STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF June 19-20, 2025
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ITEM NUMBER: **7**

SUBJECT: **DEPARTMENT OF DEFENSE PROGRAM UPDATE**

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KEY INFORMATION

Location: Region-Wide

Type of Discharge: Chemical Releases at Active and Former Military Bases

ACTION: Information/Discussion

SUMMARY

This is an informational item to provide a general update on activities related to the Central Coast Regional Water Quality Control Board (Central Coast Water Board) Department of Defense (DoD) Program. The DoD Program includes one Senior Engineering Geologist, two Engineering Geologists, and one Water Resource Control Engineer. DoD Program staff are responsible for providing technical and regulatory oversight for active and ongoing investigation and cleanup activities within the Central Coast Region, including per- and polyfluoroalkyl substances (PFAS) investigation oversight. A map displaying the DoD facilities with Central Coast Water Board regulatory oversight is included in Figure 1.

DISCUSSION

Department of Defense Facilities in the Central Coast Region

The Central Coast Water Board's DoD Program manages 71 open cases: four cases at former Fort Ord Army Base, two cases at Army Garrison Fort Hunter Liggett, three cases at California Army National Guard Camp Roberts, one case at California Army National Guard Camp San Luis Obispo, 58 cases at Vandenberg Space Force Base, and three cases at Former Lompoc Army U.S. Disciplinary Barracks. A detailed

description of these facilities and the associated cleanup sites is included at the end of this staff report.

Department of Defense Program Background

Congress established the Defense Environmental Restoration Program (DERP) by the Superfund Amendments and Reauthorization Act of 1986 to address historical activities at federal facilities that could pose threats to human health or the environment. At these federal facilities, environmental restoration work follows the process laid out by the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), for site investigation, cleanup, and closure. The states and the Department of Defense (DoD) operate under the *DoD and State Memorandum of Agreement* (DSMOA), which includes two-year cooperative agreement cycles to reimburse states for eligible facility regulatory oversight while the DoD conducts environmental investigation, cleanup, and restoration activities. The DoD Program is funded by federal DERP and Base Realignment and Closure (BRAC) funds that the military set aside in the late 1980s for environmental restoration and cleanup. The states recover regulatory agency staff costs directly from these military funds.[1]

The U.S. Environmental Protection Agency (USEPA) is the lead regulatory agency at all California DoD facilities on the National Priorities List (i.e., Superfund sites), with support from the State Water Resources Control Board (State Water Board) and Regional Water Quality Control Boards (collectively the Water Boards) and the Department of Toxic Substances Control (DTSC). The former Fort Ord Army base is the only DoD Superfund site in the Central Coast Region.

A 1990 agreement between the State Water Board and DTSC designated the respective roles of the two agencies at DoD facilities. The Central Coast Water Board either shares the lead regulatory role with DTSC or is the sole lead on DoD facility cases within the Central Coast Region.

The DoD Program is responsible for overseeing the investigation and cleanup of DoD sites where pollutants were historically released to the environment (including soil, groundwater, surface water, soil gas, indoor air, and sediment). Pollutants encountered include petroleum hydrocarbons (fuel, motor oil, etc.), various solvents (trichloroethene [TCE], tetrachloroethene [PCE], carbon tetrachloride), heavy metals, polychlorinated biphenyls (PCBs), pesticides, perchlorate, unexploded ordinance, and PFAS. Many elements of the DoD Program are comparable to the Site Cleanup Program (see Item 8 on the December 8-9, 2022, Central Coast Water Board agenda).[2]

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[1] The Central Coast Water Board's DoD Program staff resources were not affected by the Governor's Budget Letter 24-25 Government Efficiencies Reductions. However, reductions in the federal DERP and BRAC funds may impact the cleanup activities planned at military facilities.

[2] The December 8-9, 2022 staff report can be found at: https://www.waterboards.ca.gov/centralcoast/board_info/agendas/2022/dec/item8_stfrpt.pdf

The DoD Program's primary oversight responsibilities include (1) reviewing and commenting on technical reports and studies designed to characterize releases to the environment and used to develop remedial alternatives; (2) reviewing and commenting on records of decision, remedial design/remedial action plans, remedial action status reports, and closure reports; (3) participating in public outreach and education via community meetings; and (4) providing leaking underground storage tank (UST) case oversight, which is not within DTSC's regulatory authority.

DoD Program Priorities

The DoD Program's primary focus is on protecting human health and the environment. As described in the Central Coast Water Board's Strategic Plan and further detailed in this staff report, the general program priorities for the DoD Program include the following:

1. Support the federal government's efforts to reduce risks to public health and the environment and minimize environmental liability.
2. Ensure safe drinking water by evaluating impacts to water supply wells.
3. Clean up impacted soil vapor to reduce the potential impact to human health via vapor intrusion to indoor air, or ensure buildings are adequately mitigated for vapor intrusion.
4. Remove wastes affecting soil or sediment to prevent negative impacts to human health or aquatic or terrestrial habitat, and to protect wastes in soil from leaching and impacting groundwater.
5. Clean up wastes in all media to the maximum extent practicable, so that property owner(s) and occupant(s) will have unrestricted site use, or appropriately restricted site use with protective land use controls.
6. Clean up groundwater and surface water pollution that in some cases will take decades or centuries to reach water quality objectives due to site complexity, release type, and magnitude.
7. Support military facilities with outreach, engagement, and collaboration to maximize opportunities for all community members to provide input on water quality decisions.

