



TICKING TIME BOMB:

**CLIMATE CHANGE, SEA LEVEL AND GROUNDWATER RISE,
SHORELINE CONTAMINATION,
AND ENVIRONMENTAL JUSTICE IN THE
SAN FRANCISCO BAY AREA**

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I. INTRODUCTION

As climate change is causing sea levels and groundwater to rise, many already vulnerable communities along the San Francisco Bay shoreline are at serious risk of having toxic and radioactive contaminated soil and groundwater flood further into their communities and into the Bay.

At the Hunters Point Naval Shipyard Superfund Site in Bayview Hunters Point, San Francisco, one of the most contaminated sites in the United States, the so-called remedies chosen to “cleanup” the site include leaving significant amounts and high levels of radioactive and hazardous waste buried and capped at the Bay shoreline. A groundbreaking report recently released by the San Francisco Civil Grand Jury about this very issue ("Buried Problems and a Buried Process: The Hunters Point Naval Shipyard in a Time of Climate Change") clearly states that “The intersection of rising groundwater and buried contaminants poses a credible risk to human health and well-being. Given the rapidity with which the climate is changing, the City needs to take immediate and sustained action to protect its residents” (SF Civil Grand Jurors, 4).

The environmental disaster and the threat posed by climate change induced rising groundwater and sea levels at the Hunters Point Naval Shipyard is not an isolated or unique problem. The same problem and government malfeasance is taking place at Treasure Island in the middle of San Francisco Bay, where the Navy also heavily contaminated the area with toxic and radioactive waste. Dozens of other legacy contaminated sites and Superfund sites along the San Francisco Bay shoreline are also at risk of being impacted by sea level and groundwater rise, as the government fails to address the imminent danger that climate change poses to shoreline contamination sites, communities, and our San Francisco Bay.

Almost all agencies responsible for cleaning up contaminated sites in California have not yet analyzed the latest scientific projections on rising sea levels and groundwater or incorporated that information into their “cleanup” remediation plans. The only agency document that has begun addressing sea level rise when remediating a contaminated site is DTSC’s 2023 Draft Sea Level Rise Guidance for Project Managers [<https://dtsc.ca.gov/wp-content/uploads/sites/31/2023/02/DTSC-SLR-GUIDANCE-February-2023.pdf?emrc=f15678>]. Remediation and ‘cleanup plans’ for contaminated sites often include capping, which only covers the contamination from above, typically using cement or a type of biological membrane, like soil or clay. Partial “cleanups” that leave and cap large amounts of toxic and radioactive contamination at or near the shoreline are irresponsible and a recipe for disaster as rising sea level and groundwater will eventually inundate and flood the contaminated sites. It is time for the California Environmental Protection Agency, Department of Toxic Substances Control, Regional Water Quality Control Board, US Environmental Protection Agency, and the US Navy to use science rather than expediency when deciding how to remediate and clean up radioactive and toxic waste contaminating our communities and the San Francisco Bay.

This report provides 50 case studies of contaminated sites near the San Francisco Bay shoreline that need to be completely and properly cleaned up in order to protect the health and safety of surrounding communities and the Bay. While these case studies do not encompass all the

contaminated sites around the San Francisco Bay, these sites were selected in an effort to capture sites of diverse location, types of contamination, and cleanup status. The information of these case studies is publicly available; however, it is not typically easily accessible for the public, as it sourced from multiple databases and government agencies. This report synthesizes the important information from all these government databases in order to make the findings easily accessible and practical for the community. The intention of this report is to inform communities and equip them with knowledge about contaminated sites in their area and around the Bay, so they can demand the most effective and remedies possible to protect public health and the environment.

II. BACKGROUND

Sea Level Rise and Groundwater Rise

Sea levels are rising due to melting glaciers as well as the warming of the earth, which creates a larger volume of water in the oceans. Groundwater rise can occur near the shoreline along with sea level rise. Groundwater rise pushes fresh water up and raises the water table (See **FIGURE 1**).

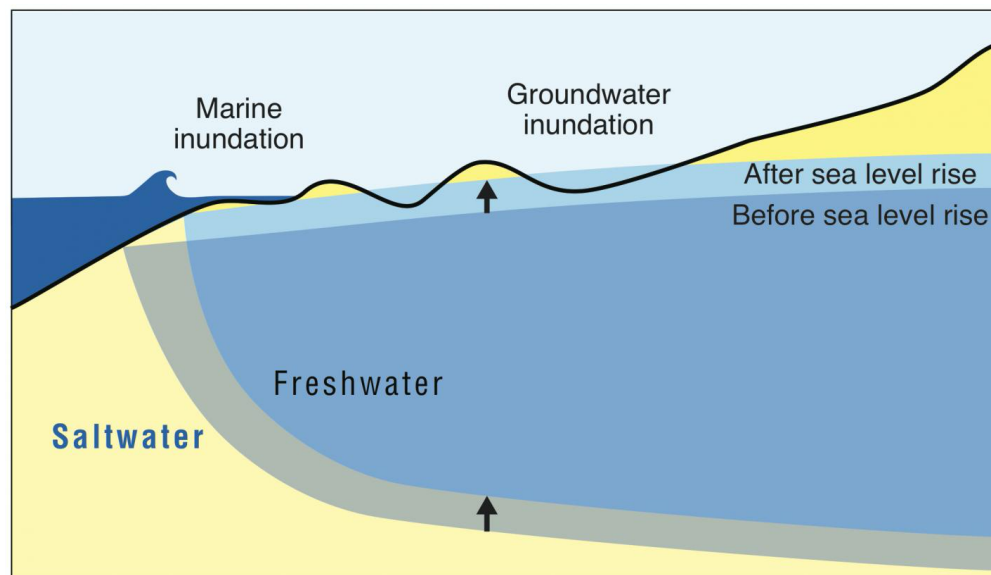


FIGURE 1: This image shows how sea level rise lifts freshwater, causing groundwater inundation in low-lying areas near the shoreline. [SOURCE: UHM Coastal Geology Group]

Sea levels are rising globally at an ever increasing rate. According to the International Panel on Climate Change (IPCC), “Global mean sea level has risen faster since 1900 than over any preceding century in at least the last 3000 years” (IPCC 9). California’s Ocean Protection Council’s (OPC) sea level rise report from 2022 states “SLR adaptation planning should include pathways to resiliency to 3.5’ by 2050 and 6.0’ by 2100 (OPC, 2022). The California Coastal Commission and the Port of San Francisco have stated that adaptation planning should account for up to 7 feet of sea level rise by 2100 (CCC and SF Port). The California Coastal Commission

(CCC) also reports that “coastal impacts from climate change-caused SLR [sea level rise] will occur more quickly and be more severe than previously projected” (CCC 1). Sea-level rise poses the most risk to coastal communities, as they will be the most directly impacted and the most severe threat is to the low-income, working class, and people of color communities that already face environmental injustice.

The Department of Toxic Substance Control (DTSC) released a draft “Sea Level Rise Guidance to DTSC Project Managers for Cleanup Activities” in February 2023 that identifies the DTSC as a lead agency on many local clean-up projects and finally addresses the need to use the best available science regarding sea level rise and groundwater, specifically in the presence of shoreline contamination. This long-awaited and overdue DTSC Sea Level Rise Guidance for cleanup activities at contaminated sites is welcome and a positive first step to respond to concerns raised by Greenaction and community residents for several years. Until this report, the DTSC had been ignoring the threat posed by rising sea levels and groundwater to shoreline contamination sites including the Hunters Point Naval Shipyard Superfund Site in Bayview Hunters Point. It is important that the DTSC finally follows science and their new guidance, in decisions wherever climate change impacts threaten public health and the environment.

The Port of San Francisco released seven Draft Waterfront Adaptation Strategies in February 2023 in an effort to address climate change induced sea level rise in San Francisco and natural disasters [i.e. earthquakes, extreme storm events]. The seven different strategies range from no action in response to these risks to advanced shoreline adaptation efforts. The Draft Waterfront Adaptation Strategies website [<https://sfport.com/wrp/waterfront-adaptation>] states that the intent is not to choose just one of the seven Strategies but to use the best ideas from all of them. While this is an important step, they are lacking an acknowledgment of groundwater rise as a result of rising sea levels in the Bay, which is a detrimental gap in this work.

Sea-level rise will also pose major risks through groundwater rise. Principally, sea-level rise will raise coastal water tables and flood communities from below, threatening shallow infrastructure and coastal ecosystem resilience (Befus et al. 946). The current remediation methods and regulations for enforcing contamination clean up efforts “do not consider the potential for rising groundwater tables, which can remobilize contaminants, creating a new exposure pathway for humans and the environment. At present, this potential risk remains largely unexamined” (Christine 2). Sea level rise will trigger groundwater rise from below causing saltwater to mix with freshwater and depleting sources of freshwater (Befus et al. 946). Emergent groundwater puts the densely populated Bay Area at risk of increased contamination and has serious implications for the approach and urgency of climate adaptive planning (Christine 1).

Kristina Hill, a University of California Berkeley Professor who studies groundwater rise, found that rising groundwater can infiltrate underground pipes, alter foundations, require underground waterproofing, remobilize old soil contaminants, emerge as surface water, and cause flooding (Hill 7). She also concluded that, “With 1 meter of sea level rise, we can expect to see about 18,000 acres of flooded land (saltwater). [Their] map analysis shows that about 26,000 additional acres are at risk of flooding from freshwater groundwater, rising up through the soil. Even if we build walls and levees to protect from saltwater, groundwater flooding could still affect as much

as 37,000 acres of what today is dry land.” (Hill 22). These localized, Bay Area focused studies are essential to pay attention to and acknowledge in urban planning and by government agencies.

Groundwater rise, alongside sea level rise, can mobilize contamination on the shoreline and harm the surrounding communities and environment. This issue of shoreline contamination being remobilized by emergent groundwater is understudied and many are working to further understand the severity of this problem. The studies currently available on this topic also call for additional research, specifically from government agencies that have the power to manage site remediation methods. One of the most recent groundwater studies, prepared by the Pathways Climate Institute and San Francisco Estuary Institute published January 2022, highlights how “current remediation regulations consider a static climate, meaning they do not consider a rising groundwater table” and as a result, “regulations, remediation methods, and institutional controls will need to be revised to consider a nonstationary climate to allow the SWRCB, SFBRWQCB, and DTSC to continue serve their respective missions of protecting the environment and public health” (May CL et al. 9). “Traditional levees and floodwalls designed to keep coastal flood waters out may not provide protection from rising groundwater, leaving communities at risk of flooding from below” (May CL et al. 27). This report echoes the urgent need for further government-supported research on the impacts of groundwater rise, especially in contaminated shoreline communities, in all nine Bay Area counties.

Toxins and Sea Level Rise

In the face of sea level rise projections and climate change scenarios, shoreline contamination is at risk of mobilizing and causing further harm to the surrounding communities. The contamination, historical and recent, along these shorelines surrounds residential and urban areas, putting those communities at risk. Contaminants that are left in the ground in the face of sea level rise have the potential to remobilize and can mix with other contaminants which could alter their original state in order to create secondary and continued contamination that is different from the contaminants primary state and characteristics (Bardos et al. 2). It is possible that the secondary contamination may be more toxic than the original contamination, but not certain. For example, when some chemicals mix with saltwater, they can go through a chemical reaction that creates dangerous acids, such as sulfuric acid (Richmond Southeast Shoreline Area Community Advisory Group). Increased storms, flooding, and extreme high tides also exacerbate the impacts of sea level rise and, consequently, the spread of contamination.

It is important to note that, while some sites have been “remediated” or are in the process of remediation, many current clean-up plans used by the California Department of Toxic Substances Control, the Regional Water Quality Control Board, and the US EPA include plans to leave toxic and radioactive waste capped at sea level. This buried and covered hazardous waste is still vulnerable to the impacts of sea level and groundwater rise, as many studies have repeatedly shown. This report is just a snapshot of the many sites that burden the health of communities and the Bay. As San Francisco Baykeeper aptly explains, “Hundreds of active industrial sites and over 1,000 known or likely contaminated historic sites will be subject to flooding with a 1 meter (~3 foot) rise in sea levels” (San Francisco Baykeeper 1).

Why is this a health and Environmental Justice issue?

Contamination and radioactive waste on the shoreline is an extremely dangerous public health issue due to the rising sea level and projected groundwater rise in the San Francisco Bay. The government continues to support inadequate cleanup plans that do not protect public health and safety. This is an environmental justice issue because many of the contaminated sites along the shoreline are home to communities of color and lower income communities.

Communities of color are subject to environmental racism, which is can be defined as the institutional rules, regulations, policies or government and/or corporate decisions that deliberately target certain communities for locally undesirable land uses and lax enforcement of zoning and environmental laws, resulting in communities being disproportionately exposed to toxic and hazardous waste based upon race. Because of this, communities of color are more likely to experience asthma, low-birth weights, cardiovascular disease, and shorter life expectancies because they often face multiple environmental and socio-economic burdens that are referred to as coupled effects or cumulative impacts. Cumulative impacts are defined by the Office of Environmental Health Hazard Assessment as, “the exposures, public health or environmental effects from the combined emissions and discharges, in a geographic area, including environmental pollution from all sources, whether single or multi-media, routinely, accidentally, or otherwise released” (Adams and Denton 3).

Current Government Strategies for “Remediation” of Contaminated Sites:

Unfortunately, many government regulatory agencies use inadequate and often dangerous technologies and approaches to “remediate” and “manage” toxic and radioactive contamination sites. Several of these so-called remedies such as incineration (including on-site “thermal oxidation” treatment units) are not safe as they are a threat to public health and the environment through routinely emitting dangerous toxic chemicals into the air.

In many situations, government agencies or the polluter will excavate contaminated soil and other toxic waste and ship it for disposal to one of the two commercial hazardous waste landfills in California. This approach is also unacceptable, as both the Kettleman Hills landfill and the Clean Harbors Buttonwillow landfill are operating in Latinx farmworker communities on permits that expired many years ago and were issued with illegal racially discriminatory processes including police intimidation of residents. These landfills are not an environmentally just option, as the communities living next to these landfills already bear a disproportionate burden from the waste disposal facilities and other pollution sources including diesel trucks and pesticides.

Equally unacceptable is the growing practice of toxic waste being shipped to out-of-state landfills that were designed for garbage (municipal solid waste) and not for hazardous wastes.

In many instances (including at the Hunters Point Naval Shipyard Superfund Site) government agencies set “remediation” goals that include leaving significant amounts of contaminated soils and/or materials on site, often right next to where current and future residents will live, work, and play.

A remediation method frequently used to supposedly “manage” contamination is called “Capping”, where a barrier is placed on top of contaminated material as a means to attempt to isolate and contain contaminants to avoid the spread of contamination. Caps are usually made out of a layer of cement, clean soil, vegetation, clay or a mixture of these materials. A cap may temporarily isolate contamination from above, depending on the toxicity of the contamination and other factors. Eventually, however, caps erode or develop cracks that can result in leakage into the environment through the air or spread by water.

Capping has frequently been used along the shoreline of San Francisco Bay and other contaminated sites. It is proposed to play a major role at the Hunters Point Shipyard Superfund Site in Bayview Hunters Point, San Francisco, on Treasure Island, at the Astra-Zeneca site in Richmond, and many other sites on and near the shoreline of San Francisco Bay. Major concerns have been raised by community members, environmental justice advocates, academics and some government officials who point out that caps will be ineffective against rising sea levels and rising groundwater resulting from climate change.

The Failure of Government Agencies to Protect Public Health and the Environment

The California Coastal Commission calls for “California state agencies with coastal, bay, and shoreline climate resilience responsibilities, including for coastal infrastructure and Californians’ safety, [to] endorse the following Principles around Best Available Science, Partnerships, Alignment, Communications, Local Support, and Coastal Resilience Projects” (1). Yet, in the two years since this report was released, agencies responsible for cleaning up contaminated sites in California have not adequately implemented these principles in their cleanup plans.

The United States Environmental Protection Agency, California EPA’s Department of Toxic Substances Control, the Regional Water Quality Control Board, and the US Navy have all failed to consider the latest science on groundwater and sea level rise projections in developing their contamination cleanup plans. The San Francisco Civil Grand Jury’s report released in June of 2022 criticized the City and government agencies of failing to consider these climate change impacts when deciding to leave significant amounts of contamination buried at the shoreline.

Failure to use the best available and most accurate science in cleaning up contaminated sites violates the principles of environmental justice and poses major risks to the environment of San Francisco Bay and the health of nearby communities.

Thanks to advocacy from Greenaction and many community, environmental justice, climate, and environmental allies, government agencies are now having to respond to the call for them to reconsider “cleanup” plans that were developed without considering the latest climate science. Even the Bay Conservation and Development Commission’s 2021 Bay Adapt Joint Platform report mentions the risks associated with flooding and exposures to toxic substances in shoreline communities. However, there is no mention in this report or elsewhere as to how this critical issue will be addressed. None of these current government plans incorporate the need to completely clean up radioactive and hazardous waste buried or abandoned at contaminated sites along the shoreline of the San Francisco Bay. Recent research around sea level rise and legacy

contamination has found that “Many environmental justice communities will confront long- and short-term complications as a result of the potential interaction between climate change impacts and existing contaminants found in those communities” (Perez and Egan 1). These environmental justice communities are already disproportionately burdened by environmental issues, including exposure to toxic and hazardous waste. In addition, these communities are often low-income communities of color (Perez and Egan; Huang and London; Morello-Frosch et al.).

The recent groundbreaking report from the San Francisco Grand Jury further emphasized how current clean-up plans of the Hunters Point Naval Shipyard fail to account for groundwater rise, specifically drawing attention to the failures of presiding government agencies. The report states, “The Civil Grand Jury began this investigation with a question about the potential impact of groundwater rise due to climate on the future of the shipyard... The Jury learned that experts believe the Shipyard’s soil and topography make it very likely that shallow groundwater there will be strongly affected by sea level rise... [The groundwater] could interact in dangerous ways... with hazardous toxins the Navy plans to leave buried in the soil. We wanted to know if this new science and these risks had been taken into account by the City, by OCII, or by the Navy and its regulators. We found that they had not.” (SF Civil Grand Jurors, 3). The Civil Grand Jury consulted with several officials at regulatory agencies regarding whether current clean-up plans included the impacts of rising groundwater levels. The report notes, “All [officials] confirmed that, aside from some glimmers of awareness at regulatory agencies, groundwater rise has not yet been meaningfully considered in the cleanup at the Hunters Point Shipyard.”

Why Is This Important?

If government agencies fail to consider science and thus fail to comprehensively clean up toxic and radioactive contamination along the San Francisco Bay, contamination will be inundated and spread into the Bay and further into communities already at risk from pollution. This is nothing less than a ticking time bomb, threatening the health of the Bay ecosystem and of hundreds of thousands of residents living near contamination sites.

III. METHODS

For this report, we utilized databases from multiple state agencies including California’s Department of Toxic Substances Control (DTSC), the California Water Resources Control Board (RWQCB), and the California Office of Environmental Health Hazard Assessment (OEHHA) to identify and research contaminated sites along the San Francisco Bay. DTSC’s [EnviroStor](#) database and RWQCB’s [GeoTracker](#) database were used to identify sites that are located in close proximity to the Bay and have high levels of contamination. OEHHA’s [CalEnviroScreen](#) database was used to determine if sites are located in historically marginalized communities with high levels of pollution exposure. In this report, we focused on Federal Superfund and State Response sites located within 1,000 meters of the San Francisco Bay’s shoreline in communities where many have high levels of exposure to pollution and contamination.

EnviroStor and GeoTracker

To select contaminated sites to investigate, we used EnviroStor and Geotracker. EnviroStor is the California’s Department of Toxic Substance Control’s public data collection and management

system that helps in tracking contaminated sites in regards to cleanup, permitting, enforcement, and investigation. We also used Geotracker, the California Water Resources Control Board's public data collection, to locate information on sites that have the RWQCB as their lead cleanup agency. The RWQCB manages the cleanup of contaminated sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. It is important to note that DTSC's EnviroStor database and the Waterboard's GeoTracker database do not communicate. Therefore, neither database is complete, and we had to utilize both databases to create a comprehensive picture of contamination around the San Francisco Bay.

Sites for this report were selected based on proximity to the Bay and pollution burden on the surrounding community. The sites included in this report are located within 1,000 meters of the San Francisco Bay's shoreline and in historically marginalized communities with high levels of pollution exposure. Each database categorizes contaminated sites using different criteria. The majority of the sites we chose are classified as "Federal Response," "State Response," or "Voluntary Cleanup" on CalEnvirostor, as well as "Cleanup Program Sites" on Geotracker. Many of these sites in this report are on the National Priorities List (NPL), more commonly known as the Superfund List. This means they are sites of national priority among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. In locating sites through each system's mapping software, we compiled a list of contaminated sites – all of which contained data regarding the profiles of the site and surrounding communities.

From the profiles of each site, obtained from EnviroStor, GeoTracker, or the EPA website, the site's address, proximity to the bay in meters, site size, status, site type, facility type, the oversight agencies involved, whether or not the site is currently on the National Priorities List, years of activity, type of contamination, and contaminants of concern were inputted to each case study. We then used documents and summaries on Envirostor, Geotracker, and the US EPA website to summarize the site history, site remediation and status and overview of "clean up," and the future plans for site remediation.

Disclaimer on the Information Provided in the Case Studies: Much of the data and information used for the case studies comes directly from government agency's websites and, as highlighted in this report, these agencies have historically failed communities and utilized inadequate clean up practices and procedures. This does not mean that the information provided is unfactual, but it may not align with the perspective of Greenaction. Greenaction does not support certain language used in the remediation plans for various sites and may not agree with some of the information they provide, i.e. when the site profile claims the site is cleaned up when we know they have left waste capped on the shoreline. Also, many site profiles on these government databases contained outdated and/or incomplete data leading to site profiles that haven't been updated in years. More accurate and up to date information on these sites is needed to provide a comprehensive review of the current remediation status.

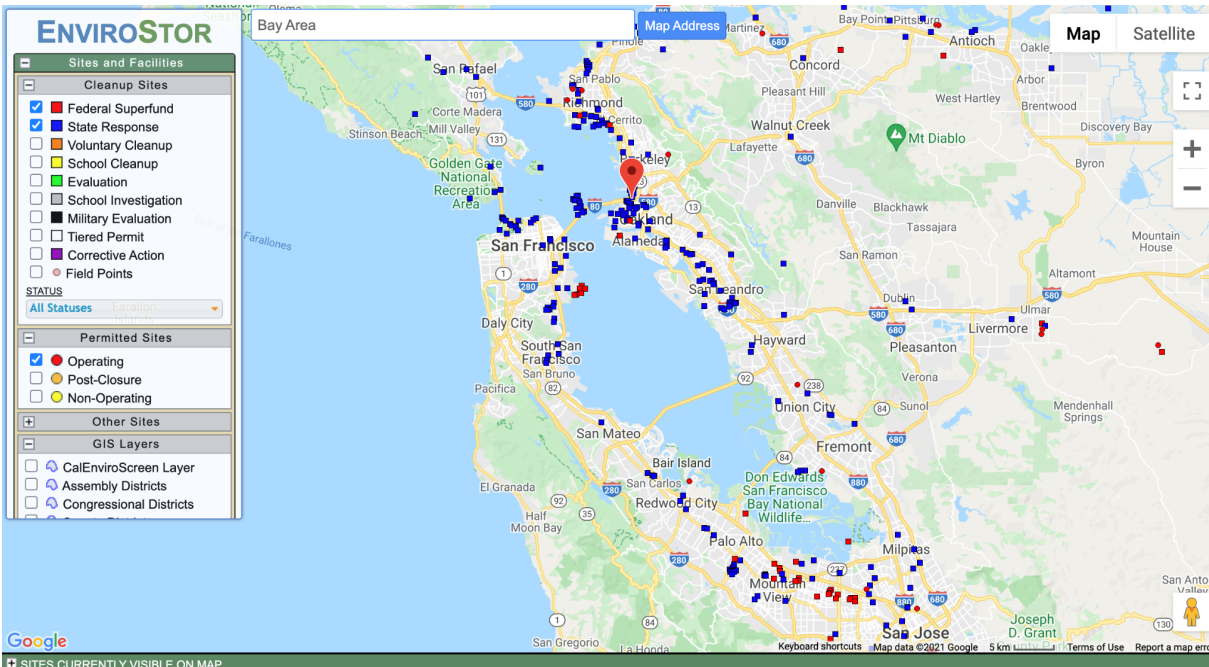


FIGURE 2: This is a map of the Active Federal Superfund and State Response sites along the San Francisco Bay. Federal Superfund sites are represented by a red square and State Response sites are represented by a blue square. This map was obtained from EnviroStor.



FIGURE 3: This is a screenshot of the [Zeneca site's profile](#) obtained from Envirostor. More information on Zeneca can be found in Case Study 49 on page 163.

