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

STAFF SUMMARY REPORT – Alec Naugle
MEETING DATE: March 10, 2010

ITEM: 7

SUBJECT: **Cleanup Program for Departments of Defense and Energy Facilities – Accomplishments and Status – Information Item**

CHRONOLOGY: The last update to the Board on this subject was in 2005

DISCUSSION: This information item includes background on these cleanup programs, how we provide oversight of the federal facilities in the programs, the goals and accomplishments of the programs, and selected highlights of the cleanup of various military bases around our region where the Board or staff were involved.

Background

The Department of Defense (DoD) and Department of Energy (DoE) cleanup programs encompass two sections and ten staff within the Board's Groundwater Protection Division.

There are 40 facilities in Region 2's DoD program. Most are former Navy, Army, and Air Force bases that were closed as a result of the congressionally-mandated Base Realignment and Closure Program first instituted in 1991. The DoD program also includes *Formerly Used Defense Sites* (FUDS), which are facilities that were owned, operated, or leased by a branch of the DoD for various uses such as missile silos, gun batteries, listening posts, and radar stations. Two former military bases – the Presidio of San Francisco and a portion of the Mare Island Naval Shipyard – are considered *privatized military facilities* because they were previously transferred for civilian reuse but are still undergoing cleanup.

There are four facilities in the DoE program (Lawrence Livermore National Lab, Sandia National Lab, Lawrence Berkeley Lab, and the Stanford Linear Accelerator Center).

The DoD cleanup program operates under two memoranda of agreement (MOA); one for Navy facilities and another for all other DoD facilities (e.g., Army, Air Force). Each MOA defines the funding sources for regulatory oversight costs and a dispute resolution process. The DoE cleanup program utilizes a grant to pay our regulatory oversight costs; dispute resolution is accomplished through separate, individual Federal Facilities Agreements.

DoD / DoE Program Categories	# of Facilities	# of Active Cleanup Sites	Annual R2 Staffing Budget (in thousands $)
Navy	10	275	772
Army	5	29	253
Air Force	3	27	
FUDS[1]	20	37	
Privatized Military Facilities	2	50	150
DoE	4	7	40
	44	**425**	**1,215**

[1] FUDS = Formerly Used Defense Sites

Water Board oversight

While Board staff in the DoD and DoE programs predominately oversee the cleanup of groundwater and soil polluted by historic releases, most DoD facilities are like small cities spanning a gamut of pollution sources (e.g., landfills, gas stations, storage tanks, storm drains, pipelines, wash racks, dry cleaners) and Board regulatory programs (stormwater management, soil and groundwater cleanup, Brownfield redevelopment, wastewater discharge, dredging, and wetland restoration). Because many DoD facilities (particularly Navy bases) are located adjacent to San Francisco and San Pablo bays, in addition to remediating groundwater pollution, facilities must also be cleaned up so as to protect surface water quality and marshland habitat.

Although there are currently 44 DoD and DoE facilities in the cleanup programs, many are complex and divided into numerous subareas, parcels, operable units, and investigation areas to better address the facilities' individual sources of pollution. In all, the 44 DoD and DoE facilities equate to 425 active "sites" requiring investigation and cleanup. Furthermore, because many former military bases are planned for conversion to civilian use, human health protection associated with both commercial and residential redevelopment is an important cleanup driver. To accomplish our regulatory oversight, we work cooperatively with other State and federal agencies, such as the State's Department of Toxic Substances Control, in both lead and support roles.

Goals and priorities

The major goals of the DoD and DoE programs include:

1. Protect water quality, human health, and the environment
2. Allow for the continued safe use of operating DoD and DoE facilities
3. Allow for conversion of closed military bases and other DoD/DoE facilities to civilian use in a safe and timely manner

To accomplish these goals, the Board's DoD and DoE program staff focus on the following priorities:

- Stop groundwater plumes or releases discharging to surface water

- Restore and/or mitigate impacted wetlands or other waterbodies
- Clean up soil and groundwater pollution to appropriate reuse standards
- Approve records of decision for cleanup plans and issue post-transfer cleanup directives (e.g., orders, 13267 letters) to facilitate property reuse
- Close sites in a timely manner once cleanup is complete

Accomplishments and performance measures

Beginning in 2008, the State Board established performance measures for the number of site closures and the number of sites in remediation within the DoD cleanup program. Our DoD cleanup program appears to be on track to meeting its annual closure goal of 40 sites for the current fiscal year -currently we are at 19. Last year we closed 140 sites. Although there is no goal set for the number of sites in remediation, there are currently 84 sites in remediation. Overall, we expect this number to increase as sites move from investigation into remediation, despite the fact that some sites will also move from remediation to closure.

