

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

STAFF SUMMARY REPORT – Alec Naugle and David Elias
MEETING DATE: March 14, 2018

ITEM: 7

SUBJECT: **Department of Defense Cleanup Program – Status and Accomplishments – Information Item**

CHRONOLOGY: The last update to the Board on this subject was in 2013.

DISCUSSION: This informational item provides a status and accomplishments update for the Department of Defense (DoD) cleanup program. The item describes how we provide oversight of the cleanup of former military facilities, the goals and accomplishments of the program, and challenges regulating federal site cleanups in our region through the work of two sections and ten staff within the Board’s Groundwater Protection and Waste Containment Division.

DoD Program

Board staff in the DoD cleanup program focus on overseeing cleanup of former military facilities, including those that have transferred from the military to State or other local entities for redevelopment or reuse. There are 31 military-related facilities in our Region that are undergoing investigation and cleanup (Table 1). These comprise 390 individual cleanup sites, as most military facilities are like small industrial cities with a variety of pollution sites/sources (e.g., landfills, gas stations, storage tanks, storm drains, pipelines, wash racks, dry cleaners).

Many facilities are former Navy, Army, and Air Force bases closed under the congressionally-mandated Base Realignment and Closure Program first instituted in 1991. Five military facilities continue to operate today: Travis Air Force Base, Air National Guard stations at Moffett Field and Hayward, the Army’s military shipping terminal in Concord, and the Army Reserve Forces Training Area at Camp Parks in Dublin. Some facilities are *Formerly Used Defense Sites* (FUDS) because they were transferred to a civilian entity or non-military branch of the federal government prior to 1989. These typically include missile silos, gun batteries, listening posts, radar stations, and other specialized facilities.

The military entered into a cooperative agreement with the State of California known as the *Defense-States Memorandum of Agreement* (DSMOA) in 1990, which defines the funding for the State’s regulatory oversight costs and includes a dispute resolution process. For sites subject to the agreement, the State must exhaust the resolution process before it can take formal enforcement under State law. In California, the Department of Toxic Substances Control (DTSC) manages the agreement, including the grant funds to pay DTSC and Board staff oversight costs of cleanup-related activities.

The DSMOA also defines the State lead agency for each DoD facility. The State lead agency is responsible for consulting with other State agencies, as necessary, and for issuing final site/facility closure. The Water Board is the lead agency for about ten facilities in our Region. In addition, we assume the lead role on all petroleum-impacted sites and stormwater compliance issues. For any given facility or site, Water Board staff consult with DTSC staff to review and provide joint or separate comments on the military’s site investigation, evaluation, and cleanup plans and documents.

The military follows the cleanup process mandated by the federal *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA). Under CERCLA, the military is required to comply with State laws, regulations, and policies considered *applicable or relevant and appropriate requirements* (ARARs) as long as they are promulgated, more stringent than federal laws, and identified by the State in a timely manner. Furthermore, while the military is not required to obtain State permits, it is required to follow *substantive* State requirements. For example, for stormwater, the military is not required to file a Notice of Intent for coverage under one of the statewide stormwater general permits, but it is required to develop a stormwater pollution prevention plan and implement best management practices consistent with the general permits

Cleanup is typically complete when the military formally transfers land for redevelopment or reuse to another agency. However, where additional cleanup is needed after the transfer, usually to address the difference between the military’s land use cleanup end point (often commercial/industrial) and the new owner’s desired land use end point (often residential), the cleanup site remains open and is referred to as a *military privatized site* (Table 1). We stop charging our staff time to the DoD program and enroll the privatized site (with its new land owner) in the Site Cleanup Program for cost recovery funding. Petroleum sites often fall into this category. We may choose to prepare a cleanup order for the site (and new landowner) to ensure that the additional cleanup is completed. Occasionally, the military transfers the land but retains cleanup liability. In those cases, we continue with our oversight and cost recovery with the military under the DSMOA.

Table 1: DoD Program Facilities, Sites, and FY 17-18 Funding

DoD Components	# of Military Facilities in SF Bay Region	# of Military Facilities funded for Cleanup	# of Individual Cleanup Sites	Annual R2 Staffing Budget (in thousands \$)
Navy	12	7	218	900
Army	5	4	25	
Air Force	4	3	45	
FUDS ¹	32	17	53	
Military Privatized Sites ²	--	--	49	200
TOTAL	53	31	390	1,100

¹ FUDS = Formerly Used Defense Sites

² All military privatized sites are 100% funded through SCP cost recovery

Goals and Priorities

The major goals of the DoD cleanup program include:

- Protect water quality, human health, safety, and the environment;
- Allow for the continued safe use of operating DoD facilities; and
- Allow for conversion of closed military bases to civilian use in a safe and timely manner.