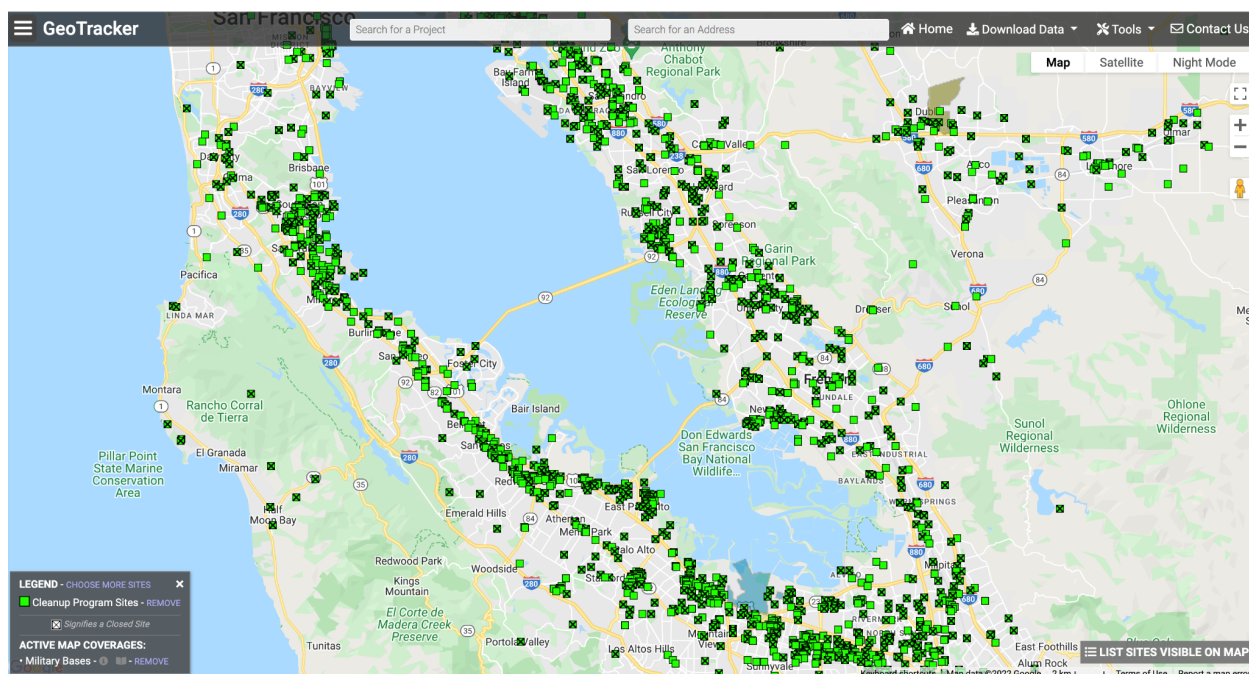


FIGURE 4: This is a map of the Cleanup Program Sites on the GeoTracker database. Cleanup Program Sites are represented by a green square. Green squares containing an X represent Closed Sites. This map depicts the southern portion of the San Francisco Bay Shoreline.

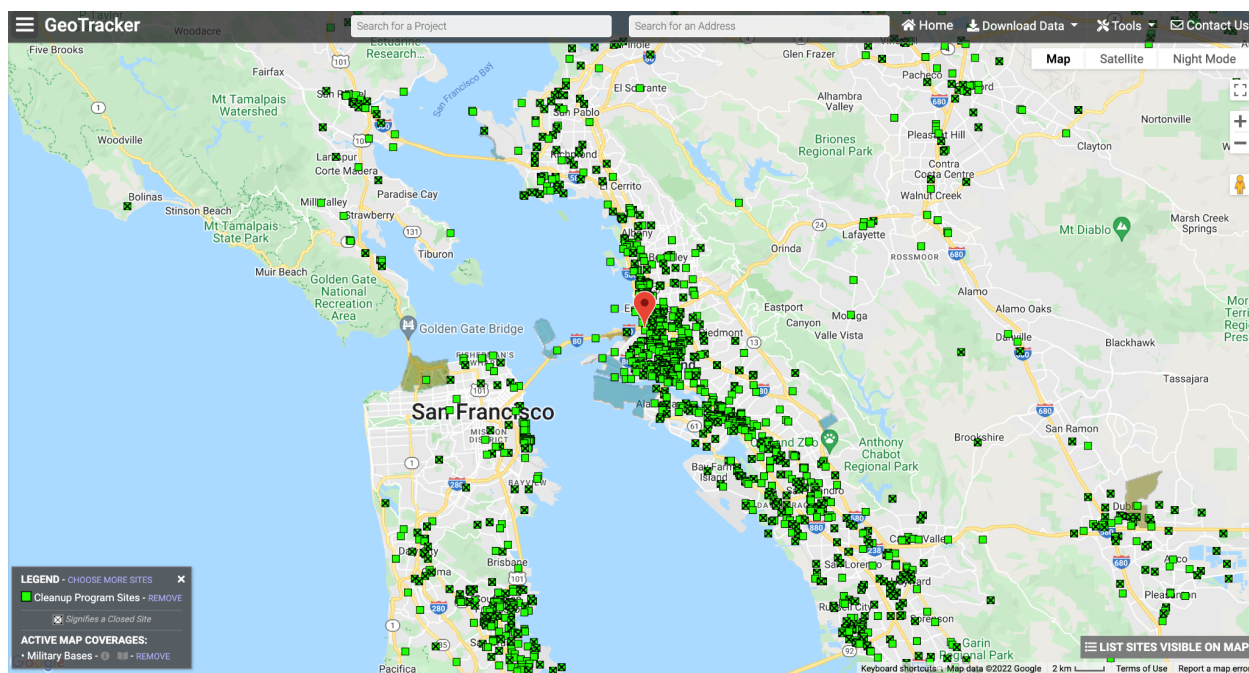


FIGURE 5: This is a map of the Cleanup Program Sites on the GeoTracker database. Cleanup Program Sites are represented by a green square. Green squares containing an X represent Closed Sites. This map depicts the northern portion of the San Francisco Bay Shoreline.

CalEnviroScreen 4.0

Developed by the Office of Environmental Health Hazard Assessment (OEHHA), CalEnviroScreen includes an online mapping tool, a supplemental race analysis, and documents related to specific sites. CalEnviroScreen analyzes data on environmental, public health, and

socioeconomic conditions in California's 8,000 census tracts to provide a clear picture of cumulative burdens and vulnerabilities in communities throughout the state. The CalEnviroScreen Score is a percentile rank given to each California census tract in relation to all of the other census tracts in California, based on Pollution Burden (average of exposures and environmental effects) and Population Characteristics (average of sensitive populations and socioeconomic factors).

Included at the end of each case study is a community profile summarizing the characteristics of the community in which each site is located and the data present on CalEnviroScreen. The characteristics in the community profile include the following information: if the contamination site is surrounded by residential or industrial areas, if the municipality is urban or rural, the demographics of the surrounding community, the census tract number, and the population. Using CalEnviroScreen 4.0, we then obtained specific data on the census tract in which each site is located. In addition to taking the overall CalEnviroScreen score, we pulled the individual Pollution Burden and Population Characteristics scores and all the relevant indicators that make up these scores. Relevant indicators for the Pollution Burden score include Notable Exposure Percentiles (Particulate Matter 2.5, Diesel Particulate Matter, Toxic Releases, Drinking Water, Ozone, Traffic, Lead from Housing, Pesticides), and Notable Environmental Effects (Cleanup sites, Groundwater threats, Hazardous waste, Solid Waste, Impaired water). Relevant indicators regarding the Population Characteristic score include Sensitive Population Indicators (Asthma, Low Birth Weight, Cardiovascular Rate), Notable Socioeconomic Factor Percentiles (Education, Linguistic Isolation, Poverty, Unemployment, Housing Burden), and Demographics/Community Profile (Race/Ethnicity, Age).

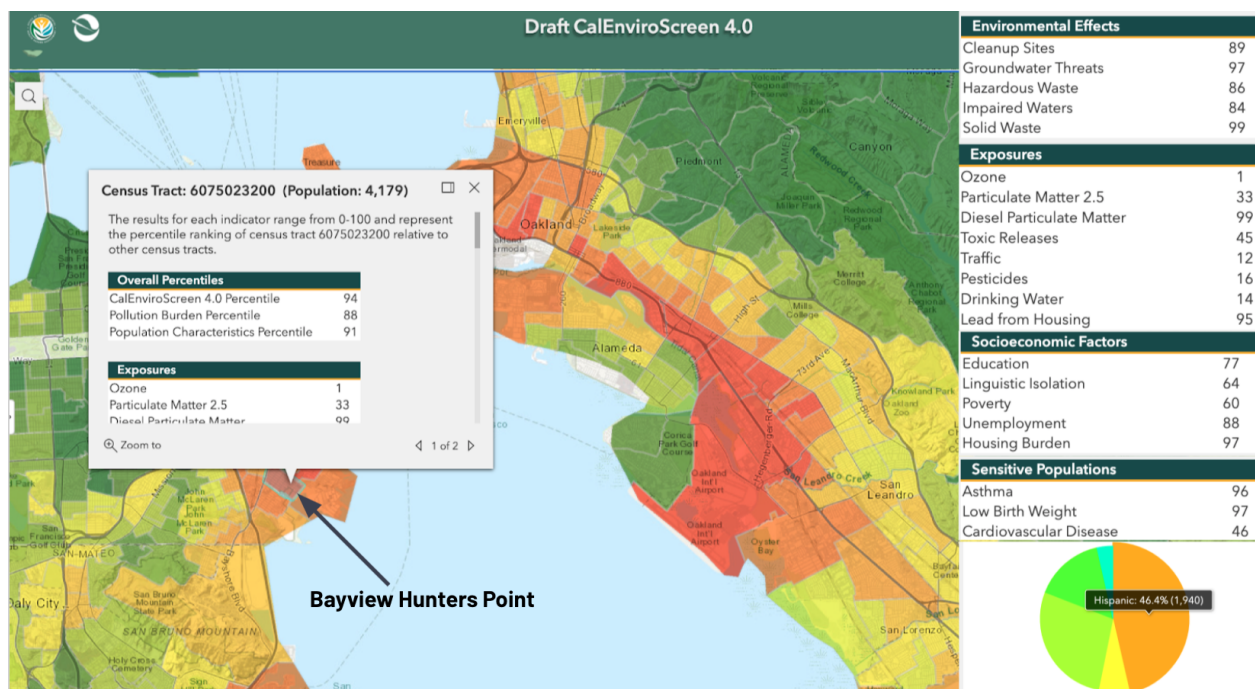


FIGURE 6: This is a screenshot of the [CalEnviroScreen 4.0](#) database. This image depicts data from the 6075023200 census tract located in Bayview Hunters Point. Data cut off in the gray box was pasted to the right of this image.

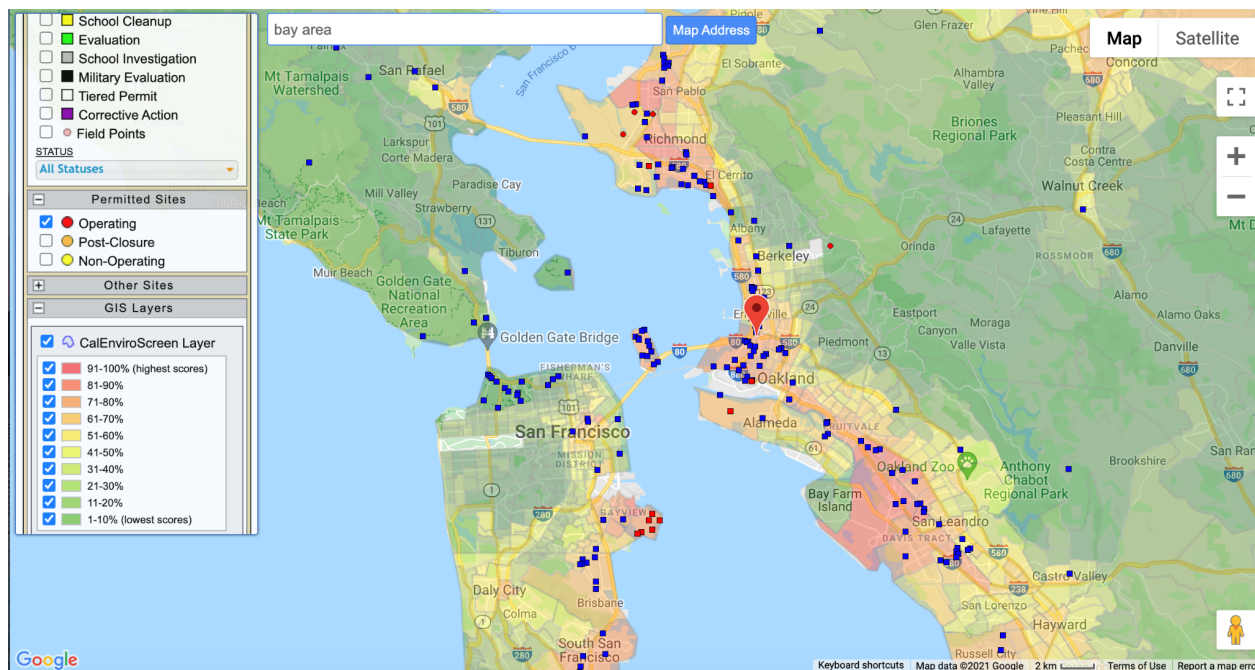


Figure 7: This is a map of the Envirostor database with the CalEnviroScreen GIS Layer. Using the CalEnviroScreen layer you can see the CalEnviroScreen Score for different censuses where Active Federal Superfund and State Response sites are located. Federal Superfund sites are represented by a red square and State Response sites are represented by a blue square.

IV. SUMMARY OF FINDINGS

In an effort to synthesize information across multiple government databases, these case studies highlight the failure of government agencies to conduct comprehensive cleanups of contamination in shoreline communities along the San Francisco Bay, particularly low-income, working class and communities of color that are already heavily impacted by pollution. Current cleanup plans do not take into account the latest sea-level rise or groundwater rise projections. Unfortunately government agencies seem to prioritize the interests and profits of corporate developers even when a toxic threat remains.

Capping of contamination is being used and proposed for “remediation” at many of the sites, despite the fact that rising groundwater and rising sea levels threaten to inundate and flood the contamination from above and below.” Placing a cap (cement and/or other materials) over contamination is less costly than dredging contaminants, however as caps erode and become inundated due to rising sea levels and rising groundwater, contaminants will spread the pollutants further into neighborhoods and the Bay.. Capping of contamination will not prevent inundation from rising groundwater caused by climate change and rising sea levels

We also see that many of the cleanup plans studied lack comprehensive information on recent cleanup activities, include outdated documents, and do not use accurate sea and groundwater rise projections. While these plans are not updated with the latest science and current documents, in many cases they still include plans for development. If cities continue to plan development at these sites before they conduct comprehensive cleanup, more residents will be harmed by both the existing pollution at these sites and threat of pollution due to rising sea and groundwater in the future.

While many of these sites state that they will take new information into account during the “5 year review process,” it becomes immensely harder to clean up waste and protect communities after a site has undergone plans for development, especially if that contamination has already spread, since effective caps only prevent contact with contamination from the top.

Environmental Health Projections

In this report, we collected data on the 50 case studies using CalEnviroScreen, which provides percentile rankings based on the designated census tract of the site. Of the sites examined for this report, the averages are 64.8 for the CalEnviroScreen Percentile, 75.3 for the pollution burden percentile, and 54.1 for the characteristics percentile. Of the sites examined for this report, 38 of the 50 had a CalEnviroScreen percentile ranking above 50, meaning that 50 percent of census tracts in California have fewer environmental pollution burdens and sensitive population characteristics than these 38 sites.

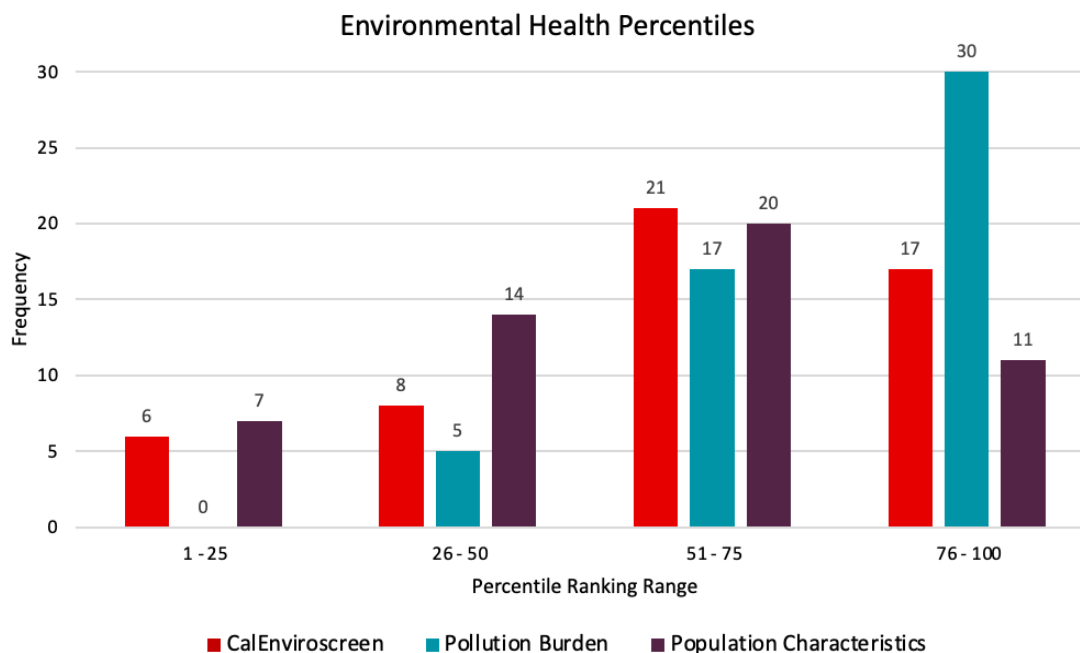


Figure 8: This graph depicts the frequency of CalEnviroscreen, Pollution Burden, and Population Characteristics scores in each score range for the contamination sites included in this report.

Findings on Top Contaminants

The most prevalent contaminants that were found in the 50 case studies examined for this report were: lead, petroleum, volatile organics compounds (VOCs), poly-chlorinated biphenyls (PCBs), and arsenic. These top 5 contaminants are classified as most prevalent because they appeared the most frequently in the sites examined for this report. The prevalence of the five contaminants was found by going through each case study and counting the presence of each contaminant. Out of the 50 contaminated sites, 29 of them had lead, 29 had petroleum, 22 had VOCs, 21 had PCBs, and 20 of the sites had arsenic. Below is a brief description of the top five contaminants found.

Lead Lead (Pb) was the tied as one of the most prevalent contaminants, found in 29 of the 50 case studies and is an extremely dangerous and toxic contaminant that historically had many common household and industrial uses. Lead has been historically released into the air through leaded gasoline, industrial smelting, and dust from lead paints. Lead can be found in the air, water, and soils; airborne lead can be transported long distances before it lands on the ground and sticks to soil particles which then allows lead to leach into groundwater (ATSDR, b). In almost all of the case studies lead was identified in, it showed up as a metal [inorganic compound], as opposed to an organic compound, which is considered to be more toxic because it “can be absorbed through intact skin and are more toxic to the brain and central nervous system than inorganic lead” (HCLPP). Only one source of organic lead showed up in the case studies [in Alameda NAS] and it was the result of historical leaded gasoline pollution that contains tetraethyl lead.

Lead poses the greatest risk to children exposed to it. Children are more vulnerable to exposure because of natural behaviors that increase lead ingestion, such as the increased chance of hands in the mouth, and because their gastrointestinal absorption [pertaining to the stomach and intestines] of ingested lead is higher than in adults, possibly due to a combination of physiological differences [different organ sizes] and differences in diet and nutrition (ATSDR, b). For both children and adults, lead can affect almost every organ in the body, especially the nervous system (ATSDR, b). Long-term lead exposure can lead to low iron in the blood, kidney damage, high blood pressure, learning disabilities, muscle weakness, brain damage, and even death (ATSDR, b).

Lead exposure or high blood-lead content in children does not have very clear, outwardly visible symptoms which leads to a lack of medical testing and treatment. Lead exposure also requires a blood test in order to measure an individual's exposure so when there are no outward symptoms to provoke getting a test, many do not test themselves or their children right away. It is important to get tested if there was a risk of exposure, especially for children.

Petroleum and Total Petroleum Hydrocarbons (TPH) Petroleum was also found in 29 of the case studies but appeared in many different forms. Petroleum is a fossil fuel and is used as an umbrella term that refers to several hundred different chemical compounds and can be difficult to measure or differentiate. To describe this massive group of contaminants, all derived from crude oil, the more practical term to *measure* petroleum is total petroleum hydrocarbons or TPH (ATSDR, e). In the case studies, petroleum contamination was shown through contaminants such as 'TPH-gas', 'THP- motor oil', 'waste oil', or 'TPH-diesel'. Petroleum products are extremely present in everyday urban life, and nearly all people are exposed to TPH every single day which is likely why this contaminant is present in the majority of the case studies examined in this report. Not all TPH compounds affect one's health in the same way and because the different compounds have varying health effects, it is difficult to give a general idea of what health effects could be caused by TPH exposure. Some of the areas the various TPH compounds can affect are the central nervous system, blood, lungs, skin, and immune system (ATSDR, e). Measuring TPH is good for a "general indicator of petroleum contamination at that site" but this measurement provides almost no specific information on how "the particular petroleum hydrocarbons in the sample may affect people, animals, and plants" (ATSDR, e, 2).

Volatile Organic Carbons (VOCs) Volatile Organic Compounds (VOCs) refer to a vast group of chemicals that can be found in a wide variety of products, many used to build and maintain residential homes. The term 'volatile' in chemistry means that the substance [in this case, chemical] evaporates at average temperatures, and this property of VOCs allows them to easily become indoor air pollutants. Many of these chemicals are human-made and produced for paints, pharmaceuticals, refrigerants, hydraulic fluids, petroleum fuels, and cleaning agents (EPA, 2022a). The two most common VOCs that were observed in the case studies were trichloroethylene (TCE) and tetrachloroethylene (PCE or PERC).

Tetrachloroethylene (PCE) Tetrachloroethylene goes by many names but the main ones are PCE, PERC, perchlor, or perchloroethylene. PCE is a nonflammable, colorless liquid with a mildly sweet odor, and is used for metal degreasing, dry cleaning, the aerospace

industry, and as a starting material for other manufactured chemicals. According to the case study data, its presence in the SF Bay comes mostly from historical naval contamination and chemical manufacturing plants, and likely became an environmental contaminant through industrial emissions. Since PCE is a volatile liquid, causing it to evaporate at average temperatures, it is primarily released into the atmosphere but is able to contaminate other sources like water or soils (ATSDR, d). Those who come into contact with PCE in their work are at the highest risk since they are consistently exposed to it and have an increased likelihood of high-level inhalation exposure, both acute and chronic. Short-term or acute inhalation exposure can result in intense upper respiratory irritation, kidney dysfunction, dizziness, drowsiness, headache, incoordination, and unconsciousness (ATSDR, d and EPA, 2014). Longer-term or chronic inhalation exposure can impair cognitive and motor neurobehavioral performance and may cause other harmful effects on the liver, kidney, immune system, blood, and reproduction and development (EPA, 2014). Some ways to protect you or your family from PCE exposure include thoroughly washing fresh foods, following local drinking water protocols, reading and following instructions on products that contain PCE, avoiding work that involves PCE use, and preventing kids from playing in or eating dirt for those living near a site that is contaminated with PCE (ATSDR, d).

Trichloroethylene (TCE) Trichloroethylene is also a nonflammable, colorless, volatile liquid that also evaporates quickly at normal (average/room) temperatures (ATSDR, f). TCE is most often used as metal degreasers or as a component for other chemical manufacturing, especially refrigerants (ATSDR, f). TCE is very similar to PCE in the ways that it enters and exists in the environment. Both are volatile chemicals which allows them to easily become indoor air pollutants and they also both break down slowly in water and soil, making their residency time longer. TCE inhalation exposure, both long and short term, can cause dizziness, headaches, confusion, euphoria, facial numbness, and weakness due to the chemical's effect on the central nervous system (EPA, 2001). More recent studies have reported that TCE exposure can be associated with cancers, specifically kidney, liver, cervix, and lymphatic cancers (EPA, 2001).

Polychlorinated biphenyls (PCBs) Polychlorinated biphenyls (PCBs) are chemical mixtures of up to 209 individual chlorinated compounds often in the form of oily liquids or solids that are odorless and colorless to light yellow (ATSDR, c). PCBs are no longer produced in the United States as of 1977 but they are still prevalent as legacy contamination spread widely across the SF Bay (Davis et al., 2007). They historically entered the air, water, and soil through spills, leaks, or fires from their manufacture, use, and disposal, especially from the 1930s to the 1970s, but can still be released into the environment today through hazardous waste sites, improper waste disposal, and from leaking electrical equipment that contains PCBs (ATSDR, c and Davis et al., 2007). Old electronics made before the year 1977 that are more likely to contain PCBs are fluorescent lighting fixtures, devices containing PCB capacitors, and hydraulic oils which means that all of these products must be properly disposed of and handled with care (ATSDR, c).

Environmental PCBs contamination exposure is often from eating contaminated food, breathing contaminated air from a hazardous waste site, or drinking contaminated water (ATSDR, c). The

main source of PCB exposure through food is in fish, more specifically sportfish living in contaminated waters, but can also be found in meat and dairy products by accumulating in the tissues of these animals, which is then ingested by the humans who eat them (ATSDR and California Water Boards, 2021). Sites such as the CA Water Boards provide informational guides as to what fish are safer than others to eat from the SF Bay.

Health impacts as a result of a high quantity exposure are most commonly observed as skin rashes or acne but can also manifest as damage to the liver, reproductive system, stomach, thyroid gland [organ located in the base of the neck], and immune system (ATSDR, c). Since PCBs are mixtures of chemicals, the toxicity and harm vary depending on the specific mixture of chemicals; some mixtures are more carcinogenic than others, but all mixtures can still cause cancers such as liver, stomach, intestinal, and thyroid (ATSDR, c).