Since 2008, the DoD Program has implemented a case prioritization strategy to: 1) effectively distribute work assignments among DoD Program staff; 2) establish milestones and goals for each cleanup site; and 3) ensure resources are focused on sites with the highest threats to water quality and human health. Three primary site ranking elements are considered: 1) risk to human health and the environment; 2) site and waste complexity; and 3) federal contract means. Risk to human health and the environment relates to existing or threatened impacts to human health and ecological receptors, including surface water and groundwater beneficial uses. Site and waste complexity relate to site and waste conditions, including (but not limited to) beneficial uses, geology, hydrogeology, topography, soil type, waste types, plume characteristics, land use, and community involvement. Acknowledging the current economic realities in California, the federal contract ranking considers the availability of cost recovery funds and DoD contracting/funding cycles. Funding availability can have a significant impact

on which cleanup cases are ranked highest in the short-term, since available funding is necessary to support investigation and cleanup, and funding timeframes can drive expedited efforts during funding "windows" (periods of performance), to capitalize on available funding with pending expiration.

The Project/Task Specific Priorities for Fiscal Year 24-25 include the following:

1. Recruitment and retention of qualified, well-trained staff.
2. Former Fort Ord – Review and evaluate groundwater plume conditions and remediation progress at Sites 2 and 12, former Operable Unit 2 (OU2) Landfill, and Operable Unit Carbon Tetrachloride Plume (OUCTP).
3. Former Fort Ord – Review and evaluate groundwater, soil gas, and landfill gas monitoring requirements in Quality Assurance Project Plans (QAPPs) at Sites 2 and 2, OU2, and OUCTP.
4. Former Fort Ord – Evaluate and identify potential data gaps in soil gas monitoring and potential vapor intrusion risks at Sites 2 and 12.
5. Vandenberg Space Force Base - Close one underground storage tank cleanup case (TU670).
6. Vandenberg Space Force Base – Support the Air Force and U.S. Army Corps of Engineers (USACE) with onboarding the recipient of the next 10--year contract for site remediation and implementation of the Basewide Groundwater Monitoring Program (BGMP).
7. Vandenberg Space Force Base – Review and evaluate remediation progress, based on BGMP data, for cases SS003, SS004, SS050, TU077, WP005, WP008, and WP013.
8. Vandenberg Space Force Base – Provide technical support for cases SA545, MY255, and SA217 contracted with the USACE/OTIE.
9. Vandenberg Space Force Base – Provide technical support for Munitions Response Area Water Ranges (a 305--acre water site located off the coastline, including Point Sal Area, Minuteman Beach, Purisima Point, and Surf Beach).
10. Camp Roberts, California Army National Guard – Review Draft Final QAPP for Remedial Investigation (RI) at Old Quarry Site. Support field investigation work and review final report, if submitted.
11. Former Lompoc U.S. Army Disciplinary Barracks – Support decision document development (e.g. Proposed Plan, Record of Decision) for remedial actions at the Washrack, and document the Land Use Controls in place at the Wood Dump and Former Army Landfill sites.
12. Evaluate the DoD process for identifying impacts to water supply wells and public notification.
13. Evaluate potential impacts to groundwater quality from historical and current Federal agency land use practices.
14. Vandenberg Space Force Base, Former Fort Ord, Fort Hunter Liggett, Former Lompoc U.S. Army Disciplinary Barracks, Camp San Luis Obispo, and Camp Roberts – Review and evaluate PFAS investigation reports the DoD has submitted or plans to submit for each installation.

DoD Performance Metrics

The DoD Program's most significant performance metric is the number of cases closed, which is aligned with the military's performance expectations. However, most cases in the program are large, long-term projects that progress slowly toward closure due to the magnitude and characteristics of contaminated media. Performance on long-term cleanup cases is measured by evaluating remedial effectiveness including source removal and groundwater plume containment and reduction. The Central Coast Water Board has closed 345 DoD cases over the past twenty years.

PFAS Investigations at Military Facilities

On April 10, 2024, the USEPA announced a final rule "National Primary Drinking Water" (NPDWR) for six different PFAS compounds. This rule established legally enforceable levels, called maximum contaminant levels (MCLs), in drinking water for perfluorooctanoic acid (PFOA), perfluorooctane sulfonate (PFOS), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA), and hexafluoropropylene oxide-dimer acid (HFPO-DA) as contaminants with individual MCLs, and PFAS mixtures containing at least two or more of PFHxS, PFNA, HFPO-DA, and perfluorobutane sulfonic acid (PFBS) using a Hazard Index MCL to account for the combined and co-occurring levels of these PFAS in drinking water. USEPA also finalized health-based, non-enforceable MCLGs for these PFAS. Table 1 provides the final MCLGs and MCLs for these PFAS:

Table 1. USEPA PFAS Maximum Contaminant Levels

Compound	**Final MCLG**	**Final MCL (enforceable levels)[1]**
PFOA	Zero	4.0 nanograms per liter (ng/L)
PFOS	Zero	4.0 ng/L
Compound	**Final MCLG**	**Final MCL (enforceable levels)[1]**
PFHxS	10 ppt	10 ng/L
PFNA	10 ppt	10 ng/L
HFPO-DA (commonly known as GenX Chemicals)	10 ppt	10 ng/L
Mixtures containing two or more of PFHxS, PFNA, HFPO-DA, and PFBS	1 (unitless) Hazard Index	1 (unitless) Hazard Index

[1] Compliance with MCLs is determined by running annual averages at the sampling point.

