

# *UNCONTROLLED LUSTS*



CALIFORNIA'S FAILURE TO PROTECT OUR WATER  
FROM LEAKING UNDERGROUND FUEL STORAGE TANKS

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### Environmental Working Group

EWG is a nonprofit environmental research organization with offices in Washington, DC, Oakland, CA and Seattle, WA. EWG uses today's information technology to conduct research on environmental health issues, especially those affecting children.

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# 1. Executive Summary

California regulators have failed to order cleanup or take other legally binding enforcement action on more than 90 percent of the thousands of underground fuel storage tanks known to be leaking toxic chemicals into water and soil throughout the state, although many of the leaks were first reported more than 10 years ago, according to an Environmental Working Group (EWG) computer-assisted investigation. Even when cleanup was ordered, regulators almost never fined even the biggest polluters.

EWG's analysis of state data on 36,000 leaking underground tanks (LUFTs or LUSTs) back to 1970 found that where enforcement details are available, no enforcement action was taken in more than 80 percent of the cases and non-enforceable warnings were issued in another 10 percent. Binding enforcement action was taken less than 8 percent of the time. About one-third of the cases have been open at least 10 years and two-thirds at least five years.

But "closed" cases don't necessarily indicate cleanup or action to stop ongoing pollution. In the late 1990s, the state Water Resources Control Board fast-tracked sweetheart settlements for leaking tank sites, closing many cases without adequate review, cleanup, containment, or penalties for the responsible parties. According to the state Joint Legislative Audit Committee, many closures were too hasty, "allowing contamination to spread further, essentially unnoticed." (JLAC 1999.) In at least some cases, regional water board staff may have profited personally from cutting closure deals. (Clifford 1996.)

EWG's study is the first analysis of enforcement for all leaking tanks identified in California. But three different state or federal audits that reviewed selected cases have all found the state's entire regulatory system for underground storage tanks seriously flawed. Not only is enforcement abysmal once leaks are reported, there is virtually no effective monitoring to detect leaks before they threaten water supplies. In a hearing last year, a UC Davis water expert testified that California's efforts to assess toxic threats to groundwater "lag far behind those of other states." (JLAC 1999.)

**According to state records, no binding enforcement action was taken in more than 80 percent of the 36,000 known cases of leaking underground storage tanks.**

The state continues to respond reactively, waiting for problems instead of heading them off. Gov. Davis has ordered a phaseout by the end of 2002 of the gasoline additive MTBE, a possible human carcinogen that contaminates an estimated 10,000 leaking tank sites statewide and has forced the closure of drinking water wells in Santa Monica, Lake Tahoe, Sacramento, Santa Clara and Kern County. But the great majority of leaking tanks, containing an array of known carcinogens and other toxic chemicals that could pose a greater threat than MTBE, go on polluting water and soil without action by the state water board, regional water boards or state health department.

**Fourteen major oil companies are responsible for more than one-third of the cases where leaking underground tanks contaminate water.**

Petroleum products account for almost all toxins leaking from underground tanks, and in California 14 large oil companies are responsible for more than a third of the open cases where leaking tanks contaminate water. These same 14 companies have received more than \$180 million in reimbursements from a state cleanup account funded by fees paid by all owners of underground tanks. These fees are passed on to consumers as higher gasoline prices, meaning the public indirectly pays for cleaning up the companies' leaks.

Most of the tank fees are paid by independent service station operators, who merely store and sell the oil companies' products, often in tanks provided by the producers. Other than these fees, the state has assessed financial penalties against oil companies for tank leaks just a handful of times, even though the oil industry has known for many decades that its products were leaking from underground tanks and poisoning water supplies, but continued distributing those products without warning the public or service station operators. (EWG 2000.)

Although most underground tanks in California have now been upgraded, state and local regulators have found that the new tanks also often leak and their leak detection systems often don't work. (SWRCB 1999b, Santa Clara County 2000.) Unless state regulators take aggressive steps to identify and contain all leaks, adopt a comprehensive and reliable monitoring program to catch leaks before they spread to water supplies, act swiftly to order cleanup of contaminated sites, practice rigorous enforcement to deter future contamination, and hold the producers of the contaminants responsible, the threat from California's leaking underground storage tanks will grow worse.

## Summary of Findings

- Since 1970 about 36,000 leaking underground tanks have been reported statewide, but 36.3 percent of the case records in the state’s database provide no enforcement information at all.

- Of the 23,000 cases where enforcement details are recorded, no action was taken in 82.1 percent. Non-binding warnings or other informal notices were issued in 10.3 percent. According to state records, binding enforcement action was taken in 7.6 percent of cases; cleanup and abatement orders were issued in just 73 cases; and what the state water board calls “punitive action,” the category that includes fines, was applied only 42 times. The exact number and amount of fines is unknown. (Table 1.)

- Of 16,000 cases still open — that is, where pollution is ongoing — two-thirds were identified before 1995 and one-third before 1990. Hundreds of open cases were first reported before 1985. (Table 2.)

**Table 1. Legally binding enforcement action was rarely taken against operators of leaking underground storage tanks.**

|                                  | Cases         | Percent |
|----------------------------------|---------------|---------|
| No Enforcement Action Taken      | 18,962        | 82.1%   |
| Warning or Informal Action Taken | 2,389         | 10.3%   |
| Enforcement Action Taken         | 1,758         | 7.6%    |
| <b>Total Cases</b>               | <b>23,109</b> |         |

*Source: EWG, from SWRCB LUSTIS, 2000.*

**Table 2. A third of leaking tanks were first reported before 1990.**

| Year Reported           | Cases Opened  | Percent of Open Cases |
|-------------------------|---------------|-----------------------|
| Before 1985             | 237           | 1.5%                  |
| Before 1990             | 5,180         | 32.8%                 |
| Before 1995             | 10,479        | 66.4%                 |
| <b>Total Open Cases</b> | <b>15,784</b> |                       |

*Source: EWG, from SWRCB LUSTIS, 2000.*

- About 15,000 of the open and closed leak sites affect water, and about 18,000 affect soil. Binding enforcement action was taken in about 12 percent of water cases, compared to 5 percent of soil cases. While contaminated water is clearly of high priority,

chemical plumes in soil can spread hundreds of feet in only a few years to nearby wells and aquifers. MTBE not only migrates through soil unusually rapidly but accelerates the spread of other chemicals that also leak from underground fuel tanks, including benzene, a known human carcinogen, and toluene, a known human reproductive toxin.