Arsenic Arsenic (As) has been a well known poison for hundreds of years and is a naturally occurring element that cannot be destroyed, it can only change its form or become attached to other particles (ATSDR, a). Arsenic is rarely found in its elemental form and is often found in the environment in alternative forms since it can combine with either inorganic or organic substances to form a variety of different compounds (CDC, 2009). Inorganic arsenic compounds naturally occur and can be found in soil, sediment, water, and even some foods that take up arsenic from the soil and water (CDC, 2009). Historical explanations for non-naturally occurring inorganic arsenic compounds are from mining, ore smelting, industrial use, pesticides, waste from arsenic-containing paint pigment, and wood preservatives (CDC, 2009). When inorganic arsenic is inhaled it can cause a sore throat, irritated lungs, other respiratory irritation, and nausea (ATSDR, a). Prolonged or highly concentrated exposure may lead to skin effects including darkening, the appearance of small “corns” or “warts”, and the sensation of “pins and needles” in hands and feet as well as many forms of cancer (ATSDR, a). The International Agency for Research on Cancer, The Department of Health and Human Services, and the EPA all classify inorganic arsenic compounds as carcinogenic to humans (ATSDR, a and Meliker and Nriagu, 2007). Smaller or acute oral [swallowing or drinking] exposures of inorganic arsenic may cause nausea, vomiting, diarrhea, cardiovascular effects, and encephalopathy [brain function is affected] while higher and larger doses can lead to death.

Alternatively, organic arsenic compounds are mostly found in fish and shellfish, specifically called arsenobetaine, which is much less harmful than inorganic arsenic but can still bioaccumulate in fish (ATSDR, a and CDC, 2009). According to the ATSDR, there is almost nothing known in regards to the health effects of organic arsenic compounds in humans. Children are not physically or internally more at risk of arsenic exposure any more so than adults, other than the fact that children may have more of a chance of eating dirt or dust that may contain arsenic which could increase their chance of exposure.

V. CONCLUSION AND POLICY RECOMMENDATIONS

The facts are clear: previous and current government and industry “solutions” to hazardous and radioactive waste contamination are largely ineffective and lead to further pollution and threats to public health and the environment. It is also unfortunately a fact that no government agency has truly considered the latest science on sea level rise and groundwater rise when making decisions to cap toxic and radioactive contamination sites at and near the shoreline of San Francisco Bay.

Greenaction for Health and Environmental Justice calls on government agencies, elected officials, the military, and corporate polluters to adopt the following recommendations when remediating a contamination site at or near the shoreline of San Francisco Bay or other vulnerable communities threatened by rising sea levels and groundwater.

1. All contamination sites must be effectively remediated in the safest, most complete, most just manner to the extent humanly and technically possible;
2. Government agencies must use the latest sea level rise and groundwater rise projections when developing and implementing their remediation plans for contaminated sites; Government agencies must plan for worst case scenarios at major contamination sites including the radioactive and toxic contaminated Hunters Point Naval Shipyard Superfund Site;
3. There must be a programmatic, comprehensive, and rigorous review/evaluation of all San Francisco (SF) Bay shoreline areas for potential, unknown, unidentified contamination sources and areas. Government agencies should fund academic experts and community/environmental justice experts to participate in this evaluation;
4. Capping of waste at or near the shoreline where rising sea levels and groundwater may flood the sites and spread the contamination is not safe or acceptable. 100 percent removal must be the goal, unless safe treatment of all contamination at or near the shoreline can be accomplished without putting residents, workers or the environment at risk;
5. Government agencies must consider community vulnerability to pollution when determining the most protective remedies for cleanup of contamination: leaving significant contamination on site in already vulnerable communities is not acceptable;
6. Waste from contaminated sites should not be sent to non-RCRA facilities out of state;
7. Waste should not be sent to the Kettleman Hills or Clean Harbors Buttonwillow hazardous waste landfills, facilities operating in heavily impacted communities and on expired permits that were issued years ago with racially discriminatory permit processes including police intimidation of residents and “English only” processes in these Latinx communities;

8. Waste that cannot be safely treated must be disposed of in a licensed facility that has a non-expired permit and a permit that was not issued with a racially discriminatory process, a facility that has minimal environmental impact, is not located near a community of color or Native Nation or other vulnerable community. Government agencies must use the least harmful method to treat and dispose of waste, and if excavation and disposal is not possible, must implement the most protective remedy possible on site;
 - a. We define the least harmful location to put waste as a place that is not easily disturbed by the elements, not a danger to animals and people, not near any communities, sensitive ecosystems including waterways, and not on tribal or sacred lands.
9. Waste must not be sent to incineration, “waste to energy” or so-called “conversion technology” facilities (ie. gasification, pyrolysis, plasma arc technologies) because these release hazardous air contaminants into the environment. On site incineration is not acceptable, including thermal oxidation and gasification.
10. Homes, schools, day care centers and parks should not be built on or next to contamination sites;
11. State and federal government agencies must increase research and funding for safe non-landfill/non-incineration treatment technologies, and must work with community and environmental justice groups to develop alternative waste disposal/treatment practices;
12. Public participation and civic engagement is essential. The directly impacted community should be centered within all stages of decision making. Community members deserve the right to stay informed, involved, and protected;

VI. CASE STUDIES

CASE STUDY 1: Alameda NAS [Naval Air Station]

Location:^{1,3}

Address: W End City of Alameda,
Alameda, CA 94501

Proximity to Bay: On shoreline and
partially in bay

Site Size: 2,634 Acres

Site Overview:^{1,2}

Status: Active

Site Type: Federal Superfund

Facility Type: Former Naval Base

Oversight Agencies: DTSC, RWQCB, US
EPA

On the National Priorities List: Yes

Years of activity: 1936-1997

Type of Contamination: Indoor Air, other groundwater affected (uses other than drinking water), sediments, soil, soil vapor, surface water affected



Contaminants of Concern:^{1,2}

- Dioxin
- Explosives (UXO, MEC)
- Lead Organic (Tetraethyl lead)
- Metals: Aluminum, Antimony and compounds, Arsenic, Cadmium and compounds, Chromium III, Chromium VI, Cobalt, Copper and compounds, Iron, Lead, Manganese and compounds, Mercury (elemental), Molybdenum, Nickel, Thallium and compounds, Total Chromium (1:6 ratio Cr VI:Cr III), Zinc
- Organochlorine Pesticides: Aldrin, Chlordane, DDD, DDE, DDT, Dieldrin, Endrin, HCH (alpha), HCH (beta), Heptachlor, Heptachlor epoxide
- Petroleum: TPH-JET FUEL, TPH-MOTOR OIL, TPH-diesel, TPH-gas
- Polychlorinated Biphenyls (8082 PCBS): PCBs (unspeciated mixture, high risk, e.g. Aroclor 1254), PCBs (unspeciated mixture, low risk, e.g. Aroclor 1016), Polychlorinated biphenyls (PCBs), Polychlorinated biphenyls (PCBs, see IRIS)
- Perfluorinated Alkylated Substances (PFAS)
- Polynuclear Aromatic Hydrocarbons (PAHS)
- Radioactive Isotopes
- Semi-Volatile Organics: 2,4-Dimethylphenol, Benzo[a]pyrene, Bis(2-chloroethyl)ether, Bis(2-ethylhexyl)phthalate (DEHP), Naphthalene
- Uncategorized: Asbestos Containing Materials (ACM), Munitions Debris (MD), Polynuclear aromatic hydrocarbons (PAHs)
- Volatile Organics (8260B VOCs): 1,1,1-Trichloroethane (TCA), 1,1-Dichloroethane, 1,1-Dichloroethylene, 1,2-Dibromo-3-chloropropane (DBCP), 1,2-Dibromoethane

(EDB), 1,2-Dichloroethane (EDC), 1,2-Dichloroethylene (cis), 1,2-Dichloroethylene (trans), Benzene, Chlorobenzene, Ethylbenzene, Methylene chloride, Tetrachloroethylene (PCE), Toluene, Trichloroethylene (TCE), Vinyl chloride, Xylenes

Site History:¹

“Located adjacent to the San Francisco Bay, the Naval Air Station at Alameda (now referred to as Alameda Point) encompasses 2,634 acres, which consists of 1600 acres of dry land and about 1,000 acres of submerged tideland. Alameda Point has been owned and operated by the Department of Defense (DoD) since 1936. Two onsite waste disposal areas were used from 1943 through the late 1970's. Both areas are located in bay lands adjacent to San Francisco Bay and are approximately 55 acres (15 acres of landfill) and approximately 110 acres (77 acres of landfill and 33 acres of wetland areas) in size. Wastes disposed of at the site include waste oil, solvents, paints, scrap metal, garbage, radiological material, aircraft engines, and possibly explosives (munitions and explosives of concern). In addition, it is estimated that 365,000 gallons of aviation fuel have leaked from underground fuel tanks and distribution lines. Numerous plating and painting shops and automotive and equipment repair facilities are also being investigated to determine the extent of contamination resulting from past spills and other disposal practices. Lead-based paints were used throughout the site on buildings, tanks, towers, and other structures contributing to lead contamination in the soil. Use and disposal of radium-based paint resulted in radiological contamination of buildings, drain lines, storm drains, and sewers as well as sediment in the vicinity of the sewer and storm drain outfalls. Pesticides and herbicides were stored and used at the site. Industrial and commercial activities in the area that predate federal ownership have contributed to contamination at the site. Such activities include an oil refinery, coal gasification plants, and a borax processing plant. Volatile organic chemicals were disposed of and settled in low lying areas that were eventually covered by the landfill that formed much of the eastern portion of the base. This created an irregular layer of subsurface contamination referred to as the ‘Marsh Crust’”.¹

“Polycyclic aromatic hydrocarbons (PAHs) are ubiquitous throughout the Base, as a result of the creation of the base from dredged fill in the mid twentieth century. Concentrations of PAHs are more problematic in certain areas, and there is a direct correlation between the timing/source of the fill and the concentration of PAHs.”¹

Site Remediation and Status and Overview of “Clean Up”:¹

“The Navy initiated an investigation of potential PFOA/PFOS in groundwater of the site. The investigation included collecting shallow groundwater samples from a total of IR Sites which present the highest potential of storing or using PFAS, based on former site activities. The sampling results show that concentrations of PFOA and/or PFOS exceeding the DoD [Department of Defense] or EPA screening levels were detected in groundwater samples collected at all 6 sites. The Navy submitted a Draft Preliminary Assessment report for PFAS for Alameda Point in June 2020 which summarized the findings and proposed upcoming investigations.”¹

As of 2017, the Navy has transferred approximately 89% of the former installation to the City of Alameda and other entities, and a summary report can be found on the Alameda NAS site profile on the Navy’s website. Also according to the Navy’s web profile, approximately 266 acres

additional acres will be transferred over to the City of Alameda as No- Cost EDC Phases, pending completion of environmental remediation.⁴

Future Plans:³

According to the EPA's Superfund site profile for this site, "A short status update for each site is provided below. When multiple sites are grouped together, it indicates that those sites have been combined into one remedial Investigation/feasibility study and one Record of Decision.

- Site 1 (Navy Operable Unit [OU] 3): at remedial action stage
- Site 2 (Navy OU-4A): undergoing monitored natural attenuation, transferred
- Sites 3, 4, 11 and 21 (Navy OU-2B): Site 3 cleanup complete, transferred; Sites 4, 11 and 21 at remedial action stage
- Sites 5, 10 and 12 (Navy OU-2C): at remedial action stage.
- Sites 6, 7, 8 and 16 (Navy OU-1): Sites 7, 8 and 16 cleanup complete, transferred; Site 6 undergoing monitored natural attenuation
- Sites 9, 13, 19, 22 and 23 (Navy OU-2A): Sites 9, 19, 22, 23 and majority of Site 13 cleanup complete, transferred; Site 13 groundwater undergoing monitored natural attenuation
- Site 14: undergoing monitored natural attenuation, transferred
- Site 15: no further action, transferred
- Site 17 (Navy OU-4B): cleanup complete, transferred
- Site 18: site closed; realigned
- Site 20 (Navy OU-4A): no further action, transferred
- Site 24 (Navy OU-4B): cleanup complete, transferred
- Site 25: cleanup complete, transferred
- Site 26 (Navy OU-6): undergoing monitored natural attenuation, transferred
- Site 27 (Navy OU-6): undergoing monitored natural attenuation, transferred
- Site 28 (Navy OU-6): undergoing monitored natural attenuation, transferred
- Site 29 (Navy OU-4A): no further action, transferred
- Site 30: no further action, transferred
- Site 31: no further action, transferred
- Site 32 (Navy OU-4A): at Record of Decision stage
- Site 33 (Navy OU-4A): no further action, transferred
- Site 34 (Navy OU-4A): cleanup complete, transferred
- Site 35: cleanup complete, transferred
- OU-5: groundwater cleanup discontinued

EPA placed the site on the Superfund program's National Priorities List (NPL) in 1999."³

Community Profile:⁵

The Alameda Naval Air Station, now known as Alameda Point, is a closed Navy installation located on the western tip of Alameda Island in the City of Alameda. The West End neighborhood borders Alameda Point. The population is predominantly Asian American (32.7%). This census tract has high levels of unemployment (87th percentile) and a large number of cleanup sites (98th percentile).

Census Tract #: 6001428700

Population: 4,472

CalEnviroScreen Percentile Score: 77

Pollution Burden Percentile: 78

Characteristics Percentile: 69

Notable Exposure Percentiles:

- Particulate Matter 2.5: 43
- Diesel Particulate Matter: 98
- Toxic Releases: 48
- Drinking Water: 4
- Ozone: 3
- Traffic: 59
- Lead from Housing: 10
- Pesticides: 0

Notable Environmental Effects:

- Cleanup sites: 98
- Groundwater threats: 100
- Hazardous waste: 97
- Solid Waste: 80
- Impaired water: 87

Sensitive Population Indicators:

- Asthma: 74
- Low Birth Weight: 82
- Cardiovascular Rate: 52

Notable Socioeconomic Factor Percentiles:

- Education: 49
- Linguistic Isolation: 47
- Poverty: 58
- Unemployment: 87
- Housing Burden: 32

Demographics/Community Profile:

- Race/Ethnicity:
 - 16.3% Hispanic
 - 16.8% African American
 - 32.7% Asian American
 - 27.4% White
 - 0.4% Native American
 - 6.4% Other

1. Department of Toxic Substances Control. "Alameda NAS (01970005)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=01970005
2. State Water Resources Control Board. "CAA 09A, NAS GAP 04/SWMU 584 (T10000001437)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report?global_id=T10000001437
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5. Office of Environmental Health Hazard Assessment. "Census Tract: 60014444302." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee8cac7428a6184203/>

CASE STUDY 2: AMCO Chemical

Location:¹

Address: 1414 3rd Street, Oakland CA

Proximity to Bay: ~2,297 feet

Site Size: 0.83 Acres

Site Overview:¹

Status: Active as of 5/1/2002

Site Type: State Response or NPL

Facility Type: Chemical facility

Oversight Agencies: EPA, DTSC, RWQCB

On the National Priorities List: Yes

Years of activity: 1960s-1989

Type of Contamination: Indoor air, other groundwater affected (uses other than drinking water), soil, soil vapor



Contaminants of Concern:¹

- TPH-diesel
- Tetrachloroethylene (PCE)
- Trichloroethylene (TCE)
- Vinyl Chloride

Site History:^{1,2}

“AMCO Chemical Corporation owned and operated a chemical distribution facility at the site from the 1960s until 1989. Concern about environmental conditions at and near the site arose in June 1995, when utility workers encountered strong chemical odors while digging in the area. Preliminary sampling at the site and on 3rd Street, south of the site, indicated the presence of vinyl chloride and other chlorinated solvents in soil, soil gas and groundwater.”²

“DTSC inspected the site on August 4, 1988. An order to Fence and Post the site was issued on August 8, 1988. On February 24, 1989, a Report of Violation was issued to correct violations related to leakage of hazardous waste from piping and containers; storage of hazardous waste in deteriorated or otherwise corroded conditions; and unlabeled waste containers. The site was listed on the National Priorities List on 7/1/2004. Since then, the U.S. EPA has conducted soil gas, soil and groundwater investigations.”¹

Site Remediation and Status and Overview of “Clean Up”:²

According to the EPA's Superfund Site profile for AMCO Chemical, “Several cleanup actions were taken to reduce contaminants and investigate the extent of contamination. A groundwater and soil vapor extraction and treatment system operated for about one year prior to shut down. This system used an underground pipe matrix to remove and treat contaminants. After some preliminary investigations, electrical resistive heating (ERH) was implemented in areas of high VOC concentrations. ERH is an in-ground system used to heat soil and groundwater to vaporize VOC contaminants that are then treated above-ground. EPA conducted a study to evaluate the use of in-situ chemical oxidation (ISCO) to treat high VOC concentrations in shallow groundwater.”²

Also according to the EPA's Superfund Site profile, "EPA completed a remedial investigation in 2011 and an addendum to the investigation in 2014 to characterize the nature and extent of contamination at the site. In addition, EPA removed lead-impacted soil in 2007 and installed vapor intrusion mitigation systems in 2009 for adjacent properties. The mitigation systems were installed to prevent potentially contaminated subsurface vapors from entering above-ground buildings." ²

Future Plans:²

According to the EPA's Superfund Site profile, "EPA is currently investigating potentially responsible parties (PRPs). Under the Superfund process, EPA may seek to have any identified PRPs to conduct some or all of the response actions at the site and reimburse EPA for its costs. In some cases where EPA is unable to identify financially viable PRPs, EPA may continue to use federal funds to address contamination at the Site. EPA is updating the site's Human Health Risk Assessment (HHRA) based on current conditions since implementation of ERH and ISCO. The HHRA uses factual, technical information to understand the potential health effects of contaminants at a site and what would be the adverse health effects for now and into the future. EPA is also reviewing site data, including the results of the ISCO study and natural attenuation evaluation, to develop a long-term cleanup plan. EPA will have to carefully consider different remedial options, given site conditions and cleanup goals. The data will be used to develop a feasibility study and, ultimately, the selection of any remedial actions." ²

Community Profile:³

This site lies near the Port of Oakland and south of the Bay Bridge. The Port of Oakland contains numerous hazardous sites. The AMCO Superfund site census tract is in the 100th percentile for cleanup sites and the 99th percentile for groundwater threats. Cumulative environmental impacts have created unhealthy living conditions for residents leading this census tract to be in the 99th percentile for asthma. The population of this community is predominantly African American (31.8%). There are also high levels of poverty in this community (77th percentile).

Census Tract #: 6001402200

Population: 2,477

CalEnviroScreen Percentile Score: 93

Pollution Burden Percentile: 89

Characteristics Percentile: 87

Notable Exposure Percentiles:

- Ozone: 3
- Particulate Matter 2.5: 46
- Diesel Particulate Matter: 96
- Toxic Releases: 51
- Traffic: 60
- Pesticides: 0
- Lead from Housing: 93
- Drinking Water: 4

Notable Environmental Effects:

- Cleanup sites: 100
- Groundwater threats: 99
- Impaired Waters: 83
- Hazardous waste: 92
- Solid Waste: 61

Sensitive Populations:

- Asthma: 99
- Low Birth Weight: 93
- Cardiovascular Disease: 54

Notable Socioeconomic Factor Percentiles:

- Education: 51
- Poverty: 77
- Unemployment: 63
- Housing Burden: 85
- Linguistic Isolation: 66

Demographics/Community Profile:

- Race/Ethnicity:
 - 16.2% Hispanic
 - 31.8% African American
 - 16.4% Asian American
 - 29.9% White
 - 1.3% Native American
 - 4.5% Other

1. Department of Toxic Substances Control. "AMCO CHEMICAL (01390001)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=01390001
2. United States Environmental Protection Agency. "Superfund Site: AMCO CHEMICAL OAKLAND, CA Cleanup Activities". *EPA*. https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second_cleanup&id=0905334.
3. Office of Environmental Health Hazard Assessment. "Census Tract: 6001402200." *CalEnviroScreen 4.0*. October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/>

CASE STUDY 3: Ashland Chemical Co

Location:^{1,2}

Address: 8610 Enterprise Drive,
Newark, CA 94560

Proximity to Bay: ~1805 feet

Site Size: 10 Acres

Site Overview:^{1,2}

Status: Open - Remediation as of
4/24/2019

Site Type: State Response

Oversight Agencies: RWQCB -
Region 2

On the National Priorities List: No

Years of activity: 1973-2000

Type of Contamination: Other
groundwater (uses other than drinking water)



Contaminants of Concern:^{1,2}

- 1,1,1-trichloroethane
- Acetone
- Benzene
- Other chlorinated hydrocarbons
- Semi-volatile organic compounds (VOCs)
- Tetrachloroethylene (PCE)

- Toluene
- Trichloroethylene (TCE)
- Vinyl Chloride
- Xylene

Site History:^{1,2}

According to the EnviroStor site profile, “Ashland Chemical Co. [was a] packaging and distribution center from 1973 to 2000. Chemicals managed included tetrachloroethylene (PCE), trichloroethylene (TCE), acids and bases. Currently, Ashland's electronic laboratory products division uses the site for packaging and distribution purposes. The San Francisco Regional Water Quality Control Board (RWQCB) is overseeing activities. Soil has been contaminated with toluene, xylene, ethylbenzene, PCE, and TCE. The contaminated soils were removed and disposed of offsite. A groundwater extraction and treatment system was installed in October 1990 and continues under RWQCB supervision.”¹

“Chemical packaging and distribution operations at the Site resulted in releases of SVOCs and VOCs that contaminated soil, groundwater, and soil vapor. Ashland operated a shallow groundwater pump and treatment system from 1982 to 2005.”²

Site Remediation and Status and Overview of “Clean Up”:²

According to the GeoTracker site profile, “22,700 cubic yards of VOC impacted soil was excavated in 2005 to 2006 in the tank farm area and former warehouse area. 2015 Human Health Risk Assessment evaluated the Site for residential land use, as part of the Newark's Dumbarton Transit Oriented Development (Bayside Newark plan). Additional investigation occurred in 2014, for dioxins and furans, and in 2016 for 1,4-dioxane. From June through August 2019, an additional 19,950-ton excavation was performed to remove all soil with COC [contaminants of concern] concentrations exceeding residential site cleanup goals. The site was backfilled to raise the elevation to 5 feet above original ground level to protect against sea level rise. In-Situ Chemical Oxidation injections began in February 2020 to remediate 1,4-dioxane and other organic contaminants in groundwater. Plumestop was injected in early 2021 at the downstream property boundary to prevent the migration of groundwater contaminants beyond the property. Residential construction of 86 attached townhomes (3 to 7 units per building) and 53 single-family homes began in January 2020 and was completed in 2022. All homes were equipped with vapor intrusion mitigation systems that can be turned into active SSD systems as needed based on soil vapor data.”²

Future Plans:²

According to the GeoTracker site profile, “Long-term groundwater and soil vapor sampling is required until COCs in all media reach clean-up goals. Long-term operation, maintenance, and monitoring for the vapor intrusion mitigation systems is required until the Water Board issues site closure. The May 5, 2020, Risk Management Plan and the February 23, 2022 Risk Management Plan Addendum outline soil and groundwater management measures for future construction or utility work and the required long-term operation, maintenance and monitoring for the vapor intrusion mitigation systems in each building. The Risk Management Plan and Addendum are incorporated by reference into the November 11, 2019, deed restriction.”²

Community Profile:³

This site lies south of the Dumbarton Bridge and east of the Don Edwards San Francisco Bay National Wildlife Refuge. Located in Newark, the surrounding community is largely suburban with its economy based from Silicon Valley. The community is predominately made up of Asian Americans (38.3%) and Hispanics (39.7%). They are in the 40th percentile for housing burden and the 35th percentile for poverty.

Census Tract #: 6001444302

Population: 5,185

CalEnviroScreen Percentile Score: 48

Pollution Burden Percentile: 32

Population Characteristics Percentile: 56

Notable Exposure Percentiles:

- Diesel Particulate Matter: 26
- Traffic: 9
- Pesticides: 0
- Drinking Water: 8
- Ozone: 12
- Particulate Matter 2.5: 26
- Toxic Releases: 30
- Lead from Housing: 58

Notable Environmental Effects:

- Cleanup sites: 81
- Groundwater threats: 97
- Impaired Water Bodies: 0
- Hazardous waste: 98
- Solid Waste: 53

Sensitive Population Indicators:

- Asthma: 76
- Low Birth Weight: 76
- Cardiovascular Rate: 67

Notable Socioeconomic Factor Percentiles:

- Education: 33
- Linguistic Isolation: 55
- Poverty: 35
- Unemployment: 12
- Housing Burden: 40

Demographics/Community Profile:

- Race/Ethnicity:
 - 39.7% Hispanic
 - 4.6% Black
 - 38.3% Asian American
 - 14.2% White
 - 0.5% Native American
 - 2.6% Other

1. Department of Toxic Substances Control. "Ashland Chemical (01280046)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=01280046
2. State Water Resources Control Board. "Ashland Chemical Co (SL20225843)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report?global_id=SL20225843
3. Office of Environmental Health Hazard Assessment. "Census Tract: 60014444302." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54ceebeac7428e6184203/>

CASE STUDY 4: Aerospace Activities, Inc.