DoD's PFAS Policies

Since July 2019, DoD's PFAS Task Force has implemented a coordinated approach to DoD's efforts to address PFAS through evaluating and establishing policy positions and reporting requirements. DoD's PFAS policies[3] aim to ensure consistency and track PFAS cleanup progress. In response to the USEPAs NPDWR establishing nationwide MCLs for PFAS, DoD issued the September 3, 2024 Memorandum titled, *Prioritization of Department of Defense Cleanup Actions to Implement the Federal Drinking Water Standards for PFAS Under the Defense Environmental Restoration Program* (PFAS Memorandum).[4] The PFAS Memorandum describes DoD's plans to incorporate the drinking water rule into ongoing cleanups and prioritize actions to address private drinking water wells with the highest levels of PFAS from DoD activities. The DoD will initiate removal actions[5] to address private drinking water wells impacted by PFAS from DoD activities where concentrations are known to be at or above three times the MCL values. DoD will also expedite action at public water systems where authorized, prioritizing the most impacted sites for earlier action. For public water systems above the MCLs impacted by PFAS from DoD activities, the DoD will work with the public water systems and regulators to address PFAS impacts. The status of PFAS investigations at military facilities is described in Table 2 below.

DoD Program Facilities

Table 2 includes a description of the military facilities and associated cleanup sites in the Central Coast Region. Additional information can be found on the Central Coast Water Board's DoD Program webpage.[6]

Table 2. Overview of Military Facilities and Associated Cleanup Sites in the Central Coast Region

Facility: Former Fort Ord Army Base
County: Monterey County
Primary Constituents of Concern: TCE, PCE, carbon tetrachloride, PFAS
Impacts to Drinking Water or Indoor Air: Yes, former Fort Ord drinking water supply wells contain volatile organic compounds (VOCs) but at concentrations below drinking water standards. The wells are currently used by Marina Coast Water District [MCWD]. There is a contingency plan for wellhead treatment, if needed, and new supply wells are restricted in the area.
Status of PFAS Investigations: In progress, remedial investigation underway.

[3] DoD's PFAS policies can be found at: https://www.acq.osd.mil/eie/eer/ecc/pfas/tf/policies.html.
[4] The DoD PFAS Memorandum can be found at: https://www.acq.osd.mil/eie/eer/ecc/pfas/docs/policies/epa-mcl-implementation-memo.pdf
[5] A removal action is a response implemented in an expedited manner to address contamination that poses a threat to human health and the environment.
[6] Central Coast Water Board DoD Program webpage can be found at: https://www.waterboards.ca.gov/centralcoast/water_issues/programs/dod/index.html

Facility Summary:
Former Fort Ord encompasses 28,000 acres between the cities of Seaside and Marina near Monterey. From 1917 until its closure, Fort Ord served as a training ground for Army troops. The USEPA declared Fort Ord a federal Superfund site in February 1990 due to chlorinated solvent wastes in Fort Ord water supply wells, which have since been transferred to MCWD. The base closed in 1994, and portions have since been transferred to civilian use. Over 40 environmental waste sites have been identified, most of which have been remediated.

Three groundwater cleanup areas remain impacted with chlorinated solvents in the A-Aquifer and the Upper and Lower 180-Foot Aquifers. These areas have active groundwater treatment systems and treated groundwater is reinjected to aid in groundwater cleanup and offset seawater intrusion. Quarterly groundwater monitoring is performed to evaluate remedial effectiveness. Remediation wastes from site investigation and cleanup are disposed at the former Fort Ord Landfills adhering to USEPA Corrective Action Management Unit (CAMU) regulations. Munitions cleanup of historical impact areas is expected to be completed in the next 10 years under USEPA and DTSC regulatory oversight.

In 2020, the USEPA nominated Fort Ord for the National Federal Facility Excellence in Site Reuse Award for innovative thinking and cooperation leading to noteworthy restoration and reuse of federal facility sites under the Superfund program.

The three groundwater treatment areas and PFAS assessment activities are described in more detail below.

OU2 (Landfill): Waste disposal in the OU2 landfill resulted in chlorinated solvent pollution, including TCE, of groundwater in multiple aquifers. Remediation includes an engineered cover system over the landfill areas to prevent rainwater infiltration through the waste and groundwater extraction and treatment, which has been ongoing since 1995.

Sites 2 and 12 (Sites 2/12) (Vehicle Maintenance Area): Vehicle maintenance activities resulted in chlorinated solvent pollution, including PCE and TCE, in soil, soil gas in the vadose zone, and groundwater. Remediation includes a groundwater extraction and treatment system that has been operating since 1999 and a soil vapor extraction (SVE) and treatment system that began operating in 2015. Since 2019, the SVE system has operated intermittently when soil gas concentrations exceed established soil gas cleanup levels.

Operable Unit Carbon Tetrachloride Plume (OUCTP): Equipment maintenance activities resulted in chlorinated solvent pollution (primarily carbon tetrachloride) of groundwater in multiple aquifers. Remediation includes in-situ biodegradation, groundwater extraction and treatment, and monitored natural attenuation (MNA) with a contingency plan for wellhead treatment at the MCWD water supply wells, if necessary.

