

Status Report on UST and SLIC Programs May 2006

This status report discusses the Water Board's Underground Storage Tank (UST) and Spills, Leaks, Investigations, and Cleanups (SLIC) programs. These two programs are administered by the Toxics Cleanup Division.

The two programs have essentially the same goals: (i) respond to unauthorized releases to soil and waters of the State and (ii) require appropriate corrective action in order to protect human health and the environment and to restore beneficial uses of water. However, the funding sources are very different. The UST program is funded through the State Board via the UST Cleanup fund account. This program collects a small fee on every gallon of gasoline sold in the State and that money pays for cleanup oversight by Water Board staff as well as several local agencies; it also reimburses most of the cleanup costs incurred by fuel UST owners. The SLIC Program, on the other hand, is funded primarily through cost recovery, which is handled through the State Board's Cleanup and Abatement Account fund.

In the 1980s, the Water Board started to focus on releases affecting groundwater, due to underground tanks, above ground tanks, chemical sumps, and other sources. Many of these releases were later regulated by new programs, including the underground storage tank (UST), above ground tank (AGT), and Department of Defense (DOD) programs. The SLIC program covers releases not addressed by these other programs. In our Region we have blurred the program boundaries somewhat by having Toxics Cleanup Division staff oversee both UST and SLIC cases.

LEGAL AUTHORITY

UST Program

In the early 1980s, pollutants from leaking underground storage tanks were found to be affecting some drinking water wells in the Santa Clara Valley area. Considering that drinking water in this area is obtained largely from wells tapping extensive underlying aquifers, these discharges were seen as an immediate health and environmental threat. Given the discovery that soil and groundwater pollution from leaking USTs was the source of this threat, local, state, and federal lawmakers moved rapidly to enact laws governing the operation of USTs insofar as they could threaten groundwater resources.

California was at the forefront of crafting what essentially became the Nation's first UST law [Chapter 6.7 of the Health and Safety Code] addressing the threat of discharges from underground storage tanks to groundwater. This 1982 legislation was largely accomplished through the cooperative efforts of the Santa Clara Valley Water District and legislator Byron Sher. This law authorized local agencies to regulate UST design, construction, monitoring, repair, leak reporting, and response measures. Federal legislation patterned on California's approach followed in 1984.

Other important State legislation which followed relating to the UST program includes: the Underground Storage Tank Cleanup Fund Act of 1989 (SB 299 – Keene) and the establishment of the Local Oversight Program (LOP) in 1990 as Section 25297.1 of Chapter 6.7 of the Health and Safety Code.

SLIC Program

We rely primarily on Water Code authority to require investigation and cleanup of sites with unauthorized pollutant releases. Section 13267 allows us to require technical reports from suspected dischargers and Section 13304 allows us to issue “cleanup and abatement” orders to dischargers. Several years ago this Board coined the term “site cleanup requirements” to describe Section 13304 orders where soil or groundwater cleanup would take many years to complete and the dischargers were cooperatively implementing the cleanup. We also rely on the state Health and Safety Code and the federal Superfund law for authority at the federal Superfund sites we oversee.

CLEANUP STANDARDS

When the cleanup programs began in the early 1980s, we required cleanup to background concentrations. For most organic constituents, such as benzene, tetrachloroethylene, and trichloroethylene to name a few, this meant cleaning up to non-detectable levels. As we gained experience with contamination assessment and cleanup technology implementation, we realized that at most sites this was infeasible or would take a very long time. In 1992, the State Board adopted an over-arching policy for site cleanup (Resolution 92-49) which included policy on cleanup standards. It retained the goal of “cleanup to background” but it allowed for setting less stringent cleanup standards if “cleanup to background” is infeasible and beneficial uses of water are still protected. As a practical matter, we set groundwater cleanup standards at or below drinking water standards. More recently, we have considered a wider range of environmental concerns when setting soil and groundwater cleanup standards (e.g., “daylighting” of contaminated groundwater into nearby streams or site residents being directly exposed to soil contaminants). This latter point is discussed more below.

