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

STAFF SUMMARY REPORT
(Stephen Hill and Curtis Scott)
MEETING DATE: April 9, 2008

ITEM: 9

SUBJECT: Site Cleanup Programs – Status Report

DISCUSSION: This item was continued from the February 2008 Board meeting agenda.

The attached report describes this Board's site cleanup programs, including the underground storage tank program (UST), the site cleanup program (SCP), and the federal facilities program (DOD/DOE). It summarizes the nature and extent of the water quality problem addressed by these programs, their regulatory context, typical Board items associated with the programs, and the programs' accomplishments, challenges, and priorities for 2008.

The UST and SCP programs began in response to two situations: (1) the impacts to groundwater and soil caused by the significant number of leaking underground fuel storage tanks and waste cleaning solvent tanks initially discovered in the early 1980s and (2) groundwater and soil cleanup needed at industrial sites not already handled by established waste containment programs. The DOD/DOE program began in the early 1990s in response to a multi-state agency agreement with the federal government to ensure appropriate groundwater and soil cleanup at closing military (Department of Defense or DOD) bases and existing or closing Department of Energy (DOE) sites. The three programs' intent is to protect water quality, human health, and the environment from contaminants historically released from various activities.

We have a strong record of accomplishment in the site cleanup programs. We have focused our efforts on several heavily-used groundwater basins in our Region, 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 sites
- encouraged Brownfield restoration

We have faced evolving challenges in implementing these programs in the past, such as addressing an ever-lengthening list of contaminants and new exposure concerns, such as vapor intrusion to 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 include:

- Discharger financial viability (leading to abandoned or "orphan" sites)
- Problems caused by multiple pollutant sources or dischargers (e.g., commingled plumes)
- Cleanup technology limitations
- Coping with residual contamination
- Increasing reliance on groundwater basins for drinking water storage

We have several priorities for 2008, and we've highlighted three below.

We plan further updates to our "environmental screening levels" document. Screening levels help us determine site cleanup priorities at contamination sites and can hasten Brownfield restoration. 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 plan to develop low-risk site closure criteria. These exist already for fuel-contaminated sites, but we intend to expand the criteria to address sites impacted by volatile organic compounds (VOCs, typically cleaning solvents). The term "low-risk closure" typically means closing a site before groundwater contamination levels decrease to reach drinking water standards. We would only do this when all other contamination concerns are fully addressed and when we conclude that the impacted groundwater will meet such standards before it is needed for municipal supply or another beneficial use. Low-risk closures allow us to free up limited staff resources to work on new or backlogged sites.

We will conduct basin planning to capture key priorities. This year's Triennial Review of the Basin Plan 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 near the Bay fringe. 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.

RECOMMEN-DATION: No action required

Appendix A - Status Report

APPENDIX A

STATUS REPORT

Site Cleanup Programs Status Report
April 2008

This status report covers all of Region 2's site cleanup programs, including the underground storage tank program (UST), the site cleanup program (SCP), and the 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 spills or releases. Most of these releases are from historic or past (versus ongoing) activities. Common contaminants include: petroleum, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and pesticides.

Since the site cleanup programs began in the early 1980s, we and our local-agency partners have identified 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 identified on a regular basis, mainly due to property transfers and redevelopment projects.

These contamination sites pose a significant 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 and heavily-used groundwater aquifers, and over one million residents in our Region depend on groundwater for all or some of their drinking water supply. It was the detection of VOCs in a south San Jose municipal drinking water well in the late-1970s that 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 Board plays an *oversight* role in the site cleanup programs; we rarely actually perform site investigations or cleanups. The California Water Code gives us substantial authority to require dischargers or "responsible parties" to investigate and clean up contaminated sites. In most cases, dischargers pay for this work (the "polluter pays" principle).

The 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)
- U.S. EPA (particularly for federal Superfund sites, including many military facilities)

Scope of the cleanup programs

The site cleanup programs represent nearly a third of the Board's staffing and annual budget, and involve a large number of sites. The majority of the programs' budget is specifically tied to directing and overseeing cleanup, either through specific statewide funds established for cleanup of UST, SCP, or DOD/DOE sites, or through funds supported by direct cost recovery for oversight of a specific cleanup site. Thus, we have limited flexibility to shift staff or funds between the programs or with other programs in the Region.

In the UST and SCP programs, we use two primary tools to direct and oversee 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 Board items and issues

Both Water Code section 13267 requirement orders and Water Code section 13304 cleanup orders can be issued by Board staff. Thus, most regulatory actions in the site cleanup programs are taken at the staff level, particularly technical report orders under section 13267. The following types of site-cleanup items are typically brought to the Board for action:

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

Accomplishments

Since their inception, the 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 in our priority basins.

In 2007, the Board exceeded its program commitments in the UST, SCP, and DOD/DOE programs. In addition, the 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 inform the public of these sites and pending actions there
- closed 71 cases (including 47 fuel UST cases and 24 non-fuel cases)

- initiated acceptance of dredged sediment at the former Hamilton Army Airfield for reuse in re-establishing wetlands
- conducted public outreach at federal facilities through more than 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 (such as the State's UST cleanup fund). Many owners and operators of leaking dry cleaner sites fall into that category. In a few cases, there is no identifiable discharger ("orphan" sites) or the discharger is bankrupt.

- *Multiple discharger problems*: When there have been multiple pollutant 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 Board into the ensuing legal 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 a viable discharger may not be able to meet typical cleanup standards when it encounters 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., deed restrictions or 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. These managers are also concerned about the potential for earthquakes to disrupt their current water supply. As a result, they have already begun to look for more local water-storage alternatives, and groundwater basins in our Region will take up some of the slack. Protecting groundwater quality in our major groundwater basins is therefore assuming 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 update, we discovered several other areas that were ripe for update (e.g., groundwater screening levels for aquatic toxicity, expand the ESLs to include additional chemicals).

- *Evaluate vapor intrusion threat:* We routinely use the ESLs to screen VOC-impacted sites, to see if they pose a vapor intrusion threat to nearby homes or businesses. As resources allow, we will compile site-specific vapor intrusion results to validate and update our screening tool.

- *Develop low-risk site closure criteria for non-fuel cases*: We already have such criteria for fuel-UST sites and have been using them for several years to close low-risk sites. We now have enough experience to do the same with non-fuel sites. Low-risk closures allows expedited return of sites to productive use and allows us to free up limited staff resources to work on new or backlogged sites.

- *Encourage innovative cleanup technologies:* The effectiveness of cleanup technologies has significantly improved over the last 25 years. However, even with some of the newer cleanup technologies, it's hard to meet typical site cleanup standards. Therefore, we will continue to use our oversight role to share information about innovative and effective cleanup 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, such as deed restrictions.

- *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 reduction 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 areas (e.g., industrial sites with significant PCBs in surface soils). We and DTSC will require cleanup at "hot spot" sites identified through this process.

- *Conduct basin planning to capture key priorities:* This year's Triennial Review of the Basin Plan will identify three groundwater topics: ESLs, low-risk site closure, and bay-fringe beneficial use evaluation.