**Table 3.**  
**14 major oil companies are responsible for thousands of leaking tank sites.**

| Company       | Cases        |
|---------------|--------------|
| Chevron       | 1,537        |
| Unocal        | 1,137        |
| Shell         | 1,120        |
| Arco          | 896          |
| Mobil         | 812          |
| Texaco        | 626          |
| Exxon         | 545          |
| Thrifty       | 292          |
| Beacon        | 208          |
| BP            | 141          |
| 76 Products   | 118          |
| Ultramar      | 63           |
| World Oil     | 53           |
| USA Petroleum | 37           |
| <b>Total</b>  | <b>7,585</b> |

Source: EWG, from SWRCB LUSTIS, 2000.

- Underground storage tanks are leaking toxic chemicals into water and soil in every county in California, but levels of enforcement vary widely by region. Sixty-three percent of all open cases in San Jose were first reported at least 10 years ago, but only 32 percent of Los Angeles cases are that old.

- Storage tanks owned and operated by 14 major oil companies, or used by independent dealers to store fuel sold by those companies, make up 21 percent of all known sites and 36 percent of all open cases affecting water. San Francisco-based Chevron Corp. is responsible for more than 1,500 cases. Unocal Corp., based in Los Angeles, and Shell Oil Co. are each responsible for more than 1,100 cases. (Table 3.)

- Of cases involving major oil companies, no enforcement action was taken 79.4 percent of the time, informal action in 12.8 percent and binding enforcement action in 7.8 percent. Since 1970, only seven oil company cases have resulted in fines or other punitive action. More than 40 percent of state records on leaking tank cases involving major oil companies provide no enforcement information at all.

## Recommendations

- As the 1999 Joint Legislative Audit Committee report concurs, criminal penalties should be applied when a tank owner or operator allows a leaking underground storage tank to contaminate drinking water.

- The state should develop an aggressive statewide enforcement plan built on the assumption that any tank leak or spill is unacceptable, and must be cleaned up as soon as possible to prevent further contamination.

- The state should fine or otherwise penalize owners whose tanks leak, those who fail to report leaks promptly, and those who fail to perform required cleanup. The severity of the penalties should take into account the company's size and statewide extent of its pollution. Penalties should increase for repeat offenses.



- The state water board, regional boards and local agencies must follow through to enforce cleanup and containment orders promptly.

- To prevent fraud, regulators should step up inspection of upgraded sites and no longer allow companies to “self-certify” their own compliance with upgrade requirements.

**Criminal penalties should apply when a tank owner or operator allows a leaking underground storage tank to contaminate drinking water supplies.**



## 2. A Nationwide Threat

In 1984, in response to nationwide concern that thousands of leaking underground storage tanks were contaminating groundwater and threatening human health, Congress passed amendments to the Resource Conservation and Recovery Act that mandated construction standards for new tanks, reporting and record-keeping requirements for existing tanks, compliance monitoring and enforcement. Although the size of the problem was still unknown, the U.S. Environmental Protection Agency estimated there were over two million underground storage tanks and that three-fourths were made of unprotected steel, “proven to be the most likely [design] to leak and thus create the greatest potential for health and environmental damage.” (EPA 1998.) EPA and oil industry studies at the time estimated that 10 to 30 percent of tanks in the U.S. were already leaking.

**More than 15 years ago, the EPA warned that underground tanks were likely to leak and endanger public health and the environment.**

In 1988, EPA adopted regulations to implement the new law, which also allowed states to set up their own regulatory systems in compliance with national standards. Bowing to industry pressure to ease the burden on “mom and pop” gas stations, federal and state regulators gave tank owners 10 years to replace single-walled steel storage systems with double-walled fiberglass tanks and pipes. This delay may have minimized the impact on small businesses, but it also allowed years of unabated pollution.

In California, underground tanks are regulated by the state Water Resources Control Board, which oversees a permit program that requires tank owners to file an acceptable plan for monitoring, preventive maintenance and removal and disposal of hazardous materials. The permit program is implemented by the nine regional water quality control boards and 107 local agencies, mostly county environmental health departments and city fire departments.

These local agencies are the lead regulators in about two-thirds of leaking tank cases statewide. Tank owners are required to immediately notify the local agency of leaks or spills. Once a leak has been reported, the regional water boards are responsible for working with the local agencies to contain and clean up leaks.

## State Cleanup Fund

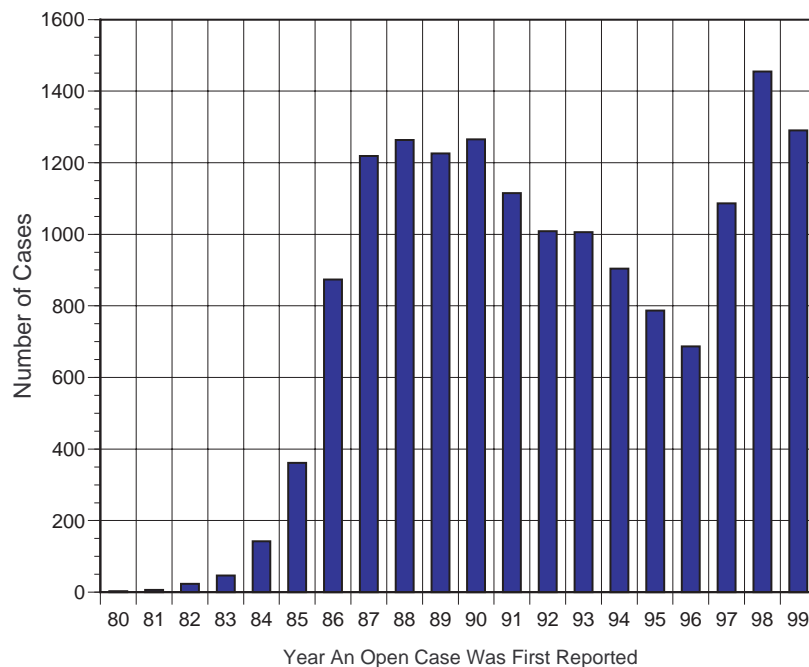
Because of concerns that small independent dealers would not have sufficient funds to clean up leaks from underground tanks, in 1989 California legislators set up a cleanup fund, also administered by the state water board. The owner of every underground gasoline tank pays a per-gallon fee, which generates about \$170 million a year. Owners of leaking tanks undertaking cleanup can file claims of against the fund. In 1999 legislators increased the maximum reimbursement to tank owners from \$1 million to \$1.5 million, despite recommendations from local regulators that the amount be reduced to “create a disincentive . . . [against] those parties that delay cleanup and don’t comply with agencies’ requests . . . “ (JLAC 1999.) As of April 2000 the fund had approved 12,000 claims and reimbursed tank owners for \$848 million in cleanup costs.