CLEANUP TECHNOLOGIES

When the cleanup programs began in the early 1980s, the technical options for cleanup were limited. Soil cleanup meant excavation and off-site disposal; groundwater cleanup meant groundwater extraction, treatment, and disposal to surface waters (“pump and treat”). Since then, a number of additional technologies have emerged and have greatly increased the effectiveness and efficiency of site cleanup. The key ones are listed below:

Soil	Soil vapor extraction for fuels or volatile organic compounds (VOCs)
	Heating technologies (for VOCs)
	Stabilization technologies (especially for metals)
Groundwater	Air sparging (for fuels or VOCs)
	Enhanced bio-degradation

	Permeable reactive barriers (mainly for VOCs)
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As shown above, source area remediation is done with in-situ techniques such as permeable reactive barriers that are placed within the groundwater bearing zone. Contaminated water passes through the barrier and the contaminants react with the emplaced materials and are broken down or degraded to less harmful constituents. Other in-situ techniques involve injecting chemical oxidants into the groundwater to facilitate the breakdown of contaminants. These types of treatments are less costly, take up less space, and do not require disposal of treated groundwater.

UST PROGRAM OVERSIGHT AND RESOURCES

UST Program Work Elements

There are currently 12 agencies that oversee cleanup of fuel USTs within our Region (see table below). They include the Water Board, 7 county agencies, 3 cities, and 1 water district. The State Board funds the county agencies through the Local Oversight Program (LOP). The remainder, which are referred to as Local Implementing Agencies (LIAs), consist of the remaining city and water district agencies. The LIAs oversee fuel UST cleanup through arrangement, normally via an agreement with the Water Board. The UST Program Work Elements follow the table below which lists the UST cleanup agencies in our Region.

State	Water Board
LOP	Alameda County Dept. of Environmental Health
	Napa County Dept. of Environmental Management
	San Francisco Bureau of Environmental Health Management
	San Mateo County Office of Environmental Health
	Santa Clara County Dept. of Environmental Health
	Solano County Dept. of Environmental Management
	Sonoma County Environmental Health Division
LIA	Alameda County Water District
	City of Berkeley Toxics Management Program
	City of Hayward Fire Department
	City of San Leandro

Case Determination: Certain local agencies, generally the local fire departments, called CUPAs (Certified Unified Permitting Agencies), permit and regulate UST operations including leak prevention and inspections. When a release occurs, the Board is generally notified of the release via a copy of an Unauthorized Release Form. This form is tailored so as its notification hierarchy complies with Prop. 65 notification requirements.

If the release is from fuels and the CUPA happens to also be an LOP agency or an agency that has an agreement with the Board for fuel UST cleanup oversight, it will oversee cleanup operations from that point. If there is no LOP or LIA that has jurisdiction, then

the Board becomes the lead, as is the case for Contra Costa and Marin Counties.

Local Oversight Program (LOP) Agencies

In the context of LOP agency oversight, Board staff provide technical guidance and enforcement support as needed. Upon determination by the LOP agency that a case is ready for closure, the LOP agency submits a closure package to Board staff for review. If Board staff concur or fail to act within 30 days, the closure is deemed approved and the LOP agency issues the closure letter.

Local Implementing Agencies (LIAs)

For the LIA agencies, Board staff provide technical and enforcement assistance as necessary. However, these agencies essentially perform the same technical oversight duties (report requests, report review, etc.) that Board staff would be expected to perform when overseeing case cleanups.

As part of the Region's case closure protocol with the LIA agencies, Board staff review the LIA's case closure recommendation and case closure summary package (although in some cases Board staff may prepare the summary package for the agency). If Board staff concurs with the agency's recommendation, Board staff issues the closure letter.

The Cleanup Fund

Perhaps one of the most critical elements of the UST Program that the State Board administers, which is largely responsible for fuel UST cleanups occurring at all (approximately 62% of all fuel leak cases state-wide have been closed), is the fuel UST Cleanup Fund. Established by legislation in 1990 and recently amended, the Fund provides reimbursement up to \$1,000,000 per case (\$1,500,000 for cases where MtBE is a predominate factor) to eligible responsible parties for costs associated with their cleanup of pollution at their sites caused by fuel releases from their USTs. Exempted from eligibility, however, are agricultural, hydraulic lift, and other non-fuel UST cases.

Currently, the Fund generates over \$200,000,000 annually from fuel storage fees. To date, reimbursements have been made exceeding \$950,000,000.