Location:¹

Address: 2502 Williams Street,
San Leandro, CA 94577

Alameda County

Proximity to Bay: ~656 feet

Site Size: 2 Acres

Site Overview:^{1,2,4}

Status: Open - Assessment and Interim
Remedial Action as of 1/2/2019

Site Type: Tiered Permit

Facility Type: Aerospace
Manufacturing/Maintenance

Oversight Agencies: RWQCB (lead),
DTSC

On the National Priorities List: No

Years of activity: 1955- 2018

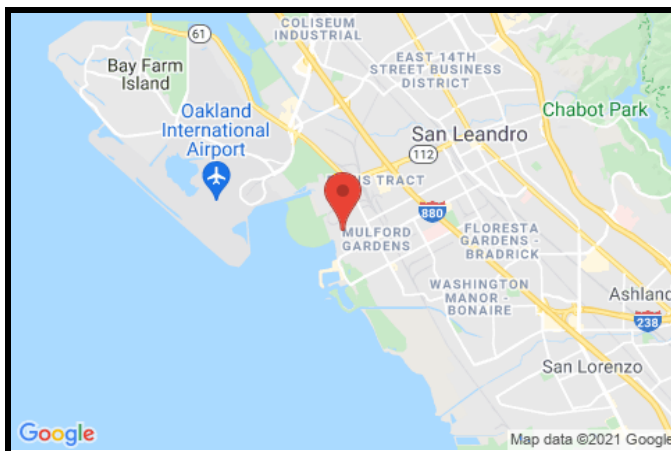
Type of Contamination: Soil

Contaminants of Concern:^{2,4}

- Polychlorinated Biphenyls (PCBs)
- Arsenic
- Chromium
- Copper
- Dichloroethene (DCE)
- Diesel and Gasoline
- Heating Oil/Fuel Oil
- Kerosene
- Other Metals
- Total Petroleum Hydrocarbons (TPH)
- Trichloroethylene (TCE)
- Vinyl Chloride
- Waste Oil (Motor/Hydraulic/Lubricating)

Site History:^{3,4}

“Associated Aerospace Activities, Inc. has occupied the Site from 1972 to 2018 and manufactures jet engine components, including aircraft parts made from high temperature alloy sheet metal. From 1955 to 1972, the Site was occupied by Higgins Magee Printing Ink and Chemical Manufacturers and by UMC Industries, Inc., from 1962 to 1970 for manufacturing pigments using chemicals and metals. The building on the north side of the property is leased out as storage space, but was historically used by a hydraulic elevator parts manufacturer and stone cutting operation. The Site has chlorinated volatile organic compounds in soil, soil vapor and groundwater. A remediation work plan dated August 15, 2018, was approved by the RWQCB in an agency letter dated January 2, 2019, that requires a remediation completion report for source removal, plume delineation, and vapor intrusion evaluation by April 16, 2019.”⁴



“AAA's February 26, 2002 Hazardous Materials Business Plan includes the following constituents in its chemical inventory: acetylene gas, argon gas, oxygen gas, 105 Solvent Safety Kleen, corrosive liquid, corrosive solids, Omni All II mixture, trichloroethylene, caustic soda, Steel Kote, Magnaflux ZL-22C and ZR-1 OA. No information on chemical usage from 1964 to 1993 was obtained as part of the site screening. Information from the DTSC Hazardous Waste Tracking System database indicates that, from 1993 to 2002, AAA generated liquid with halogenated organic compounds, other inorganic solid waste, unspecified oil waste and photochemical/photo processing waste. Recent manifests indicate that AAA generates combustible waste oil. In November 1980, a PCB spill occurred and 30 gallons of PCBs leaked onto the ground. Initially, 445 cubic feet of soil was removed in March 1981 and confirmation soil sampling showed 4,930 ppm PCBs.”³

Site Remediation and Status and Overview of “Clean Up”:^{3,4}

According to a site screening form [linked in the site documents on the EnviroStor site profile], “In March 1981, a U.S EPA contractor conducted an inspection of the Site to verify compliance with the federal PCB disposal and marking regulations and to investigate the spill. Additional soil excavations were conducted, ending in September 1981. The last confirmation sample showed 0.85 ppm PCBs. The completion of the spill cleanup is documented in a November 18, 1981 letter to the Department of Health Services, Toxic Substances Control Division (DHS), predecessor to DTSC. This letter states that after the last confirmation soil sample, EPA gave verbal approval to fill in the excavated area. However, EPA currently has no files on this Site and the Site is not in EPA's database. No documents confirming DHS official approval were located. In response to a DTSC Information Request letter, AAA stated that there have been no subsequent chemical releases.”³

“The DTSC was the lead agency for tiered permitting and cleanup of a 1981 PCB spill incident. In February 2016, the RWQCB became lead agency, in accordance with the property owner's "request for agency oversight of a brownfield site" (Brownfield Memorandum of Agreement).”⁴

Future Plans:^{4,5}

According to the Regional Water Quality Control Board, the agency is still working on this site and is the lead agency.⁴

According to a ‘Remedial Soil Excavation plan’ posted to GeoTracker in May 2022, the current efforts include, but are not limited to: removing soils impacted with contaminant concentrations exceeding cleanup goals, preparing the site for construction, and transporting and disposing of contaminated waste.⁵

Community Profile:⁶

Associated Aerospace Activities is surrounded by mixed residential and commercial areas. The site is located near multiple contaminated sites including Oyster Bay Park, which was originally a landfill until it was covered by a clay cap. The community is predominantly Hispanic (42.1%) and Asian American (31.6%). It is in the 49th percentile for poverty and the 52nd percentile for housing burden.

Census Tract #: 6001432400

Population: 7,003

CalEnviroScreen Percentile Score: 87

Pollution Burden Percentile: 92

Characteristics Percentile: 71

Notable Exposure Percentiles:

- Ozone: 6
- Particulate Matter 2.5: 27
- Diesel Particulate Matter: 94
- Toxic Releases: 62
- Traffic: 84
- Pesticides: 0
- Drinking Water: 4
- Lead from Housing: 81

Notable Environmental Effects:

- Cleanup sites: 90
- Groundwater threats: 97
- Hazardous waste: 94
- Impaired Waters: 87
- Solid Waste: 99

Sensitive Populations

- Asthma: 82
- Low Birth Weight: 89
- Cardiovascular Disease: 58

Notable Socioeconomic Factor Percentiles:

- Education: 66
- Linguistic Isolation: 57
- Poverty: 49
- Unemployment: 28
- Housing Burden: 52

Demographics/Community Profile:

- Race/Ethnicity:
 - 42.1% Hispanic
 - 6.6% Black
 - 17% White
 - 31.6% Asian American
 - 2.6% Other

1. Department of Toxic Substances Control. "Associated Aerospace Activities, INC. (71002730)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=71002730
2. Department of Toxic Substances Control. "Associated Aerospace Activities. (01330045)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=01330045
3. Department of Toxic Substance Control. "Site Screening Form." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/8810559928/AsocAerospaceSite%20Screening.pdf
4. Regional Water Quality Control Board. "ASSOCIATED AEROSPACE ACTIVITIES, INC. (FORMER HIGGINS MAGEE PRINTING INK AND CHEMICAL MANUFACTURERS) (T10000008871)" *Geotracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000008871
5. Lescur, D. "Remedial Soil Excavation Plan." *GeoTracker*, 20 May 2022, https://geotracker.waterboards.ca.gov/profile_report?global_id=L10006014618.
6. Office of Environmental Health Hazard Assessment. "Census Tract: 6001432400." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/>

CASE STUDY 5: Berkeley Industrial Complex: Berkeley Industrial Court & Heinz Grayson Plume

Location:^{1,2,3}

Addresses:

729 Heinz Avenue, Berkeley, CA 94710
Alameda County
7th Street and Grayson Street
Berkeley, CA 94710
Alameda County

Proximity to Bay: ~1148 feet

Site Size: 2.85 acres (Heinz)

15.1 acres (7th) [Combined: 17.95 acres]



Site Overview:^{1,2,3}

Status: Active

Site Type: State Response or NPL

Facility Type: A multi-tenant rental complex

Oversight Agencies: DTSC

On the National Priorities List: No

Years of activity: 1910-1981

Type of Contamination: Other groundwater affected (used other than drinking water) and soil

Contaminants of Concern:^{1,2}

- Metals: Lead, Nickel
- Polychlorinated Biphenyls (PCBS)
- Uncategorized: Acid Solution 2>pH with metals, Unspecified solvent mixtures
- Volatile Organics (8260B VOCS): 1,2-Dichloroethylene (cis), Tetrachloroethylene (PCE), Trichloroethylene (TCE), Vinyl chloride

Berkeley Industrial Court contaminants also include:²

- Metals: Copper, Zinc
- Diesel

Site History:^{1,2,3,4,5}

According to the site history available on EnviroStor for Berkeley Industrial Court, “The Hall-Scott Motor Car Company began manufacturing automobiles at the site in 1910. This same company overhauled and rebuilt large marine engines at the site during World War II in support of the war effort. Limited information is available regarding site uses between 1945 and 1967. In 1967, Airco purchased the property for storage of old equipment, spent dolomite, and neutralized chemical metal etching waste prior to disposal. In 1978, the site was divided into two properties: 2850 7th Street and 729 Heinz Avenue. The Berkeley Industrial Court, a multi-tenant rental complex, currently occupies the 729 Heinz Avenue site. This site is a part of the Heinz/Grayson Plume (EnviroStor ID 60000399).”¹

The site history available on EnviroStor for Heinz/Grayson Plume included the same information as above but also included that, “The Temescal Business Center, a multi-tenant industrial

complex, currently occupies the 2850 7th Street property. From 1968 to 1990, solvent-based adhesives were manufactured at the National Starch and Chemical Company's 742 Grayson Street facility using toluene, hexane, acetone, and 1,1,1-TCA. Beginning in 1980, water-based adhesive was manufactured at the 800 Grayson Street property, which was previously used as a lumber distribution warehouse. The source of contaminants in groundwater beneath the sites has not been determined.”³

“Prior to 1978, this site was operated by Airco Inc, now referred to as Temescal Business Center. The portion of the site referred to as the Berkeley Industrial Complex was historically utilized as a storage area for old equipment, spent dolomite, and neutralized chemical etching waste before disposal. Prior to Airco's ownership of the site, Hall Scott Marine Engine Foundry occupied the site before and during World War II. They produced engines for naval ships during World War II; however, the exact scope of their activities is unknown.”²

“In the 1990s, four underground storage tanks (USTs) were abandoned at the site either via removal or filling with sand. Environmental investigations performed at the Site between 1986 and 2008 identified volatile organic compounds (VOCs) and polychlorinated biphenyls (PCBs) in soil and groundwater beneath the Site at concentrations greater than regulatory screening levels. Additionally, petroleum free product has been identified in existing groundwater monitoring well MW2 located in the central portion of the Site; however, the profile of the petroleum is not known.”⁴

According to a CERCLA Site Inspection and Sampling Documentation Report, “Berkeley Industrial Court, located in Berkeley, California, was initially identified for evaluation under the U.S. Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation and Reliability Act (CERCLA) program (Superfund), due to a Notification of Hazardous Waste Site form filed in 1981 by AirCo, Inc., the previous owners of the property. The Notification stated that ‘over the period of 1967 to 1972 approximately 15 drums of waste were placed on the site and it is believed these liquid wastes leaked from the drums onto the site. In addition, approximately 1300 cubic feet of spent Dolomite was placed on the site.’ Although the drums had been removed and the site paved over, workers at a nursery on the site have complained of health problems relating to odors emanating from the site. The California Department of Health Services (DOHS) prepared a preliminary assessment of the site in January 1985, recommending a medium priority site inspection. In March, 1986, the EPA referred the site to the Ecology and Environment’s Field Investigation Team (FIT) for a site inspection and sampling.”⁵

Site Remediation and Status and Overview of “Clean Up”:^{1,2,6}

“The site currently supports three buildings and a nursery on an approximately 1.5-acre parcel. Berkeley Industrial Complex is presently a multi-tenant industrial complex. The main tenants include Magic Garden Nursery, Goldberg Cabinets, and Artworks Foundry. Seventy-five percent of the property is utilized to grow, store and sell plants, shrubs, and trees. The site is bounded by Temescal Business Center to the east, and National Starch and Chemical to the north. A Southern Pacific rail spur forms the northwest boundary. Since 1978 there has been no chemical storage or heavy industrial practices that would lend to the potential for soil and/or groundwater impaction”²

According to a Site Screening Form for Berkeley Industrial Court, “In January 1992, a Phase II Site Assessment was conducted by the owner, Berkeley Industrial Court (BIC) Ltd, at the 729 Heinz Avenue parcel. The primary purpose of this assessment was to investigate the site activities from adjacent properties and their potential impacts on the BIC complex. The assessment included collecting soil samples from the areas where contaminants were detected during the EPA investigation. Soil samples were collected from three soil borings at the ground surface and depths of three and six feet below ground surface (bgs). The highest PCB level detected was 1.0 milligram per kilogram (mg/kg) at a depth of three feet bgs. This concentration of PCB exceeded the EPA Region 9 Preliminary Remediation Goal (PRG) for residential soil. The PRG for PCB in residential soil is 0.022 (mg/kg). All of the soil borings had non-detectable levels of purgeable hydrocarbons”⁶

“An April 1997 City of Berkeley, Toxics Management Division letter directed the property owners at 742 Grayson Street, 2850 7th Street and 729 Heinz Avenue to sample their monitoring wells for four quarters to evaluate pollution in groundwater. TCE, ranging from 0.099 mg/l to 0.510 mg/l, and vinyl chloride, at 0.0076 mg/l, were detected during the last quarter (first quarter 1998) of groundwater monitoring at BIC. The concentrations of TCE and vinyl chloride exceeded drinking water MCLs. The MCL for vinyl chloride is 0.0005 mg/l”⁶

Future Plans:⁷

According to a 2022 report Re: Workplan for Additional Subsurface Investigation states that the proposed scope of work will include the following:

1. Obtain permits and underground utility clearance, and notify regulators prior to beginning fieldwork.
2. Install and sample 11 on-Site and 1 off-Site soil vapor monitoring point (SV1 through SV12).
3. Advance three off-Site hydropunch borings (HP11, HP12, and HP13) and collect a groundwater grab sample from each boring.
4. Analyze the groundwater and soil vapor samples for VOCs by EPA Method 8260B.
5. Prepare a report signed by a Registered Civil Engineer.
6. Follow the Health and Safety Plan that is attached to this document. [may be found in link below]⁷

Community Profile:⁸

A large majority (64.3%) of the population is White and the community faces a pollution burden in the 91st percentile. This area is more urban with open businesses surrounding the site. There are not any neighborhoods directly surrounding the site, it is almost solely businesses and studios, no residential housing.

Census Tract #: 6001422000

Population: 2,156

CalEnviroScreen Percentile Score: 66

Pollution Burden Percentile: 91

Characteristics Percentile: 42

Notable Exposure Percentiles:

- Ozone: 3
- Particulate Matter 2.5: 40

- Diesel Particulate Matter: 94
- Toxic Releases: 60
- Traffic: 94
- Pesticides: 0
- Lead from Housing: 55
- Drinking Water: 4

Notable Environmental Effects:

- Cleanup sites: 98
- Groundwater threats: 100
- Hazardous waste: 100
- Impaired Waters: 90
- Solid Waste: 76

Sensitive Populations Indicators:

- Asthma: 73
- Low Birth Weight: 43
- Cardiovascular Disease: 34

Notable Socioeconomic Factor Percentiles:

- Education: 28
- Linguistic Isolation: 13
- Poverty: 44
- Unemployment: 63
- Housing Burden: 50

Demographics/Community Profile:

- Race/Ethnicity:
 - 6.9% Hispanic
 - 10.9% Black
 - 8.2% Asian American
 - 64.3% White
 - 9.8% Other

1. Department of Toxic Substance Control. "BERKELEY INDUSTRIAL COURT (01280069)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=01280069.
2. State Water Resources Control Board. "Berkeley Industrial Complex (T0600191535)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report?global_id=T0600191535.
3. Department of Toxic Substance Control. "HEINZ/GRAYSON PLUME (60000399)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=60000399.
4. Fuan, Alejandro. "Additional Groundwater Assessment Report." *GeoTracker*, 9 Sep. 2021, https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo_report/5609729170/T0600191535.PDF.
5. Hoppin, Jane. "CERCLA Site Inspection and Sampling Documentation Report." *GeoTracker*, 9 Sep. 1986, https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/5374449014/09-09-86%20CERCLA%20Site%20Inspection%20and%20Sample%20Documentation%20Report.pdf.
6. Jemisoy, Claude. "Site Screening Form for Berkeley Industrial Court." *EnviroStor*, 15 Feb. 2005, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/5322675406/bic_site_scr.pdf.
7. Gamboa, Sherry. "Workplan for Additional Subsurface Investigation" *GeoTracker*, 15 July 2022, https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo_report/2576107323/T0600191535.PDF.
8. California Office of Environmental Health Hazard Assessment. "Census Tract: 6001422000" *CalEnviroScreen 4.0*, Oct. 2021, <https://oehha.ca.gov/calenviroscreen/report/draft-calenviroscreen-40>

CASE STUDY 6: Bio-Rad Laboratories

Location:¹

Address: 2000 Alfred Nobel Drive
Hercules, CA 94547
Contra Costa County
Proximity to Bay: ~164 feet
Site Size: 158 Acres

Site Overview:¹

Status: Certified as of 3/12/1984
Site Type: State Response
Facility Type: Manufacturing
Oversight Agencies: DTSC
On the National Priorities List: No
Years of activity: 1900-1960
Type of Contamination: Soil



Contaminants of Concern:¹

- 2,4,6-Trinitrotoluene
- Dinitrotoluene Mixture
- Metals: Cadmium and compounds, Copper and compounds, Lead, Zinc

Site History:¹

“The site was once a portion of the Hercules Powder Company which manufactured explosives and various munitions from the 1900 to 1960. Metal contaminants and residues from the historical operations contaminated soils on the site.”¹

According to a report Re: Analyzes Results for all Phase I Soil Samples for Hercules Industrial Park, “The property now contains the remains of approximately 30 bunkers and building foundations, two pit-type lined storage tanks, one above-ground storage tank, and an area once impounded by an earthen dike which is now breached. Sampling locations were chosen from sites deemed most likely to have toxic waste contamination. Composite samples were also collected from transects bisecting each of 10 subunits of the property (see accompanying map [Figure 11]) to determine local background concentrations of contaminants. Sample sites were marked with wooden stakes and photographed. Collected samples were analyzed by EAL Corporation and Marine Research Center laboratories for a variety of heavy metals and the explosives DNB, RDX, IPNT, and nitroglycerine.”²

Site Remediation and Status and Overview of “Clean Up”:^{1,2}

Also according to the Analyses Results for all Phase I Soil Samples: In 1981, Western Ecological Services Company (WESCO), acting as consultants for a potential purchaser of the site, conducted initial sampling. Analysis of these samples indicated the soil was contaminated with heavy metals and explosives.²

According to EnviroStors site history for Bio-Rad Laboratories, “All known contaminants were removed in 1983.”¹

Future Plans:³

In a letter to Sonya Low [who worked in the Hazardous Waste Management Division of the CA Department of Health Services] received a letter in October 1983 from Scott Cressey [who worked for WESCO] that stated, “This letter is to notify you that Bio-Rad Laboratories, acting through WESCO and IT Company, have completed the removal of metal barrels and soil contaminated with heavy metals and explosives from their Hercules Industrial Park site. This was accomplished in a manner conforming to the clean-up plan in WESCO's 24 August 1983 Final Report. 2402 cubic yards of material was removed from the property to IT'S Class I disposal site in Benicia.”³

According to Google, Bio-Rad: the biotechnology company, is still operating at 1000 Alfred Nobel Dr, Hercules, CA 94547.

Community Profile:⁴

This site is located in an urban area along the waterfront that is made up of residential and commercial areas. The community is predominantly Asian American (66.4%) and African American (16.1%). There is a high number of cleanup sites in the area and this census tract is in the 78th percentile for cleanup sites.

Census Tract #: 6013392300

Population: 3,126

CalEnviroScreen Percentile Score: 39

Pollution Burden Percentile: 43

Characteristics Percentile: 36

Notable Exposure Percentiles:

- Ozone: 11
- Particulate Matter 2.5: 33
- Diesel Particulate Matter: 87
- Toxic Releases: 58
- Traffic: 70
- Pesticides: 0
- Lead from Housing: 3
- Drinking Water: 4

Notable Environmental Effects:

- Cleanup sites: 78
- Groundwater threats: 28
- Hazardous waste: 81
- Impaired Waters: 83
- Solid Waste: 0

Sensitive Population Indicators:

- Asthma: 50
- Low Birth Weight: 73
- Cardiovascular Rate: 20

Notable Socioeconomic Factor Percentiles:

- Education: 42
- Linguistic Isolation: 35
- Poverty: 24
- Unemployment: 38
- Housing Burden: 27

Demographics/Community Profile:

- Race/Ethnicity:
 - 7.9% Hispanic
 - 16.1% African American
 - 66.4% Asian American
 - 8% White
 - 1.6% Other

1. Department of Toxic Substances Control. "Bio-Rad Laboratories (07280160)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=07280160
2. Cressy, Scott. "Analyses Results for All Phase I Soil Samples, Hercules Industrial Park ." *EnviroStor*, 20 Nov. 1981, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/7113584220/bio-rad%20site%20characterization%20ltr%20dtd%2011-20-81.pdf
3. Cressy, Scott. "Completion of the Toxic Waste Clean-up, Hercules Industrial Park." *EnviroStor*, 20 Oct. 1983, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/3629682242/bio-rad%20racr%20ltr%20dtd%2010-20-83.pdf.
4. Office of Environmental Health Hazard Assessment. "Census Tract: 6013392300." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54ceebeac7428e6184203/>

CASE STUDY 7: Blair Southern Pacific Landfill

Location:¹

Address:

1391 South 51st Street, Richmond, CA
94804, Contra Costa County

Proximity to Bay: ~820 feet

Site Size: 3.3 Acres

Site Overview:¹

Status: Active as of 12/22/2005

Site Type: State Response or NPL

Facility Type: Landfill

Oversight Agencies: DTSC

On the National Priorities List: No

Years of activity: 1970-1980s

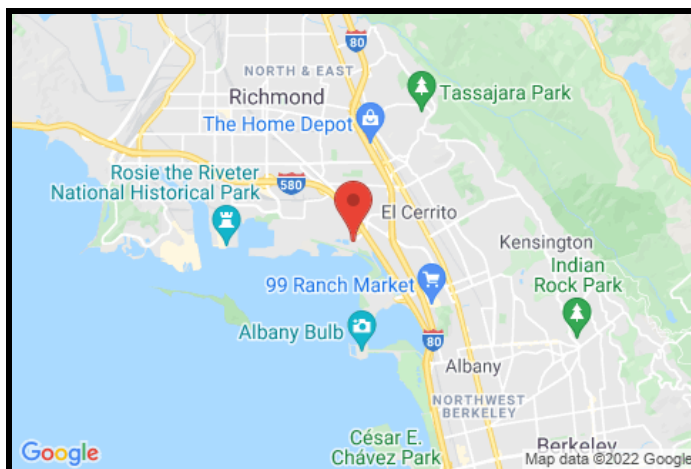
Type of Contamination: Soil

Contaminants of Concern:¹

- Asbestos containing materials
- Organic Liquids with Metals

Site History:^{1,2,3}

The Site is a historical uncontrolled landfill. Records indicate that Stauffer Chemical Company disposed of waste at the site. Based on that information, Stauffer Management Company is investigating the property for radiological contaminants while Union Pacific Railroad is investigating for all other chemicals. California Department of Public Health, Radiologic Health Branch has been contracted to provide assistance in evaluating the



radiological contamination. The Ridgway's Rail, an endangered bird species, has been observed near the site and some field work is limited to the non-breeding season (Sept 1 - Jan 31). In 1970, Blair Excavators and Southern Pacific Transportation Company entered into an agreement to start the Blair Southern Pacific Landfill. In 1983, that agreement was terminated.¹

In 1979, a third-party report by the Subcommittee on Oversight and Investigations of the Committee on Interstate and Foreign Commerce, found that the, “Site is not located on property of chemical plant participating in survey, but is known to have been used for disposal dumping in 1971. At time of use, the site was owned by a private concern other than the chemical company included in this survey. Site is still being used. Chemical components of waste disposed at this site include heavy metals and trace metals (bonded organically and inorganically), inorganics and miscellaneous waste material. Methods of disposal include uncategorized methods”²

A document from January 12, 2022 stated that, “Blair Landfill property was previously owned by Southern Pacific Railroad and partly by the Stauffer Chemical Company. The Blair Landfill is presently owned by the Union Pacific Railroad Company”³

Site Remediation and Status and Overview of “Clean Up”:^{4,5,6}

A site inspection report for the Stauffer Chemical Company (a neighboring site to the Blair Landfill located at 1415 S. 47th Street), included that, “In 1971 Stauffer used the [Blair Southern] landfill for disposal of 6,200 tons of waste containing chromium, lead, asbestos, and undetermined salts associated with agricultural products. Blair is not located on the Stauffer property; however, the only documented disposal at Blair was disposal of waste materials generated by Stauffer As of 1980 the landfill was still "open," although it is not known if wastes were still being accepted. The current ownership of the Blair site is unknown; however, discussions with the Contra Costa County Assessor's office indicate that the Blair site is owned either by ICI Americas or the State of California.”⁴

A 2008 soil gas sampling report for the Blair Landfill stated, “Analytical results indicate that relatively low levels of VOCs exist within the former Blair Landfill. These results were compared to residential and commercial/industrial CHHSLs. Commercial/industrial CHHSLs were not exceeded for VOCs in any of the soil gas samples collected. Residential CHHSLs for carbon tetrachloride were exceeded in one soil gas sample. The remaining detected concentrations were below residential CHHSLs from all sample locations. The results of the 2008 investigation indicate that further evaluation of soil gas at the Site is not warranted.”⁵

On March 5, 2016, a letter to Lynn Nakashima of the DTSC states, “On behalf of Zeneca Inc., Terraphase Engineering, Inc. (Terraphase) will conduct the DTSC-approved investigation to further assess the vertical and lateral extent of the technologically enhanced naturally occurring radioactive material (TENORM) detected in soil at the former Blair Landfill facility and adjacent properties”⁶

Future Plans:⁷

According to a letter sent to Tom Price at the DTSC on January 5, 2022, “Monthly inspections are currently conducted to monitor the site for security breaches (for example, fence and gate damage) and illegal dumping. During the December 29, 2021 inspection, the following

observations were made: Fence gate damage, Fence damage, and Trespassing” The letter also includes that, “The fence and gate will be repaired. The next site inspection will be conducted in January 2022.”⁷

Community Profile:^{8,9}

This is a predominantly non-white community with a pollution burden in the 74th percentile. This community is also in the 99th percentile for asthma. This site is surrounded by residential neighborhoods, the closest proximity being the Cortez/Stege and Eastshore neighborhoods. This area is also fairly densely populated.

