year	(\$1.46 billion	x 1/5)	+ (\$643 million	x 3/5)	= \$908 million
4th year	(\$1.46 billion	x 1/5)	+ (\$643 million	x 4/5)	= \$1042 million
5th year	(\$1.46 billion	x 1/5)	+ (\$643 million	x 5/5)	= \$1176 million
Annually thereafter					= \$843 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.

#### EXPLANATORY DISCERN

##### 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 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 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, 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 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 Monitoring 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 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 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 accomplished 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 variances, defining local agency responsibilities and allowing the variances to be modified or revoked.

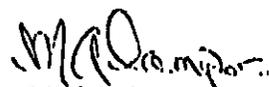
#### Article 9. Local Agency Additional Standards Request Procedures

Health and Safety Code Section 25238.3(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 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. Cripps  
Executive Director  
STATE WATER RESOURCES CONTROL BOARD