

Enclosure

Annual Report to the Legislature  
2002

Unauthorized Releases of Hazardous Substances  
from Underground Storage Tanks

State Water Resources Control Board

Division of Clean Water Programs

Underground Storage Tank Section

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## **Executive Summary**

This report satisfies the requirement for an annual report to the Legislature of unauthorized discharges from underground storage tanks (USTs). The State Water Resources Control Board's (SWRCB's) UST program is making significant progress at remediating and closing unauthorized release cases, having closed approximately 1000 cases for the period July 1, 2001 to June 30, 2002. However, rates of site remediation and closure will likely slow in ensuing years due to the increasingly higher percentage of difficult cases. This report includes a listing, by county, of all unauthorized releases (available at <http://www.swrcb.ca.gov/cwphome/lustis/dbinfo.html> on the Internet) and a summary of the investigation/remediation status of those cases.

## **Introduction**

This report is mandated by Section 25295(b) of the California Health and Safety Code, which states:

*“In cooperation with the Office of Emergency Services, the board shall submit an annual statewide report by county, to the Legislature, of all unauthorized releases, indicating for each unauthorized release the operator, the hazardous substance, the quantity of the unauthorized release, and the actions taken to abate the problem.”*

The report is a summary of all unauthorized releases from underground storage tanks (USTs). The data used to generate it are stored in the State Water Resources Control Board's (SWRCB's) database, available on the Internet at <http://geotracker.swrcb.ca.gov>. Additional reports and information on individual cases can be found by using the Geotracker “case finder” function.

## **Program History**

The UST Program of the SWRCB has regulations that govern the design, construction, operation, and remediation of releases from USTs. The original program regulations were adopted in 1984 and subsequently amended over the years. This report focuses on releases of hazardous substances from USTs and the actions taken to remediate those releases.

Federal regulations and State law required upgrade or replacement of all regulated USTs by December 22, 1998. Many of the releases reported to regulatory agencies were discovered during the upgrade compliance efforts, which involved UST removal or replacement. The effect of the 1998 upgrade on the number of releases is reported below under “Trend Analysis.”

## **Unauthorized Releases**

Releases from USTs have occurred historically and continue to occur. A release may be discovered immediately or, in some cases, may not be discovered for years. When a regulatory agency receives notification that an unauthorized release has occurred, it opens a new UST case and adds it to the list of open cases that are currently undergoing investigation and remediation. The case stays open until the regulatory agency determines that the responsible party has adequately remediated the release. After the case is closed, no further action is required from the responsible party.

Appendix A is a figure depicting the trends of open and closed UST cases. During the period of July 1, 2001, to June 30, 2002, there were 418 new UST cases reported. For this same time period, 974 cases were closed. Since the inception of the program, 40,683 UST release cases have been reported to the SWRCB. Of these, 15,472 are currently open cases and 25,211 are closed cases. An increase in the total number of closed cases for this period is a result of data reconciliation between the Regional Water Quality Control Boards (RWQCBs) and the Local Oversight Program agencies (LOPs). Appendix B presents definitions of the "Status Codes," which are used to report the actions taken to remediate a release. Appendix C presents a summary report of unauthorized releases, by county and by status code.

The majority of USTs are located at car/truck fueling facilities. Consequently, most leaks are petroleum (either gasoline or diesel) and occur in populated areas where the density of car/truck fueling facilities is greatest. The density of drinking water wells is also greatest in these populated areas, and the proximity of UST release sites to drinking water wells is a great water quality and public health concern. Prior to the widespread use of the oxygenate methyl-tertiary butyl ether (MTBE), significant impacts to drinking water wells from petroleum storage in USTs were rare. Traditional petroleum compounds present in gasoline such as benzene, toluene, ethylbenzene and xylene (BTEX), although partially soluble in water, degrade relatively rapidly in the environment. BTEX contaminant plumes in groundwater tend to stabilize close to the release source. This effect has helped prevent the many historic unauthorized releases over the past century from contaminating nearby wells. However, since widespread use of MTBE began in 1992 (with the wintertime "oxyfuel" program), groundwater impacts of MTBE and subsequent impacts on drinking water wells have proven to be greater than impacts from BTEX compounds. This difference is largely due to the greater solubility of MTBE in water and its resistance to biodegradation in the environment.

## **Trend Analysis**

### *New Cases*

Appendix D shows the number of new UST cases in the last six years; the last four bars on the chart correspond to the reporting period of this report, July 1, 2001, through June 30, 2002. The Federal/State deadline to complete system upgrades affected the rate of discovery of unknown historic releases prior to 1998. As more USTs were removed during the 1998 upgrade effort, previously unknown releases were discovered. After the 1998 upgrade effort was completed, the rate of new leak discovery decreased significantly. However, new releases continue to occur, despite efforts by industry to design and build better UST systems that are more resistant to leaking. The number of new leaking UST cases may temporarily increase during 2003, due to discovery of leaks through the new "enhanced leak detection" program for single-walled UST systems located within 1000 feet of a public drinking water well. This program is mandated by SB 989 (Sher, Chapter 812, Statutes of 1999).

### *Closure Rate*

Appendix A shows the total number of leaking UST cases through time, as well as the number of open cases and the number of closed cases. Although leaks continue to be discovered, old cases are being closed at a faster rate than new cases are being reported. This trend is encouraging and will lead to a smaller overall caseload for regulatory agencies. However, this trend is not expected to continue indefinitely. Smaller releases tend to be cleaned up faster than larger

releases. This leaves a disproportionate number of difficult cases after the easier cases are closed. This effect is exacerbated by the current composition of gasoline. The historic caseload has a high percentage of non-MTBE cases that are easier to remediate (due the higher biodegradation rates). New releases almost always contain MTBE and are more resource-intensive and difficult to remediate than cases where no MTBE is present.