Broader and longer-term accomplishments for the DoD and DoE cleanup programs are summarized below for roughly the past ten-year period for the following areas:

- Site closures
- Land transfer and reuse
- Wetland restoration
- Groundwater cleanup
- Permits and enforcement
- Database management / public information systems

<u>Site closures</u>

As noted above, there are currently 425 active cleanup sites in the DoD and DoE programs. 480 sites have been closed since 1999 when we began tracking site status using the State Board's GeoTracker database. 330 of these have been closed since 2005.

<u>Land transfer and reuse</u>

The amount of military base land that has been transferred or otherwise made ready for public reuse is generally indicative of how much environmental cleanup has occurred, since most property transfers occur after cleanup is complete. Although some properties are transferred prior to complete cleanup (these are called "early transfers"), they still must be fully investigated and a record of decision defining the needed cleanup actions must be approved before the early transfer. For early transfer properties, we usually prepare a cleanup order or similar directive to ensure that approved cleanup plans are implemented.

There are a total of 42,000 acres of military base land within Region 2. Currently, 18,000 acres have been transferred or made ready for reuse. However, only 1,200 acres had been transferred by the end of 2005, which demonstrates the DoD cleanup program's on-the-ground progress over recent years. Another 8,500 acres are expected to transfer within the next few years. Some military bases (or portions thereof) require some level of cleanup but are not planned for transfer because they will continue to operate as military bases for the foreseeable future (e.g., Travis Air Force Base). No DoE lands have been or are currently planned for transfer.

Land transfers are often made to the nearest city, which in turn may transfer the land to a private developer. We estimate that about 40% of the transferred land is planned for residential/commercial reuse. The remainder is for wetland restoration, open space or park land, and/or use by another federal entity (e.g., NASA Ames at Moffett Field) or branch of the DoD.

Wetland restoration

We estimate that about 400 acres of wetlands have been affected by pollution at DoD facilities in our region, while about 650 acres have been created or restored. The congressionally-authorized Hamilton Wetland Restoration Project at the former Hamilton Army Airfield in Marin County is the largest wetlands restoration project in the Bay Area, including planned restoration of 2,600 acres of tidal wetlands. Since 2005, restoration of about 600 acres (of the total 650 acres mentioned above) has been implemented at Hamilton.

Groundwater cleanup

As detailed in the figure on the next page, there are currently 179 contaminated groundwater plumes at DoD and DoE facilities in the region. We estimate that 39 of those plumes (22%) have also impacted or threaten to impact surface water quality or shoreline habitat. Although none have affected drinking water supplies (largely because most are located along the margins of San Francisco or San Pablo bays or the Delta, where groundwater is generally brackish and not being used for drinking water), groundwater plumes can threaten ecological receptors via groundwater discharges to the Bay or other surface waters, and human health through volatilization of contaminants into occupied buildings.

The majority of groundwater plumes are due to chlorinated solvent (55%) and petroleum fuel (32%) leaks. 75% of the plumes are in remediation by active or passive methods. Active plume remediation methods generally include injection of chemical reactants to stimulate chemical oxidation or reduction, or biodegradation. Passive plume remediation methods generally include low-energy methods such as monitored natural attenuation, which must demonstrate contaminant breakdown by naturally-occurring microbes. 147 groundwater plumes (82%) are either stable or decreasing in their concentration and/or size.

Permits and enforcement

For cleanup performed pursuant to the federal Superfund cleanup law (*Comprehensive Environmental Response, Compensation, and Liability Act; CERCLA*), federal entities are not required to obtain State permits, but are required to follow "substantive" State requirements. For example, as part of cleanup at the Hunters Point Shipyard, the Navy is not required to file a Notice of Intent for coverage under the State Board's Construction Storm Water General Permit. Nonetheless, the Navy is required to follow substantive permit requirements, including development of a storm water pollution prevention plan and implementation of best management practices.