PFAS Source Investigations: In 2019, the OU2 Landfill groundwater monitoring wells were sampled for PFAS and indicated concentrations above applicable screening levels ranging from below the laboratory detection limit of 2 ng/L to 447 ng/L (PFOA). In 2022, a Preliminary Assessment (PA) Report evaluated approximately 50 sites for potential PFAS impacts. Seven sites that proceeded to the site inspection (SI) phase indicated PFAS present in soil and/or groundwater with the highest observed PFAS concentrations in groundwater at 19,000 ng/L (PFOS). The Army proposed five sites for remedial investigation (RI). In 2024, the Army initiated PFAS working group meetings to collaboratively address agency comments and develop the RI Work Plan. In 2025, Central Coast Water Board staff attended a site visit to observe the seven PFAS sites investigated as part of the SI phase.

Facility: Army Garrison Fort Hunter Liggett
County: Monterey County
Primary Constituents of Concern: TCE, PFAS
Impacts to Drinking Water or Indoor Air: Yes, facility drinking water well offline due to PFAS impacts.
Status of PFAS Investigations: In progress, remedial investigation underway.

Facility Summary:

Fort Hunter Liggett (FHL) is in southern Monterey County, between the Salinas Valley and the Los Padres National Forest. It is the largest reserve command post in the country, with over 165,000 acres of land. Since 1941, Fort Hunter Liggett has been used as a training facility, including field maneuvers and live-fire exercises. FHL was under the authority of Camp Roberts until 1952, when it became a sub-installation of Fort Ord. From the 1970s to the early 1990s, the base served as a training area for the 7th Light Infantry Division based at Fort Ord and the home for the Training and Experimentation Command. In 2007, the Army created the Combat Support Training Center with training year-round. Over the years, twelve cleanup cases at FHL have been closed.

Closed Landfill: Currently, the former landfill is the only active cleanup case at the base. Groundwater and landfill gas monitoring is performed semiannually. In 2024, only one groundwater monitoring well at the former landfill contained a concentration of TCE above the MCL.

PFAS Source Investigations: The Army's testing of the FHL water supply wells for PFAS indicated the presence of PFOS above the screening levels at that time (70 ng/L) in a sample collected from Well 236 and the well was taken offline in 2018. In 2019, the Army identified 13 areas of potential interest where they performed investigation activities. Based on the results from the site investigations, the Army proposed performing remedial investigations in three areas. PFAS compounds were found in soil, groundwater, sediment, and surface water samples near all three areas

investigated. The highest observed PFAS concentrations in groundwater and surface water were 5,000 ng/L (PFOS) and 2,100 ng/L (PFOS), respectively. In July 2024, Central Coast Water Board staff observed the RI activities and visited the PFAS sites.

Facility: California Army National Guard Camp Roberts
County: San Luis Obispo County and Monterey County
Primary Constituents of Concern: Carbon Tetrachloride, PFAS
Impacts to Drinking Water or Indoor Air: Yes; PFAS detected in an abandoned, facility water supply well.
Status of PFAS Investigations: In progress, awaiting funding for remedial investigation.

Facility Summary:

The Army built Camp Roberts in 1940 as a WWII training center. In 1945, Camp Robert's housed 45,000 troops. Field and infantry artillery troops were trained at the camp, which also included an Army hospital. After WWII, the camp became inactive except for intermittent Army Reserve and California Army National Guard training and became active again during the Korean War. In 1971, the Army turned the camp over to the California Army National Guard for a training center.

Over the years, twelve cleanup cases have been closed (industrial area shops, a former pesticide storage and mixing area, sites within the Main and East Garrisons, a former drycleaning facility, vehicle maintenance shops, and an underground storage tank).

South and Closed Landfills: There are five closed and inactive waste-disposal trench areas collectively known as the South and Closed Landfills at Camp Roberts. The landfills were in operation in the 1940s and intermediate covers were constructed in the 1970s. In 2006, the landfills were formally closed with a final cover and a network of groundwater monitoring wells were installed. The wells are sampled semiannually for VOCs (e.g., TCE and carbon tetrachloride) and inorganic parameters (e.g., nitrate, dissolved manganese). Since 2021, only one South Landfill groundwater monitoring well contains concentrations of carbon tetrachloride slightly exceeding the MCL of 0.5 micrograms per liter (ug/L). Nitrate and dissolved manganese concentrations exceed their respective MCLs in several wells.

Old Quarry Site and Community Relations Plan: Since 2023, Central Coast Water Board staff have been working with the Army National Guard to develop a remedial investigation scope of work for the Old Quarry site to remove buried debris with lead, diesel-range petroleum, and dioxins/furans that exceeded applicable screening levels. The Army National Guard is preparing a Community Relations Plan for this work and

Central Coast Water Board staff requested outreach to California Native American Tribes and underrepresented communities.

PFAS Source Investigations: In November 2019, the Army National Guard submitted a PA Report identifying potential PFAS source areas. In 2021, the Army National Guard investigated six potential PFAS source areas and summarized the findings in a SI Report in 2023. The highest observable PFAS concentrations in groundwater were 85.6 ng/L (PFHxS). Due to the DoD PFAS site prioritization criteria, the RI phase has not been initiated during this funding cycle.

