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

STAFF SUMMARY REPORT: Kimberlee West
MEETING DATE: May 8, 2024

ITEM: **9**

PFAS Investigations in the Site Cleanup Program

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Per- and polyfluoroalkyl substances (PFAS) are a group of over 14,000 synthetic chemicals commonly known as “forever chemicals.” They are structurally stable, so they do not degrade in the environment. They were invented in 1938 and are commonly used in consumer products and industrial processes. As a result, PFAS are widely distributed in the environment throughout the world. Toxicity studies show that some PFAS have serious effects on human and ecological health.

PFAS can be released from industrial facilities to surface water, soil, and groundwater through leaks and spills, wastewater discharges, solid waste disposal, and stormwater runoff. Stack emissions may result in aerial deposition of PFAS to soil and surface water (with subsequent leaching and infiltration to groundwater), as well as short- and long-range air transport of PFAS.

PFAS sampling data is needed to characterize PFAS in the environment. The Site Cleanup Program is currently investigating potential and known PFAS source sites. Figure 1 below is a map showing the sites in our region that have conducted PFAS investigations.

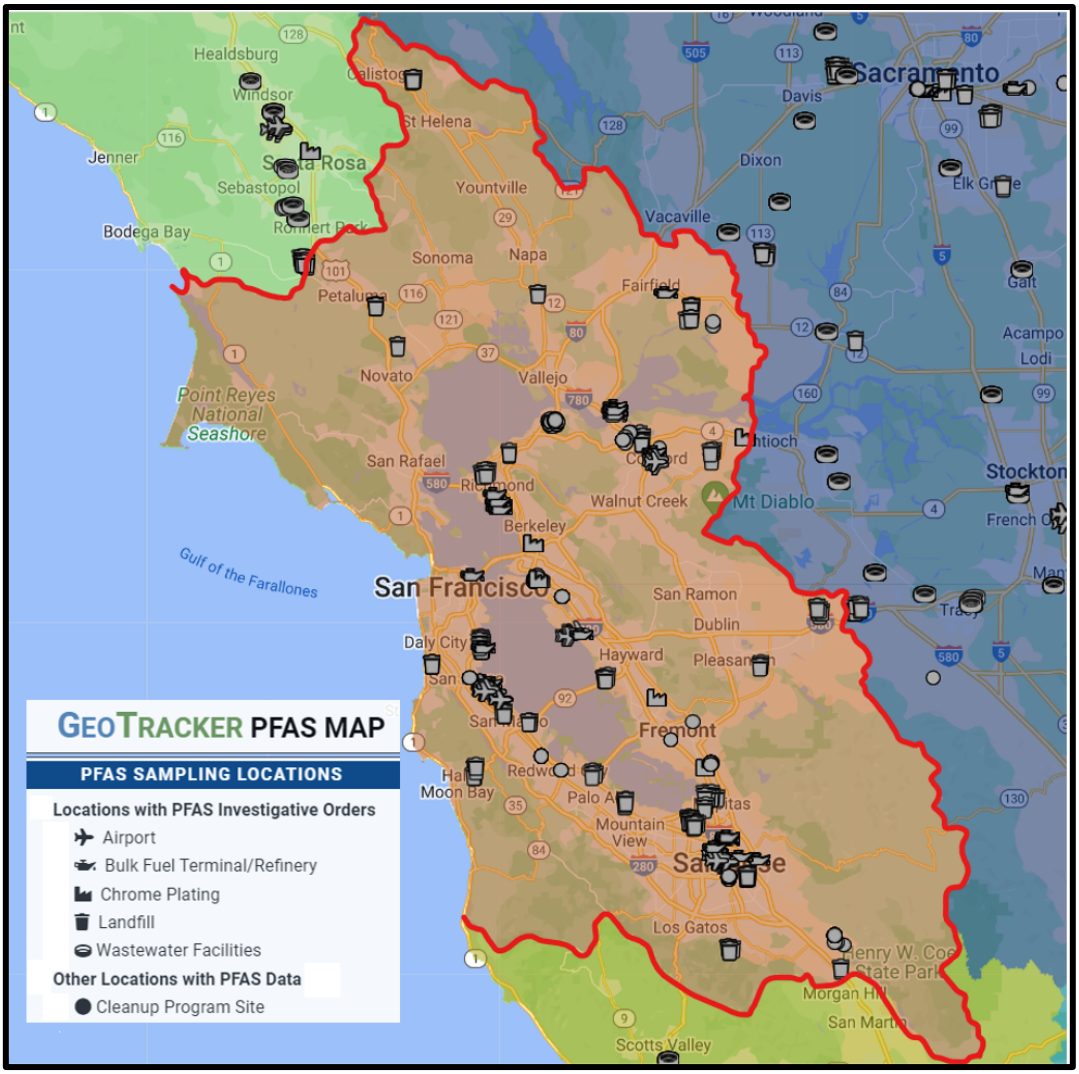

Figure 1: Cleanup sites within our region (orange) where PFAS data has been collected.

In 2019, the State Water Board began issuing PFAS Investigation Orders to facilities throughout the State based on a facility's historical or current operations. In our region, the State Water Board sent Orders to select airports (Order WQ 2019-0005-DWQ), refineries and bulk fuel terminals (Order WQ 2021-0006-DWQ), chrome plating facilities (Order WQ 2019-0045-DWQ), and landfills (Order WQ 2019-0006-DWQ). The Orders required property owners to conduct PFAS sampling to determine the presence or absence of PFAS at each site. Our region is managing 76 sites that received State Water Board PFAS Orders (included in Figure 1). All of the PFAS site information and data are available to the public through the State Water Board's interactive GeoTracker PFAS map (PFAS Map) (https://geotracker.waterboards.ca.gov/map/pfas_map).

In coordination with the Division of Drinking Water and local drinking water agencies, we have identified about 250 public drinking water supply wells in our region that have been sampled for PFAS. For context, there are about 2,250 public drinking water supply wells in our region. Of the 250 public supply wells tested, we identified about 150 that are impacted by PFAS, 65 of which have a PFAS compound that exceeds the federal maximum contaminant level (MCL). Most of the PFAS-impacted public supply wells are in the highly urbanized Livermore and Santa Clara