This scheme does not cover cleanup of leaks from tanks for which no owner can be identified, so in 1998 the state allocated \$5 million annually from the fund to the state health department for cleanup of “orphan” sites. However, the health department’s fund only covers pollution by “oxygenates” — chemicals such as MTBE that boost the oxygen content in gasoline so that it burns cleaner. It does not address contamination of orphan sites with other chemicals such as benzene and toluene. (Calif. Health and Safety Code.)

**Regulators were caught napping precisely during the years when the leaking tank problem became a full-blown crisis.**

The history of California’s underground storage tank program shows how regulators were caught napping precisely during the years when the problem became a full-blown crisis. Reported cases per year rose from just eight in 1980 to 793 in 1985 and a high of 3,954 in 1990. By the beginning of 1985, just 482 leaking tanks had been

**Figure 1. Reports of leaking tanks soared after 1985.**



Source: EWG, from SWRCB LUSTIS, 2000.

reported; by the end of 1995, when the MTBE threat was becoming widely known, the total had jumped to more than 28,000. (Figure 1.)

The state's regulatory program has also been tarnished by allegations of scandal and fraud. Beginning in 1995 the state Water Resources Control Board fast-tracked sweetheart settlements for many leaking tank sites, closing many cases without adequate review, cleanup, containment, or penalties for the responsible parties. This policy was heavily influenced by a state-commissioned study from Lawrence Livermore National Laboratory which failed to consider MTBE contamination — a threat that was clear by the time the report was issued — and recommended that cleanup should be a priority only where benzene leaks threatened water supplies. According to the Joint Legislative Audit Committee, many resulting closures were too hasty, “allowing contamination to spread further, essentially unnoticed.” (JLAC 1999.) Craig Perkins, Santa Monica's director of environmental and public works, told the committee:

We were dismayed to discover [in mid-1995] that concurrent with our efforts to identify the sources of contamination and figure out what had happened to our wells, the [Los Angeles] Regional Board had embarked on a frantic effort to [stop oversight on] as many underground storage tank sites as possible . . . (JLAC 1999).

In at least some cases, regional water board members may have profited personally from cutting closure deals. (Clifford 1996.) State and federal authorities, including the FBI, investigated evidence of criminal activity related to leaking site closures by the Los Angeles water board. While the FBI made no indictments, a number of staff members, including the executive officer, were fired, resigned or demoted in the wake from the investigation.

## **Federal Audit Blasts California Program**

In 1997, the U.S. EPA Office of the Inspector General (OIG) released a scathing audit of underground tank programs in half a dozen states. The OIG found that the programs in California as well as Idaho, Kansas, New York, and Oregon did not “assess some sites to determine the risk for human health and the environment; or assign the appropriate level of oversight or enforcement relative to the potential risk. “ As a result, EPA said, in each of the states regulators

**In the late '90s, regulators rushed to close many leaking tank sites without adequate review, allowing toxic contamination to spread unnoticed.**

“did not always initiate clean-up efforts on some sites that were the most hazardous and threatening to human health and the environment, including those that posed a threat to drinking water.” Specifically referring to California, the EPA wrote:

[California’s program] did not identify some sites most environmentally threatening to groundwater. Further, we found that the priority system established by the State was not being followed. As a result, some leaking tank sites affecting drinking water were not being cleaned up. We found that 48 of 69 leaking tank sites, identified as affecting drinking water, were not being cleaned up [promptly]. The leaks at these 48 tank sites had been known for 3 to 14 years. (EPA 1997.)

The EPA’s audit further found that of the 38 leaking tanks reviewed by the OIG, “enforcement action [that was taken] appeared appropriate at only one site.” For 13 of those sites the state took no enforcement action although the leaks had been reported for 2 to 11 years; for 19 sites where clean-up and abatement orders were issued “the owner or operator had not complied with the terms of the order and no enforcement actions were taken to assess penalties for noncompliance.” And for five sites penalties “were only a small fraction of the amounts that could have been assessed.”

## **State Audits Confirm Lack of Enforcement**

**Auditors found that regional water boards often delayed taking enforcement action against tank owners for up to 10 years — when they acted at all.**

The California State Auditor, in an equally scathing 1998 report, concluded that “although the State of California has ample evidence that gasoline leaking from underground storage tanks is jeopardizing the safety of our drinking water supplies, it has not acted quickly and decisively to address this potential health hazard.” The Auditor found that the state failed to ensure swift identification of contamination, failed to follow through on cleanup orders and failed to take enforcement action against polluters who delayed cleanup. (State Auditor 1998.)

The state audit found that on average it took polluters more than two years to identify the extent of the contamination, compared to a “reasonable time frame” of six months. The audit found that regional boards “took as long as 10 years to penalize responsible parties for delaying such critical activities as the removal of contaminants, site investigations and submission of technical reports.” In many cases the regional boards took no action against polluters who refused to clean up their mess.

## ***'Utter Frustration' With Cleanup Delay***

In February 1999, the Joint Legislative Audit Committee held a hearing focusing on the delays in cleaning up contaminated tank sites. Chris Strohm, vice president of the South Lake Tahoe Public Utility District, which has lost a third of its drinking water supplies to MTBE contamination, recounted the regulatory history of just one of the ten underground contamination "plumes" discovered in the district:

This plume started back in 1984 when our crews were digging a ditch across from a gas station for a water line. The gasoline fumes were so strong across the street that they were afraid they'd strike a spark and have an explosion. That was in 1984. The [regional water board] was notified and reminded numerous times of this plume. It wasn't until five years later, in 1989, that the [storage] tanks were removed.