Census Tract #: 6013380000

Population: 5,931

CalEnviroScreen Percentile Score: 75

Pollution Burden Percentile: 74

Characteristics Percentile: 68

Notable Exposure Percentiles:

- Ozone: 3
- Particulate Matter 2.5: 37
- Diesel Particulate Matter: 96
- Toxic Releases: 77
- Traffic: 68
- Pesticides: 0
- Lead from Housing: 25
- Drinking Water: 4

Notable Environmental Effects:

- Cleanup sites: 100
- Groundwater threats: 91
- Hazardous waste: 98
- Impaired waters: 93
- Solid Waste: 0

Sensitive Population Indicators:

- Asthma: 99
- Low Birth Weight: 55
- Cardiovascular Disease: 72

Notable Socioeconomic Factor Percentiles:

- Education: 33
- Linguistic Isolation: 43
- Poverty: 51
- Unemployment: 77
- Housing Burden: 34

Demographics/Community Profile:

- Race/Ethnicity:
 - 23.1% Hispanic
 - 23.6% Black
 - 19.2% Asian American
 - N/A% Native American
 - 27.4% White
 - 6.3% Other

1. Department of Toxic Substances Control. “BLAIR SOUTHERN PACIFIC LANDFILL (07490012).” *EnviroStor*; https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=07490012.

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7. Hodson, David. "Site Inspection Report, Former Liquid Gold Site, Richmond, California." *EnviroStor*, 5 Jan. 2022, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/1314678370/20220105%20Inspection%20Report.pdf
8. Office of Environmental Health and Hazard Assessment. "Census Tract: 6013380000." CalEnviroScreen 4.0, Oct. 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6ac7428e6184203/page/Draft-CalEnviroScreen-4.0/>.
9. U.S. Census. "U.S. Census Bureau Quickfacts: Richmond City, California." Quick Facts , 2021, <https://www.census.gov/quickfacts/richmondcitycalifornia>.
10. Blair Excavators and Southern Pacific Transportation Co. 1983. https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/7929991781/19700821%20Blair%20Excavators%20Inc.%20Lease%20and%20Termination%20%28UPRR%29%20%28from%2020060321%29.pdf

CASE STUDY 8: Browning Ferris Industries – San Mateo Landfill AKA 3rd Ave Landfill

Location:¹

Address: East 3rd Ave, San Mateo, CA 94401, San Mateo County

Proximity to Bay: ~328 feet

Site Size: 31 Acres

Site Overview:^{1,4}

Status: Open- Closed with monitoring as of 3/23/2006

Site Type: Evaluation

Facility Type: Landfill

Oversight Agencies: RWQCB

On the National Priorities List: No

Years of activity: 1935-1996

Type of Contamination: Soil

Contaminants of Concern:^{1,4}

- Per- and Polyfluorinated Substances (PFAS)

Site History:^{1,2}

"The 31-acre site has operated as a landfill since 1935. Browning Ferris Industries operated the landfill under contract with the City of San Mateo from 1960-1982. The site was also opened to the public in 1982. The site has been restricted to the disposal of municipal waste and to composting of plant material in June 1996 closed the landfill" ¹

According to the PFAS Sampling Work Plan [for] East Third Avenue Landfill, "Approximately 1.73 million cubic yards of waste (garden, construction and demolition wastes, creek and channel dredging, incinerator ash from the sewage treatment plant, and street sweeping material) were disposed of during this period. There is no engineered base liner below the waste fill, as is typical of older landfills that operated before the adoption of the current federal and state landfill regulations." ²

Site Remediation and Status and Overview of "Clean Up":²

According to a 2002 site screening form, "A Preliminary Assessment for the site was conducted in March 1985. According to the report, leachate problems were observed during Regional Water



Quality Control Board (RWQCB) inspections in February 1980 and October 1982. To remedy the problem, the City of San Mateo constructed leachate collection ditches under the direction of the RWQCB. The City of San Mateo Public Works Department submitted a proposal to the RWQCB for landfill closure in 1985. In June 1996, the City of San Mateo received final approval for the Closure Plan from the California Integrated Waste Management Board (CIWMB), RWQCB, and San Mateo County Environmental Health. The first phase of the closure plan was completed in the summer of 1997. Resulting from a March 2000 site visit conducted by the CIWMB, some issues were brought up concerning the condition and integrity of the landfill. The CIWMB concluded that the site poses a threat to human health and the environment due to lack of adequate maintenance. Some issues of concern included the lack of adequate cover on contaminated soil stockpiles (lead contaminated soil at 350 mg/kg), lack of adequate grading on the top deck and the slopes which resulted in multiple areas on the fill to pond runoff, and lack of security at the site.”³

Future Plans:¹

“Post closure activities are overseen by the San Francisco Regional Water Quality Control Board and the Integrated Waste Management Board.”¹

According to the PFAS Sampling Work Plan [for] East Third Avenue Landfill, “On March 20, 2019, East Third Avenue Landfill (ETAL) received Order WQ 2019-0006-DWQ (Order) from the State Water Resources Control Board (SWRCB) via the San Francisco Regional Water Quality Control Board (RWQCB). The Order requires submittal of a work plan for the one-time sampling at representative groundwater and leachate locations and analysis of per- and polyfluoroalkyl substances (PFAS).” The same document later states, “The final sampling and analysis report is anticipated to be submitted four weeks after receipt of the final laboratory analytical reports that contain the PFAS results”²

Community Profile:⁵

The San Mateo Landfill is located north of J. Hart Clinton Drive (formerly East Thud Avenue) and is bounded by San Francisco Bay and San Mateo Creek. A residential area is situated to the south of J. Hart Clinton Drive. The area surrounding the site is primarily suburban. The population is predominantly Hispanic (37.4%) and Asian (33%). This census tract is in the 85th percentile for unemployment and the 61st percentile for poverty.

Census Tract #: 6081607701

Population: 4,396

CalEnviroScreen Percentile Score: 62

Pollution Burden Percentile: 57

Characteristics Percentile: 59

Notable Exposure Percentiles:

- Ozone: 11
- Particulate Matter 2.5: 30
- Diesel Particulate Matter: 69
- Toxic Releases: 36
- Traffic: 79
- Pesticides: 0
- Lead from Housing: 89
- Drinking Water: 23

Notable Environmental Effects:

- Cleanup sites: 0
- Groundwater threats: 53
- Hazardous waste: 72
- Impaired Waters: 87
- Solid Waste: 42

Sensitive Population Indicators:

- Asthma: 60
- Low Birth Weight: 62
- Cardiovascular Rate: 31

Notable Socioeconomic Factor Percentiles:

- Education: 57
- Linguistic Isolation: 57
- Poverty: 61
- Unemployment: 85
- Housing Burden: 41

Demographics/Community Profile:

- Race/Ethnicity:
 - 37.4% Hispanic
 - 24.8% White
 - 33% Asian American
 - 0.5% Native American
 - 3.7% Other

1. Department of Toxic Substances Control. "Browning-Ferris Ind (San Mateo Landfill) (41490049)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=41490049
2. Harms, Patrick and Schmiesing, Tina. "PFAS Sampling Work Plan East Third Avenue Landfill, San Mateo, California" *GeoTracker*, 17 May 2019, https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo_report/9266674935/L10004740616.PDF
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4. State Water Resources Control Board. "3rd Ave Landfill, San Mateo (L10004740616)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report?global_id=L10004740616
5. Office of Environmental Health Hazard Assessment. "Census Tract: 6081607701." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6ac7428e6184203/>

CASE STUDY 9: Burlingame High School

Location:¹

Address: 400 Carolan Avenue,
Burlingame, CA 94010-2708

Proximity to Bay: ~656 feet

Site Size: 22 Acres

Site Overview:¹

Status: Certified/Operation &
Maintenance as of 8/4/2011

Site Type: School cleanup

Facility Type: High school

Oversight Agencies: DTSC

On the National Priorities List: No

Years of activity: 1910- Present

Type of Contamination: Soil



Contaminants of Concern:¹

- Arsenic
- Lead
- Polychlorinated Biphenyls (PCBs)

Site History:¹

Burlingame High School was built on the site in the late 1910's. The site comprises a two-story main building, a number of classrooms and office buildings, as well as sports fields and courts. During the modernization of BHS, elevated levels of lead from lead-based paint, PCBs associated with a transformer, and arsenic were found in the soil. ¹

According to EviroStors site history, "A Preliminary Environmental Assessment (PEA, 2003/04) investigated the site for metals, organochlorine pesticides, polychlorinated biphenyl (PCB), total petroleum hydrocarbons, volatile organic compounds and metals. The PEA report identified lead and PCB around the main building, and elevated arsenic in the athletic field. DTSC issued further action for Lead/PCB, and additional investigation for the arsenic." ¹

Site Remediation and Status and Overview of "Clean Up":¹

According to EviroStors site history for the Burlingame High School site, "A Removal Action Workplan (RAW) for lead and PCBs was approved for implementation in December 2005 for areas around the main building. The removal began in January 2006 and was completed in June 2007. Financial hardship caused delays in the completion of the removal. On October 27, 2008, DTSC developed and approved an Explanation of Significant Difference (ESD) for the project. The ESD serves as a bridging document to explain that a Land Use Covenant (LUC) is needed for this project, since a LUC was not mentioned in the removal action workplan. A LUC is needed since arsenic at levels not suitable for unrestricted use will remain on the campus; however, barriers are in place to eliminate contact with the arsenic impacted soil... In October 2008, DTSC approved the removal action completion report for lead/PCB and certified that there is no longer a risk posed by lead/PCB at the site. The Remedial Action Completion Report (RACR) for Arsenic documents the excavation, encapsulation, and off-site disposal of soil contaminated with arsenic. Arsenic-impacted soil remains at Areas C, D2, E, F, and G3. Where backfilling occurred, a marker (orange plastic mesh or metal gopher mesh) was placed over the remaining arsenic-impacted soils prior to backfilling. All arsenic mitigation activities were completed in January 2009. Area A and G1 were the only areas where arsenic impacted soil was able to be completely removed, and the cleanup goal was met. Areas C, D2, E, F and G3 are required to be managed in an Operation and Maintenance (O&M) Plan. In addition, some sidewall samples in Areas B, D1 and G2 contained arsenic concentrations above the Site clean up screening level and will also be required to be managed in an O&M Plan." ¹

A cap made of wood chips was placed over the affected areas that were not completely removed. After this, subsequent inspections were conducted to ensure the cap was still in place and issues were identified and resolved. ¹

Future Plans:¹

According to EviroStors site history:

"On July 26, 2021 DTSC approved a modified O&M Plan

- DTSC agreed to suspend quarterly inspections;
- Annual inspections of paved and unpaved areas (measure depth to fabric) to be performed by the O&M Coordinator;
- 5-year inspections to be performed by the O&M Coordinator, O&M Professional, and DTSC Project Manager;
- Annual LUC reporting to be submitted by the O&M Coordinator; and,
- 5-year Reporting (with photos) to be submitted by the O&M Coordinator and O&M Professional.”¹

The most recent LUC [Land Use Covenant] report was released August 2022 and is publicly available as a document linked on EnviroStors site profile for BHS. The next 5 year Report is due June 2023¹

Community Profile:²

The site is located in downtown Burlingame and is adjacent to an elementary school. The site is located in an urban area near residential neighborhoods. The population is predominantly White (55.9%) and densely populated.

Census Tract #: 6081605400

Population: 6,142

CalEnviroScreen Percentile Score: 21

Pollution Burden Percentile: 76

Characteristics Percentile: 8

Notable Exposure Percentiles:

- Diesel Particulate Matter: 79
- Ozone: 11
- Particulate Matter 2.5: 27
- Traffic: 85
- Pesticides: 0
- Drinking Water: 43
- Toxic Releases: 34
- Lead from Housing: 59

Notable Environmental Effects:

- Cleanup sites: 50
- Groundwater threats: 94
- Hazardous waste: 83
- Impaired Waters: 77
- Solid Waste: 59

Sensitive Populations:

- Asthma: 11
- Low Birth Weight: 29
- Cardiovascular Disease: 7

Notable Socioeconomic Factor Percentiles:

- Education: 13
- Linguistic Isolation: 30
- Poverty: 2
- Unemployment: 16
- Housing Burden: 62

Demographics/Community Profile:

- Race/Ethnicity:
 - 17.9% Hispanic

- 55.9% White
- 21% Asian American
- 4.9% Other

1. Department of Toxic Substances Control. "Burlingame High School." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=41820008
2. Office of Environmental Health Hazard Assessment. "Census Tract: 6081605400." *CalEnviroScreen 4.0*, October 2021. <https://experience.arcgis.com/experience/11d2f52282a54ceebeac7428a6184203/>

CASE STUDY 10: Chevron USA Inc Richmond Refinery

Location:¹

Address: 841 Chevron Way,
Richmond, CA 94801

Proximity to Bay: ~33 feet

Site Size: 2,900 Acres

Site Overview:^{1,2}

Status: Open-Remediation as of
3/1/2008

Site Type: Operating Permit

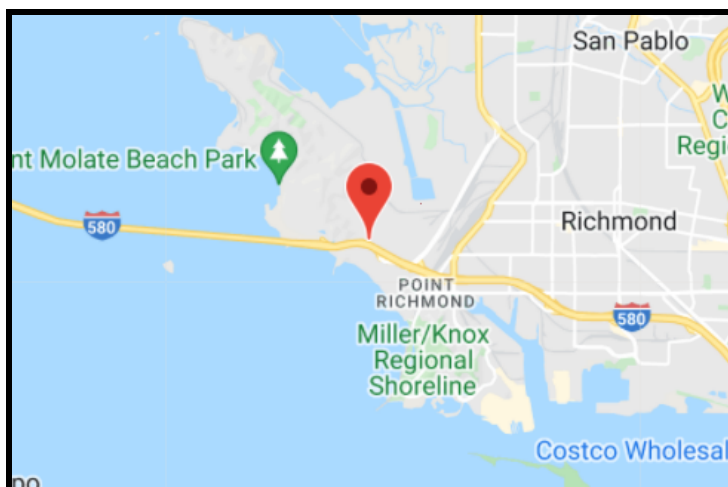
Facility Type: Hazardous Waste
Facility (Petroleum)

Oversight Agencies: RWQCB
(Region 2)

On National Priorities List: No

Years of activity: 1902 - Present

Type of contamination: Other groundwater, soil, surface water



Contaminants of Concern:^{1,2}

- Arsenic
- Benzene
- Chlordane
- Chromium
- Diesel
- Gasoline
- Lead
- MTBE/TBA/other fuel oxygenates
- Mercury (Elemental)
- Nickel
- Other insecticides/pesticide/fumigants/herbicides
- Other Metal
- Polynuclear Aromatic Hydrocarbons (PAHS)

Site History:¹

The Chevron Richmond Refinery was established in 1902 and was the site of multiple facilities.¹

The EnviroStor profile for the Chevron Richmond Refinery outlines the site's permit activity as follows: “This Facility has two Hazardous Waste Facility Permits – (1) Post-Closure Permit and (2) Treatment and Storage Permit.

(1) Post-Closure Permit: A previous 2017 permit was first appealed but deemed to be effective May 14, 2019, and to expire on May 14, 2029. On February 10, 2020, the Facility submitted a request for a Class 1/Class 1* Permit Modification. On July 22, 2020, DTSC approved the request. The Facility’s Post-Closure Landfarms permit is currently in permit maintenance mode. On September 2, 2022, the Facility submitted a “2022 Semi-Annual Monitoring Report Refinery-wide Groundwater Monitoring Program and Landfarms Post-Closure Monitoring Program” for DTSC to review on the Post-Closure Landfarms portion.

(2) Treatment and Storage Permit: The treatment and storage permit was renewed in 2020 and has an effective date of October 25, 2020. The treatment and storage permitted area is currently in permit maintenance mode. There was no specific activity during this quarter.”¹

Facility descriptions listed in EnviroStor claim:

“(1) Post-Closure Facility: The five land treatment units are: Landfarm 1 through Landfarm 5. Permittee accepted hazardous waste in Landfarms 1-5 between mid-1970s to 1987. Landfarming was conducted to promote biodegradation of oily wastes generated from on-site petroleum processing. Landfarms 1-4 were built over existing waste areas and Landfarm 5 was built over fill. Historical landfills underlie portions of Landfarms 1-3. Prior to the start of landfarming operations, 7 to 20 feet of fill was placed at each of the Landfarm locations. The fill material originated from a variety of sources, including adjacent pond and channel dredging and soil from the San Pablo Tank Farm construction activities. During the period of landfarming operation, wastes (including hazardous wastes K049, K051 and K169) were applied to the surface of the Landfarms and tilled into the top 6 to 12 inches of fill. The principal wastes applied were oil/water separator sludge (Landfarms 1, 2, 4 and 5), non-lead tank bottoms (Landfarms 1, 2, 3 and 4), oil/water mixtures, algae water, pond sediments and oily dirt. The areas of Landfarms 1-5 are 13.5, 8, 3.5, 3 and 1 acre.

In January 1988, U.S. EPA issued a Consent Agreement and Final Order (No. RCRA 09-88-005) to the Permittee to ensure that the Landfarms were closed in accordance with applicable U.S. EPA regulations. DTSC followed by issuing a Stipulation and Order (HWCA 87/99-019) to ensure that the Landfarms were closed in accordance with the applicable California regulations. The Landfarms have not received waste since 1987.

Chevron completed the construction of the vegetative cap as described in the closure plan in the summer of 1999 and submitted the Revised Landfarms Closure Construction Completion Certification Report on March 27, 2000. On September 19, 2000, DTSC issued the approval of the Closure Certification for Landfarms 1-5, which was the date the post-closure care began. DTSC issued a new Post-Closure Permit for Landfarms 1-5 on March 4, 2003.

The 2003 permit expired and was renewed. DTSC issued a renewed permit on May 11, 2017. This 2017 Post-Closure Permit requires the Permittee to continue the post-closure care activities that include vegetative cap monitoring and maintenance, surface settlement monitoring, soil cover inspection and maintenance, surface water drainage system inspection, and groundwater monitoring/free-phase hydrocarbon monitoring. Permittee conducts these post-closure activities, and documents the observation and the results in the “...Annual Monitoring Report

Refinery-wide Groundwater Monitoring Program and Landfarms Post-Closure Program which is submitted to the San Francisco Bay Regional Water Quality Control Board (RWQCB) and DTSC.

(2) Treatment and Storage Facility: There five permitted units are: (1) Storage for Drummed Waste – for a capacity of 4,620 gallons, (2) Neutralization (treatment) – for a capacity of 13,000 gallons, (3) Bulk Liquid Storage and Treatment – for a capacity of 147,000 gallons, (4) Solid Waste Bin Storage (and Treatment) – for a capacity of 81,800 gallons, and (5) Liquids/Sludge Storage and Treatment – for a capacity of 210,000 gallons.

The Facility is an integrated petroleum refinery which produces a broad range of petroleum products including transportation fuels and lubricants. The area of the Hazardous Waste Treatment and Storage (HWTS) is 1.3-acres. The HWTS area is located within the 2,900-acre Facility. The Facility is located in an industrial area of Richmond, Contra Costa County. The construction of the HWTS area was completed in October 1983. It is utilized for storage and treatment of many of the hazardous wastes generated in various production areas of the Facility. The HWTS is arranged into five (5) major hazardous waste management units to avoid the potential for physical contact of different waste types. The HWTS has a small laboratory for performing onsite evaluations of wastes, a personnel office and shower/change trailer. There are two sheds for storing safety related items and spill containment, control, and cleanup materials, located along the east boundary of the HWTS. The administrative offices for the HWTS are just outside the main entrance gate on the northern boundary of the HWTS.

Hazardous wastes generated from refinery operations are brought to the HWTS for segregation, treatment and storage before shipment offsite for further treatment or disposal. The treatment at the HWTS reduces the volume and hazardous characteristics of the waste. Some of the wastes are acids, bases and reactive chemicals. The estimated quantity of hazardous waste managed at the HWTS is 17,065 tons per year from thirty-five (35) different operations. These wastes can be stored at the HWTS for up to one year.

The invention and popularity of the automobile in the early 1900s increased the demand for gasoline, lubricants, and other petroleum products, making the refinery adapt to fit this change. In 1917 during World War I, the refinery established a laboratory on the facility to promote research and innovation in petroleum uses and processes. The refinery once again shifted its focus and priorities during World War II, providing high-octane fuel and other products to meet military needs. In the 1970s and 1980s, the refinery began to take strides to reduce air emissions and waste, treat water, and prevent oil spills.”¹

Site Remediation and Status and Overview of “Clean Up”:⁴

According to a “Notice of Permit Decision for the Hazardous Waste Facility Post-Closure Permit Renewal” document, “The Landfarms were closed in 1987, and went through closure activities and corrective action until the summer of 1999. Chevron started post-closure care on September 30, 1999 to maintain the vegetation and vegetation cover. Following DTSC’s approval of the Closure Certificate on September 19, 2000, Chevron submitted an initial RCRA Post-Closure Permit Application (Application) for the Landfarms on March 20, 2000, and later submitted a revised and approved Application on January 7, 2002. DTSC issued a new Hazardous Waste Facility Post-Closure Permit for the Landfarms on March 4, 2003, with an effective date of March 7, 2003, and an expiration date of March 7, 2013.”³

In 2001 a ‘Refinery Hazardous Waste Treatment and Storage Permit’ stated, “Treatment practices at the HWTSF which may be performed on hazardous waste and the maximum treatment quantities allowed per day [were]:

- Neutralization and pH Adjustment 21,000 Gal./Day
- Oxidation of Sulfidic Wastes 21,000 Gal./Day
- Oxidation of Ignitable/Flammable/Pyrophoric/Self-Heating Material 16,200 Gal./Day
- Reduction, Precipitation, Flocculation, and Sedimentation 63,000 Gal./Day
- Stabilization 8,100 Gal./Day
- Deliquescence, Filtration, and Phase Separation 21,000 Gal./Day
- Sparging, Stripping 21,000 Gal./Day

All wastes must meet land disposal treatment standards before being landfilled. This will be accomplished either through on-site or off-site treatment.”⁴

Future Plans:³

A 2017 notice from the DTSC claimed: “The Department of Toxic Substances Control (DTSC) is issuing this Notice of Permit Decision (Notice) for the renewal of the Resource Conservation and Recovery Act (RCRA) Hazardous Waste Facility Post-Closure Permit (Permit) for Post-Closure Landfarms 1 through 5 (Landfarms) of the Chevron USA Inc., Richmond Refinery (Chevron, or Applicant). This Permit shall authorize Chevron to continue its responsibilities by conducting the post-closure care and maintenance of the Landfarms, located at 841 Chevron Way, Richmond, California 94801.”³

Community Profile:⁵

The 2,900-acre refinery is located along the southern shore of San Pablo Bay in Contra Costa County. The City of Richmond lies to the east of the facility. To the east and within one mile from the facility is industrial, residential, commercial and agricultural land use. The city of Richmond faces cumulative environmental impacts. This census tract has the highest level of hazardous waste compared to all other census tracts in California. They are also in the 99th percentile for cleanup and groundwater threats. This has affected the health of residents, leading to high asthma rates (97th percentile). The population of the census tract where this site is located is predominantly white (68%), however this is a large site that borders other census tracts (6013365002, 6013376000, 6013377000, 6013379000) that are predominantly Hispanic and African American.

