

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

**STAFF SUMMARY REPORT (Stephen Hill)
MEETING DATE: February 13, 2008**

ITEM: 12

SUBJECT: Site Cleanup Programs- Status Report

DISCUSSION: This summary and Appendix A describe the Water Board's site cleanup programs. These programs include the underground storage tanks program (UST), the site cleanup program (SCP), and the federal facilities program (DOD and DOE). It summarizes the three programs, the nature and extent of the problems encountered, and the programs' accomplishments, challenges, and priorities for 2008.

The UST and SCP programs began in response to two situations: (1) the discovery in the early 1980s that a significant number of underground fuel tanks and waste solvent tanks were leaking, and (2) soil and groundwater cleanup at active and historic industrial sites was needed and not being covered by established oversight programs. The DOD/DOE program began in the early 1990s in response to multi-state agency agreements with the federal government to ensure appropriate soil and groundwater cleanup at closing military bases.

We have a strong record of accomplishments in our site cleanup programs. We have focused our efforts on several heavily-used groundwater basins, notably Santa Clara Valley and Niles Cone (in the Fremont area), and as a result, have prevented any significant impact to municipal drinking water wells in those areas. We have also:

- required cleanup at over 6,000 contamination sites
- issued site cleanup orders for major sites
- steadily closed cases
- encouraged Brownfield restoration

In our DOD/DOE program, we oversee cleanup of over 20 high priority sites. These sites often involve multiple soil and groundwater pollutants, pollution source areas, and exposure pathways. As these large multi-media cleanups move forward, our role is to efficiently coordinate with other agencies to ensure that water quality concerns posed by the sites are fully addressed.

In implementing our site cleanup programs, we have faced evolving challenges, such as addressing an ever-lengthening list of contaminants and new exposure concerns, including the intrusion of subsurface chemical vapors into indoor air. Our programs have responded to become more robust as we successfully dealt with these challenges. Some of the programmatic and

technical challenges we are currently facing more fully described in Appendix A. They include:

- Discharger financial viability (also known as “orphan sites”)
- Multiple discharger problems (e.g., commingled plumes of polluted groundwater from multiple sites)
- Cleanup technology limitations
- Coping with residual contamination
- Increasing reliance on groundwater basins for drinking water storage

We have several priorities for 2008 that we highlight below.

We will develop **low-risk case closure criteria**. These criteria exist for fuel-contaminated cases, and we intend to expand the criteria to address volatile organic chemical-contaminated cases. We typically close low-risk cases when all contamination concerns are fully addressed, and we conclude that the impacted groundwater, while not yet at drinking water standards, will meet cleanup standards when the water is needed for municipal supply or some other beneficial use. Low-risk closures allow us to free up limited staff resources to work on new or backlogged cases.

We will make further **updates to our environmental screening levels document**. Screening levels help us determine site cleanup priorities at contamination sites and can hasten Brownfield restorations. We completed one update last November. The next update will focus on groundwater screening levels to protect aquatic life. These are relevant at sites where groundwater can “daylight” in streams, wetlands, or the Bay.

We will conduct basin **planning to capture key priorities**. This year’s Basin Plan Triennial Review will identify three groundwater topics: environmental screening levels, low-risk site closure, and Bay-fringe beneficial use evaluation. The first two are discussed above. The third topic, Bay-fringe beneficial use evaluation, would affect the way we regulate cleanup at sites located close to the Bay. Groundwater at the Bay fringe is often salty, yet State policy defines all groundwater as a potential source of drinking water. We want to be able to take these salty conditions into account when determining cleanup targets and cleanup schedules at Bay-fringe sites.

Finally, as described in Appendix A, a continuing priority for us is to oversee our active groundwater cleanups to ensure that new and innovative technologies are fully considered and implemented as appropriate.

**RECOMMEN-
DATION:**

This item is a status report, no action is necessary.

ATTACHMENT: Appendix A - Status Report

APPENDIX A
STATUS REPORT

Program Report on Site Cleanup Programs February 2008

This status report covers all the Water Board's site cleanup programs, including underground storage tanks (UST), site cleanup program (SCP), and federal facilities operated by the Department of Defense and the Department of Energy (DOD/DOE).

Nature and extent of problem

Soil, groundwater, and sediment at various sites in our Region have been contaminated by unauthorized releases. Most of these releases are from past (versus ongoing) activities. Common contaminants include: petroleum, volatile organic compounds (or VOCs), semi-volatile organic compounds (or SVOCs), metals, and pesticides.

Since the site cleanup programs began in the early 1980s, we and our local-agency partners have discovered over 11,000 contamination sites in our Region, ranging from relatively minor problems (e.g., most leaking underground fuel tanks) to more significant problems (e.g., releases at large solvent-recycling facilities or military facilities). While we think most of the major problems have been discovered, new contamination sites are still being discovered on a regular basis, mainly due to property transfers and redevelopment projects.

These contamination sites pose a potential threat to water quality, as well as to human health and the environment. Some contaminants, particularly VOCs, move readily through soil and can pollute large volumes of groundwater. Our Region contains a number of significant groundwater aquifers, and over one million residents in our Region depend on groundwater for all or some of their water supply. The detection of VOCs in a south San Jose municipal well in the late 1970s led to the discovery of the first major contamination site in our Region and the beginning of our site cleanup programs.

Site contamination has other adverse effects on our Region. It can contribute to urban decay and increase the pressure for new development at the urban fringe. This phenomenon is often referred to by the term "Brownfields" - urban properties that are vacant or under-utilized due to actual or perceived contamination problems.

Regulatory context

The Water Board plays an *oversight* role in the site cleanup programs; we do not in most cases actually perform site investigations or cleanups. The Water Code gives us substantial authority to require dischargers to investigate and clean up contaminated sites. In most cases, dischargers pay for this work (the "polluter pays" principle).