Formal enforcement actions can be taken against federal entities but only if a time schedule order (TSO) is issued pursuant to State Water Code section 13308 specifying monetary penalties for specific violations. The Board has adopted TSOs for the Point Molate Naval Fuel Depot (1997), the Hamilton Army Airfield (2001), and the Stanford Linear Accelerator Center (2009).

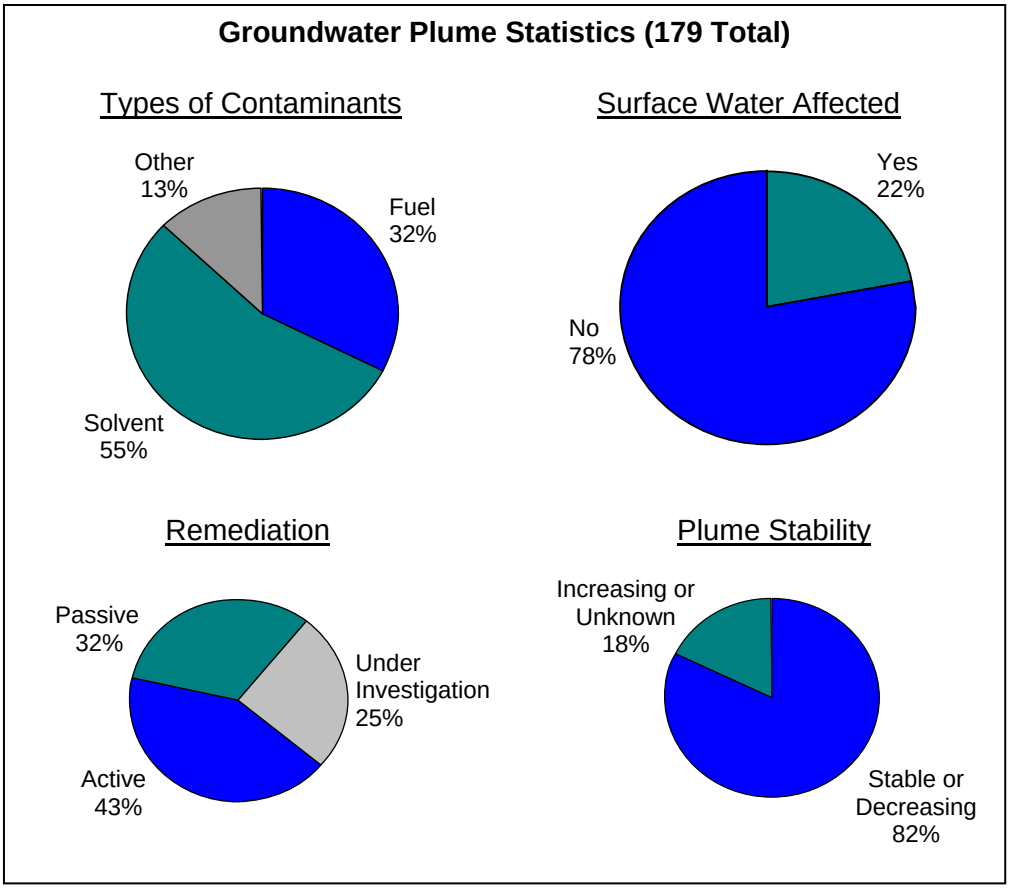
The Board has adopted cleanup orders (site cleanup requirements) for eight federal facilities, generally in conjunction with TSOs, or as a tool to facilitate post-transfer site cleanup. The Board

has also adopted waste discharge requirements (WDRs) to regulate containment of waste within landfills at two DoD bases (Hamilton Army Airfield and Mare Island Naval Shipyard) and to regulate the deposition of dredged material at the Hamilton Wetland Restoration Project.

Due to the nature of our cooperative agreements with the DoD, and the fact that TSOs must first be in place, formal enforcement actions such as issuing administrative civil liability complaints against federal entities is generally only pursued for egregious or repeated violations.

Database management / public information systems

We currently maintain our DoD and DoE cleanup sites in GeoTracker to facilitate public access, State Board queries, and performance tracking. GeoTracker is publicly accessible at the following location: https://geotracker.waterboards.ca.gov/.



Military base cleanup highlights

Crissy Field wetland restoration at the Presidio

From 1994 to 2000, the Army's former Crissy Field landing strip at the Presidio of San Francisco was converted to park land within the Golden Gate National Recreation Area. The 100-acre area includes 18 acres of restored tidal wetlands.