Census Tract: 6013378000

Population: 3,327

CalEnviroScreen Percentile Score: 71

Pollution Burden Percentile: 92

Population Characteristics Percentile: 49

Notable Exposure Percentiles:

- Ozone: 4
- PM 2.5: 36
- Diesel Particulate Matter: 87
- Toxic Releases: 95
- Traffic: 66
- Pesticides: 18
- Lead from Housing: 40
- Drinking Water: 4

Notable Environmental Effects:

- Cleanup sites: 99
- Groundwater Threats: 99
- Hazardous Waste: 100
- Impaired Waters: 90
- Solid Waste: 83

Sensitive Population Indicators:

- Asthma: 97
- Low Birth Weight: 70
- Cardiovascular Rate: 63

Notable Socioeconomic Factor Percentiles:

- Education: 23
- Linguistic Isolation: 38
- Poverty: 15
- Unemployment: 3
- Housing Burden: 28

Demographics:

- **Race/Ethnicity:**
 - White: 68%
 - African American: 3.9%
 - Hispanic: 18.5%
 - Asian American: 5.8%
 - Other: 3.8%

1. Department of Toxic Substances Control. "Chevron USA INC Richmond Refinery (CAD009114919)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/hwmp_profile_report?global_id=CAD009114919&starttab=
2. State Water Resources Control Board. "Chevron Richmond Refinery (SL18236654)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL18236654
3. Lee, Barbra A. "NOTICE OF PERMIT DECISION FOR THE HAZARDOUS WASTE FACILITY POST-CLOSURE PERMIT RENEWAL, CHEVRON USA, INC. RICHMOND REFINERY." *EnviroStor*, 19 May 2017, https://www.hwmpenvirostor.dtsc.ca.gov/public/site_documents/3376722037/_170511_Chevron%20andfarms%20Notice%20of%20Decision%20-%20ENGLISH%20Version%20%28May%2011%202017%29.pdf
4. Aven, Diane, et al. "REFINERY HAZARDOUS WASTE TREATMENT & STORAGE PERMIT." *EnviroStor*, Aug. 2001, https://www.hwmpenvirostor.dtsc.ca.gov/public/site_documents/6914045035/HWTSEF%20Permit%20Application%20Part%20A%20%26%20B.%20Rev.6%20C%20December%208%2C%202007.pdf
5. Office of Environmental Health Hazard Assessment. "Census Tract: 6013378000." *CalEnviroScreen 4.0*. October 2021. <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/>

CASE STUDY 11: Electro-Forming Co.

Location:¹

Address: 3435 Enterprise Avenue
Hayward, CA 94545

Alameda County

Proximity to Bay: ~2625 feet

Site Size: 0.43 Acres

Site Overview:¹

Status: Active

Site Type: Tiered Permit

Facility Type: Former metal plating facility

Oversight Agencies: California DTSC

On the National Priorities List: No

Years of activity: 1978-2001

Type of contamination: Groundwater, soil, and soil vapor

Contaminants of Concern:¹

- Cadmium
- Trichloroethene (TCE)
- Tetrachloroethene (PCE)

Site History:²

“The site is the former Electro-Forming facility. The site parcel size is approximately 18,600 square feet. A concrete tilt-up type building (approximately 8,900 square feet in size) occupies the east side of the parcel. The former exterior storage and parking areas occupy the west side of the parcel ... Metal plating operations were conducted at the site from approximately 1978 to 1999. The facility was closed in 2001. The building contained a plating area, chemical storage area, wastewater treatment units, a polishing room, and shipping and office areas. The exterior parking and storage yard was used to store surplus equipment and materials.”²

Site Remediation and Status and Overview of “Clean Up”:²

The Site is being remediated pursuant to a Revised Preliminary Endangerment Assessment (dated March 30, 2012) and Soil Vapor and Groundwater Investigation Report (dated April 2013) (collectively the “Preliminary Endangerment Assessment”). Because cadmium was detected in soil and trichloroethylene (TCE) and perchloroethylene (PCE) in soil vapor above residential cleanup levels, and TCE was detected in groundwater above drinking water levels, the Preliminary Endangerment Assessment recommends the placement of a Land Use Covenant (LUC) on the Site. The LUC would require maintaining a Cap over most of the Site and limiting use of the Site to commercial/industrial purposes, and prohibit using groundwater from beneath the Site. The Cap consists of concrete, asphalt, and compacted base material. Additionally, no activities that disturb the soil at or below the Cap (e.g., excavation, grading, removal, trenching, filling, earth movement, mining, or drilling) are allowed on the Site without a Soil Management Plan approved by the DTSC in advance. One of the more recent inspections, conducted in May 2021 found that the Site complies with the restrictions and requirements of the LUC.²



Future Plans:¹

The site history provided by EnviroStor claims, “A land use covenant (LUC) is required as part of the site remediation because hazardous wastes or constituents including cadmium, remain in soil above unrestricted cleanup goals at depths of one (1) ft. or more below the surface of the Site; and TCE remains in groundwater in and under portions of the Site. LUC recommended remediation includes maintaining a cover ("Cap") over most of the Property. According to the 2022 annual inspection report, the Site complies with the restrictions and requirements of the LUC (residences, hospital for humans, public or provide school for persons under 21 years of age and day care center for children).”¹

Community Profile:^{2,3}

The Electro-Forming Co. Facility is located in an area of Hayward dedicated mainly to industrial use, the surrounding area consists of industrial and commercial facilities. Hayward is a city in Alameda County, California. The community is predominantly Asian American (48.3%).

Census Tract #: 6001437101

Population: 7,867

CalEnviroScreen 4.0 Percentile Score: 74

Pollution Burden Percentile: 80

Characteristics Percentile: 62

Notable Exposure Percentiles:

- Ozone: 12
- Particulate Matter 2.5: 28
- Diesel Particulate Matter: 28
- Toxic Releases: 71
- Traffic: 85
- Pesticides: 0
- Drinking Water: 7
- Lead from Housing: 31

Notable Environmental Effects:

- Cleanup sites: 99
- Groundwater threats: 98
- Hazardous waste: 99
- Impaired Waters: 87
- Solid Waste: 99

Sensitive Population Indicators:

- Asthma: 90
- Low Birth Weight: 81
- Cardiovascular Rate: 78

Socioeconomic Factor Percentiles:

- Education: 51
- Linguistic Isolation: 35
- Poverty: 35
- Unemployment: 31
- Housing Burden: 12

Demographics/Community Profile:

- Race/Ethnicity:
 - 48.3% Asian American
 - 23.5% Hispanic
 - 15.1% White
 - 7.4% African American
 - 4.9% Other

- 0.9% Native American

1. California Department of Toxic Substances Control. "Electro-Forming Co. - Hayward." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=71003321
2. California DTSC. "Preliminary Endangerment Assessment, Electro-Forming Company Hayward, California." *EnviroStor*, Apr. 2013, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/3073440372/Electroforming%20Hayward%20PEA%20Report%2030_12.pdf
3. Office of Environmental Health Hazard Assessment. "Census Tract 6001437101." *CalEnviroScreen 4.0*, October 2021. <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>

CASE STUDY 12: Fass Metals

Location:¹

Address: 818 W. Gertrude Ave.,
Richmond, CA 94801

Proximity to Bay: ~656 feet

Site Size: 2 Acres

Site Overview:¹

Status: Certified / Operation

& Maintenance as of 11/6/2012

Site Type: State Response or NPL

Facility Type: Recycling

Oversight Agencies: DTSC

On the National Priorities List: No

Years of activity: 1957-1978

Type of Contamination: Other
groundwater, Soil



Contaminants of Concern:¹

- Contaminated Soil
- Waste oil
- Mixed oil
- Polychlorinated Biphenyls (PCBs)

Site History:¹

According to Envirostor, "This two-acre site had operated as a metal recycling facility since 1957. The site is a low-lying filled marshland subject to occasional flooding during wet weather conditions. Used transformers with oil coolant containing low levels of polychlorinated biphenyls (PCBs) were bought by Sacramento Municipal Utilities District (SMUD) and were dismantled onsite. The transformers were broken apart and the copper cores were separated from the oil. During this operation, oil containing PCBs was spilled onto the ground."¹

Site Remediation and Status and Overview of "Clean Up":^{2,3}

In 1990, the Remedial Action Plan required a perimeter slurry wall, an extraction trench with discharge to the West County Wastewater District and an asphalt/concrete composite cap. Construction of an interim cap with an asphalt concrete pavement was completed in May 1995. The site was annexed by the West County Wastewater District in November 1995. The groundwater discharge from the site was required to be brought to the sewer through a force

main. Construction of the force main connecting the extraction system to the sewer was completed on January 22, 1996. In December 1996, a Land Use Covenant (Deed Restriction) was recorded limiting future use of the property to industrial/commercial. In 1997, the site was certified. Ongoing operation and maintenance includes inspection and monitoring of the cap, water levels, pump operation, water quality, piezometer and well covers; maintenance of cap and extraction trench.²

According to a quarterly report on the Fass Metal Active Containment site, “Various remedial action alternatives were evaluated and the recommended option was to install a containment system consisting of a slurry wall around the perimeter of the Site and founded in the alluvium underlying the Bay Mud, a groundwater extraction trench extending approximately the length of the Site and penetrating the Site fill and Bay Mud, a carbon adsorption treatment system for removing PCBs from extracted groundwater, and a cap consisting of compacted clay, synthetic liner, and reinforced concrete. SMUD became responsible for operation and maintenance (O&M) of the passive containment system for the Site. The current containment system includes a Site cap, bentonite slurry walls, and an extraction trench and pump system (inactive since 2005) which was used to further restrain horizontal groundwater movement. Physical O&M activities currently consist of monitoring the quality of groundwater from the monitoring wells and extraction trench; monitoring groundwater levels inside the containment system; monitoring, inspecting, and maintaining the cap, piezometer, and well covers, other associated equipment; and conducting settlement monitoring of the cap.”³

Future Plans:¹

5 year review reports are ongoing and according to EnviroStor, one is in 2023. ¹

The quarterly report on the Fass Metal Active Containment site also claims that, “On October 27, 2020, SMUD employee Keegan George, a professional civil engineer in California (#C87331), performed an integrity inspection of the containment cap and drainage system. The inspection did not identify any major cracking, penetrations, deterioration, or settling of the cap surface. Minor surface cracking that extends from existing sealed cracks was observed in select areas of the site. However, no action appears to be warranted at this time to repair the minor cracking observed”³ Not stated in the report is how and when they will monitor the “minor surface cracking” that was identified in 2020.

Community Profile:^{3,4}

The Site is surrounded by wrecking yards and petrochemical processing facilities in an industrial section of Richmond, California. It is bordered by Wildcat Creek, the Maritime Safety and Security center, and a residential area. This area has high levels of hazardous waste (100th percentile) and a large number of cleanup sites (99th percentile). The community is predominantly Hispanic (68.6%) and has a moderately high poverty level (76th percentile). Due to cumulative environmental impacts there is a high level of asthma in this community.

Census Tract #: 6013365002

Population: 5,590

CalEnviroScreen Percentile Score: 96

Pollution Burden Percentile: 89

Characteristics Percentile: 94

Notable Exposure Percentiles:

- Ozone: 6
- Diesel Particulate Matter: 62
- Particulate Matter 2.5: 40
- Traffic: 28
- Pesticides: 26
- Drinking Water: 4
- Toxic Releases: 77
- Lead from Housing: 81

Notable Environmental Effects:

- Cleanup sites: 99
- Groundwater threats: 86
- Hazardous waste: 100
- Impaired Waters: 90
- Solid Waste: 97

Sensitive Populations:

- Asthma: 99
- Low Birth Weight: 88
- Cardiovascular Disease: 73

Notable Socioeconomic Factor Percentiles:

- Education: 93
- Linguistic Isolation: 94
- Poverty: 76
- Unemployment: 42
- Housing Burden: 82

Demographics/Community Profile:

- Race/Ethnicity:
 - 68.6% Hispanic
 - 18.3% African American
 - 4% White
 - 7.1% Asian American
 - 2% Other

1. Department of Toxic Substances Control. "Fass Metals (07330030)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=07330030
2. Friedman, Helen. "Remedial Action Plan." *EnviroStor*, 14 May 1990, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/7311750113/fass%20final%20rap.pdf.
3. George, Keegan. "Fass Metals Annual Containment System Report (Revision 1), November 2019 - October 2020." *EnviroStor*, 25 May 2021, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/6914947330/2019-2020%20Annual%20Report%20%28Rev%20%231%29-signed.pdf.
4. Office of Environmental Health Hazard Assessment. "Census Tract: 6013365002." *CalEnviroScreen 4.0*, October 2021. <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/>

CASE STUDY 13: FMC Corporation

Location:^{1,2}

Address: 8787 Enterprise Drive,
Newark, CA 94560

Proximity to Bay: ~1,148 feet

Site Size: 39.3 Acres

Site Overview:^{1,2,3}

Status: Open - Remediation as of
5/31/2019

Site Type: Corrective Action

Facility Type: Chemical
Manufacturing and Processing

Oversight Agencies: RWQCB
(Lead) and the Alameda County
Water District

On the National Priorities List: No

Years of activity: 1929-2002

Type of Contamination: Other Groundwater (uses other than drinking water), Soil Vapor



Contaminants of Concern:^{1,3}

- 1,1,1-Trichloroethane (TCA)
- Arsenic
- Chromium
- Ethylene Dibromide (EDB)
- Kerosene
- Lead
- Nickel
- Phosphate
- Tetrachloroethylene (PCE)
- Trichloroethylene (TCE)
- Vinyl Chloride
- Xylene
- Uncategorized: Acid solution 2>pH with metals, Halogenated Organic Compounds, other inorganic solid waste, other organic solids, Oxygenated solvents, Sulfur Sludge, unspecified acid solution, waste oil & mixed oil, Asbestos Containing Materials (ACM)

Site History:¹

“The Site is relatively flat with an elevation of approximately 11 feet above mean sea level and is made of five formerly operational parcels (A, B, C, D and I) comprising 39.3 acres of land where chemical manufacturing and processing occurred, and two non-operational parcels (F and G) that remained undeveloped and not used for manufacturing. Parcels F and G, comprising 5.8 acres, are located on the northeast corner of Enterprise Drive and Willow Street and are still owned by FMC. Parcel E is no longer considered part of the Site. Parcel E comprising 2.1-acres is located at the northeast corner of Enterprise Drive and Willow Street. It is a non-operational parcel that remained undeveloped and not used for manufacturing. FMC transferred ownership of Parcel E

in February 2015, following environmental due diligence studies and a recorded environmental deed restriction.”¹

“From 1929 through 1995, extensive chemical manufacturing by FMC and its predecessor companies produced a variety of chemicals that resulted in adverse impacts to the soil and groundwater beneath the site. Bromine and ethylene dibromide (EDB) were made from seawater bittern (Parcels B & I) and quicklime was manufactured from oyster shells (Parcel C). The bromine towers were constructed on Parcel B in 1929 and the EDB plant was constructed at the same time on Parcel I, which had been leased from Leslie Salt Company. In 1934, Sierra MagneSite became California Chemical Company, which merged into Westvaco Chlorine Products Corporation in 1937, and then constructed a magnesia plant on Parcel C. In 1942, a pilot plant for a copper-based catalyst (1707 Catalyst) was built on Parcel I, which was leased from Leslie Salt Company, and a plant for the full production of the catalyst was constructed on Parcel A. These catalyst plants were closed in 1944. Westvaco Chlorine Products Corporation merged with Food Machinery Corporation in 1948 to form Food Machinery and Chemical Corporation (later renamed FMC Corporation). A phosphate plant and phosphoric acid plant were constructed on Parcel A in 1950. Phosphoric acid was manufactured by burning elemental phosphorus (P₄) that was produced elsewhere and shipped to Newark by rail. Between 1955 and 1959, full scale manufacturing of the 1707 Catalyst was performed at the location of the former pilot plant on Parcel I.”¹

Site Remediation and Status and Overview of “Clean Up”:

According to the site history on EnviroStor, “In 1968, the magnesia plant, bromine towers, and EDB plant were shut down and the associated manufacturing facilities were removed. The lease with Leslie Salt Company for Parcel I was terminated, and Leslie Salt Company assumed management of this property. During demolition of the magnesia plant (Parcel C) aboveground structures were removed, except for two 100,000 gallon Bunker C oil tanks that were demolished in place. The tank bottoms and four feet of side-walls were folded in on the tank bottom and buried. Footings and other below-grade concrete structures were also left in place. In the mid-1960s, a small catalyst plant was constructed on Parcel B for manufacture of Petro-Tex catalyst; this facility was shut down in 1976. During that same year, a hydrogen peroxide (and other chemicals) distribution facility was constructed on Parcel B. FMC acquired the adjacent Site (Parcel I, where part of the former EDB plant was located) from Designed Building Systems, Inc., on August 16, 1988. The phosphate plant and phosphoric acid plant were shut down in 1994 and 1995, respectively. FMC removed all former phosphate plant and phosphoric acid plant manufacturing facilities by the end of 1996. The warehousing and distribution activities ceased by 1998 and the hydrogen peroxide trans-loading facility was closed in 2002.”¹

Future Plans:¹

As stated on the EnviroStor site history, “In 2017 the Site was subdivided into three Redevelopment Areas (Enterprise, Willow and Park) consistent with the Dumbarton Transit Oriented Development Project anticipated uses. The Enterprise Redevelopment Area parcel sold to Lennar Homes of California on 4/4/2019. A deed restriction was recorded for the site at the time of sale and the Water Board approved a risk management plan to address potentially impacted soils, groundwater and soil vapor during and after redevelopment construction. Groundwater remediation and monitoring are ongoing for the Enterprise Redevelopment Area.

Soils within the Willow Redevelopment Area were remediated in 2018/2019 to approved human health risk based cleanup levels, except for the P4 cap area. FMC submitted a revised FS/RAP for the P4 Cap area in 2019; proposed remedies are currently under review. FMC submitted a revised FS/RAP for the Park Redevelopment Area (including the EDB cap area) in 2019 and proposed remedies for this portion of the site are also currently under review. Groundwater remediation and monitoring continue for both the Willow and Park Redevelopment Areas.”¹

Also according to EnviroStor the site is, “currently being redeveloped into a mix of residential and commercial uses as part of the City of Newark Dumbarton Transit Oriented Development Specific Plan. At present, the Site consists almost entirely of vacant open space. The only remaining above-ground structures are a warehouse, the groundwater extraction and treatment system, an office building, remnant building foundation pads, and two engineered asphalt caps. Land uses adjacent and near the Site include: San Francisco Public Utilities Commission’s Hetch-Hetchy pipeline right-of-way and the Union Pacific Railroad to the north, the former and active salt evaporation ponds to the west and southwest and adjacent to the San Francisco Bay, an engineered barge canal connected to the Newark Slough to the west; undeveloped land owned by Cargill, Inc., Salt Division to the south and a Wildlife Refuge to the northwest. The Hetch-Hetchy pipeline right-of-way is just north of Parcel B and bisects the Site through Parcels A, D, and G. The nearest surface water bodies to the FMC Site are the Newark Slough located approximately 2,000 feet north of the Site, and Plummer Creek located approximately 2,500 feet south of the Site. Plummer Creek is a tidal tributary of South San Francisco Bay and drains into the Newark Slough.”¹

Community Profile:⁴

This site lies south of the Dumbarton Bridge and east of the Don Edwards San Francisco Bay National Wildlife Refuge. This community is predominantly Hispanic (39.7%) and Asian American (38.3%). This area is mixed residential and commercial and is only minutes away from the Don Edwards San Francisco Bay National Wildlife Refuge.

Census Tract #: 6001444302

Population: 5,185

CalEnviroScreen Percentile Score: 48

Pollution Burden Percentile: 32

Population Characteristics Percentile: 56

Notable Exposure Percentiles:

- Diesel Particulate Matter: 23
- Traffic: 9
- Drinking Water: 8
- Ozone: 12
- Pesticides: 0
- Particulate Matter 2.5: 27
- Toxic Releases: 30
- Lead from Housing: 58

Notable Environmental Effects:

- Cleanup sites: 81
- Groundwater threats: 97
- Impaired Waters: 0
- Hazardous waste: 98
- Solid Waste: 53

Sensitive Population Indicators:

- Asthma: 76
- Low Birth Weight: 76
- Cardiovascular Rate: 67

Notable Socioeconomic Factor Percentiles:

- Education: 33
- Linguistic Isolation: 55
- Poverty: 35
- Unemployment: 12
- Housing Burden: 40

Demographics/Community Profile:

- Race/Ethnicity:
 - 39.7% Hispanic
 - 4.6% African American
 - 38.3% Asian American
 - 14.2% White
 - 0.5% Native American
 - 2.6% Other

1. Regional Water Quality Control Board. "FMC Corp. - Newark (SL20240858)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL20240858
2. Department of Toxic Substance Control. "FMC Corporation (80001608)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=80001608
3. Department of Toxic Substance Control. "FMC Corporation- Newark (01280012)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=01280012
4. California Office of Environmental Health Hazard Assessment. "Census Tract: 6001444302" CalEnviroScreen 4.0, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee9cac7428e6184203/page/CalEnviroScreen-4.0/>

CASE STUDY 14: Former Call-Mac Transportation**Location:**

Address: 1175 Weeks Streets,
East Palo Alto, CA 94303

Proximity to Bay: ~1,312 feet

Site Size: Unknown

Site Overview:

Status: Open - Inactive as of 2019

Site Type: Cleanup Program Site

Facility Type: Oil Company

Oversight Agencies: RWQCB

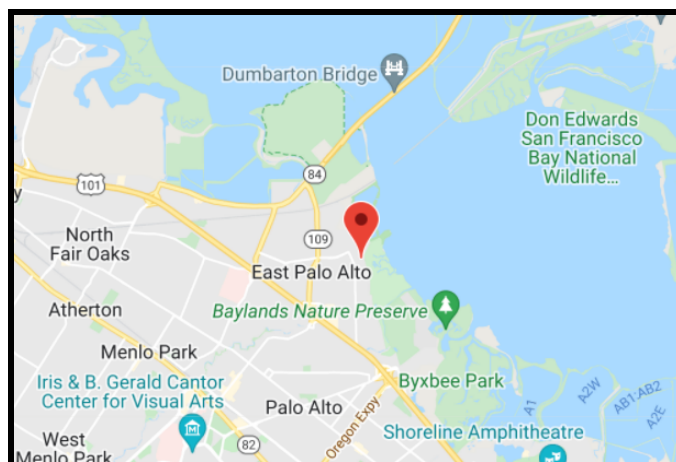
On the National Priorities List: No

Years of activity: Unknown

Type of Contamination: Soil,
groundwater

Contaminants of Concern:¹

- Arsenic
- Insecticide
- Pesticide
- Fumigants



- Herbicides

Site History:²

According to the Covenant and Environmental Restriction on Property, “Soil at the Burdened Property [1175 Weeks St] were contaminated by herbicide formulation operations conducted by prior owners of the adjacent property located at 1990 Bay Road, East Palo Alto, And was contaminated by organic compounds (both volatile and non-volatile) as well as laboratory waste, glassware, etc. as a result of the use of a portion of the Burdened Property as a site which stored hazardous materials operated by lessees of Covenantor’s predecessors. These operations resulted in contamination of soil and groundwater with inorganic chemicals including arsenic, lead, cadmium, mercury, and selenium which are believed to have migrated onto the Burdened Property, and by organic and other contaminants from the storage of hazardous materials. These constitute hazardous materials as that term is defined in Health & Safety Code Section 25260. Some of the organic compounds, laboratory waste, glassware, etc. were excavated and removed in 1991 ... The RWQCB may determine that building foundations and other structures are suitable as a cap for the area. Surface soil containing arsenic concentrations between 70 and 500 PPM will be covered with asphalt, sidewalks, cement or buildings.”²

Site Remediation and Status and Overview of “Clean Up”:³

A letter titled ‘Discovery of Additional Soil Pollution, Former Call-Mac Transportation Site, 1175 Weeks Street, East Palo Alto, San Mateo County’ stated that, “In order to develop an effective approach to deal with possible problems caused by the buried hazardous waste generated by Shell Development and disposed of on the Weeks Street property by Call-Mac Transportation, a contingency plan (plan) was proposed. The contingency plan approach was pursued in lieu of investigating large portions of the property by excavation, because the exact distribution and quantity of waste on the site is unknown. This plan was discussed in concept and agreed upon by Shell, Jesse Torres (the property owner), EPA, and Board staff at a meeting held at the Regional Board offices on May 28, 1993. It was agreed that the plan would set forth a response procedure to characterize and remediate Shell waste, should it be found on the site. The plan would require that Shell and the Board be contacted before any excavation. Should additional waste be found during excavation, Shell would be required to sample soil and possibly groundwater, and remediate pollution caused by their discharges, if necessary. On June 9, 1993, during boring activities related to development of the property, soil polluted with unknown contaminants was discovered. Present during the boring activities were Emcon, representing Shell and employees of Jesse Torres. During one of the borings, at a depth of approximately 5 feet below grade, polluted soil was encountered. Emcon personnel determined by odor that the contaminants in the soil were most likely associated with pesticides and not petroleum products related to Shell and therefore, not their responsibility for sampling and analysis. Additionally, because no glassware appeared in the boring, Shell was also not responsible for sampling and analyzing the soil. At that time the boring was backfilled and construction activities stopped. Board staff were contacted and made aware of the new discovery. Staff contacted Shell and requested verbally that a sample be taken, pursuant to the terms of the plan which was discussed and agreed upon, but not yet formalized. Shell agreed that a sample would be taken even though glassware was not found in the boring. The sampling has not yet occurred and in fact Shell is now indicating that it is not their responsibility. Board staff believe that the sampling is the responsibility of Shell as the potential past discharger and is pursuant to the proposed

contingency plan concept. Board staff therefore, require that Shell sample and analyze the polluted soil to characterize the contaminants that are present. These analytical results shall be submitted to the Board by August 23, 1993”³

Future Plans:^{1,4}

This site cleanup has been inactive since 2019.¹

“[Situs Law] represents Torres, Inc., a California corporation, Owner of the real property commonly known as 1175 Weeks Street, East Palo Alto, California (The “Property”). The property is encumbered by the certain Covenant and Environmental Restriction on Property which was recorded on June 12, 1998 (the “Deed Restriction”), with the Regional Quality Control Board (the “Board”). Section 3.2 of the Deed Restriction requires the owner to notify the Board if Owner proposes to sell, ground lease or otherwise convey the property. You are hereby notified that the Owner has entered into an Agreement of Purchase and Sale and Escrow Instructions dated December 21, 2015, which sale has an anticipated closing date of March 7, 2016.”⁴

Related information regarding a neighboring site has a profile in GeoTracker titled: “1990 BAY ROAD SITE - COMPREHENSIVE SITE (ALL AFFECTED PROPERTIES) (SL0608148082)” and some of the site document briefly mention 1175 Weeks Street Property.⁵

Community Profile:⁶

The community surrounding this site is a majority-minority community, with more than 50% of residents being Hispanic. This community also has a high linguistic isolation rate and high poverty rate. The site is adjacent to a residential area with nearby schools and churches.