Regulatory Tools

Procedurally, the tool of choice in requiring investigation and remediation for fuel UST cases is through a directive citing Section 13267 of the Water Code. This Section explains the Board's authority for asking for a technical report, often a workplan, site assessment report, monitoring report, or remedial action plan. In most cases, this is enough to bring a Responsible Party into compliance. Many local agencies also cite this section so as to warn Responsible Parties of possible Board enforcement and resulting financial penalties for non-compliance.

In the case of solvent tank releases, Section 13267 directives are also utilized. However, as groundwater pollution caused from leaking solvent tanks may be areally more extensive than for fuels, are more long lasting and therefore require long term monitoring

and risk management, many are regulated under Section 13304 Board Orders.

UST Resources

Currently, the State Board's UST Cleanup Program receives \$47.7 million in funding. This funding comes primarily from State sources consisting of monies from the UST Cleanup Fund, the State General Fund, and a Cost Recovery Fund. A minor amount comes from Federal funds. In earlier years the Federal funds helped start the program. As the program has taken root and grown, the Federal contribution to the program has declined. The funds are divided between the State Board, the Water Boards, and the LOP agencies. For the current Fiscal Year, this Board has been provided funding of \$1.5 million for approximately 17.4 staff positions, of which 2.2 positions are for Administrative Staff.

The State Board has funded the seven LOP agencies in this region for a total of \$ 4.2 million for 33.5 staff positions. There is no funding for the LIA agencies overseeing UST cleanup on our Board's behalf. The staffing of the LIA agencies represents approximately 6.5 positions. Oversight of their cases is funded separately within various fee-based programs of those agencies.

Together, these resources are used for the regulation of over 3,375 open fuel UST cases of which 2,427 cases are under the LOP contract, 465 under LIA oversight, and 483 under the oversight of the Board. In addition, a portion of the funds are used in the Board's oversight of over a hundred non-fuel UST cases.

SLIC PROGRAM OVERSIGHT AND RESOURCES

SLIC Program Work Elements

The SLIC program focuses on long-term oversight of releases to soil and groundwater. Small SLIC cases may only require a few hours of staff oversight to resolve and close, while larger cases may require substantial staff oversight, especially during the initial investigation and cleanup stages, and may continue for several years or decades. We see a variety of different pollutants at SLIC sites, including chlorinated solvents, fuels and non-chlorinated solvents, semi-volatile organic compounds, inorganics and metals, PCBs, and pesticides. Persistent and mobile constituents, such as chlorinated solvents, tend to cause more serious pollutant problems, while immobile constituents (such as metals) and biodegradable constituents (such as fuels) tend to be less serious. Two other factors can increase case complexity: multiple discharges and responsible parties on a site (such as a current owner, past owner, and past operator) and commingled groundwater plumes (where contaminants from two or more source sites have merged). In both cases, responsible parties may argue against being named in cleanup orders or may demand that other parties be named as well.

We coordinate with other agencies, such as USEPA (for some federal Superfund sites), the Department of Toxic Substances Control (DTSC, a sister agency in Cal/EPA), the California Department of Fish and Game (Oil Spill Prevention and Emergency Response

Unit), and various local agencies (including County Health departments) to avoid duplication of effort and provide consistent oversight.

We play an active role at federal Superfund sites in our region. Unlike most other states and regions where USEPA is the sole lead oversight agency, we provide direct oversight for about 70% of the roughly 30 federal Superfund sites in our region. These larger contaminant sites pose a significant threat to water quality, but due to our aggressive oversight from the beginning, were among the first sites in the state to complete remedial investigation, interim cleanup, and long-term cleanup plans.

Regulatory Tools

We use a range of regulatory oversight mechanisms, depending on the severity of the release and other case-specific factors. These include self-directed for low risk sites, Water Code Section 13267 requirements for medium risk sites for the investigation and data gathering activities, and Water Code Section 13304 Orders for high risk cleanup sites or for uncooperative responsible parties.

SLIC Resources

In FY 2005-06, we will receive a total of about 12 staff positions for the SLIC program, mostly from the SLIC cost recovery program. SLIC cost recovery resources are spread among several divisions, including Toxics Cleanup (about 65%), Groundwater Protection (about 30%), and Watershed Management (about 5%). Water Board staff overseeing SLIC cases bill time to the State Board's Cleanup and Abatement Account, and the State Board recovers these staff costs by invoicing the individual SLIC sites. The State Board recovers over 95% of the staff costs in this manner, and the net cost to the Cleanup and Abatement Account is modest. Currently, there are about 300 sites in our region actively enrolled in the SLIC cost recovery program.