Valleys. Water purveyors use well-head treatment and blending to ensure that all drinking water meets water quality standards before it is distributed to the public. Many water purveyors are commissioning massive improvements or building new water treatment facilities to remove PFAS from their water supplies.

We established a multi-divisional team to track the impacted supply wells in our region and identify potential source sites in the vicinity of the impacted supply wells. To date, the team has identified 25 to 30 potential source sites in the vicinity of PFAS-impacted supply wells. These include fire stations, fire training areas, and other industrial facilities likely to have used, stored, and/or discharged PFAS in proximity to impacted public drinking water supply wells, and groundwater infiltration ponds that recharge drinking water aquifers. We are working with the owners and operators of these sites to develop effective sampling strategies for source evaluation and will use the results to determine next steps, including contaminant plume delineation and cleanup, as appropriate.

Our PFAS investigation strategy has two components. First, we are considering when to require industrial facilities that may have used, stored, or discharged PFAS to conduct initial sampling to determine if PFAS is present in the soil and groundwater. Second, we are prioritizing further investigation based on PFAS concentrations in soil and groundwater and the site's proximity to a receptor such as a supply well or aquatic habitat.

Some preliminary conclusions can be drawn from the PFAS data that has been collected in our region to date. Refineries and bulk fuel terminals tend to have the highest concentrations of PFAS as compared to airports, chrome platers, landfills, and other types of cleanup sites. Maximum concentrations of PFAS found in groundwater are up to five orders of magnitude greater than drinking water MCLs.

Although most cleanup sites are in the investigation phase for PFAS, some have moved toward interim remedial measures. The full-scale remediation technologies that are currently available are predominantly pump-and-treat technologies that remove PFAS from groundwater and subsequently generate concentrated PFAS waste. Technologies that can completely destroy PFAS are not yet commercially available for full-scale application but are being developed and tested.

We continue to increase our PFAS data collection efforts at cleanup sites to advance our conceptual site model of PFAS contamination in our region. As PFAS are detected at more sites, the number of PFAS sites in the Site Cleanup Program will increase and our prioritization strategies will become even more important.

Our presentation will include additional information regarding the status of PFAS investigations and remediation in the Site Cleanup Program.