Census Tract #: 6081611900

Population: 10,368

CalEnviroScreen Percentile Score: 75

Pollution Burden Percentile: 80

Characteristics Percentile: 63

Notable Exposure Percentiles:

- Diesel Particulate Matter: 55
- Ozone: 11
- Particulate Matter 2.5: 19
- Traffic: 73
- Drinking Water: 40
- Toxic Releases: 24
- Lead from Housing: 76
- Pesticides: 0

Notable Environmental Effects:

- Cleanup sites: 84
- Groundwater threats: 97
- Hazardous waste: 88
- Impaired Waters: 90
- Solid Waste Sites: 80

Sensitive Populations:

- Asthma: 72
- Low Birth Weight: 81
- Cardiovascular Disease: 38

Notable Socioeconomic Factor Percentiles:

- Education: 84

- Linguistic Isolation: 64
- Poverty: 50
- Unemployment: 17
- Housing Burden: 48

Demographics/Community Profile:

- Race/Ethnicity:
 - 58% Hispanic
 - 14% Black
 - 15% White
 - 9% Asian American
 - 4% Other

1. "Former Call-Mac Transportation." *State Water Resources Control Board*, State of California, https://geotracker.waterboards.ca.gov/profile_report?global_id=T10000012207
2. J.G. Torres Concrete Construction. "Covenant and Environmental Restriction on Prpoerty." *GeoTracker*, 12 June 1998, https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/8035160660/jgtorres_1175weeksst_eastpaloalto.pdf.
3. Ritchie, Steven R, and Steve Morse. "Discovery of Additional Soil Pollution, Former Call-Mac Transportation Site, 1175 Weeks Street, East Palo Alto, San Mateo County. " *GeoTracker* , 4 Aug. 1993, https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/9083666741/Discovery%20of%20Additional%20Soil%20Pollution.%201175%20Weeks%20Street.%20East%20Palo%20Alto.%202179.7116.pdf.
4. Ludwick, Summer M. "Notice of Agreement of Purchase and Sale" 3 February 2016, https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/3450330436/Notice%20of%20Sale-Torres-2-3-2016.pdf
5. "1990 BAY ROAD SITE - COMPREHENSIVE SITE (ALL AFFECTED PROPERTIES) (SL0608148082)" *State Water Resources and Control Board*, State of California, https://geotracker.waterboards.ca.gov/profile_report?global_id=SL0608148082
6. Office of Environmental Health Hazard Assessment. "Census Tract: 6081611900." *CalEnviroScreen 4.0*, October 2021. <https://experience.arcgis.com/experience/11d2f52282a54cee6ac7428e6184203/>

CASE STUDY 15: Former J.H. Baxter Facility Alameda

Location:¹

Address: 2189, 2199, 2201, 2229
Clement Avenue
Alameda, CA 94501

Proximity to Bay: On Tidal Canal

Site Size: 12.3 Acres

Site Overview:¹

Status: Active as of 10/26/2005

Site Type: State Response

Facility Type: Wood Treatment
Facility

Oversight Agencies: DTSC

On National Priorities List: No

Type of contamination: Other
groundwater affected (uses other than drinking water), soil



Contaminants of Concern:¹

- Dioxin (AS 2,3,7,8-TCDD TEQ)
- Metals: Arsenic, Lead, Total Chromium
- Pentachlorophenol
- Petroleum: TPH-MOTOR OIL, TPH-gas

- Polynuclear Aromatic Hydrocarbons (PAHs)
- Volatile Organics (8260B VOCs): Benzene, Xylenes

Site History:¹

According to EnviroStor's Site History, "J. H. Baxter Company operated a wood treatment facility between 1924 and 1969 at the Former J. H. Baxter Facility (Site). Wood treatment operation consisted of submerging the woods in the treatment tanks containing treatment solution such as coal-tar derived creosote, fuel oil, pentachlorophenol (PCP), and inorganic arsenicals. The Site is divided into three separate properties; Dutra-VelodyneProperty (Velodyne), Extra Space Storage Property (ESS), and Fox/ Collins Property (Collins). Currently, the properties are under an Imminent and Substantial Endangerment Determination and Consent Order."¹

Site Remediation and Status and Overview of "Clean Up":¹

EnviroStors information divided by the three properties:

"Velodyne Property: In 1994, an underground storage tank (UST) was removed off the property and confirmation soil samples and groundwater samples were analyzed for TPH in gasoline range, BTEX, and semi-volatile organic compounds (SVOCs). A revised draft Removal Action Workplan (RAW) dated September 15, 2019, was submitted to DTSC for review. The remedies selected in the 2019 draft RAW is excavation of contaminated soil and off-site disposal for unrestricted use. DTSC is working with the owner and the consultant to revise the selected remedies and technical deficiencies in the draft RAW.

[Extra Space Storage Property] ESS Property: The property is currently occupied by commercial buildings used as public storage. In 2003, dark and viscous material was observed surfacing through cracks and expansion joints in the concrete pavement in the northeastern portion of the property. The dark material in soil was identified as PAHs. In 2008, a time-critical removal action was conducted by excavating contaminated soil and removing an UST. In 2006, indoor air samples were collected using a Summa canister to evaluate vapor intrusion of naphthalene into the indoor air. The evaluation concluded that vapor intrusion of naphthalene is not a health concern. A draft RAW dated June 7, 2016 was submitted to DTSC for review. The recommended remedies in the 2016 draft RAW includes capping, land use covenant (LUC), and Operation and Maintenance Plan (O&M).

Collins Property: A RAW was approved by DTSC on November 30, 2010. The selected remedy for the 2010 RAW consisted of excavating contaminated soil. During excavation, community members complained regarding odors coming from the Site and DTSC issued a Stop Work Order. New consultant took over the project and finalized the excavation and removal of contaminated soil off Site. A revised Draft RAW Addendum was submitted to DTSC in August 2020. The purpose of the RAW Addendum is to identify possible remedies to mitigate contamination in soil, soil gas and groundwater to redevelop the Collins property for residential use. The selected remedies include capping, vapor intrusion mitigation system, permeable reactive barrier (PRB), LUC, and an O&M Plan.

A slight groundwater "mound" appears to be present in ESS property and the groundwater flow direction can vary depending on when the groundwater is sampled. Sometimes, the groundwater appears to flow from ESS toward Velodyne, and other times appears to flow from ESS toward Collins and toward the Tidal Canal. DTSC recommended the three properties to work in collaboration to mitigate the Site."¹

Future Plans:¹

Listed in the ‘Activities’ section on EnviroStor:

- Dutra-Velodyne Property: Removal Action Workplan by 2024, Certification by 2025, Land Use Restriction by 2025
- Fox/Collins Property: Remedial Action Completion Report by 2024, Certification by 2026
- Extra Space Storage Property (ESS): Land Use Restriction by 2023, Certification by 2025¹

Community Profile:^{2,3}

The City of Alameda is located within Alameda County, California. The City encompasses all of Alameda Island and parts of Bay Farm Island and Coast Guard Island. Alameda Island was most predominantly used as a Naval Station (NAS Alameda) and housing for the Navy and their families during WWII. This site has a high number of cleanup sites placing it in the 98th percentile for groundwater threats.

Census Tract: 6001427200

Population: 4,180

CalEnviroScreen Percentile Score: 66

Pollution Burden Percentile: 67

Population Characteristics Percentile: 58

Notable Exposure Percentiles:

- Ozone: 3
- Particulate Matter 2.5: 41
- Diesel Particulate Matter: 83
- Toxic Releases: 48
- Traffic: 25
- Pesticides: 0
- Lead from Housing: 74
- Drinking Water: 4

Notable Environmental Effects:

- Cleanup sites: 92
- Groundwater threats: 98
- Hazardous waste: 93
- Impaired Waters: 96
- Solid Waste: 3

Sensitive Populations:

- Asthma: 74
- Low Birth Weight: 59
- Cardiovascular Disease: 52

Notable Socioeconomic Factor Percentiles:

- Education: 54
- Poverty: 49
- Linguistic Isolation: 53
- Unemployment: 63
- Housing Burden: 24

Demographics/Community Profile:

- Race/Ethnicity:
 - 40% White
 - 16.8% Hispanic
 - 2.9% African American
 - 35.9% Asian American

- 4% Other

1. Department of Toxic Substances Control State of California. "Former JH Baxter Facility, Alameda (01240036)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=01240036.
2. Office of Environmental Health Hazard. "Census Tract: 6001427200." *CalEnviroScreen 4.0*, October 2021. <https://experience.arcgis.com/experience/11d2f52282a54ccebca7428e6184203/page/home/>.
3. "About Us." *Alameda County*, <https://acgov.org/about/>.

CASE STUDY 16: Former Los Altos Treatment Plant

Location:¹

Address: 1237-1275 North San Antonio Road,
Mountain View, CA 94043
Santa Clara County

Proximity to Bay: ~1,312 feet

Site Size: 13.26 Acres

Site Overview:¹

Status: Open- Site Assessment As of 6/6/2013

Site Type: State Response

Facility Type: Water treatment facility

Oversight Agencies: RWQCB

On the National Priorities List: No

Years of activity: 1958-1972

Type of Contamination: Soil

Contaminants of Concern:¹

- Chromium
- Copper
- Lead

Site History:¹

According to GeoTrackers Site History, "Approximately 13.26 acres contain abandoned structures relating to a former sewage treatment plant, former sewage treatment ponds, and remnants of former tidal sloughs. The Site is surrounded by an empty business park to the northwest, a childcare facility to the north, baylands to the east and southeast and businesses to the south and southeast. The City of Los Altos operated a wastewater treatment facility on 7 acres from 1958 to 1972. The property has also been used for utility storage, constructing staging and by NUTEK Corporation for irradiation services." ¹

Site Remediation and Status and Overview of "Clean Up":¹

"Several investigations have taken place. Soluble lead (17 mg/l), reactive sulfide (1200 mg/kg), chromium (540 mg/kg), cobalt (220 mg/kg), copper (610 mg/kg), nickel (500 mg/kg), zinc (860 mg/kg) and arsenic (6.4 mg/kg) have been detected above PRGs/CHHSLs. Reactive sulfide is currently "trapped" in the sludge below the water in the former wastewater treatment ponds.



When disturbed, this sludge releases hydrogen sulfide gas that has been detected at levels immediately dangerous to life and health (IDLH). Water in Pond 5 has been found to contain values of arsenic, cobalt, copper, nickel selenium, vanadium and zinc above Estuary Habitat environmental screening level (ESL) concentration limits. No exceedances were found in groundwater sampled at the Site.”¹

According to an Environmental Assessment from 2011, “An environmental assessment report for Area C, the southernmost portion of the property, was previously submitted to the San Francisco Bay Regional Water Quality Control Board (RWQCB) (Geosyntec, 2009) and a letter dated 4 February 2010 from the RWQCB granted closure (no further action) for Area C”²

Future Plans:²

Also according to the Environmental Assessment from 2011, “Area A comprises 4 acres of undeveloped Bay margin Marshland and an area of elevated fill. The city plans to remove the fill and restore the Area A to relatively natural Bay margin Wetland conditions. Area B comprises 6.6 acres and was the site of the city of Los Altos water treatment plant (LAWTP) from 1958 until 1972. Area B Currently contains a small unoccupied building and Associated equipment sheds, an inactive clarifier tank structure, and six former Waste Water treatment ponds. Area C comprises 2.6 Acres and is used as a storage yard by utility contractors. The service is compacted soil and gravel fill. The central portion of area C is fenced and currently used to store telephone poles. The city plans to develop Area C and a portion of Area B. The northern portion of Area B adjacent to Area A could potentially be restored to Wetlands conditions as intended for Area A.”²

According to the most recent report available on GeoTrackers site profile for the Former Los Altos Treatment Plant titled ‘Annual Estimate for SCP Cost Recovery Oversight for Los Altos Treatment Plant, Palo Alto, Santa Clara County’ from 2017:

“Estimate of Work to Be Performed

Board staff estimates that the following work will be performed during fiscal year 2017/2018:

- Review of schedule for development and restoration of Areas A and B;
- Review of data quality plan, prior to restoration;
- Review of ecological risk assessment, prior to restoration;
- Review of any additional remedial measures, as needed;
- Review groundwater, soil, soil-vapor, surface water or stormwater reports, and other project technical reports that may be necessary;
- Written correspondence and telephone communications with discharger, its representatives and interested third parties;
- Conduct internal communications (i.e. meetings, memos, etc.) regarding project;
- Meetings with discharger, their representatives and other appropriate agencies; and
- Site inspections”³

Community Profile:^{1,4}

Mostly a residential area, Mountain View is a community that is well known for a mass influx of tech companies and the growth of Silicon Valley. The community also has a long history of aerospace engineering. The site is “surrounded by an empty business park to the northwest, a

childcare facility to the north, baylands to the east and southeast and businesses to the south and southeast.”¹ This community has a high level of groundwater threats (99th percentile) and numerous cleanup sites (98th percentile). The population is predominantly Hispanic (33%) and White (38.5%).

Census Tract #: 6085504601

Population: 1,016

CalEnviroScreen Percentile Score: 50

Pollution Burden Percentile: 84

Characteristics Percentile: 29

Notable Exposure Percentiles:

- Ozone: 12
- Particulate Matter 2.5: 19
- Diesel Particulate Matter: 86
- Toxic Releases: 26
- Traffic: 99
- Pesticides: 0
- Lead from Housing: 10
- Drinking Water: 62

Notable Environmental Effects:

- Cleanup sites: 98
- Groundwater threats: 99
- Hazardous waste: 87
- Impaired Waters: 95
- Solid Waste: 67

Sensitive Population Indicators:

- Asthma: 9
- Low Birth Weight: N/A
- Cardiovascular Disease: 19

Notable Socioeconomic Factor Percentiles:

- Education: 43
- Linguistic Isolation: 74
- Poverty: 39
- Unemployment: 66
- Housing Burden: 69

Demographics/Community Profile:

- Race/Ethnicity:
 - 33% Hispanic
 - 38.5% White
 - 24.6% Asian American
 - 3.9% Other

1. State Water Resources Control Board. “Former Los Altos Treatment Plant Site (SL0608598778).” *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL0608598778
2. Geosyntec consultants. “Environmental Assessment Areas A and B, 1237 North San Antonio Road Santa Clara County, California.” *City of Palo Alto*, 19 May 2011, https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/3953038096/envasmav11.pdf
3. King, Nathan. “Annual Estimate for SCP Cost Recovery Oversight for Los Altos Treatment Plant, Palo Alto, Santa Clara County” *GeoTracker*, 19 July 2017, https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/2316349864/2020315%20Former%20os%20Altos%20Treatment%20Plan%20Site%20AEI%2017-18.pdf
4. Office of Environmental Health Hazard Assessment. “Census Tract: 6085504601.” *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/>

CASE STUDY 17: Fort McDowell

Location:¹

Address: 4 miles North of San Francisco, Angel Island, CA 93933, Marin County

Proximity to Bay: ~33 feet

Site Size: 640 acres

Site Overview:¹

Status: Active as of 11/4/2019

Site Type: State Response

Facility Type: Military Base (FUDS)

Oversight Agencies: DTSC, RWQCB

On National Priorities List: No

Years of activity: 1850-1963

Type of contamination: Soil, Sediments, Other groundwater

Contaminants of Concern:^{1,2,3,4}

- Explosives (UXO, MEC)
- Polychlorinated Biphenyls (PCBS)
- Heating Oil/Fuel Oil
- Diesel
- Other Petroleum

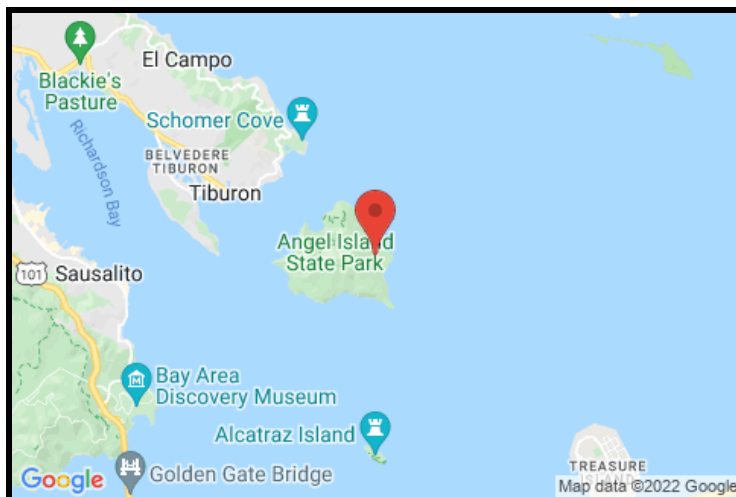
Site History:¹

According to the site history on EnviroStor, “Fort McDowell is a former Department of Defense site established in 1850. The island was used by the U.S. Army as a discharge and replacement depot and as an installation for San Francisco harbor defenses.”¹ During World War II, “part of the island was also used for troop barracks and a prisoner-of-war camp. In 1954, the U.S. Army established a Nike Missile Base at Point Blunt, which operated until 1962. The U.S. Department of Interior (DoI), Bureau of Land Management, took over ownership of the island in 1950. The site contains underground storage tanks (USTs), several buildings that pose a safety hazard, and potential ordnance. This property is known or suspected to contain military and explosives of concern and therefore may present an explosive hazard.”¹

Site Remediation and Status and Overview of “Clean Up”:^{2,3}

A polychlorinated biphenyl (PCB) removal project on the island began in 1987. During the removal project, a PCB spill occurred in front of the East Garrison Substation, and an unspecified quantity of contaminated soil was removed, according to EnviroStor.¹

According to a Supplemental Site Investigation Work Plan for this site, in 1995, remediation techniques included cleaning a 550 square feet concrete pad and the removal and disposal of drums and tanks containing hazardous materials at the Motor Pool area; removal and disposal of a 4,000-gallon underground storage tank (UST), appurtenances, and its contents at the Nike site;



and removal and disposal of the hydraulic fluid from the hydraulic system in each of the three Nike missile vaults.²

According to the Remedial Investigation Work Plan from 2015: In 2000, Glacier Environmental Services, Inc. was contracted by the State of California Department of General Services to remove eight known Underground Storage Tanks on Angel Island. Of the eight tank removal sites, five sites were reportedly contaminated with products previously housed in the accompanying tanks. Approximately 90 cubic yards of reportedly contaminated soil from these five sites was transported to a paved area at the Nike Missile site. In 2001, TN& Associates, Inc. was contracted by the USACE to perform a preliminary analysis of the former Fort McDowell. Then in 2003, TN& Associates, Inc. were contracted to carry out a formal site inspection of five operational areas on former Fort McDowell. Analytical results indicated 14 of 39 sites investigated were contaminated with one or more of the following analytes: metals, petroleum products, and polychlorinated biphenyls. Tetra Tech and Industrial Maintenance Services, Inc. were contracted to update the Records Research Report written by Tetra Tech in 2005. In 2013, Tetra Tech and Industrial Maintenance Services, Inc. were contracted to further assess the nature and extent of environmental impacts to soil and groundwater as a result of DoD activities at the site, to remove remaining sources of contamination (i.e., fuel in tanks and oil in transformers), and to reduce risk to human health and the environment through implementation of technically feasible and cost-effective response actions at the projects identified at the site, if deemed necessary. During the SSI, three USTs were removed and sampled (contents, surrounding soil, and/or groundwater), the contents of six transformers and five electrical switches were sampled, one transformer was drained and removed, two approximately 30,000- gallon and four approximately 12,500-gallon aboveground storage tanks (ASTs) were emptied and cleaned, the soil around and groundwater below the ASTs were sampled, and soil was sampled at various other project areas.³

Future Plans:¹

According to EnviroStor, “The island is currently used as a state park since the Department of Interior granted the land to the State of California. The only portion of the island retained by the United States is a 7-acre strip of land at the end of Point Blunt which is used as a U.S. Coast Guard lighthouse station.”¹

Community Profile:⁷

Fort McDowell lies on the far east side of Angel Island in the San Francisco Bay. The island is near Tiburon, CA in Marin County. Angel Island State Park covers a majority of the island. There are multiple cleanup sites located on the Island placing it in the 100th percentile for cleanup sites and the 99th for groundwater threats.⁷

Census Tract: 6075017902

Population: 3,008

CalEnviroScreen Percentile Score: 89

Pollution Burden Percentile: 89

Population Characteristics Percentile: 78

Notable Exposure Percentiles:

- Ozone: 4
- Particulate Matter 2.5: 31
- Diesel Particulate Matter: 89

- Toxic Releases: 54
- Traffic: 100
- Pesticides: 2
- Drinking water pollution: 7
- Lead from Housing: 70

Notable Environmental Effects:

- Cleanup sites: 100
- Groundwater threats: 99
- Hazardous waste: 93
- Impaired waters: 83
- Solid waste: 53

Sensitive Population Indicators:

- Asthma: 94
- Low Birth Weight: 98
- Cardiovascular Rate: 10

Notable Socioeconomic Factor Percentiles:

- Education: 47
- Linguistic Isolation: 47
- Poverty: 96
- Unemployment: 97
- Housing Burden: 62

Demographics:

- **Race/Ethnicity:**
 - White: 27.9%
 - African American: 22.2%
 - Hispanic: 26%
 - Asian American: 13%
 - Native American: 0.8%
 - Other: 10%

1. Department of Toxic Substances Control. "Fort McDowell (71000007)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=71000007
2. Department of Toxic Substance Control. "Draft SI Work Plan." *EnviroStor*, Aug. 2009, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/8747624039/Draft%20SI%20Work%20Plan.pdf
3. Department of Toxic Substance Control. "Remedial Investigation Work Plan." *EnviroStor*, Nov. 2015, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/9467488169/FtMcDowell_HTRW_WP_F_wApps%20Final.pdf
4. State Water Resources Control Board. "Fort McDowell- Above Ground Storage Tanks 149 and 150 (T10000012759)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000012795
5. State Water Resources Control Board. "Fort McDowell- Fuel Tanks 158 and 159 (T10000012794)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000012794
6. State Water Resources Control Board. "Fort McDowell- Central Heating Plant (T10000012759)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000012759
7. Office of Environmental Health Hazard Assessment. "Census Tract: 6075017902." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/>

CASE STUDY 18: Fujicolor Processing

Location:¹

Address: 27105 Industrial Blvd
Hayward, CA 94545

Alameda County

Proximity to Bay: ~2,953 feet

Site Size: 1.8 Acres

Site Overview:¹

Status: Certified O&M--Land Use
Restrictions only as of 4/20/2010

Site Type: Voluntary Cleanup

Facility Type: Photographic
Processing Center

Oversight Agencies: DTSC

On the National Priorities List: No

Years of activity: 1965-2007

Type of Contamination: Other Groundwater affected (uses other than drinking water)



Contaminants of Concern:¹

- Nickel
- Tetrachloroethylene (PCE)
- Trichloroethylene (TCE)

Site History:^{1,2}

According to Enviroscreens site history, “The Site has historically been used for photo processing operations starting in 1965 and was non-occupied ranch land prior. The Site was constructed in 1965 by Bennet Photo Service, Inc., and sold to Drewry Photocolor, then Trucolor Foto Co., with Fujifilm USA purchasing the Site in 1994.”¹

According to the Five Year Review for Fujicolor Processing, “The Site contained a silver-recovery unit that was used to treat the photo processing wastewater stream prior to discharge under permit to the sanitary sewer system. The silver-recovery unit was initially operated by Fujifilm under the DTSC's Permit-By-Rule Program, and was later exempted in 1999 from the DTSC's Tiered Permitting Program. The operations of the silver-recovery unit generated both California hazardous waste and recycled silver waste. In addition, the Site's photo processing operations required a minimal amount of methyl ethyl ketone (MEK), a solvent used for flash-drying the back printing ink on photos, which resulted in Fujifilm being listed as a Resource Conservation and Recovery Act Small Quantity Generator (RCRA-SQG) of MEK. Fujifilm did not use, nor is it aware of previous Site owners using other solvents at the Site. No other metal-containing compounds, other than silver, are known to Fujifilm to have been used at the Site.”²

The Five Year Review also states, “In 1972, prior to the Site's ownership by Fujifilm, there was a release of photo processing chemicals. The release emanated from a section of the Site's parking lot. The investigation of this release discovered the presence of a broken drain line beneath the Site building, which was reportedly excavated and repaired. In addition, the impacted section of

the parking lot was reported to be excavated. The composition of the released photo processing chemicals was not known by Fujifilm; however, given historical photo processing operations, these chemicals likely consisted of dilute solutions of acid and bases and possibly chelating agents. It was reported to Fujifilm that a gasoline underground storage tank (UST) was removed from the Site under the oversight of the Hayward Fire Department.”²

Site Remediation and Status and Overview of “Clean Up”:²

According to the Five Year Review, “In 2007, Fujifilm initiated closure of the Site, which included a Phase II investigation of 14 locations identified as potential environmental areas of concern due to historic operations conducted in their vicinity. The subsurface investigation of the Site included a total of 21 soil borings advanced at the 14 locations. None of the detected soil concentrations exceeded their respective California Human Health Screening Level or Environmental Screening Level, except for arsenic, which was found to be present at concentrations typical of background conditions for San Francisco Bay Area soils. The results of the investigation activities conducted at the Site indicated that its soil conditions were acceptable for unrestricted land use. In 2009, a preliminary assessment and characterization of the Site was conducted. DTSC approved the Supplemental Site Characterization Report prepared by Brown and Caldwell on November 17, 2009. Groundwater at the Site was found to contain hazardous substances. DTSC concluded that the groundwater presented an unacceptable threat to human health and safety, and therefore, a Land Use Covenant to restrict the use of groundwater was required. The Land Use Covenant was between Fujifilm North America Corporation (Covenanter), the prior owner of the Site, and DTSC and was executed and recorded on April 20, 2010”²

Future Plans:¹

This site is now owned and overseen by Rich Commercial.¹

According to a letter, Re:Fujicolor Processing Site-Annual Compliance Report, from 2022 stated that, “[A] Report [from 2022] documented that the property was in compliance with the restrictions and requirements of the Land Use Covenant during 2019 and DTSC approved the report. The next inspection report is due by January 15, 2023.”³

Community Profile:⁴

Located in Hayward just North of Eden Landing and South of the San Mateo Bridge. The site is located in between residential and commercial areas. The community has extremely high levels of hazardous waste (99th percentile) and a high number of cleanup sites (99th percentile). The cumulative environmental impacts of multiple polluting industries in the community contribute to high levels of asthma (90th percentile) and low birth weight (81st percentile) in the community. The community is predominantly Asian American (48.3%) and Hispanic (23.5%).