ACHIEVEMENTS

UST

Closed cases: The number of cases closed has traditionally been the measure of progress in the UST program. As of the date of this report, out of the total number of 9,713 – which includes Water Board lead, LOP lead, and LIA lead cases - known fuel leak cases in this Region, 7,253 (75%) cases are now closed. A slowing trend in new cases reported is occurring. This is not surprising; in the early 1990's the USEPA adopted regulations that required all USTs still in operation as of December 1998 to have upgraded their leak containment protocols to include double-walled tanks and automatic leak sensors. Many of the new cases reported during this time period were the direct result of leaks being discovered and reported as many tank owners were rushing to meet the upgrade deadline that year. Any new cases now being reported are most likely be tanks discovered during development/redevelopment activities or at operating facilities where tanks would be replaced, repaired, or decommissioned.

Cleanup required: We have required source control at about 6,000 (66%) of the roughly 9,000 open and closed UST cases. Source control includes actions such as: removal of sumps, tanks, or piping; soil excavation; soil venting; soil vapor extraction; and free product removal. In addition, approximately 600 (10%) of those have performed active groundwater cleanup such as pump and treat or in-situ treatment.

Groundwater Protection: Largely as a result of our aggressive oversight efforts, groundwater contaminants from leaking fuel USTs have had minimal effects on municipal and domestic wells in our region. A small handful of municipal and domestic wells were impacted by MTBE between 1996-2003 from leaking UST sites, including wells in San Jose (Great Oaks #3), South San Francisco, El Granada, and Loma Prieta School (Santa Clara County). In each case, MTBE levels were below MCL levels or have since dropped below MCL levels. We were proactive in requiring UST sites that had no reported leaks to perform groundwater monitoring to determine if leaks had gone undetected by conventional leak detection methods. As a result of those efforts, we identified several sites with large undiscovered MtBE releases and were able to quickly remediate those releases. In one of those cases a large municipal well was protected from MtBE contamination. Two other factors have also limited the impacts of leaking USTs: the tendency of most fuel constituents (with the exception of MtBE) to bind to the soil matrix and then biodegrade, and the prevalence of tight soils and relatively slow groundwater flow rates in many shallow zones around the region.

SLIC

Achievements in the SLIC program are measured by the numbers of regulatory actions taken, number of sites cleaned up, and beneficial uses protected. Below is a summary of the program's achievements:

Enforcement orders: We have issued over 220 enforcement orders since July 1993. Most of these are site cleanup requirements (SCRs) issued by the Board following a 30-day public comment period and a public hearing. In a few cases, the Executive Officer has administratively issued the enforcement order under a standing delegation of authority from the Board. This is done when time is of the essence, when the discharger is very recalcitrant, or when the Board lacks a quorum.

Cleanup required: We have required source control at about 400 (66%) of the 600 significant non-fuel sites. We have required active groundwater remediation at about 215 (36%) of the significant non-fuel sites. In some cases, groundwater remediation involves "pump and treat", the use of extraction wells that convey polluted groundwater to treatment units. Typical treatment involves air stripping or activated carbon filtration; both remove VOCs.

Case closures: We have closed about 500 non-fuel sites, or about 33% of the roughly 1,500 total non-fuel sites. This includes closures of Board-lead as well as local-lead SLIC cases. The closure rate is lower for SLIC cases than for fuel UST cases, given the more persistent nature of solvents and other non-fuel contaminants.

Continuity of site use: Site investigation and cleanup has generally proceeded without adverse effects on site use and productivity. Only 9% of the federal Superfund sites overseen by the Board are currently vacant or unused. About 55% of these sites support the same uses as were present beforehand, and 36% have different uses (e.g. change from manufacturing to commercial office space). We expect that results are similar for non-Superfund sites.

Protection of existing groundwater uses: Board oversight efforts have helped to avoid any significant contamination of existing municipal supply wells in our region. Groundwater contamination from unauthorized releases has affected only a handful of municipal wells. In no case has this contamination had significant effects on water supply for the affected water utility. Our oversight efforts are helped by the fact that the most heavily-used aquifers are over 200 feet below ground surface and are protected in many areas by thick aquitards.