But the existing plume threatened homes, businesses and one of our large wells. In 1990 the regional board issued a cleanup order with a 1992 deadline. The responsible party did not meet the deadline and the regional board did not follow up. Later in 1992 the regional board required a work plan for a corrective action. It had to be done by 1993.

1993 came and went. In 1994 the responsible party finally produced a work plan – no action in cleaning up the plume or defining it; just a plan. In April of 1997 we delivered a letter to the regional board stating our utter frustration. We copied the state board; we copied you legislators; and we copied the press to try to hold the regional board accountable. [At about the same time] in 1997, the state board did an internal audit of the regional board and gave them a clean bill of health. This was a whitewash.

Today the extent of the plume has not been fully determined, and cleanup has not occurred. And while we're holding these meetings, this and at least nine other plumes are spreading, and in some of our soils, they spread one foot a day. You see standing before you right now California's future. . . . Make the state agencies act, not just promise to act. We can't wait.

The lack of enforcement was again blasted in a 1999 report by the Joint Legislative Audit Committee. A private water engineer who has worked on many site cleanups attributed the lax enforcement to the politically-motivated unwillingness of both the Wilson and Davis administrations to crack down on major oil companies:

**If the political agenda does not promote enforcement, regulators will allow more and more contamination to remain in the ground.**

Although [state law] requires the Water Board to take action against non-compliant responsible parties, it is common practice for Board staff to routinely not penalize responsible parties who fail to comply with agency requirements. [This is particularly prevalent with] larger responsible parties who have the money and resources to defend themselves in the technical and legal arena. The environmental regulatory [system] generally follows the current political agenda. If that agenda does not promote environmental enforcement, the regulators will continuously rationalize that more and more contamination is acceptable to leave in the ground . . . [JLAC 1999.]

Orange County's director of environmental health told the committee that current state law, which provides only civil penalties for underground tank leaks, is inadequate to deter large corporate offenders:

You need criminal violations to get the attention of the businesses . . . Our district attorney's office also indicates that [the state] needs more teeth in your law. We need something to give the local agencies other tools to deal with tank violations . . . and for the district attorney to pursue [those cases]. (JLAC 1999.)

Meanwhile, tank owners took full advantage of the regulatory void. As a result of a 1998 bill sponsored by Atlantic Richfield Co. and signed by former Gov. Pete Wilson, operators of underground storage tanks are allowed to "self-certify" that they have complied with required tank upgrades. But recent inspections in San Joaquin, Sacramento and Los Angeles counties suggest that at least one company used self-certification to deceive regulators and avoid doing necessary upgrades. In April 2000, the state Environmental Protection Agency launched an investigation into whether ARCO falsified public records to show that its stations complied with mandates for upgrading underground fuel tank systems to prevent leaks that threaten drinking water wells.



In August 1999, San Joaquin County sued ARCO for allegedly operating tanks without permits, engaging in unfair competition and “making any false statement, representation or certification” in required documents. The suit was settled that December, and the discoveries in San Joaquin County led to inspections in Sacramento and Los Angeles counties. According to a California Environmental Protection Agency memo acquired by *The Sacramento Bee*, even though the stations had been issued upgrade certificates, investigators discovered that stations in both of these counties still had steel piping rather than the required fiberglass.

The state is concerned that fraudulent self-certification may not be an isolated incident. In enforcement alerts issued to agencies that implement underground tank laws, the state water board said that “the violations already found in isolated, random inspections at either end of the state may be an indicator of widespread problems.” (SWRCB 2000).

Compliance with the upgrade standards, however, is no guarantee a tank won’t leak. At least two studies, one by a state panel convened by former Gov. Wilson and one conducted by the Santa Clara Valley Water District, have found that the new tanks do not live up to their expectations. In each of the studies researchers found extensive contamination that they attributed to the new tanks. In fact, in a detailed analysis of 16 tank sites with extensive MTBE contamination, the Santa Clara district determined that tanks that met the new upgrade standards were likely the source of contamination at 13 sites, or 80 percent of the cases reviewed.

**In one local water district, “upgraded” tanks still had problems with leaks.**



### 3. Findings

California has known about the potential for widespread water contamination from leaking underground storage tanks for more than a decade. The state, however, has not taken adequate steps to address this threat. This widespread failure to enforce the law has delayed cleanups, let most violators off the hook, exacerbated groundwater pollution, and worst of all, led to a regulatory environment that has utterly failed to deter polluters. The largest oil companies knew well over 30 years ago that petroleum storage tanks were leaking – a study of the problem by the American Petroleum Institute dates to 1972 – and did nothing about it (CBE 1999). The widespread contamination of California groundwater by MTBE and other chemicals was not accidental but foreseeable and preventable.

Underground storage tanks are leaking toxic chemicals into groundwater in every California county. According to state records, there are 934 open cases of tanks contaminating groundwater in Los Angeles County. San Diego County has 744 open groundwater cases, San Diego County has 744, Orange County has 686, Alameda County has 586 and San Mateo County has 513. Among cities, San Jose has 236 open cases of tanks leaking to groundwater, San Diego has 190, Santa Rosa has 171, Los Angeles has 168 and Oakland has 154. (Table 4a-b.)

Nearly all (99 percent) of the contaminants leaking from underground storage tanks are petroleum products and include gasoline, jet fuel, hydrocarbons, paint thinner and waste oil. In addition to the petroleum products, a small number of cases also involve a long list of other toxic chemicals. These include arsenic, lead, chromium, and perchlorethylene and trichloroethylene, both known carcinogens and suspected reproductive toxins. (Table 5.)