Facility: California Army National Guard Camp San Luis Obispo
County: San Luis Obispo County
Primary Constituents of Concern: PFAS
Impacts to Drinking Water or Indoor Air: No
Status of PFAS Investigations: In progress, awaiting funding for remedial investigation.

Facility Summary:

Camp San Luis Obispo (SLO) occupies approximately 5,320 acres between the cities of San Luis Obispo and Morro Bay. In 1928, Camp SLO was established as the original home of the California Army National Guard. In 1940, the Federal government leased Camp SLO from the state. During World War II, the camp housed approximately 1,500 officers and 19,000 enlisted personnel. In 1947, control of the Camp reverted to California Army National Guard. In 1951, the U.S. Army operated the Southwest Signal Center at Camp SLO during the Korean war. In 1965, the entire property was returned to state control. Camp SLO supports year-round federal and state military training activities for the California Army National Guard.

PFAS Source Investigations: In November 2018, the Army National Guard submitted a PA Report identifying potential PFAS source areas. The Army National Guard investigated six areas of interest and summarized the PFAS findings in a SI Report in 2023. The highest observable PFAS concentration in groundwater was 908 ng/L (PFHxS). Due to the DoD PFAS site prioritization, the remedial investigation phase has not been initiated during this funding cycle.

Facility: Former Lompoc US Disciplinary Barracks
County: Santa Barbara County
Primary Constituents of Concern: Chlorinated Solvents

Impacts to Drinking Water or Indoor Air: No
Status of PFAS Investigations: In progress, no sampling to date pending funding.

Facility Summary:
The former Lompoc US Disciplinary Barracks is located in the city of Lompoc near Vandenberg SFB. The barracks were part of the Army's Camp Cooke in the WWII era and are now operated by US Bureau of Prisons as part of the Lompoc Federal Correctional Complex.

From the late 1980s to late 1990s, the Army performed a base-wide assessment and further investigation and/or remediation at the former trap skeet range, former borrow/disposal pit/metal cage area, former incinerator, former Army landfill, former farm-fuel underground storage tanks, wood dump, and wash rack areas. By the late 1990s, USEPA, DTSC, and Central Coast Water Board staff agreed that no further action was appropriate for most of these areas, except for the former wood dump, former Army landfill, and former wash rack which would require further remediation and/or monitoring. Since then, the Central Coast Water Board has been the lead agency for oversight.

Former Wash Rack: The wash rack site is located at the Lompoc Federal Correctional Complex and was used for cleaning Army and Bureau of Prisons vehicles from the 1940s to the 1950s. Chlorinated solvents were released to groundwater beneath the site. Remediation between 2002 and 2008 included in-situ bioremediation injections. In 2009, long-term groundwater monitoring was initiated to verify chemical concentrations were declining to concentrations at or below water quality standards. In 2019, Central Coast Water Board staff began working with the Army to resume remedial action to reach site closure in the near term. The 2024 groundwater monitoring results indicate that chlorinated solvent concentrations still slightly exceed water quality standards. Following the CERCLA-based process, a Proposed Plan including a public comment period and public outreach meeting, was finalized in October 2024. A Record of Decision will be prepared to formally document the selected remedy for groundwater at the site, followed by developing the specific technical approach for remedial action.

Former Wood Dump and Army Landfill: The Army used the former wood dump and former Army landfill as disposal facilities between the 1940s to the 1970s. The results of investigation activities completed in the 2000s determined that environmental impacts were limited, and mitigation efforts should focus on maintaining integrity of the landfill cap into the future. Maintenance inspections are conducted on a semiannual basis, and a record of decision will be prepared to formally document the selected remedy and long-term monitoring requirements.

PFAS Source Investigations: In October 2023, the Army submitted a PA Report identifying and evaluating areas of potential interest based on use, storage, or disposal of potential PFAS containing materials, including AFFF. Due to the DoD PFAS site prioritization criteria, review of the PA Report has not been initiated during this funding cycle.

Facility: Vandenberg Space Force Base (VSFB)

County: Santa Barbara County

Primary Constituents of Concern: Chlorinated Solvents, Petroleum Compounds, PCBs, Pesticides, Perchlorate, Heavy Metals, Unexploded Ordnance, and PFAS

Impacts to Drinking Water or Indoor Air: No drinking water impacts; Confirmation monitoring to understand potential for indoor air impacts at three locations – one industrial building, one industrial building used periodically for training, and one short-term residential dormitory under evaluation for occupation.

Status of PFAS Investigations: In progress, remedial investigation.

Facility Summary:

Vandenberg SFB, located on the north coast of Santa Barbara County, spans almost 100,000 acres and 35 miles of California coastline. It is the third-largest U.S. Air Force installation, supporting west coast launch activities for the Department of Air Force (DAF), DoD, National Aeronautics and Space Administration, national programs, and various private industry contractors, such as Firefly Aerospace, Space Exploration Technologies (SpaceX), and United Launch Alliance (ULA). Previously, Vandenberg SFB was the historic WWII-era Camp Cooke Army military-training facility used to prepare soldiers for WWII, and later, the Korean War.