The Water Board is one of several agencies that regulate site cleanup. Others include:

- Department of Toxic Substances Control (or DTSC), a sister agency in Cal/EPA
- County Health Departments (particularly for leaking underground fuel tank cases)
- US EPA (particularly for federal Superfund sites, including many military facilities)

Water Board programs

The site cleanup programs represent nearly a third of the Water Board's staffing and budget, and involve a large number of cases.

In the UST and SCP programs, we use two primary tools to direct cleanup. We use *requirements for technical reports* (per Water Code section 13267) to obtain site investigation and monitoring information. We use *site cleanup orders* (per Water Code section 13304) to require actual site cleanup as well as risk-management measures. In the DOD/DOE program, we use these regulatory tools as well as DOD/DOE-facility agreements among the agencies that prescribe the cleanup process.

Typical Water Board items and issues

Most regulatory actions in the site cleanup programs are taken at the staff level, particularly technical report directives under Water Code section 13267. The following types of site cleanup items typically appear on Water Board agendas:

- site cleanup orders (particularly for controversial cases or upon transfer of federal facilities to local entities)
- resolutions authorizing the Executive Officer to enter into prospective purchaser agreements (to encourage restoration of Brownfield sites)
- proposed enforcement actions (e.g., administrative civil liabilities for late reports)

Accomplishments

Since their inception, the Water Board's site cleanup programs have focused on key groundwater basins in our Region, including the Santa Clara Valley and Niles Cone (in the Fremont area). As a result, we have seen a decline in the number of impacted drinking water supply wells and an improvement in the overall quality of groundwater. Other general accomplishments:

In 2007, the Water Board met its program commitments to the State Board in the UST, SCP, and DOD/DOE programs. In addition, the Water Board in 2007:

- updated its Environmental Screening Levels to reflect changes in toxicity factors and other developments
- adopted 11 site cleanup orders, mainly for sites in the SCP program
- issued public notices and fact sheets for 55 contamination sites, to fully inform the public of these sites and pending actions at each
- closed 71 cases (including 47 fuel UST cases and 24 non-fuel cases)
- initiated acceptance of dredged sediment at the former Hamilton Naval Airbase for reuse in re-establishing wetlands
- conducted public outreach for federal facilities at over 200 meetings
- successfully met over 500 cleanup milestones at federal sites

Challenges

Despite our successes, numerous challenges remain. Key ones include:

- *Discharger financial viability:* Some dischargers cannot afford to do a full site investigation and cleanup and are not eligible for any reimbursement funds (e.g., the State Board's UST cleanup fund). Many owners and operators of leaking dry cleaner sites fall into that category. In a few cases, there is no discharger ("orphan sites") or the discharger is bankrupt.
- *Multiple discharger problems:* When there have been multiple pollution releases on a property by different parties, there is often disagreement about the relative contribution from each. This disagreement can stall cleanup and drag the Water Board into the fray. The same thing can happen when groundwater contamination from adjacent sites mixes together (also known as a commingled plume).
- *Cleanup technology limitations:* Some contaminants are highly mobile, recalcitrant, and/or hard to treat (e.g., metals in soil, solvents in groundwater). Even viable dischargers may not be able to meet typical cleanup standards when they encounter this situation.
- *Coping with residual contamination:* There is a need for robust "risk management" measures at sites where residual contamination is allowed to remain. While the oversight agency imposes risk management measures, it is usually the local permitting agency that is in the best position to assure their implementation (e.g., building permit conditions).
- *Balancing of economic re-use and cleanup versus environmental and ecological priorities at federal facilities*
- *Increased reliance of groundwater basins:* Water managers predict a significant decline in the Sierra snowpack as a result of global warming. As a result, they are already looking for water-storage alternatives, and using groundwater basins for drinking water storage is intended take up some of the slack. Protecting groundwater quality in major groundwater basins in our Region will therefore assume increased importance.

Priorities for 2008

To meet site cleanup program goals and to address these challenges, we have set the following priorities for 2008:

- *Further update to Environmental Screening Levels (ESLs):* In the course of the 2007 updates, we discovered several other areas that were ripe for update (e.g., groundwater screening levels for aquatic toxicity, inclusion of additional chemicals).
- *Evaluate vapor intrusion threat:* We routinely use the ESLs to screen VOC-impacted sites, to see if they pose a vapor intrusion into indoor air threat. As resources allow, we will compile site-specific vapor intrusion results to validate and update our screening tool.
- *Develop low-risk case closure criteria for non-fuel cases:* We already have such criteria for fuel-UST cases and have been using them for several years to close low-risk cases. We now

have enough experience to do the same with non-fuel cases. Low-risk closures allow us to free up limited staff resources to work on new or backlogged cases.

- *Encourage innovative cleanup technologies:* Even with some of the newer cleanup technologies, it can be hard to meet typical site cleanup standards. Therefore, we will continue to use our oversight role to share information about innovative methods and encourage their use.
- *Assure implementation of risk management measures:* We will work with DTSC, local agencies, and dischargers to try to come up with better tools to track and enforce risk management measures.
- *Facilitate soil and water cleanup efforts at federal facilities to promote transfer and re-use*
- *Help with selected TMDL implementation:* TMDLs for mercury and PCBs call for significant reductions in the urban runoff loadings for these constituents. The draft municipal urban runoff permit requires local stormwater management agencies to identify “hot spots” in their drainage area (e.g., industrial sites with significant PCBs in surface soils). We and DTSC will require cleanup at the “hot spot” sites identified through this process.
- *Conduct basin planning to capture key priorities:* This year’s Basin Plan Triennial Review will identify three groundwater topics: low-risk site closure, Bay-fringe beneficial use evaluation, and environmental screening levels.