Delays in cleanup of leaking underground tank sites vary widely by region. More than 45 percent of open cases under the jurisdiction of the San Francisco regional board were first reported more than ten years ago. But in the Central Valley region, which has about the same number of open cases as San Francisco, fewer than 25 percent of open cases were first reported more than ten

**Although almost all of the contaminants leaking from underground tanks are petrochemicals, tanks are also polluting groundwater with arsenic, lead, chromium and other toxic chemicals.**

Table 4a. Leaking tank sites by county.

| Rank | County          | Total Sites   | Open Sites    | Closed Sites  | Sites That Contaminate Drinking Water* |
|------|-----------------|---------------|---------------|---------------|--|
| 1    | Los Angeles     | 5,497         | 2,104         | 3,393         | 63                                     |
| 2    | San Diego       | 3,274         | 1,518         | 1,756         | 798                                    |
| 3    | Orange          | 2,600         | 1,177         | 1,423         | 845                                    |
| 4    | Alameda         | 2,288         | 1,129         | 1,159         | 24                                     |
| 5    | Santa Clara     | 2,211         | 764           | 1,447         | 149                                    |
| 6    | San Francisco   | 1,349         | 318           | 1,031         | 0                                      |
| 7    | Ventura         | 1,261         | 372           | 889           | 0                                      |
| 8    | Riverside       | 1,129         | 448           | 681           | 296                                    |
| 9    | San Mateo       | 1,125         | 682           | 443           | 24                                     |
| 10   | Sacramento      | 1,119         | 545           | 574           | 254                                    |
| 11   | Sonoma          | 1,028         | 533           | 495           | 646                                    |
| 12   | Kern            | 1,008         | 260           | 748           | 98                                     |
| 13   | San Bernardino  | 1,001         | 529           | 472           | 165                                    |
| 14   | San Joaquin     | 904           | 542           | 362           | 310                                    |
| 15   | Contra Costa    | 808           | 372           | 436           | 107                                    |
| 16   | Santa Barbara   | 749           | 281           | 468           | 220                                    |
| 17   | Fresno          | 711           | 378           | 333           | 129                                    |
| 18   | Humboldt        | 516           | 342           | 174           | 227                                    |
| 19   | Tulare          | 466           | 200           | 266           | 149                                    |
| 20   | Solano          | 453           | 182           | 271           | 65                                     |
| 21   | Stanislaus      | 425           | 197           | 228           | 167                                    |
| 22   | Monterey        | 399           | 221           | 178           | 8                                      |
| 23   | Placer          | 391           | 271           | 120           | 192                                    |
| 24   | Merced          | 363           | 153           | 210           | 142                                    |
| 25   | Mendocino       | 358           | 189           | 169           | 145                                    |
| 26   | Marin           | 331           | 151           | 180           | 6                                      |
| 27   | Napa            | 320           | 149           | 171           | 6                                      |
| 28   | Santa Cruz      | 304           | 157           | 147           | 4                                      |
| 29   | Shasta          | 294           | 89            | 205           | 154                                    |
| 30   | Yolo            | 249           | 112           | 137           | 111                                    |
| 31   | Butte           | 228           | 83            | 145           | 113                                    |
| 32   | Yuba            | 204           | 153           | 51            | 47                                     |
| 33   | Madera          | 201           | 86            | 115           | 15                                     |
| 34   | San Luis Obispo | 199           | 73            | 126           | 3                                      |
| 35   | Imperial        | 185           | 33            | 152           | 43                                     |
| 36   | Nevada          | 185           | 108           | 77            | 86                                     |
| 37   | Siskiyou        | 174           | 73            | 101           | 73                                     |
| 38   | Kings           | 173           | 77            | 96            | 100                                    |
| 39   | El Dorado       | 154           | 85            | 69            | 85                                     |
| 40   | Tehama          | 134           | 39            | 95            | 53                                     |
| 41   | Tuolumne        | 127           | 90            | 37            | 51                                     |
| 42   | Inyo            | 99            | 50            | 49            | 43                                     |
| 43   | Del Norte       | 97            | 56            | 41            | 52                                     |
| 44   | Calaveras       | 95            | 56            | 39            | 24                                     |
| 45   | Sutter          | 86            | 46            | 40            | 32                                     |
| 46   | Lake            | 83            | 48            | 35            | 33                                     |
| 47   | Mariposa        | 79            | 30            | 49            | 28                                     |
| 48   | Trinity         | 74            | 43            | 31            | 21                                     |
| 49   | Mono            | 66            | 34            | 32            | 22                                     |
| 50   | Amador          | 58            | 40            | 18            | 23                                     |
| 51   | Plumas          | 54            | 10            | 44            | 27                                     |
| 52   | Colusa          | 52            | 38            | 14            | 20                                     |
| 53   | San Benito      | 52            | 13            | 39            | 1                                      |
| 54   | Glenn           | 40            | 16            | 24            | 21                                     |
| 55   | Lassen          | 30            | 21            | 9             | 22                                     |
| 56   | Alpine          | 13            | 4             | 9             | 5                                      |
| 57   | Sierra          | 12            | 9             | 3             | 5                                      |
| 58   | Modoc           | 11            | 5             | 6             | 5                                      |
|      | <b>Total</b>    | <b>35,896</b> | <b>15,784</b> | <b>20,112</b> | <b>6,557</b>                           |

**Table 4b. Leaking tank sites in leading cities.**

| Rank | City           | Total Sites | Open Sites | Closed Sites | Sites That Contaminate Drinking Water* |
|------|----------------|-------------|------------|--------------|--|
| 1    | San Francisco  | 1,341       | 315        | 1,026        | 0                                      |
| 2    | San Diego      | 1,213       | 466        | 747          | 148                                    |
| 3    | San Jose       | 1,042       | 380        | 662          | 95                                     |
| 4    | Oakland        | 781         | 393        | 388          | 7                                      |
| 5    | Sacramento     | 716         | 336        | 380          | 184                                    |
| 6    | Los Angeles    | 668         | 294        | 374          | 16                                     |
| 7    | Stockton       | 504         | 312        | 192          | 166                                    |
| 8    | Bakersfield    | 492         | 81         | 411          | 34                                     |
| 9    | Fresno         | 405         | 200        | 205          | 44                                     |
| 10   | Santa Rosa     | 365         | 197        | 168          | 266                                    |
| 11   | Anaheim        | 333         | 85         | 248          | 74                                     |
| 12   | Long Beach     | 332         | 176        | 156          | 0                                      |
| 13   | Oxnard         | 293         | 79         | 214          | 0                                      |
| 14   | Hayward        | 291         | 194        | 97           | 0                                      |
| 15   | Santa Ana      | 282         | 180        | 102          | 140                                    |
| 16   | Camp Pendleton | 270         | 231        | 39           | 102                                    |
| 17   | Riverside      | 238         | 106        | 132          | 68                                     |
| 18   | Santa Barbara  | 227         | 103        | 124          | 134                                    |
| 19   | Vandenberg AFB | 226         | 84         | 142          | 0                                      |
| 20   | Napa           | 223         | 107        | 116          | 5                                      |

Source: EWG, from SWRCB LUSTIS, 2000.