Historical launch operations and military training left soil, soil vapor, surface water and groundwater pollution at over 1,800 sites including launch complexes, fire training areas, fueling stations, waste disposal pits and unexploded ordnance. Since the 1980s, the Central Coast Water Board, DTSC and DAF have closed over 90 percent of these sites. There are documented impacts to groundwater, surface water, soil and/or indoor air. A new 10-year contract, awarded in 2024, will optimize remediation efforts at 32 cleanup sites and 28 MMRP sites. In 2024, Central Coast Water Board, DTSC, and California Fish and Wildlife staff were recognized by the DAF for their support on the Vandenberg SFB installation restoration program and given an Air Force coin and certificate to commemorate this achievement. Representative cleanup projects at Vandenberg SFB are discussed in more detail below.

Site SD015 (Former ABRES-B Missile Launch Complex, North Base): Site SD015 includes three decommissioned missile launch pads and their associated launch water discharge channels. Launch Pad 1 has significant solvent-impacted groundwater (90 acres) and extends into San Antonio Creek, Launch Pad 2 has some TCE-impacted groundwater (2 acres), and Launch Pad 3, has little known pollution associated with it. TCE, cis-1,2-dichloroethene, and vinyl chloride are detected in San Antonio Creek surface water, but concentrations of all three constituents have not exceeded their MCLs since August 2022. Since 2009, remediation has included carbon substrate injection, specialty microbe addition, along with groundwater recirculation for enhanced in-situ bioremediation, and groundwater extraction and treatment followed by strategic reinjection into groundwater.

As of January 2024, approximately 330 pounds of primarily TCE have been removed from the Launch Pad 1 plume. Central Coast Water Board staff anticipates that cleanup of groundwater and surface water will take decades, due to the size of the plumes and the hydrogeologic complexity of the area.

Site SD024 (Former Army Tank Maintenance, Fueling Station, Entomology Wash Rack and Dry Cleaner; Cantonment Area, North Base): Site SD024 includes the Camp Cooke Army tank maintenance area, a vehicle fueling station, a wash rack where pesticide mixing and pesticide application equipment washing occurred, and a former dry cleaner. Impacted soils at these source areas were excavated to the extent practicable. Since 2003, solvent-impacted groundwater has been remediated during multiple treatment pilot studies and active remediation using chemical oxidation and bioremediation. Active treatment is currently paused until the new 10-year contract is initiated. Water quality standard achievement is anticipated to take decades, due to the site's hydrogeologic complexity and the challenges associated with treating recalcitrant contaminants including 1,4-dioxane.

Site WP005 (Historic Operations Space Launch Complex 3 West and East [SLC-3W and SLC-3E]; South Base): TCE was released from SLC-3W and SLC-3E reportedly due to rocket motor flushing prior to launches. Groundwater treatment at SLC-3W began in 2016 with a bioremediation pilot study designed to cut off TCE-impacted groundwater from entering Bear Creek. Treatment was further expanded in 2019 and 2021. In 2024, six existing wells were injected with carbon substrate. An SVE system operated since 2019 has removed approximately 4,907 pounds of TCE from the vadose zone. There has been limited success with remediation of TCE in groundwater at the SLC-3W and SLC-3E launch areas using a full-scale pump and treatment systems combined with bioremediation. Additional site investigation, remedial alternative evaluation and remediation implementation will be conducted under the new 10-year contract. Due to terrain access issues, the lithology type(s) in the subsurface and size of site WP005 (approximately 115 acres), attaining water quality standards is anticipated to take about 200 years.

Site WP008 (Current and Historic Space Launch Complex 4 West and East [SLC-4W and SLC-4E]; South Base): WP008 includes SLC-4W and SLC-4E, historically used for missile launches by the Air Force, and are now leased by SpaceX. Groundwater has been impacted with TCE historically used during pre-launch operations before being discharged to the ground surface and impacted by perchlorate released when a rocket was detonated shortly after liftoff in April 1986. Impacted groundwater extends downslope to the cliff/beach interface at the ocean, and in some locations is detected in the water seeping from the cliff face. Since 2006, bioremediation has been the primary groundwater treatment technology used and has shown to be effective. It is expected to take up to 80 years to achieve water quality standards.

PL351 (Former Fuel Distribution Pipeline; Cantonment Area, North Base): Site PL351 is a former 2.5-mile pipeline network consisting of five historical pumphouses and

associated underground storage tanks that distributed fuel during the Camp Cooke training facility activities during WWII. Investigation activities completed between 2016 and 2018 showed fuel-related hydrocarbon impacts primarily within the unsaturated soil that could present a potential health risk to hypothetical future residents or workers through inhalation of vapors. Remediation with SVE was initiated between 2020 and 2021. Over 100,000 pounds of hydrocarbon mass, including 198 pounds of benzene, have been removed, resulting in reduced pollutant concentrations in soil vapor.

PFAS Source Investigations: In 2015, as part of a PA, the Air Force identified areas of potential PFAS releases from firefighting foam use and storage. Five potential release locations were identified to proceed to the SI phase. From 2018 to 2019 the Air Force performed a PFAS investigation at the five potential PFAS release locations. PFAS compounds were detected at all five locations at levels exceeding screening criteria. Groundwater was only encountered at two of the five release locations. PFAS at these locations do not pose a significant risk to the public due to current land uses at these locations, and the release locations relative to groundwater occurrence and groundwater flow direction.