To accomplish these goals, we focus on the following priorities:

- Control groundwater contamination plumes that threaten nearby receptors, such as drinking water supply wells or surface water;

- Mitigate risks and threats to human health from vapor intrusion and contact with polluted soil and groundwater;
- Restore and/or mitigate impacted wetlands, shorelines, or streams;
- Identify State ARARs that apply to the specific site and circumstances;
- Evaluate and approve or dispute the Record of Decision that documents the cleanup approach to achieve standards protective of public health, safety, and the environment;
- Issue post-transfer cleanup directives (e.g., Water Code section 13304/13267 orders) to new landowners to complete cleanup; and
- Close sites in a timely manner once cleanup is complete.

Performance Measures and Accomplishments

The DoD cleanup program has been using performance measures since 2008 to gauge program effectiveness toward protecting and restoring water quality. The State Board has established two measures: number of cases starting remediation and number of cases closed.

Site Cleanup and Closure

As shown in Table 1, there are currently 390 active cleanup sites in the DoD program. Of those, about 240 (62%) are in remediation or undergoing post-remediation monitoring. The remaining sites continue under investigation. For the current fiscal year, we moved 11 sites into remediation, surpassing our annual goal of 10 per year.

We have closed about 900 sites (70%) in the 17 years since we first began tracking site status using the State Board's GeoTracker database in 1999. For the current fiscal year, we closed 44 sites, surpassing our annual goal of 40 per year.

Because the program is fairly mature, the remaining workload consists of the more complex sites with longer cleanup timeframes. As a result, while we do not expect the number of military cleanup sites to increase, we do expect our annual case closure rate to slow somewhat.

At the same time, military privatized sites historically make up 15-20% of the total number of cleanup sites (and workload), and we expect that trend to remain stable over the next five years.

Wetland Restoration

To date, about 950 acres of wetlands are currently in the process of being created or restored at former military facilities around the Region. The congressionally-authorized Hamilton Wetland Restoration Project (HWRP) at the former Hamilton Army Airfield in Marin County is one of the largest wetland restoration projects in the Bay Area and includes the planned restoration of 2,600 acres of tidal wetlands. About 900 acres of the HWRP were part of former military lands. In 2014, the U.S. Army Corps of Engineers completed the first phase of the HWRP by breaching a levee to create tidal wetlands within the former 644-acre Army Airfield runway area. The remaining acreage within the HWRP includes the North Antenna Field (240 acres), which is a former military facility now owned by the State Lands Commission and undergoing cleanup by the U.S. Army Corps of Engineers under the FUDS program, and the Bel Marin Keys wetland area (1726 acres), which is not former military land. The State Coastal Conservancy manages the entire HWRP, and the Board approved Phase 1 of the Conservancy's Bel Marin Keys restoration project last month.

Land Transfer and Reuse

There are about 30,000 acres of land comprising the closed military facilities in our Region. Currently, about 22,700 acres (76%) have been transferred to another agency or otherwise made ready for reuse. Another 7,300 acres are expected to transfer within the next few years. We estimate that about half of the land at closed military facilities is slated for residential or commercial reuse. The remainder is for wetland restoration, open space, or parkland. Table 2 summarizes the status of land transfers at closed military facilities in our Region.

Table 2: Current and Planned Military Land Transfers for Redevelopment/Reuse

Current Facilities with Transferred Land	Transferee	Acreage	Date
Moffett Field Naval Air Station	NASA	2,200	1994
Presidio of San Francisco	National Parks Service	1,491	1994
Hamilton Army Air Field	State Lands Commission	929	1995
Benicia Arsenal	City of Benicia	200	2000
Hunters Point Shipyard	City of San Francisco	88 / 10	2000 / 2015
Mare Island Naval Shipyard	State Lands Commission; City of Vallejo	2,824 651	2002
Treasure Island Naval Station	City of San Francisco	221 / 60 / 40	2005 / 2014 / 2017
Concord Naval Weapons Station	U.S. Army; U.S. Coast Guard	7,800	2005
Oakland Army Base	City of Oakland	366	2005
Point Molate Naval Fuel Depot	City of Richmond	373 / 40	2003 / 2010
Skaggs Island Naval Security Post	US Fish and Wildlife Service	3,310	2011
Alameda Naval Air Station (Alameda Point)	City of Alameda	455 / 1,480	2000 / 2013
Parks Army Reserve Force Training Area	City of Dublin	187	2015
TOTAL		22,725	

Planned Transfers	Transferee	Acreage	Date
Concord Naval Weapons Station	City of Concord	5,000	2018
Hunters Point Naval Shipyard	City of San Francisco	838	2020
Mare Island Naval Shipyard	City of Vallejo	1302	2020
Treasure Island Naval Station	City of San Francisco	125	2020
TOTAL		7,265	

Challenges Regulating Military Facilities

Following are examples of technical and regulatory challenges unique to our oversight of military facilities. In most cases, the solution in responding to and overcoming these challenges is for Board staff to: 1) closely track the progress and status of cleanup projects, 2) maintain vigilance regarding disagreements and their documentation in the record, 3) utilize negotiation skills and tactics, 4) attend team meetings and collaborate with staff from other agencies, and 5) elevate or invoke the DSMOA dispute process at optimal times.