**Table 5. Almost all of the contaminants leaking from underground tanks are petroleum products.**

| Substance                | All Cases | Open Water Cases |
|--------------------------|-----------|------------------|
| Gasoline                 | 19,668    | 5,256            |
| Diesel                   | 6,215     | 841              |
| Waste Oil                | 2,683     | 381              |
| Unleaded Gasoline        | 1,331     | 377              |
| Misc. Motor Vehicle Fuel | 1,097     | 366              |
| Hydrocarbons             | 776       | 157              |
| Heater Fuel              | 671       | 133              |
| Regular Gasoline         | 653       | 114              |
| Solvents                 | 303       | 42               |
| Jet Fuel                 | 167       | 29               |
| Boiler Fuel              | 150       | 28               |
| Mineral Spirits          | 109       | 19               |
| Bunker Fuel Oil          | 99        | 16               |
| Kerosene                 | 84        | 16               |
| Motor Oil                | 73        | 15               |
| Benzene                  | 71        | 15               |
| Stoddard Solvent         | 61        | 12               |
| #6 Fuel Oil              | 60        | 10               |
| Premium Gasoline         | 58        | 6                |
| Oil & Grease Waste       | 50        | 6                |
| Lead                     | 48        | 6                |
| Toluene                  | 34        | 6                |
| Paint Thinner            | 31        | 5                |
| Xylene                   | 30        | 4                |
| Other/Undefined          | 1,374     | 174              |

Source: EWG, from SWRCB LUSTIS, 2000.

years ago. About 40 percent of cases in the Los Angeles region are more than ten years old, but in the San Diego region only 25 percent are that old. The Central Coast and Lahontan (Tahoe basin) regions also have about the same number of open cases, but more than 31 percent of Central Coast cases are more than ten years old, while fewer than 15 percent of Lahontan cases are that old — the best performance percentage in the state. (Table 6.)

**Table 6. Leaking tank cases are backlogged all over the state.**

| Regional Board    | Total Open Cases | Opened Before 1990 | Percent Before 1990 | Opened Before 1995 | Percent Before 1995 |
|-------------------|------------------|--------------------|---------------------|--------------------|---------------------|
| San Francisco Bay | 3,720            | 1,687              | 45.3%               | 2,932              | 78.8%               |
| Central Valley    | 3,679            | 904                | 24.6%               | 2,108              | 57.3%               |
| Los Angeles       | 2,394            | 946                | 39.5%               | 1,731              | 72.3%               |
| Santa Ana         | 1,652            | 501                | 30.3%               | 998                | 60.4%               |
| San Diego         | 1,615            | 407                | 25.2%               | 978                | 60.6%               |
| North Coast       | 1,095            | 353                | 32.2%               | 749                | 68.4%               |
| Central Coast     | 793              | 252                | 31.8%               | 527                | 66.5%               |
| Lahontan          | 612              | 88                 | 14.4%               | 352                | 57.5%               |
| Colorado River    | 224              | 42                 | 18.8%               | 104                | 46.4%               |
| <b>Total</b>      | <b>15,784</b>    | <b>5,180</b>       |                     | <b>10,479</b>      |                     |

*Source EWG, from SWRCB LUSTIS, 2000.*

Since 1970 about 36,000 leaking underground tanks have been reported statewide, but 36.3 percent of the case records provide no enforcement information at all. Some regional water boards were far better than others at recording enforcement activities in the state database.

For example, the San Francisco and the Central Valley water boards, which rank first and second in the number of cases, have filled in enforcement detail in 84 percent and 99.5 percent of cases respectively. But the Los Angeles water board, with the third-largest case load, has recorded enforcement detail in just 25 percent of cases.

When asked why so many records were blank, a spokesperson for the Los Angeles board told EWG that older records were less likely to have good data and to rely on records since 1996. But EWG’s analysis found that the newer data from the Los Angeles Water Board was even less likely to contain enforcement detail. Analysis of the 2,626 cases that have been closed since 1996 found that only 18 percent of cases provided enforcement details.

Statewide, of the 23,000 cases where enforcement details are recorded, no action was taken in 82.1 percent. Non-binding

warnings or other informal notices were issued in 10.3 percent. Binding enforcement action was taken in 7.6 percent of cases; cleanup and abatement orders were issued in just 73 cases; and what the state water board calls “punitive action,” the category that includes fines, was applied only 42 times. The exact number and amount of fines is unknown.

This binding enforcement rate may be overly generous considering that nearly all cases (1,705 in 1,758) involved simply issuing an enforceable cleanup order, but do not mean that the issuing agency actually followed up. Both the state and federal audits found that cleanup orders were often not followed up.

Of 16,000 cases still open — that is, where pollution is ongoing — two-thirds were identified before 1995 and one-third before 1990. Hundreds of still-open cases were first reported before 1985.

Regulators offer a variety of excuses for the decade-old sites. One state official told EWG that regulators likely decided that no further action was needed in these cases, but that they had forgotten or failed to change the case to “closed” and no further review was conducted. But the data suggest otherwise. Far from being reported and then dropped from further consideration, a large percentage of decade-old cases have been reviewed (and left open) as recently as 1999. In fact, approximately 40 percent of decade-old cases were reviewed most recently in 1999 and 71 percent have been reviewed since 1995.

About 15,000 of the open and closed leak sites affect water, and about 18,000 affect soil. (Table 7.) Binding enforcement action was taken in about 12 percent of water cases, compared to 5 percent of soil cases. While already-contaminated water is clearly of greater enforcement priority, chemical plumes in soil can spread hundreds of feet in only a few years to nearby wells and aquifers. MTBE not only migrates unusually rapidly but accelerates the spread of other chemicals that also leak from underground fuel tanks, including benzene and toluene.