In February 2024, RI field activities began at the five release locations. Surface soil, surface water and sediment sampling was performed near one of the source areas (spray nozzle test area). PFAS detections in the surface water were significant with a maximum PFAS concentration of 372,000 ng/L (PFOS). A second RI field sampling phase is currently underway which includes additional surface soil sampling, deeper soil sampling, groundwater monitoring well installation/sampling, and surface water sampling farther down gradient from the PFAS detections in surface water.

PFAS compounds have not been detected in Vandenberg SFB potable water, nor in nearby water supply wells used during prolonged drought conditions. In July 2019, Vandenberg SFB's drinking water system source water and nearby water supply wells were sampled and tested. PFAS compounds were not detected. From 2021 to 2024 nearby water supply wells were also tested and PFAS compounds were not detected.

Current Rocket Launches – Waste Discharge: The DAF and SpaceX, are increasing launch frequency at Vandenberg SFB and preparing environmental reviews under the National Environmental Policy Act (NEPA). The DoD Program is reviewing and providing comments on the environmental documents and collaborating with the Central Coast Water Board's Waste Discharge Requirements (WDR) Program to ensure water generated and discharged during launch activities are not presenting a threat to groundwater, surface water, nor inhibiting the current remediation of legacy pollution associated with SLC-4W and SLC-4E. In December 2024, staff from the DoD and WDR Program's participated in a site walk of several space launch complexes (SLC-5, SLC-6, and SLC-8) led by DAF representatives.

Facility: Former Lompoc US Disciplinary Barracks
County: Santa Barbara County
Primary Constituents of Concern: Chlorinated Solvents
Impacts to Drinking Water or Indoor Air: No
Status of PFAS Investigations: In progress, no sampling to date pending funding.

Facility Summary:

The former Lompoc US Disciplinary Barracks is located in the city of Lompoc near Vandenberg SFB. The barracks were part of the Army's Camp Cooke in the WWII era and are now operated by US Bureau of Prisons as part of the Lompoc federal correctional complex.

From the late 1980s to late 1990s, the Army performed a base-wide assessment and further investigation and/or remediation at the former trap skeet range, former borrow/disposal pit/metal cage area, former incinerator, former Army landfill, former farm-fuel underground storage tanks, wood dump, and wash rack areas. By the late 1990s, USEPA, DTSC, and Central Coast Water Board staff agreed that no further action was appropriate for most of these areas, except for the former wood dump, former Army landfill, and former wash rack which would require further remediation and/or monitoring. Since then, the Central Coast Water Board has been the lead agency for oversight.

Former Wash Rack: The wash rack site is located at the Lompoc federal correctional complex and was used for cleaning Army and Bureau of Prisons vehicles from the 1940s to the 1950s. Chlorinated solvents were released to groundwater beneath the site. Remediation between 2002 and 2008 included in-situ bioremediation injections. In 2009, long-term groundwater monitoring was initiated to verify chemical concentrations were declining to concentrations at or below water quality standards. In 2019, Central Coast Water Board staff began working with the Army to resume remedial action in an effort to reach site closure in the near term. The 2024 groundwater monitoring results indicate that chlorinated solvent concentrations still slightly exceed water quality standards. Following the CERCLA-based process, a Proposed Plan including a public comment period and public outreach meeting, was finalized in October 2024. A Record of Decision will be prepared to formally document the selected remedy for groundwater at the site, followed by developing the specific technical approach for remedial action.

Former Wood Dump and Army Landfill: The former wood dump and former Army landfill were disposal facilities used by the Army between the 1940s to the 1970s. Following investigation activities completed in the 2000s, it was determined that environmental impacts were limited and mitigation efforts should focus on maintaining integrity of the landfill cap into the future. Maintenance inspections are conducted on a semiannual basis, and a record of decision will be prepared to formally document the selected remedy and long-term monitoring requirements.

PFAS Source Investigations: In October 2023, the Army submitted a PA Report identifying and evaluating areas of potential interest based on use, storage, or disposal

of potential PFAS containing materials, including AFFF. Due to the DoD PFAS site prioritization criteria, review of the PA Report has not been initiated during this funding cycle.

Human Right to Water

California Water Code section 106.3, subdivision (a) states that it is the policy of the State of California "that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitation purposes." On January 26, 2017, the Central Coast Water Board adopted Resolution No. R3-2017-0004, which affirms the realization of the human right to water and the protection of human health as the Central Coast Water Board's top priorities.

The DoD Program's priorities are aligned and consistent with Resolution No. R3-2017-0004 by focusing on ensuring drinking water impacted by pollution from DoD activities are properly investigated and remediated to restore the beneficial uses of groundwater with an emphasis on drinking water and the protection of public health in the central coast region. Additionally, the DoD Program is evaluating the DoD process for identifying impacts to water supply wells and notifying drinking water well owners and users, to ensure they are aware of potential threats to public health.