CHALLENGES AND OPPORTUNITIES

There are always new and interesting challenges in the site cleanup programs. For example, the detection of MtBE in groundwater around the state was a major issue 5-6 years ago, and we made significant adjustments to our program to deal with that. We had to rely heavily on our geographical information systems to prioritize sites and that capability has proven very useful in other aspects of the cleanup program. Below are some of the current challenges we face.

The Water Boards, including the State Board, are facing increased scrutiny by the public as well as by the Legislature. We have had to respond, as all State Agencies have, to the call to do more with less. In addition, as we have become more involved in controversial sites and are dealing with a more educated and politically savvy public, it has become apparent that we have to change some of our traditional ways of providing case oversight. The staff at this Water Board have been on the forefront of the efforts to use and develop tools to do our jobs better and in a more open and transparent manner. The challenges and opportunities we have faced recently include more public participation, indoor-air intrusion by vapors from contaminated soil and groundwater, use of risk-based corrective action, risk assessment of contaminated sites, and risk management of sites.

Many of our challenges are accentuated because the pace of Brownfields redevelopment has quickened. While this Board has been involved in Brownfields redevelopment for quite a number of years, CalEPA and the State Board in the last couple of years have come to embrace the concept. This has led to a call for more cooperation between the Water Boards and DTSC. A memorandum of agreement was signed last year by all the Water Boards and DTSC that spells out how the lead agency for any eligible site will be determined, and that also requires the Boards and DTSC to draft a uniform site assessment procedures document to ensure consistency between agencies. Each of these challenges described below have also been an opportunity to make our cleanup program

more robust. Because we have pioneered some of these challenges and opportunities, this Water Board is seen as a leader in innovation and in the new cleanup paradigm in California.

Public Participation

Water Board staff in the Toxics Cleanup Division, because of our heavy involvement in Brownfields redevelopment cases, became aware in mid-2004 that the public perception of our Board Meeting public participation model was not satisfying the affected public's needs for early involvement in cleanup decisions. We realized that we had to adapt our cleanup programs to get the concerned public and other stakeholders involved sooner in the process. Therefore, several staff at the Water Board developed draft public participation tools to help us in our efforts. The State Board liked what they saw, and they are now using this draft document in their training on public participation. The document outlines the reasons for public participation and gives tools for implementing the underlying goals. The following is an excerpt from the introduction to the document.

The nine California Regional Water Quality Control Boards (Water Boards) are public agencies and their key decisions are made in a public process. In the case of actions by the Board during a public meeting, this includes public notice on the agenda and a public comment period followed by a Board action in an open meeting. However, in the Water Boards' site cleanup program many cleanup decisions are made by Board staff, particularly at lower-threat sites (less complex sites and sites that pose little threat to water quality or human health). The purpose of these tools is to assist staff in providing appropriate opportunities for public participation in our site cleanup program. Providing such opportunities increases the quality and the credibility of the Water Boards' cleanup decisions.

These tools address public participation for the whole range of cleanup sites overseen by the Water Boards. These range from higher-threat sites (sites that pose significant threat to water quality or human health or sites that are complex, such as federal Superfund sites) to lower threat sites (e.g. most of the leaking underground fuel tank cases).

Vapor Intrusion into Indoor-Air

In recent years it has become apparent that vapors volatilizing from contaminants in soil and groundwater can migrate into buildings such as homes and offices. Water Board staff have taken an active role in developing the CalEPA guidance documents for sampling soil gas and indoor-air for contaminants in soil and groundwater. We routinely require soil gas surveys at contaminated sites and, where it is appropriate, we require indoor-air sampling. As more and more sites with residual contamination are redeveloped, soil gas surveys will become a routine part of our site investigation protocol.

Risk-Based Corrective Action

During the first ten years of our site cleanup program, we learned that it is usually infeasible to clean up sites to pristine conditions. Even cleaning up groundwater to meet drinking water standards is often difficult and lengthy. Risk-based corrective action refers to a systematic process of identifying all of the different ways that site contamination could harm people or the environment (current and future exposure pathways and receptors) and requiring cleanup actions that protect those receptors. This approach is comprehensive, in that it looks at the full range of receptors and exposure pathways. The approach also tailors the cleanup to the severity of the contamination; less cleanup may be needed if certain pathways and receptors are not present (and will not be in future). At Brownfield sites, landowners and developers often have limited funds for site cleanup. Risk-based corrective action focuses those limited funds where they can do the most good. We endorse this approach and encourage all our sites to use it.

