

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

STAFF SUMMARY REPORT: Celina Hernandez
MEETING DATE: February 14, 2024

ITEM: 8A

Department of Defense Cleanup Program – Status and Accomplishments

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DISCUSSION:

This item provides an update on the Department of Defense (DoD) cleanup program. The item includes background on the program, describes how we provide oversight of DoD facilities, and summarizes the program's priorities, performance measures, accomplishments, and challenges. The last update to the Board was in March 2018.

Department of Defense Program

DoD Program oversight is provided by 12 staff across 2 sections in the Groundwater Protection and Waste Containment Division. The DoD Program is funded for 8.5 staff positions. DoD Program staff also spend about 30 percent of their time overseeing Site Cleanup Program cases, which is covered by case-specific cost-recovery resources.

There are currently 16 DoD facilities in our Region undergoing investigation and cleanup (see Table 1). These comprise about 300 individual cleanup sites, as most DoD facilities are like small industrial cities with a variety of pollution sources (e.g., landfills, gas stations, storage tanks, storm drains, pipelines, wash racks, dry cleaners). DoD Program staff also work on about 60 privatized sites that have been transferred from the military to state or other local entities for redevelopment or reuse. Historically, our Region had over 50 DoD facilities consisting of over 1,000 individual cleanup sites and over 300 privatized cleanup sites.

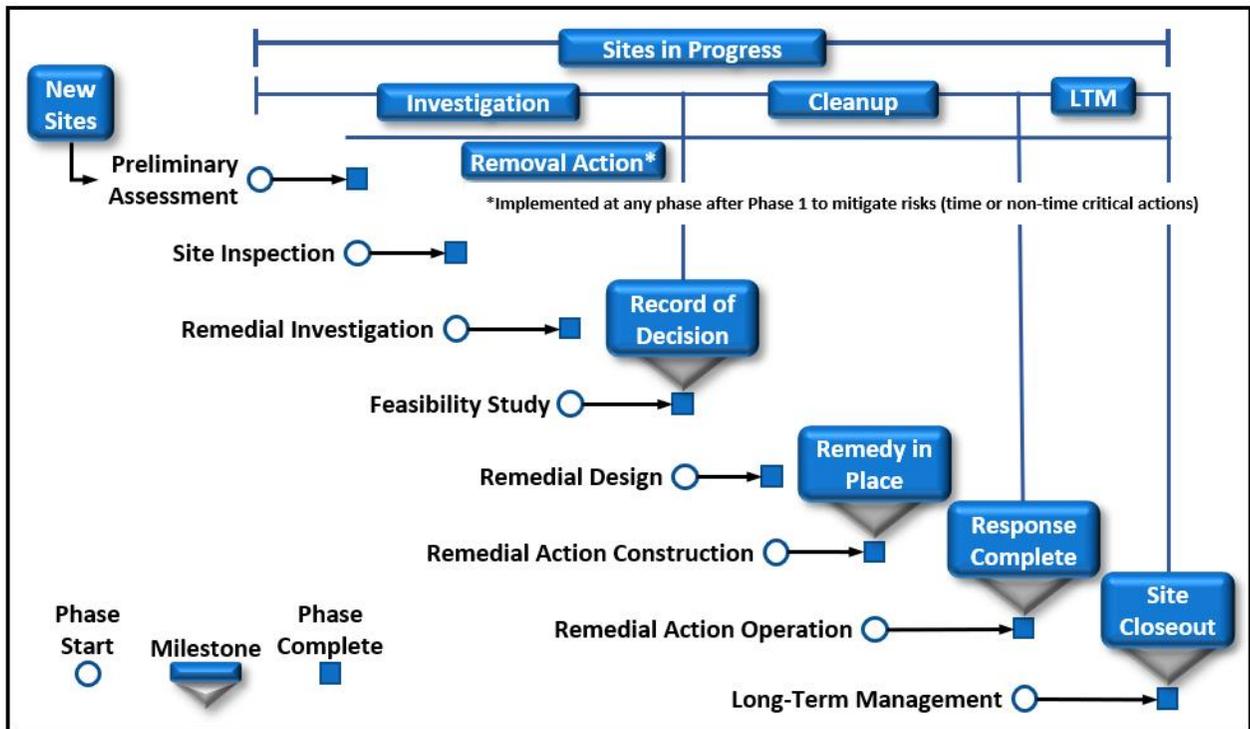
DoD facilities in our Region include Navy, Army, and Air Force bases closed under the congressionally mandated Base Realignment and Closure Program first instituted in 1991. Most of the facilities are Navy bases. There are two facilities managed by the Defense Energy Support Center (DESC), also known as the Defense Logistics Agency, which manages petroleum products. Some facilities are referred to as 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 primary federal statute that applies to the cleanup process for hazardous waste at federal facilities is the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also commonly known as Superfund) (see Figure 1). Under CERCLA and its implementing regulations, remedial actions must be protective of human health and the environment. If hazardous substances, pollutants, or contaminants remain onsite, the remedial action must meet legally applicable or relevant and appropriate standards, requirements, criteria, and limitations (ARARs) under federal law and ARARs under state law if they are promulgated, more stringent than federal requirements, and identified by the state in a timely manner.