- **Shoreline discharges:** Many former military facilities are located along a Bay shoreline, particularly Navy facilities, which account for about two-thirds of the military cleanup sites in our Region. Spills and leaks that occur in near-shore environments are difficult and costly to assess due to complications of the tidal mixing zone, which tends to dilute and disperse pollutants and causes uncertainties about where groundwater is actually discharging to surface water. As a result, investigations are often truncated in favor of models and over-simplifying assumptions. The military typically argues that the discharge and risk are minimal. Board staff argues that discharges must first be controlled to the extent feasible using best available technology. To address this, we

are working on groundwater to surface water discharge guidance based on Water Code and Clean Water Act requirements and best practices from industry and academia.

- Petroleum cleanups: Petroleum is excluded from cleanup under CERCLA. Furthermore, unless petroleum contamination resulted from a leaky underground petroleum storage tank, the military's commitment to cleaning it up is not mandated by federal law. As a result, the military may deprioritize petroleum site cleanup or simply transfer cleanup liability with the land if the transferee agrees. As previously discussed, if this occurs we can issue an order to the new landowner to address the petroleum cleanup, but that is generally less efficient than having the military address the petroleum contamination prior to transfer.
- Petroleum metabolites: Historically, petroleum metabolites, which are the by-products of biodegraded petroleum hydrocarbons, were largely ignored during assessment and cleanup of petroleum contamination sites. However, recent research has revealed that petroleum metabolites likely have the same toxicity as their parent hydrocarbons. Furthermore, petroleum metabolite groundwater plumes typically extend further than the parent hydrocarbon plumes. For sites that are not near aquatic receptors or supply wells, this effect on the overall risk is negligible. However, if the plume is located near a receptor, the metabolites may reach the surface water body or a supply well, thereby causing increased risk. The standard analytical practice was to "clean up" the collected groundwater samples by removing any trace of metabolites with silica gel before analysis was performed. The thinking was that the metabolites are not toxic and could be from natural sources, such as plant oils and other decaying organic matter.

We are challenging this practice with some success, although it sometimes requires reopening prior site agreements with the military and re-educating other agency staff. On one Navy site in particular, the Navy opted to conduct bioassay tests on aquatic organisms using contaminated groundwater from the site. Results corroborate the research findings that petroleum metabolites have similar toxicity as their parent hydrocarbons and do not necessarily attenuate quickly in a shoreline environment as previously believed.

- Interpreting ARARs: Under CERCLA, states are required to identify state laws, regulations, and policies considered *applicable or relevant and appropriate requirements*, or ARARs, for each cleanup site or group of sites that the military is addressing in a specific document. We have found that ARARs are notorious for interpretation disagreements, which can delay site cleanup.
- State permits: Under CERCLA, the military is not required to obtain state permits, such as stormwater permits or 401 certifications. While CERCLA requires the military to comply with State *substantive* requirements and ARARs, this creates repeated disagreements over what constitutes the substantive requirements for circumstances when we would normally require a State permit. Furthermore, the military may attempt to chip away at the applicability of substantive requirements by arguing that their omission on one site is precedential for other sites.
- The CERCLA process: CERCLA relies on a process of comments and response-to-comments as the administrative record for draft, draft final, and final documents for each of the six major steps in the cleanup process: investigation, feasibility evaluation, proposed plan, record of decision, remedial/engineering design, and remedy implementation/completion. Any given step can take a year or more to complete. This long process makes tracking and following up on

issues/disagreements at optimal times a particular challenge. It is not uncommon for issues to be lost in the process when Board or other agency staff rotate or take on new assignments.

- Dispute resolution: For sites subject to the State's cooperative agreement with the military (the DSMOA), the State must exhaust a dispute resolution process before it can take formal enforcement under State law. This process is essentially a series of increasingly elevated meetings with State, U.S. EPA, and DoD managers that can take weeks, months, or a year or more to play out. If we still do not agree with the outcome, we can still pursue State enforcement against the military without DSMOA funding, but this adds to the delays in implementing cleanup.

In sum, the DoD cleanup program is a complex and challenging program involving approximately 10% of the Board's staff. Nonetheless, it has been successful at moving sites forward for non-military use while ensuring our Region's public health and the environment are protected and restored.

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