Storage tanks owned and operated by 14 major oil companies, or used by independent dealers to store fuels sold by those companies, make up 21 percent of all known sites and 36 percent of all open cases affecting water. San Francisco-based Chevron Corp. is responsible for more than 1,500 cases. Unocal Corp., based in Los Angeles, and Shell Oil Co. are each responsible for more than 1,100 cases.

**Table 7.**  
**About 40 percent of leaking sites contaminate water.**

| Open Sites                 | Cases         |
|----------------------------|---------------|
| Contaminate Water          | 8,034         |
| Contaminate Soil           | 4,947         |
| Contaminate Undefined Area | 2,803         |
| <b>Total</b>               | <b>15,784</b> |
| Closed Sites               | Cases         |
| Contaminate Water          | 6,436         |
| Contaminate Soil           | 12,655        |
| Contaminate Undefined Area | 1,021         |
| <b>Total</b>               | <b>20,112</b> |
| All Sites                  | Cases         |
| Contaminate Water          | 14,470        |
| Contaminate Soil           | 17,602        |
| Contaminate Undefined Area | 3,824         |
| <b>Total</b>               | <b>35,896</b> |

*Source EWG, from SWRCB LUSTIS, 2000.*

## ***MTBE Contaminates Thousands of Sites***

MTBE and other gasoline additives known as oxygenates allow fuel to burn more completely, reducing the exhaust emissions that cause air pollution. Amendments to the federal Clean Air Act in 1990 and 1995 required the use of oxygenates in gasoline, and the oil companies rushed to use the cheapest and most readily available chemical — MTBE.

However, evidence that MTBE was hazardous to human health was known at least as early as 1991. Research indicates that MTBE may cause kidney, liver and testicular cancer in laboratory animals, and it breaks down into formaldehyde, a known human carcinogen. (JLAC 1999.)

As early as 1990 regulators in California were aware that MTBE was contaminating drinking water, when tests at the Presidio army base in San Francisco found MTBE in wells at levels 15 times higher than the safety threshold then in effect. It wasn't until 1999 that Gov. Davis signed an executive order to phase out the use of MTBE in gasoline by the year 2002.

The state's database of leaking underground storage tank cases shows extremely high concentrations of MTBE near leaking sites throughout the state. Although the database only records maximum concentrations in monitoring wells near the leak site, as opposed to averages or actual drinking water data, the maximum concentrations indicate the extent of contamination from underground tanks.

Tests for MTBE have been taken in 47 percent, or more than 3,700, of leaking tank cases affecting water. Maximum MTBE concentrations in groundwater exceed the new California health standard (13 parts per billion) at 80 percent of monitored sites. Concentrations exceed the health standard by a factor of 100 at 47 percent of sites and exceed the standard by a factor of 1,000 at 23 percent of sites. (Table 8.)

These results are similar to those produced by a recent Lawrence Livermore National Laboratory analysis of groundwater tests at 236 leaking tanks. Analyzing data submitted voluntarily from five major oil companies, they found that 78 percent reported detectable levels of MTBE. Seventy percent reported MTBE detections above the state safety standard. (LLNL 1998.)



**Table 8. Thousands of tank sites are contaminated with MTBE in excess of state safety standards.**

| <b>County</b>   | <b>Sites Above Safety Standard</b> | <b>Sites 100x Safety Standard</b> |
|-----------------|------------------------------------|-----------------------------------|
| Los Angeles     | 582                                | 392                               |
| Orange          | 347                                | 237                               |
| Santa Clara     | 264                                | 132                               |
| San Mateo       | 226                                | 116                               |
| Alameda         | 203                                | 112                               |
| Contra Costa    | 158                                | 104                               |
| San Joaquin     | 97                                 | 44                                |
| San Francisco   | 66                                 | 39                                |
| Placer          | 82                                 | 53                                |
| Sacramento      | 72                                 | 34                                |
| Riverside       | 83                                 | 39                                |
| Solano          | 75                                 | 44                                |
| Marin           | 54                                 | 41                                |
| Santa Cruz      | 58                                 | 30                                |
| Tulare          | 30                                 | 6                                 |
| San Bernardino  | 55                                 | 29                                |
| Sonoma          | 45                                 | 28                                |
| Monterey        | 48                                 | 24                                |
| Napa            | 50                                 | 29                                |
| El Dorado       | 36                                 | 22                                |
| Butte           | 37                                 | 23                                |
| Shasta          | 39                                 | 25                                |
| San Luis Obispo | 38                                 | 18                                |
| Yolo            | 32                                 | 18                                |
| Fresno          | 13                                 | 4                                 |
| Merced          | 26                                 | 12                                |
| Stanislaus      | 29                                 | 15                                |
| Nevada          | 21                                 | 13                                |
| Tehama          | 14                                 | 7                                 |
| Yuba            | 16                                 | 10                                |
| Inyo            | 8                                  | 4                                 |
| Lassen          | 9                                  | 4                                 |
| Tuolumne        | 9                                  | 3                                 |
| Amador          | 8                                  | 7                                 |
| Kings           | 1                                  | 0                                 |
| Colusa          | 5                                  | 4                                 |
| Lake            | 3                                  | 2                                 |
| Glenn           | 7                                  | 5                                 |
| Imperial        | 7                                  | 2                                 |
| Kern            | 6                                  | 4                                 |
| Sutter          | 7                                  | 5                                 |
| Mono            | 5                                  | 2                                 |
| Ventura         | 5                                  | 4                                 |
| Calaveras       | 5                                  | 1                                 |
| Plumas          | 2                                  | 1                                 |
| Siskiyou        | 5                                  | 4                                 |
| San Diego       | 3                                  | 2                                 |
| Mariposa        | 1                                  | 0                                 |
| Modoc           | 3                                  | 1                                 |
| San Benito      | 3                                  | 0                                 |
| Alpine          | 1                                  | 0                                 |
| Madera          | 1                                  | 0                                 |
| <b>Total</b>    | <b>3,000</b>                       | <b>1,755</b>                      |

Source: EWG, from SWRCB LUSTIS, 2000.