Table 1. DoD Cleanup Sites

DoD Facility (Non-Operational)	City	Branch
Alameda Naval Air Station	Alameda	Navy
Benicia Arsenal	Benicia	FUDS
Concord Naval Weapons Station	Concord	Navy
Fort McDowell (Angel Island)	Tiburon	FUDS
Hamilton Army Airfield	Novato	FUDS
Hunters Point Naval Shipyard	San Francisco	Navy
Mare Island Naval Shipyard	Vallejo	Navy
Moffett Field Naval Air Station	Mountain View	Navy
Oakland Army Base	Oakland	Army
Point Molate Naval Supply Center	Richmond	Navy
Point Ozol Defense Fuel Support	Martinez	DESC
Treasure Island Naval Station	San Francisco	Navy
DoD Facility (Operational)	City	Branch
Military Ocean Terminal Concord	Concord	Army
Moffett Air National Guard	Mountain View	Air Force
Parks Reserve Forces Training Area	Dublin	Army
Travis Air Force Base	Fairfield	Air Force/DESC

Figure 1. CERCLA Phases and Milestones (Source: <https://exwc.navfac.navy.mil>)



The DoD cleanup program operates under a cooperative agreement established in 1990 between the DoD and the State of California known as the Defense-States Memorandum of Agreement (DSMOA). The DSMOA provides the framework for funding the state's regulatory oversight and includes a dispute resolution process the state must follow before formal enforcement can be taken, unless there is a site-specific Federal Facilities Agreement or Federal Facility Site Remediation Agreement that otherwise controls. In California, the Department of Toxic Substances Control (DTSC) manages the DSMOA, including the administration of grant funds to pay DTSC and Water 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 issuing final site/facility closure. DTSC is the lead agency for hazardous substances as defined under CERCLA (e.g., radiological, metals, and volatile organic compounds). We are the lead agency on all petroleum impacted sites (petroleum is not a hazardous waste as defined under CERCLA) and stormwater compliance issues. For any given facility or individual site, Water Board staff work collaboratively with DTSC and/or other regulatory agencies to review and provide joint or separate comments on DoD documents.

Cleanup is typically complete when the DoD formally transfers land for redevelopment or reuse to another agency. However, where additional cleanup is needed after the transfer (e.g., to meet unrestricted residential use), the cleanup site remains open and is designated as a privatized site. Our oversight continues with the new landowner of the privatized site in our Site Cleanup Program for cost recovery funding instead of DSMOA 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.

Strategic Work Plan

The Regional Water Board's [Strategic Workplan](#) establishes organizational and program-specific priorities and targets and milestones over a two-fiscal-year period to measure our progress in advancing and achieving our Region's priorities. The Strategic Workplan also includes the State Water Board's program-specific performance measures that we set each fiscal year. These Strategic Workplan priorities guide our work and how we allocate resources. We have made significant progress in implementing these priorities, as explained in the Accomplishments sections below. The DoD Program priorities and performance measure are summarized below.

DoD Program Priorities

The Strategic Workplan sets forth the following five DoD Program priorities:

1. Ensure the investigation and cleanup of the Region's former and active DoD facilities to protect water quality, human health, and the environment prior to property transfer;
2. Continue to oversee privatized DoD sites under the Site Cleanup Cost Recovery Program to ensure that redevelopment activities do not undermine selected remedies and that any additional cleanup for new land uses is protective of human health and the environment;
3. Ensure the investigation and cleanup of per- and polyfluoroalkyl substances (PFAS);
4. Apply environmental justice lens to inform priorities; and

5. Address potential adverse impacts from climate change, such as sea level rise and groundwater rise.

DoD Program Performance Measure

The Strategic Workplan also includes the State Water Board's program-specific performance measures that are tracked each fiscal year. There is one performance measure for the DoD Program, which is the number of individual DoD sites that move from site investigation into active remediation.