Hangar 1 decontamination for future reuse at Moffett Field

In 2009, the Navy agreed to remove the contaminated siding materials from the iconic Hangar 1 at Moffett Field Naval Air Station rather than completely demolish the hangar. This solution will preserve the hangar for future re-siding and reuse as part of the NASA Ames Research Center. The hangar, which covers the equivalent of ten football fields and is 200 feet tall, was constructed in 1932 to house the giant airship U.S.S. Macon.

Underground heating to cleanup solvent contamination at Alameda Point

An innovative cleanup technology called six-phase thermal heating was used at Alameda Point (the former Alameda Naval Air Station) to clean up groundwater contaminated with chlorinated solvents beneath a building. The technology requires insertion of steel rods into the ground to conduct an electrical current to heat up the subsurface. The resulting heat was used to evaporate contaminants as steam and accelerate biodegradation of contaminants in the ground.

Property transfer for residential and commercial use at Mare Island

In 2003, the Navy transferred 4,000 acres of the Mare Island Naval Shipyard to the City of Vallejo for redevelopment and reuse. Since then, the City's redevelopment partner, Lennar Corp., has cleaned up and redeveloped portions of the 650-acre Eastern Early Transfer Parcel for residential and commercial use. The majority of the 2,800-acre Western Early Transfer Parcel is planned to remain open space for protection of wildlife habitat.

Landfill closure and wetland mitigation at Mare Island

In 2004, the Navy began closure of a 72-acre hazardous waste landfill at the Mare Island Naval Shipyard. Landfill closure included construction of a 7,200-linear foot clay slurry wall and a groundwater extraction system around the entire landfill. The Navy created 8.2 acres of new wetlands nearby as mitigation for the destruction of wetlands that existed on top of the landfill.

Property transfer for residential and mixed-use at the Concord Naval Weapons Station

In the next few years, 5,000 acres of the Concord Naval Weapons Station are planned to be transferred to the City of Concord. The City's reuse plan endorsed 12,272 residences and about six million square feet of commercial/retail development.

Wetland cleanup at the Concord Naval Weapons Station tidal area

7,630 acres of the Concord Naval Weapons Station has already been transferred to the Army, which will continue to use a portion of the site as an active facility. The Army is close to implementing plans for sediment cleanup within a 307-acre tidal wetland area of the site. This area, within the Lost Slough and Nichols Creek watershed, is one of the largest relatively untouched wetlands in our region.

Property transfer for Richmond redevelopment at Point Molate

In 2003, 370 acres of the former Point Molate Navy Fuel Depot were transferred to the City of Richmond for redevelopment. We expect the remaining 41 acres will be transferred to the City of Richmond in 2010. Post-transfer cleanup of petroleum fuel impacted soil and groundwater is necessary and will be conducted by the redeveloper pursuant to a Board cleanup order.

Tidal wetlands restoration at Skaggs Island

Substantial efforts have been made to restore the Skaggs Island Naval Post, located in the Sonoma Baylands, to a condition appropriate for transfer to the U.S. Fish and Wildlife Service. The intended future use of the 3,310-acre property is for wildlife conservation including the restoration of large acreages to tidal wetlands.

Civilian reuse of the Treasure Island Naval Station

The Navy anticipates that 247 acres of the Treasure Island Naval Station will be ready for transfer to the City of San Francisco beginning in late 2010 or early 2011. An additional 577 acres will be ready for transfer later in 2011. This represents 77% of the Island's total acreage. The City's plans for reuse include housing, open space, recreation, a new ferry terminal, and an expanded marina. Transfers are intended to occur after cleanup is complete (i.e., no early transfers).

Civilian reuse and wetlands mitigation at the Hunters Point Shipyard

In 2009, we signed four Records of Decision (RODs) documenting the cleanup approach for 99 acres of the Hunters Point Shipyard that will be transferred to the City of San Francisco beginning in early 2011. The City's plans for reuse include open space, mixed commercial and residential, research and development, and educational/cultural. A portion of the land has also been identified as a potential stadium site for the San Francisco 49ers. The Navy has also committed to cleanup and mitigation of five acres of tidal and seasonal wetlands that are currently impacted with PCBs, metals, VOCs, and petroleum fuels. These will be early transfers, so the City and its redevelopment partner, Lennar Corp., will be responsible for implementation of cleanup plans.

RECOMMENDATION: This is an information item only and no action is necessary.