Of cases involving major oil companies, no enforcement action was taken in 79.4 percent, informal action in 12.8 percent and binding enforcement action in 7.8 percent. Since 1970, only seven oil company cases have resulted in fines or other punitive action. More than 40 percent of state records on leaking tank cases involving major oil companies provide no enforcement information at all. State and local officials told EWG that fines are inappropriate in the majority of cases because the tank owners did not deliberately violate the law. Under this rationale, all accidental crime, be it speeding, toxic spills, or forgetting to report income to the IRS, would go unpunished.

According to state data, just two cases, both involving Thrifty Oil Co. of Santa Fe Springs, were referred by water boards to a local district attorney for possible prosecution. However, at least two local district attorneys, in Riverside and Orange counties, have taken their own initiative and won significant penalties from major oil companies for fraudulently certifying compliance with tank upgrades or other infractions.

**While state and regional water quality officials fail to enforce the law, local authorities are prosecuting big polluters for leaking tanks — and winning major penalties.**

The Orange County district attorney has been particularly aggressive, winning a \$200,000 settlement against the Marriott Corp. in June 2000 and a \$1 million settlement against Mobil Oil in 1998. Investigation in the Mobil case discovered that at two-thirds of Mobil stations in Orange County, leak detection devices had been tampered with, allowing leaks to go undetected. (Gottlieb 1998). Orange County, which is also the jurisdiction handling the Thrifty cases, has pending enforcement action against ARCO and Shell Oil for allegedly failing to initiate cleanup at leaking sites.

Some state officials argue that the percentage of open cases is not a good indicator of lack of enforcement due to the possibility that regulators could take punitive action upon closure of the site. A comparison of open and closed cases that impact water, however, shows little difference in recorded enforcement action. For example, regulators took no action or issued only warnings in 90 percent of 3,991 closed water cases vs. 86 percent of 4,911 open water cases. Again, these numbers reflect only cases in which enforcement details are recorded.

## 4. Methodology

This analysis utilizes the March 28, 2000 update of the Leaking Underground Storage Tank Information System (LUSTIS) compiled by the state Water Resources Control Board. LUSTIS contains detailed records for approximately 36,000 leaking underground storage tank cases. Each of the nine regional board collects the data and the state water board compiles it into LUSTIS. The database records about 50 categories of information about each case, including location, status, enforcement and MTBE tests. A less detailed version of the database is available at [www.swrcb.ca.gov/cwphome/lustis/index.html](http://www.swrcb.ca.gov/cwphome/lustis/index.html).

Thirteen types of enforcement action are indicated in the database by letter codes. Based on the state's definition of the codes, EWG categorized each case as either no action taken, informal action taken or formal and binding action taken. Informal action includes written warnings. Binding actions include letters of enforcement; cleanup and abatement orders; cease and desist orders; administrative civil liability orders; schedules for compliance; referrals to a district attorney or attorney general; petitions from a local agency to the state Water Resources Control Board requesting enforcement action; consent orders; and punitive action taken.

In determining the companies responsible for the leak EWG relied on the name of the site rather than the name of the tank operator. The operator's name is blank in about two-thirds of the records in the database and in most others an individual's name rather than a company is supplied, so listing only the operators would disguise the responsible parties.

Details on payments from the state's underground storage tank fund come from a separate database compiled and provided in April 2000 by the Leaking Underground Storage Tank Fund Program.



## Citations

California Health and Safety Codes. Chapter 6.75, Article 13: 25299.99(a).

CBE 1999. *Communities for a Better Environment vs. Tosco Corp. et al.* Fourth Amended Complaint for Civil Penalties. Case No. 300595, filed in the Superior Court of the State of California for the County of San Francisco, December 1999.

CEC 1998. Impacts of the Underground Storage Tank Upgrading Program on Petroleum Product Supplies in Rural California. California Energy Commission, December 1998.

Clifford 1996. Probe Targets Employees At Water Board. Frank Clifford, *Los Angeles Times*, December 24, 1996.

EPA 1997. EPA Office of the Inspector General Consolidated Report on EPA's Leaking Underground Storage Tank Program. U.S. Environmental Protection Agency, Office of the Inspector General. [www.epa.gov/oigearth/lusttabl.htm](http://www.epa.gov/oigearth/lusttabl.htm).

EPA 1998. Underground Storage Tanks; Technical Requirements and State Program Approval, Final Rule. [www.epa.gov/swerust1/fedlaws/pre28002.htm](http://www.epa.gov/swerust1/fedlaws/pre28002.htm)

EPA 2000. Charnock MTBE Project. U.S. Environmental Protection Agency, [www.epa.gov/region09/cross\\_pr/mtbe/charnock/index.html](http://www.epa.gov/region09/cross_pr/mtbe/charnock/index.html).

EWG 2000. Personal communication with attorneys representing Citizens for a Better Environment, June 2000.

JLAC 1999. California's Latest Water Crisis: Toxic Contamination In Our Drinking Water. A Post-Hearing Report by the Joint Legislative Audit Committee. Maria Armoudian, Joint Legislative Audit Committee, February 1999.

Gottlieb 1998. Mobil Agrees to Pay \$1 Million in Lawsuit. Jeff Gottlieb, *Los Angeles Times*, September 4, 1998.

LLNL 1998. An Evaluation of MTBE Impacts to California Groundwater Resources. Lawrence Livermore National Laboratory, June 11, 1998.

OCDA 1999. *The People of the State of California vs. Atlantic Richfield Company*. Complaint for Injunction, Compliance Order, Civil Penalties and Other Relief. Orange County District Attorney, January 1999, Case 04030.

Santa Clara County 2000. An Evaluation of MTBE Occurrence At Fuel Leak Sites With Operating Gasoline USTs. Christine A. Tulloch, Santa Clara Valley Water District, May 2000.

SWRCB 1999. Underground Storage Tank Statistics. State Water Resources Control Board, [http://www.swrcb.ca.gov/~cwphome/ust/tank\\_stats.htm](http://www.swrcb.ca.gov/~cwphome/ust/tank_stats.htm).

SWRCB 1999b. Report of the State Water Resources Control Board's Advisory Panel on the Leak History of New and Upgraded UST Systems. State Water Resources Control Board, January 1999.

SWRCB 2000. Enforcement Alert. Elizabeth L. Haven, Manager, Underground Storage Tank Program, State Water Resources Control Board, April 24, 2000.



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