Programmatic Accomplishments

Moving Sites Towards Closure

As described above, our priorities include the investigation and cleanup of the Region's former and active DoD facilities. We measure this by counting the number of DoD sites moved from site investigation into active remediation. For the past five fiscal years (2018/19 through 2022/23), we moved 58 DoD sites from site investigation into active remediation. Our target for this fiscal year is to move 2 DoD sites from site investigation into active remediation. Of the 300 or so open DoD cleanup sites about 126 sites (42 percent) are in remediation or undergoing post-remediation monitoring. The remaining sites are still under investigation.

We also measure our progress by looking at the number of sites closed. Since the start of the program, we have closed over 700 individual cleanup sites; since 2018, we have closed 15 sites. The remaining 300 or so individual DoD cleanup sites are more complex with longer cleanup timeframes that require significant staff effort. Thus, the number of sites closed each year is expected to decrease. Most, if not all, of the individual DoD sites at the following DoD facilities are expected to be closed in the near future: Naval Station Treasure Island, Alameda Naval Air Station, Mare Island Naval Shipyard, and Moffett Field Naval Air Station.

PFAS

Ensuring the investigation and cleanup of PFAS at DoD facilities is one of our highest priorities because these chemicals can be persistent, mobile, toxic, and ubiquitous in the environment. Most, if not all, of the DoD facilities in our Region detected PFAS in soil, sediment, and/or groundwater at concentrations that indicate there are likely onsite sources.

In July 2019, the DoD set up a PFAS Task Force to ensure a nationwide coordinated approach to following the CERCLA process for the investigation and cleanup of PFAS releases at their facilities. It set a nationwide goal to complete preliminary site investigations associated with potential releases of PFAS-containing fire-fighting foams by 2023. The DoD met this goal for most of our Region's DoD facilities, and it could not have been done without the dedication of our staff to take on this new technical and regulatory challenge. Our staff's technical knowledge, project management skills, and communication skills are a key part of this accomplishment.

The next step in the CERCLA process is to conduct remedial investigations, which are in various phases at our DoD facilities: proposed, planned, or in progress. For example, the Air Force is far along in the remedial investigation phase at Travis Air Force Base due to drinking water supply well impacts, and the Navy is conducting pilot studies at the Alameda Naval Air Station to evaluate a permeable reactive barrier as a potential remedial alternative to address PFAS along the shoreline. PFAS work at Treasure Island Naval Station is discussed further in the Accomplishments section below.

This year, we expect that U.S. EPA will finalize its proposed maximum contaminant levels for six PFAS chemicals in drinking water and issue a final rule designating two of the most widely used PFAS—perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS)—as hazardous substances under CERCLA. This will provide powerful regulatory tools to hold the DoD even more accountable.

Climate Change

It is critical to plan now for the expected adverse impacts from climate change due to sea level rise, groundwater rise, and changing weather patterns. We have been elevating the issue of climate change and the associated potential impacts on DoD facilities when reviewing technical documents. Our staff consider sea level rise and groundwater rise when evaluating monitoring data focusing on areas where waste is left in-place in proximity to a surface water body or in the subsurface above current groundwater water levels. We have also provided input on the potential climate vulnerabilities of proposed, selected, and implemented remedies, which has compelled the DoD to commit to addressing this during the Feasibility Study and/or the Five-Year Review phases of CERCLA.

In November 2023, the Navy submitted the first Climate Resilience Assessment as part of the Draft Fifth Five-Year Review for Hunters Point Naval Shipyard. The Navy reports that this is the first of its kind in the nation. It is also the first full “stand alone” climate resilience assessment that we have seen for a DoD facility in our Region. It provides an evaluation of potential impacts and vulnerabilities of select remedies for individual cleanup sites and includes impacts of inundation, sea level rise, and groundwater rise; as well as considering other climate hazards such as extreme weather events, drought, wildfires, and energy/power instability. We expect the Navy to submit similar assessments in Five-Year Reviews at its other facilities and will request assessments at our other sites throughout the cleanup process.

As a result of the Regional Water Board and other regulatory agencies making climate change a priority, the DoD is developing internal guidance to help its project managers better understand and evaluate the effects of climate change at DoD facilities.

Facility-Specific Accomplishments

Hunters Point Naval Shipyard

Since 2018, the Navy has made significant progress towards cleanup at Parcels B, C, E, and F.