Environmental Justice

Environmental Justice principles call for the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income in the development, adoption, implementation, and enforcement of all environmental laws, regulations, and policies that affect every community's natural resources and the places people live, work, play, and learn. The Central Coast Water Board implements regulatory activities and water quality projects in a manner that ensures the fair treatment of all people, including underrepresented communities. Underrepresented communities include but are not limited to Disadvantaged Communities (DACs), Severely Disadvantaged Communities (SDACs), Economically Distressed Areas (EDAs), Tribes, Environmentally Disadvantaged Communities (EnvDACs), and members of Fringe Communities.[7]

[7] Disadvantaged Community: a community with an annual median household income that is less than 80% of the statewide annual median household income (Public Resources Code section 80002(e)); Severely Disadvantaged Community: a community with a median household income of less than 60% of the statewide average. (Public Resources Code section 80002(n)); Economically Distressed Area: a municipality with a population of 20,000 persons or less, a rural county, or a reasonably isolated and divisible segment of a larger municipality where the segment of the population is 20,000 persons or less with an annual median household income that is less than 85% of the statewide median household income and with one or more of the following conditions as determined by the department: (1) financial hardship, (2) unemployment rate at least 2% higher than the statewide average, or (3) low population density. (California Water Code section 79702(k)); Tribes: federally recognized Indian Tribes and California State Indian Tribes listed on the Native American Heritage Commission's California Tribal Consultation List; EnvDACs: CalEPA designates the top 25 percent scoring census tracts as DACs. Census tracts that score the highest five percent of pollution burden scores but do not have an overall

DoD Program cases are data driven and the military gives priority to projects that have the highest risk to human health and the environment. If there are impacts to drinking water wells or unsafe vapor intrusion conditions from a DoD case, the DoD gives priority to the project. In the Central Coast Region, two DoD facilities are adjacent to disadvantaged communities: Former Fort Ord is located adjacent to the City of Marina and Vandenberg Space Force Base is adjacent to Casmalia Hills.

Furthermore, the Central Coast Water Board is committed to providing all stakeholders with the opportunity to participate in the public process and provide meaningful input to decisions that affect their communities. If impacts to surface water or groundwater results from DoD facility discharges, Central Coast Water Board staff will help facilitate outreach and education to inform affected persons and connect them with available resources, especially underrepresented communities. DoD facilities also have site-specific Community Relation Plans that are followed to ensure there is appropriate outreach to the public.

Climate Change

The Central Coast faces the threat and the effects of climate change for the foreseeable and distant future. To proactively prepare and respond, the Central Coast Water Board has developed the Central Coast Water Board's Climate Action Initiative, which identifies how the Central Coast Water Board's work relates to climate change and prioritizes actions that improve water supply resiliency through water conservation and wastewater reuse and recycling; mitigate for and adapt to sea level rise and increased flooding; improve energy efficiency; and reduce greenhouse gas production. The Climate Action Initiative is consistent with the Governor's Executive Order B-30-15 and the State Water Board's Climate Change Resolution No. 2017-0012.

Consistent with the Governor's Executive Order and the State Water Board's Climate Change Resolution, the Central Coast Water Board prioritizes actions that address climate change adaptation and mitigation strategies to help reduce the resulting impacts to water quality. For example, Central Coast Water Board staff regularly consider climate change carbon impacts as a component of proposed DoD projects/activities, against the water quality benefits of prescriptive requirements.

The DoD Program considers carbon impacts from proposed investigation and remediation projects against the benefits that those proposed projects will provide relative to the carbon impacts. For example, if an excavation project will have a substantial number of trucks transporting soil from the site, the emissions from the trucks would be considered as one of the many factors as part of the project's feasibility study cost-benefit analysis when the remedy is selected. Sites that are in areas susceptible to flooding or sea level rise are also evaluated to determine if changes in investigation or remediation approaches are warranted, including whether to speed up

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CalEnviroScreen score because of unreliable socioeconomic or health data are also designated as DACs (refer to the CalEnviroScreen 3.0 Mapping Tool or Results Excel Sheet); Fringe Community: communities that do not meet the established DAC, SDAC, and EDA definitions but can show that they score in the top 25 percent of either the Pollution Burden or Population Characteristics score using the CalEnviroScreen 4.0.

the remediation timeline. Some of the ways climate change is being addressed at DoD sites includes the following: treated groundwater infiltration galleries to reduce seawater intrusion, solar-powered treatment systems, reducing waste disposal through clean versus impacted soil segregation and no-purge water sampling, travel reduction with video conferencing, and providing electronic deliverables.

For DoD cleanup sites subject to the CERCLA-required five-year review process, the potential impacts from climate change are considered. The five-year review process has a standard question asking if “any other information has come to light that could call into question the protectiveness of the remedy”. Specifically, from DAFs perspective, this question addresses “site changes or vulnerabilities that may be related to climate change impacts not apparent during remedy selection, remedy implementation or operations and maintenance (e.g., sea level rise, changes in precipitation, increasing risks of floods, changes in temperature, increasing intensity of hurricanes and increasing wildfires, melting permafrost in northern regions, etc.)."

CONCLUSION

The goal and priority of the DoD Program is to protect human health and the environment by reducing risk through the assessment and cleanup of cases in a collaborative, financially responsible, and expedited manner. DoD Program staff continued to prioritize work on the highest priority cases with the objective of achieving cleanup goals and closure, even though complete environmental restoration may take many years.

The Army and Air Force have made significant environmental restoration progress and are in the process of performing PFAS site inspections or remedial investigations at facilities in the central coast region.

The Central Coast Water Board’s role is to regulate these sites and oversee the implementation of requirements to ensure that waste contained in these facilities do not further impact surface water or groundwater. DoD Program staff will continue to evaluate their work through human right to water, environmental justice, and climate change lenses to identify and implement strategies that effectively address these important priorities.

FIGURE 1. MAP OF DOD FACILITIES IN THE CENTRAL COAST REGION