Risk Assessment

Risk assessment is a means by which the theoretical risk to a human or an ecological receptor to a contaminant or contaminants at a site can be quantified. Due to the rapidly changing patterns of land use in the San Francisco Bay Area, Water Board staff has had to widen the focus of risk evaluations to include more than those risks posed by exposure to contaminated groundwater. We now routinely look at all exposure pathways and media, including soil, groundwater, surface water, and indoor-air. We are concerned with not only water quality but the effects of exposure to human health and ecological receptors. The Water Boards have always been good at protecting groundwater and human health, but we have not been good at communicating risk to the general public. To remedy this situation, in April of this year, all staff participated in risk assessment training and we have recently hired a risk assessment/toxicologist for our cleanup program.

Environmental Screening Levels

Initially, to implement risk-based corrective action, we required dischargers to prepare detailed risk assessments. This assured that all exposure pathways and receptors were considered, and that the net risk was acceptable (following cleanup). This approach was intended for state and federal Superfund sites, which typically have substantial contamination. We learned that this approach does not work as well for smaller, lower-risk sites. The cost of a detailed risk assessment can be prohibitive at these sites and the level of detail is usually not warranted. Therefore, several years ago we developed Environmental Screening Levels (ESLs). These are “lookup” tables for about 100 commonly encountered contaminants. The screening levels are conservative values and are intended to be protective in a range of conditions. With a minimum of site information, a landowner or developer can view the tables and determine what soil and groundwater screening levels apply to his or her contaminated site. The landowner or developer can either use these screening levels as cleanup standards or, if they prefer, they can prepare a more detailed risk assessment. At Brownfield sites, screening levels are invaluable, allowing a landowner or developer to quickly determine whether site

contamination will need further study or cleanup. The Water Board's ESLs are updated regularly and are posted on our website.

The Legislature and the Governor recognized the value of screening levels for Brownfields when SB 32 (Escutia) was enacted in 2002. This legislation was intended to encourage Brownfields redevelopment. A centerpiece of the legislation was its requirement that CalEPA develop statewide screening levels to foster consistency throughout the State when evaluating the environmental concerns at a Brownfields site. We have worked closely with our CalEPA counterparts to implement this portion of the legislation. The screening levels were adopted in 2005 and are known as the California Human Health Screening Levels (CHHSLs). The CHHSLs only cover a subset of the exposure pathways and receptors at this point. As a result, we are spearheading an effort to derive statewide soil screening levels to protect groundwater.

Risk Management

As noted above, site cleanup is rarely quick and simple. Groundwater cleanup can take decades, and some soil contamination cannot feasibly be cleaned up, due to technical difficulties, buildings that are in the way, and other factors. Risk management refers to various measures that can be taken at a site, to cope with either (i) residual soil contamination that's being left in place or (ii) groundwater contamination that's still being cleaned up or that's naturally attenuating. Examples include: engineered caps over residual soil contamination, location of occupied structures away from residual contamination, and various institutional controls (e.g., deed restrictions and regular notices to tenants and neighbors). At any given site, there are usually different combinations of cleanup and risk management that, taken together, will protect all the receptors. At Brownfield sites, landowners and developers can select combinations that are affordable, thereby increasing the number of Brownfield sites that get redeveloped. We encourage the use of risk management at contamination sites as an integral part of the cleanup toolkit.

Brownfields Oversight

Land, as most natural resources, is a limited commodity. With suburban sprawl occurring at a record pace in California, farmland and other undeveloped areas known as "greenfields" are being consumed at alarming rates. Brownfield development is essentially land recycling, part of a "smart growth strategy" to discourage suburban sprawl in favor of "urban infill" with new development and redevelopment in urban areas. Due to the generally denser nature of urban infill Brownfields development, it is estimated that four acres of greenfields would need to be consumed for every acre of infill development. According to the Creative Center for Land Recycling (CCLR), the California population is expected to grow to 50 million in the next 25 years. This being the case, land recycling/Brownfields development will become even more important to California's future and a critical part of our environmental/resource protection and conservation. The California Performance Review estimated that there are 67,000 to 119,000 properties statewide which remain idle or underutilized because of real or perceived environmental contamination.