- At Parcel B, we collaborated with our regulatory agency partners in 2021 to 2022 to identify a site with soil vapor concerns that did not meet the cleanup goals, and the Navy agreed to complete a soil excavation to address this issue.
- At Parcel C, we worked with U.S. EPA in 2019 to direct the Navy to investigate a trichloroethylene groundwater plume. This led to swift remedial actions in 2022 consisting of soil excavations and in situ groundwater remediation.
- At Parcel E, cleanup began in 2020 including excavations, installation of a durable cover, in-situ stabilization, and construction of shoreline protection and underground barriers.
- At Parcel E-2, shoreline revetment construction was completed in 2018 and the construction of the final cover for the entire parcel including the landfill was completed in 2023.

- At Parcel F, we led an effort in 2023 to reconsider the cleanup goal for polychlorinated biphenyls (PCBs) in sediment and the Navy agreed to a lower ambient concentration for cleanup. As a result, a revised Record of Decision has been prepared with a new remedial goal and is expected to be finalized in 2024.

Moffett Field Naval Air Station

In 1994, Moffett Field Naval Air Station was closed as a naval air station and transferred to the NASA Ames Research Center. NASA operates the facility as Moffett Federal Airfield. Recently, cleanup began at the iconic Hangar One structure by Planetary Ventures, LLC (a Google subsidiary) to remove PCBs, lead, and asbestos-containing materials to restore Hangar 1 for future commercial/industrial use. The removal action is being completed in three phases and is expected to be completed in 2025.

We work with U.S. EPA to oversee the remediation of tetrachloroethene (PCE) in soil and groundwater at Traffic Island Area/Site 28 where the Navy currently operates the groundwater extraction treatment system. The Navy plans to transfer this project to NASA in mid-2024. The Navy also plans to complete work or transfer a few remaining sites to NASA by early 2025. Following June 2025, the Navy plans on only performing administrative tasks for transfer of remaining sites to NASA.

Treasure Island Naval Station

Since 2018, approximately 25 acres have been transferred to the City of San Francisco via the Treasure Island Development Authority, and there have been substantial redevelopment activities which we oversee as privatized sites.

There has been significant progress on PFAS investigations. We required the Navy to evaluate whether PFAS is discharging from groundwater to San Francisco Bay at the location of the Former Fire Fighter Training School in the northeastern portion of Treasure Island. In June 2022, we approved a work plan to characterize the nature and extent of PFAS in onshore and offshore groundwater. We recently reviewed the Navy's PFAS Reactive Barrier Pilot Study Work Plan proposing onshore containment of PFAS contaminated groundwater. Next month, we expect the Navy to submit a work plan proposing to establish ambient PFAS concentrations in the Bay, which will be used to determine the nature and extent of any PFAS discharges from Treasure Island to the Bay.

Oakland Army Base

Since 2017, we have worked collaboratively with DTSC to resolve a dispute with the Army regarding the cleanup of marine sediments and a land use covenant at Oakland Army Base. In July 2021, the state initiated a formal dispute and, in January 2022, elevated the dispute to the California Secretary for Environmental Protection and the representative of the Secretary of the Army. Following years of negotiating, we expect to be able to resolve the dispute this year.

Formerly Used Defense Sites

In 2021, the State Water Board started an initiative with the Regional Water Boards to review inactive FUDS cases that were stalled due to a lack of funding and try to move them forward in the cleanup process towards closure. These FUDS cases were military underground storage tank sites with petroleum contamination. Our Region identified approximately 115 FUDS. Since 2021, we closed 19 FUDS; 8 FUDS received DSMOA funding with additional work completed or planned; and 5 FUDS are in the process of receiving DSMOA funding. We continue to work

diligently to ensure the remaining sites are being assessed to determine the appropriate actions needed to achieve case closure.

Challenges

The challenges associated with overseeing cleanup at DoD facilities have been consistent over the years and are explained below.

- CERCLA process: With multiple phases involved from investigation to closure and numerous technical documents to review (e.g., draft, draft final, and final versions) and respond to, any given step can take a year or more to complete.
- State regulations: Under CERCLA, the state regulatory agencies 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 DoD is addressing in a specific document. We have found that ARARs are notorious for interpretation disagreements or disputes which can delay the CERCLA process.
- Dispute resolution process: Under DSMOA, the state must exhaust a dispute resolution process before it can take enforcement under state law. This process is essentially a series of increasingly elevated meetings with the state, U.S. EPA, and DoD managers that can be drawn out and take time to resolve.
- State permits: The DoD is not required to obtain state permits under CERCLA, such as stormwater permits or Clean Water Act section 401 water quality certifications. While CERCLA requires the DoD to comply with a state's 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 DoD may attempt to chip away at the applicability of substantive requirements by arguing that their omission on one site is precedential for other sites.