#### *Quantity Released*

Releases from UST systems most often occur underground and proceed unnoticed for a period of time. Unless the release is catastrophic, it is often very difficult to determine the quantity of product that was released. Estimates can be made based on various observations and assumptions, but these often prove inaccurate after remedial systems have been designed and operated. Regulatory agencies only provide data about quantities released if the values are known with some certainty. The database and this report, therefore, contain relatively little information on the quantity of hazardous substances released.

Appendix E presents a complete list of all unauthorized releases with data as required by statute. Due to the length of the list (over 1400 pages) it is being made available on the Internet at <http://www.swrcb.ca.gov/cwphome/lustis/dbinfo/html> rather than being enclosed.

#### **Conclusions**

The UST program is making significant progress at remediating and closing unauthorized release cases, having closed approximately 1000 cases this year. However, rates of site remediation and closure will likely slow in ensuing years due to the increasingly higher percentage of difficult cases.

# **Appendix A**

## **Number of Leaking UST Cases vs. Time**

The following figure displays the number of leaking UST cases verses time. Note that the final data point is labeled Jul-02 and contains data through June 30, 2002.

# **Appendix B**

## **Status Code Descriptions**

The following pages contain a description of the status codes used in this report. These codes are the same as those used in historic Leaking Underground Storage Tank Information System (LUSTIS) reports and those that are found on the Geotracker website <http://geotracker.swrcb.ca.gov>.

## STATUS CODES

Each description provides an overview of the tasks that are covered by the code.

- 0 No Action  
No action has been taken by the responsible party after the initial report of the leak.
  
- 1 Leak Being Confirmed  
A leak is suspected at a site (i.e., poor inventory records, water in the tank, vadose monitoring system in alarm, etc.) but has not been confirmed. Includes inspection of the excavation, and tank and appurtenant plumbing to determine existence of leak. May also include taking samples from the excavation (or from borings for in-place closures) for analysis.
  
- 3A Preliminary Site Assessment Workplan Submitted  
A workplan/proposal has been requested of, or submitted by, the responsible party in order to determine whether groundwater has been, or will be, impacted as a result of a release from any underground tanks or associated piping.  
  
This phase of work usually includes plans for the installation and sampling of up to three monitoring wells with one monitoring well placed in a verified down gradient location from the suspected point of a discharge. It may also include soil boring sampling, additional soil excavation, and disposal or treatment of contaminated soil.
  
- 3B Preliminary Site Assessment Underway  
Implementation of a workplan addressing the above described tasks.
  
- 5C Pollution Characterization  
Responsible party is in the process of installing additional monitoring wells and/or borings in order to fully define the lateral and vertical extent of contamination in soil and ground water and assess the hydrogeology of the area. This phase of work may also include performing aquifer tests, soil gas surveys, continued ground water gradient determinations and monitoring, and assessing impacts on surface and/or ground water.
  
- 5R Remediation Plan  
A remediation plan has been submitted evaluating long-term remediation options (or corrective actions). A proposal and implementation schedule for an appropriate remediation option has also been submitted. This phase of work may also include preparing and submitting the necessary information for any permits needed prior to implementation of the plan (NPDES or WDR).
  
- 7 Remedial Action  
Implementation of corrective action plan.
  
- 8 Verification Monitoring Underway  
Periodic ground water or other monitoring at the site, as necessary, in order to verify and/or evaluate the effectiveness of remedial activities.
  
- 9 Case Closed  
The Regional Board and the Local Agency are in concurrence that no further work is necessary at the site.



# **Appendix C**

## **Summary Report of Unauthorized Releases**

The following pages contain a summary report, by county, of the status of all cases within the county including the percentage of closed cases.

The action taken at a site is captured in the “Status Code” in the database. Each phase of the case investigation and remediation is capture through a distinct status code. Many detailed actions are conducted within each of these phases represented by the nine Status Codes, however these details are not reported to the SWRCB. Remedial progress is indicated by a progression from lower to higher numerical values.

# **Appendix D**

## **New Leaking UST Cases**

The following page shows the number of new leaking UST cases, by quarter, for the past six years. The last four bars on the chart correspond to the reporting period for this report.

# Appendix E

## List of Unauthorized Releases

Due to the length of this appendix (over 1400 pages) the information is being made available on the Internet at <http://www.swrcb.ca.gov/cwphome/lustis/dbinfo.html> rather than in “hardcopy” form.

The website contains a list of all reported releases of unauthorized hazardous substances from underground storage tanks in California, sorted by county.

Although “Operator” is required to be reported by State regulations, we are reporting “Sitename” as a surrogate. “Sitename” is the common reference for the case used by regulators, consultants, and responsible parties. The operator of a tank commonly changes as sites are sold or leased, and the operator at the time of the release may not be the responsible party of record. For these reasons, we are reporting “Sitename” in place of “Operator.” For some sites, the responsible party is listed in the Geotracker database available on the Internet. However, the name of the current operator is only available from the local UST permitting agency.

The action taken at a site is captured in the “Status Code” in the database. Each phase of the case investigation and remediation is captured through a distinct status code. Many detailed actions are conducted within each of these phases represented by the nine Status Codes, however these details are not reported to the SWRCB. Remedial progress is indicated by a progression from lower to higher numerical values.