The socioeconomic benefits of Brownfields development are well documented. In addition to these benefits, Brownfields development has become an important tool in discovering, investigating and remediating pollutant-impacted properties. If not for Brownfields development, the funding necessary to investigate and remediate impacted properties is almost impossible to obtain. This is especially important for smaller sites or those without deep-pocket responsible parties.

Board staff have worked on Brownfield sites throughout the entire region. One prime example includes Emeryville, where both the Board and DTSC have been very active over the past 10 years assisting both the City of Emeryville and private developers and companies (e.g., Pixar, Chiron, Pulte Homes) to investigate, remediate and redevelop dozens of Brownfields properties. These efforts have resulted in an estimated \$1.5 billion invested and 5,000 jobs created. The 300-plus acre San Francisco Mission Bay project, the largest Brownfield in the site the United States with an estimated total value of \$8 billion, is another example of the Board's efforts. This project will include: 6,000 residential units, approximately 5 million feet of office and commercial, a 500-unit hotel, as well as the 43-acre UCSF campus with 9,100 employees. The Board has also been deeply involved in East Palo Alto over the past 10 years, helping transform several Brownfield sites into hundreds of housing units, office, retail and industrial uses. While these are some of the larger projects, we have also worked on many small to medium sized projects. The Habitat for Humanity and the East Bay Asian Local Development Corporation (EABLDC) housing developments in Oakland and San Pablo are two examples of small to medium sized residential projects.

Memorandum of Agreement

The memorandum of agreement (MOA) among DTSC, the State Board, and the nine Water Boards lays out the process to be used to determine lead agency and provide oversight of Brownfields site investigation and cleanup. The MOA covers new Brownfield cases (using the fairly loose USEPA definition of Brownfields). The MOA does not cover existing cases (those with existing cost recovery agreements with DTSC or the Water Boards). The MOA also does not cover cases where lead agency is specified by law: schools, Department of Defense/Department of Energy, sites subject to AB 2061 (site designation process), UST cases, federal Superfund sites, and sites subject to SB1082 (RCRA corrective action).

The point of the MOA is to determine the appropriate single lead agency for new Brownfield sites. The MOA strongly discourages joint-lead cases. It includes a set of criteria for determining the appropriate lead agency (below). It envisions a more formal process for making the determination that will take 1-4 weeks: applicant submits application to the agency it wants (Water Board or DTSC), that agency applies the criteria and makes an initial determination, the other agency has a chance to comment, dispute resolution can be used if needed, then the new lead agency notifies the applicant. Because of the loose definition of Brownfields and the fact that a lot of commercially

developed sites are being converted to residential use, we have applied the MOA process to all new eligible sites.

Water Board staff from the Toxics Cleanup Division have taken an active role in developing the uniform site assessment procedures, per the requirements of the MOA. The uniform site assessment procedures are designed to assist regulators from the Water Boards and DTSC in their oversight of investigation of contaminated sites, and provide assurance that each agency addresses the requirements and concerns of the other agency. They are designed to be sufficiently general to apply to most site investigations, including but not limited to Brownfield sites. The flexibility built into the procedures enable them to be applied to a great variety of sites by adjusting the amount of effort to be commensurate with the size and complexity of the site.

NEXT STEPS

Although the UST and SLIC programs are mature, they are also constantly evolving. This evolution of the programs is in response to new technologies and new priorities, such as public participation, all pathways risk assessment, and the reality that an increasing portion of our casework is related to property transfers and Brownfields redevelopment. To meet these new challenges we are:

- staffing up for additional efforts on public participation and risk assessment
- increasing our staff capabilities through training
- making wider use of screening levels (in place of site-specific risk assessments)
- proposing new Basin Plan policy and provisions to institutionalize program innovations such as ESLs
- using beneficial use evaluations and other tools to prioritize cases for oversight

We expect that the cleanup programs will continue to evolve in response to various changes, such as the ones cited above, and we further expect that this Water Board will continue to be in the forefront of statewide innovations to deal with these changes and challenges.