Census Tract #: 6001437101

Population: 7,867

CalEnviroScreen Percentile Score: 74

Pollution Burden Percentile: 80

Characteristics Percentile: 62

Notable Exposure Percentiles:

- Ozone: 12
- Particulate Matter 2.5: 28

- Diesel Particulate Matter: 28
- Toxic Releases: 71
- Traffic: 85
- Pesticides: 0
- Lead from Housing: 31
- Drinking Water: 7

Notable Environmental Effects:

- Cleanup sites: 99
- Groundwater threats: 98
- Hazardous waste: 99
- Impaired Waters: 87
- Solid Waste: 99

Sensitive Populations

- Asthma: 90
- Low Birth Weight: 81
- Cardiovascular Disease: 78

Notable Socioeconomic Factor Percentiles:

- Education: 51
- Linguistic Isolation: 35
- Poverty: 35
- Unemployment: 31
- Housing Burden: 12

Demographics/Community Profile:

- Race/Ethnicity:
 - 23.5% Hispanic
 - 7.4% African American
 - 48.3% Asian American
 - 0.9% Native American
 - 6.2% Other
 - 5.4% Pacific Islander
 - 15.1% White

1. Department of Toxic Substances Control. "FujiColor Processing (60000806)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=60000806
2. Department of Toxic Substance Control, and Claude Jemison. "Five-Year Review Report." *EnviroStor*, Mar. 2016, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/2887103021/0302201600.pdf
3. Jemison, Claude. "Fujicolor Processing Site-Annual Compliance Report" *EnviroStor*, 30 September 2022, https://www.envirostor.dtsc.ca.gov/getfile?filename=/public%2Fdeliverable_documents%2F6341622471%2Fapproval%2009302022.pdf
4. Office of Environmental Health Hazard Assessment. "Census Tract: 6001437101." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee9cac7428e6184203/>

CASE STUDY 19: G-C Lubricants Co.

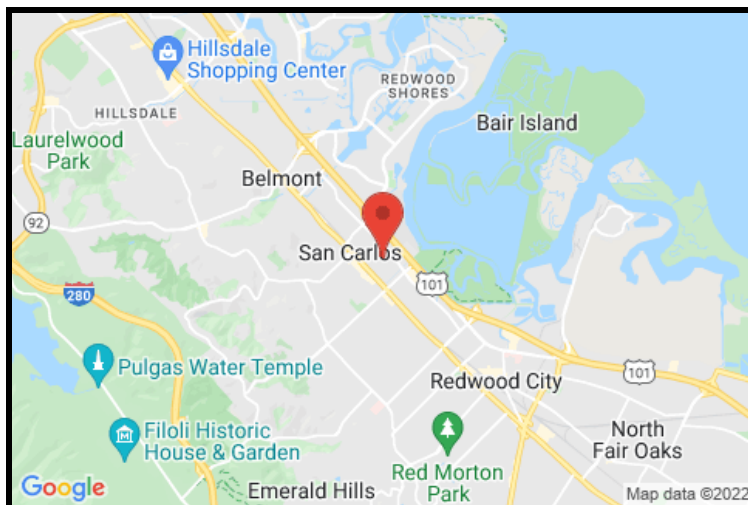
Location:¹

Address: 977 Bransten Rd
San Carlos, CA 94070-0000
San Mateo County
Proximity to Bay: ~1,640 feet
Site Size: 2 Acres

Site Overview:^{1,2}

Status: Active
Site Type: Voluntary Cleanup
Facility Type: Oil refinery
Oversight Agencies: DTSC
On National Priorities List: No
Years of activity: 1930- Present
Type of contamination:

Groundwater & soil contamination, potential indoor air impacts



Contaminants of Concern:^{1,2}

- 1,4-Dioxane
- Lead
- Petroleum (TPH-Motor Oil and TPH-Diesel)
- Polychlorinated biphenyls (PCBS)
- Volatile organics (8260B VOCs): 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Chlorobenzene, Tetrachloroethylene (PCE), Trichloroethylene (TCE), Vinyl chloride

Site History:¹

According to Envriostors site history, “G-C Lubricants Inc. (G-C), continues to operate a lubricating oil packaging facility from a building at 977 Bransten Road, San Carlos, California. The entire property is owned by G-C, and had leased a portion of their property to California Oil Recyclers Inc. (CORI) which operated at the site from 1981 to 1987. Since then, former CORI operating area has been capped and closure was approved by DTSC on June 30, 2005; and CORI has applied for a Post-Closure Permit. Substantial site characterization was completed at this site, including groundwater sampling and soil gas Studies as part of the site investigations for the closure of former CORI facility. These studies revealed that soil contamination existed under the G-C building and further investigation was needed to determine the nature and extent of any release of hazardous waste or hazardous waste constituents to the subsurface of the property; and in the groundwater. DTSC entered into a Corrective Action Consent Agreement with G-C Lubricants for remediation of contaminated soil and groundwater, and possibly remediation of indoor air impacts.”¹

Site Remediation and Status and Overview of “Clean Up”:¹

Also according to EnviroStor, “Soil boring, groundwater monitoring, and soil gas data indicated significant concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and Polychlorinated biphenyls (PCBs) under the G-C building. The soil

and groundwater data also indicated that the VOC and SVOC plumes below and downgradient of the site emanated from the G-C Lubricants building. From 2002 to 2007, multiple monitoring wells were installed to better characterize the groundwater plume.

VOCs and SVOCs in the subsurface soils and groundwater under the G-C Lubricants building and under buildings downgradient of the G-C Lubricants building presented a potential indoor air threat to the workers in those buildings. Indoor air sampling was conducted in 2007 and 2008 at the site. Although two VOCs were found at concentrations above the screening levels at the time, they were present at similar concentrations in indoor air and outdoor air, indicating that although concentrations were elevated, the similar concentrations between indoor and outdoor air indicated that no corrective measures for vapor intrusion were needed.

To address the contaminants present in groundwater, a pilot study was conducted in 2008 to investigate the use of Enhanced Reductive Dechlorination (ERD). The study indicated that chlorinated VOCs in groundwater originated from several potential sources, primarily a stormwater sump at G-C Lubricants and the former CORI tank farm area. The study also concluded ERC could be successful.

A supplemental site characterization workplan was implemented in 2011 to investigate groundwater impacts in the adjacent downgradient property, 941 Bransten Road. This investigation further characterized the groundwater plume, and identified another potential source area at the 941 Bransten Road property. As a result of the investigation, additional downgradient groundwater monitoring wells were installed in 2013.

As a result of this additional work discovering additional investigation was needed at the former CORI facility, DTSC entered into a new Corrective Action Consent Agreement in 2013 with Evergreen Oil and Garratt-Callahan. Following this, a RCRA Facility Investigation (RFI) Workplan was drafted and implemented in 2014, including additional monitoring wells, soil and groundwater sampling, and membrane interface probe (MIP) transects. As a result of this investigation finding additional impacts to groundwater and a potential source area, an Interim Measures Workplan was drafted and implemented in 2017, with 1,257 tons of impacted soil and earth materials removed and disposed of from the site. Residual contamination remains, however. Semiannual groundwater monitoring continues across the groundwater monitoring well network. An Interim Measures Workplan is currently under development to address the contamination that remains in groundwater, to be followed by a Corrective Measures Study to investigate potential remedies and approaches for an eventual final remedy selection document.”¹

Future Plans:¹

- According to EnviroStors listed Activities:
 - 2024:
 - Interim Measures Work Plan
 - Interim Measures Implementation Report
 - 2025:
 - Corrective Measures Study Report
 - 2027
 - Remedial Action Completion Report
 - Corrective Action Completion Determination
 - 2028:

- Remedy Selection & Statement of Basis
- Land Use Restriction¹

Community Profile:³

The facility is located in the el Camino Real / Howard Avenue neighborhood of San Carlos, which is almost entirely composed of industrial sites. Adjacent sites include sheet metal facilities, auto repair shops, and a closet factory. There are a large number of cleanup sites in the community (99th percentile). The community is predominantly White (63.3%).

Census Tract: 6081609100

Population: 1,534

CalEnviroScreen Percentile Score: 31

Pollution Burden Percentile: 76

Characteristics Percentile: 14

Notable Exposure Percentiles:

- Ozone: 6
- Particulate Matter 2.5: 20
- Diesel Particulate Matter: 91
- Toxic Releases: 27
- Traffic: 90
- Pesticides: 0
- Lead from Housing: 80
- Drinking Water: 13

Notable Environmental Effects:

- Cleanup sites: 99
- Groundwater threats: 99
- Hazardous waste: 97
- Impaired waters: 0
- Solid Waste: 76

Sensitive Population Indicators:

- Asthma: 11
- Low Birth Weight: 63
- Cardiovascular Disease: 11

Notable Socioeconomic Factor Percentiles:

- Education: 21
- Linguistic Isolation: 30
- Poverty: 14
- Unemployment: 29
- Housing Burden: 23

Demographics/Community Profile:

- Race/Ethnicity:
 - 9.1% Hispanic
 - 0.9% African American
 - 12.9% Asian American
 - 63.6% White
 - 13.4% Other

1. Department of Toxic Substances Control. "G-C Lubricants Co. (CAD056670029)" *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=80001427

2. "G-C Lubricants Company: Specialty Lubricants for Industry." *G-C Lubricants Company*, 3 Dec. 2020, www.gclube.com

3. California Office of Environmental Health Hazard Assessment. "Census Tract: 6081609100" *CalEnviroScreen 4.0*, October 2021, <https://oehha.ca.gov/calenviroscreen/report/draft-calenviroscreen-40>

CASE STUDY 20: Galilee Harbor, Parcel 1

Location:¹

Address: 300 Napa Street
Sausalito, CA 94965

Proximity to Bay: On Shoreline

Site Size: 1 Acre

Site Overview:¹

Status: Certified O&M - Land Use
Restrictions Only as of 11/26/2002

Site Type: Voluntary Cleanup

Facility Type: Shipyard

Oversight Agencies: DTSC

On the National Priorities List: No

Years of activity: 1880 - 1980

Type of Contamination: Sediments, Soil



Contaminants of Concern:¹

- Metals: Arsenic, Lead, Mercury and compounds
- Petroleum: TPH-MOTOR OIL, TPH-diesel
- Polynuclear Aromatic Hydrocarbons (PAHS)
- Tributyltin Oxide (TBTO)

Site History:¹

According to EnviroStors site history, “Since at least the 1880’s, the Site has been used for maritime purposes. In around 1913, Oceanic Boatyard Company purchased the property and utilized it for boat building and repair purposes. From 1942 until 1944, Sausalito Shipbuilding built steel barges on the Site. From 1970 to 1974, the Site was operated by Bob’s Boatyard and by other individuals to build and repair fishing boats. In 1980, all structures on the Site were demolished and the property was reportedly vacant. The Site has been used mainly for parking and boat storage since 1989. The site is surrounded by commercial businesses.”¹

Site Remediation and Status and Overview of “Clean Up”:¹

According to EnviroStors listed Activities: In 1980, all structures on the Site were demolished and the property was reportedly vacant. The Site has been used mainly for parking and boat storage since 1989. In 2017 the asphalt portion of the cap was completed. Now there is a parking lot and bike path over the cap. A land use covenant was issued on October 10, 2002 prohibiting day care centers, elder care, hospital use, groundwater extraction, excavation of contaminated soil, public or private schools, raising of food, residence use, and various other activities that disturb the remedy and monitoring systems.¹

Future Plans:¹

The asphalt cap is inspected annually and every 15 years new asphalt will need to be applied to seal the contaminated soil.¹

A Five Year Review was due for this site on March 5, 2022 but it is not yet linked on EnviroStor, so the document is likely delayed but should become public as soon as possible.¹

Community Profile:²

This site is located along the waterfront of Richardson Bay in an area primarily developed for commercial and maritime uses. The site slopes to an intertidal zone in the Bay. The site is near residential areas in Sausalito. The population is predominantly white. This community is in the 90th percentile for impaired waters.

Census Tract #: 6041130202

Population: 4,377

CalEnviroScreen Percentile Score: 15

Pollution Burden Percentile: 61

Characteristics Percentile: 6

Notable Exposure Percentiles:

- Ozone: 4
- Diesel Particulate Matter: 25
- Diesel Particulate Matter: 60
- Toxic Releases: 59
- Traffic: 98
- Pesticides: 0
- Drinking Water: 7
- Lead from Housing: 33

Notable Environmental Effects:

- Cleanup sites: 78
- Groundwater threats: 44
- Hazardous waste: 73
- Impaired Waters: 90
- Solid Waste: 53

Sensitive Population Indicators:

- Asthma: 32
- Low Birth Weight: 11
- Cardiovascular Rate: 23

Notable Socioeconomic Factor Percentiles:

- Education: 3
- Linguistic Isolation: 12
- Poverty: 17
- Unemployment: 10
- Housing Burden: 34

Demographics/Community Profile:

- Race/Ethnicity:
 - 6.6% Hispanic
 - 88.1% White
 - 1% African American
 - 3% Asian American
 - 1.3% Other

1. Department of Toxic Substances Control. "Galilee Harbor, Parcel 1. (21760001)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=07360034
2. Office of Environmental Health Hazard Assessment. "Census Tract: 6013380000." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/>

CASE STUDY 21: Hamilton AAF- North Antenna Field

Location:¹

Address: Highway 101; 3 min off
Lucas Valley Road Novato, CA
Marin County

Proximity to Bay: On shoreline

Site Size: 269 Acres

Site Overview:^{1,2}

Status: Active

Site Type: State Response

Facility Type: Army Air Field

Oversight Agencies: DTSC (Lead),
RWQCB 2

On the National Priorities List: No

Years of activity: 1932-1974

Type of Contamination: Sediments, Soil, Surface Water



Contaminants of Concern:¹

- Dioxin
- Explosives (UXO, MEC)
- Metals: Cadmium and compounds, Cobalt, Copper and compounds, Lead, Manganese and compounds, Mercury (elemental), Molybdenum, Nickel, Silver, Vanadium and compounds, Zinc
- Organochlorine Pesticides (OCPS): Aldrin, DDD, DDE, DDT, Dieldrin, Endrin
- Petroleum: TPH-MOTOR OIL, TPH-diesel, TPH-gas
- Polychlorinated Biphenyls (PCBS): PCBs (unspeciated mixture, low risk, e.g. Aroclor 1016), Polychlorinated biphenyls (PCBs)
- Polynuclear Aromatic Hydrocarbons (PAHS)
- Radioactive Isotopes
- Uncategorized: Munitions Debris (MD), Polynuclear aromatic hydrocarbons (PAHs)
- Vinyl Chloride

Site History:¹

According to EnviroStors site history, “Hamilton Army Airfield was constructed on reclaimed tidal wetlands by the U.S. Army Air Corps in 1932. Prior to 1932, the area was used as farm and ranch land. Bombers, transport, and fighter aircraft were based at Hamilton, which served as a major staging area for Pacific Theater operations during World War II (WWII). The base was renamed Hamilton Air Force Base in 1947 when it was transferred to the newly created U.S. Air Force. In 1974, the Air Force deactivated Hamilton, and initiated disposal of the property. A portion of the property, known as the Hamilton North Antenna Field (NAF), was transferred to the California State Lands Commission in 1982. The NAF occupies 268.99 acres bounded on the south by the main Hamilton airfield, the north and west by Bel Marin Keys V, and the east by San Pablo Bay. This property was acquired by the U.S. Government by eminent domain as follows: 0.116 acres on December 16, 1943; 48.91 acres on December 30, 1946; 217.66 acres on

May 8, 1959; and 2.3 acres on May 26, 1959. Expansion of the NAF in 1959 accompanied by the construction of NAF antenna facilities coincides with the expansion of the nearby Black Point Antenna Field and activation of the 552nd Airborne Early Warning and Control Group (AEWCG), which appeared to have used the Black Point facilities (See Black Point Antenna Field site for information concerning this facility).

Activities associated with firing ranges, burning of hazardous materials, waste disposal, maintenance of antenna equipment, and other activities have resulted in contamination with petroleum hydrocarbons, volatile and semi-volatile organic compounds, pesticides, metals, polynuclear aromatic hydrocarbons, dioxins/furans, polychlorinated biphenyls, nitroaromatics, and ordnance.”¹

Site Remediation and Status and Overview of “Clean Up”:³

According to the Army Corp of Engineers (USACE), “This site is part of the larger federally authorized Wetlands Restoration and Development Act. Currently, the project is in the 13th year monitoring and adaptive management phase of wetland restoration. Known as the Hamilton Wetland Restoration Project (HWRP), the project completed the first phase of restoration when the airfield’s bayside levee was breached in April of 2014. Opening the site to bay for the first time in over 100 years and resulting in 648 acres of restored wetland habitat, with the use of LTMS in the San Francisco Bay, the site is continually evolving. In June of 2014, 2.7 miles of a new public trail at the edge of the wetlands was completed”³

Also according to USACE:

“FY 20 ACCOMPLISHMENTS

- Continued monitoring and adaptive management of the site to ensure project performance criteria is met, as required in the project permits and the Monitoring and Adaptive Management Plan (MAMP).
- In FY19, Year 4 of the 13 year monitoring and adaptive management phase, four years after breach, project performance, in general, is progressing well and on track to meet the project performance criteria set in the MAMP, with a few exceptions as described below. In summary:
 - Delay in receipt of FY18 Workplan fun had various impacts to the site, including schedule, budget and on-site management. There was a 3 month lag in awarding the monitoring and nursery contract, which most notably impacted invasive vegetation control, water management of the north seasonal wetland and planting and caring for native seedlings, resulting in deterioration of native vegetation populations.
 - The North Seasonal Wetland (NSW) is not performing as a seasonal wetland, due to a combination of factors including, over settlement of the berm after construction and excessive rainfall/king tides in 2017. This caused erosion of the berm, impacting performance of 20% of the site. The NSW is not on track to meet project performance set in the MAMP or site objectives.
 - Native vegetation populations declined slightly and are still at risk from invasive species. Revegetation is critical to the success of the site and most vulnerable in the NSW due to poor project performance of the NSW berm.

- The tidal marsh shows nearly full tidal range, as sediment elevation rise, channels are beginning to form and is on track to meet project performance criteria set in the MAMP.
- Results of the bird and fish use at the site continues to be encouraging, with native populations dominating the landscape.
- Continued monitoring of the TAC's Action List for adaptive management and other remedial actions which include, monitoring of the South Seasonal Wetland pond berm erosion, water management in the NSW and revegetation/invasive control.”³

Future Plans:⁴

As of August 2021, Phase 1 of the restoration project is near completion. The ‘Final 2018 Human Health and Ecological Risk Assessment for the North Antenna Field Under a Future Inundation Scenario (2018 HHERA), North Antenna Field (NAF) Formerly Used Defense Site (FUDS)’ states that, “Under a future wetland restoration scenario, a portion of the Coastal Levee north of the NAF will be breeched and the inboard levee side NAF AOCs will become inundated by San Pablo Bay water. Plans for the future wetland restoration project include an area of High Transitional Marsh in the southeastern portion of the NAF, and tidally-influenced marsh throughout the remainder of the NAF bisected by several channels. Current surface and subsurface soils at the NAF will become future surface and subsurface sediments. Future sediments are assumed to retain the contaminant concentrations present in current soil.”⁴

Community Profile:⁵

Novato is a city in northern Marin County, in the North Bay region of the San Francisco Bay Area. This site is located in the Hamilton Wetlands which border the Hamilton neighborhood in Novato. This is a mixed residential and commercial suburban area. There are a high number of cleanup sites in the area (99th percentile). The population is predominantly White (54.2%).

Census Tract #: 6041105000

Population: 7,077

CalEnviroScreen Percentile Score: 36

Pollution Burden Percentile: 57

Characteristics Percentile: 26

Notable Exposure Percentiles:

- Ozone: 12
- Particulate Matter 2.5: 22
- Diesel Particulate Matter: 19
- Traffic: 100
- Pesticides: 0
- Lead from Housing: 20
- Drinking Water: 28
- Toxic Releases: 30
- Drinking Water: 8

Notable Environmental Effects:

- Cleanup sites: 99
- Groundwater threats: 92
- Hazardous waste: 88
- Impaired Waters: 83
- Solid Waste: 53

Sensitive Populations

- Asthma: 44
- Low Birth Weight: 15
- Cardiovascular Disease: 28

Notable Socioeconomic Factor Percentiles:

- Education: 18
- Linguistic Burden: 33
- Poverty: 19
- Unemployment: 56
- Housing Burden: 70

Demographics/Community Profile:

- Race/Ethnicity:
 - 17.6% Hispanic
 - 8.3% Black
 - 11% Asian American
 - 51.7% White
 - 11.4% Other

1. Department of Toxic Substances Control. "HAMILTON AAF - (J09CA7062) - NORTH ANTENNA FIELD - IR/MMRP (21970012)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=21970012
2. State Water Resources Control Board. "North Antenna Field (DOD100223700)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=DOD100223700
3. San Francisco District Office. "Hamilton Airfield Wetland Restoration," US Army Corps of Engineers, <https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Current-Projects/Hamilton-Airfield-Wetland-Restoration/>
4. Department of Toxic Substance Control, et al. "Final 2018 Human Health and Ecological Risk Assessment for the North Antenna Field Under a Future Inundation Scenario, Hamilton Army Airfield, Marin County, California." *EnviroStor*, 14 Apr. 2020, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/4839552164/2018%20HHERA%20Update_April%202020%20final.pdf
5. Office of Environmental Health Hazard Assessment. "Census Tract: Census Tract: 6041105000." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6cac7428e6184203/>

CASE STUDY 22: Hercules Properties LTD**Location:¹**

Address: 560 Railroad Ave, Hercules
CA 94547, Contra Costa County

Proximity to Bay: ~98 feet

Site Size: 167 Acres

Site Overview:¹

Status: Certified

Site Type: State Response or NPL

Facility Type: Manufacturing Facility

Oversight Agencies: DTSC

On the National Priorities List: No

Years of activity: 1881-1975

Type of Contamination: Soil

Contaminants of Concern:¹

- Metals: Arsenic, Cadmium and compounds, Chromium III, Copper and compounds, Lead, Mercury and compounds, Nickel, Zinc
- Polychlorinated Biphenyls (PCBs)
- Polynuclear Aromatic Hydrocarbons
- TPH-Motor Oil



Site History:²

According to the 2017 Five Year Remedial Action Review report, “The Site was once part of the 1,300-acre Hercules Powder Company that was used for the manufacture of explosives and munitions (1881 to 1964) and for the manufacture of fertilizers (1940 to 1977). Residual soil and groundwater impacts associated with these manufacturing processes were identified during Site investigations that were conducted from 1982 to 1992. These investigations defined an area comprising approximately 167- acres of the former 1,300-acre facility where site related heavy metal and petroleum hydrocarbons constituents were identified. For investigation and remediation purposes, the 167-acre site was divided into two major operable units, OU-A and OU-B. OU-A included areas where site related residual soil impacts were identified. OU-A was further subdivided into six operable units, OU- I through OU-6. OU-B included areas where site related groundwater and surface water impacts were identified and included Refugio Creek (OU-7) and San Pablo Bay intertidal mudflat areas and site groundwater (OU-8).”²

Site Remediation and Status and Overview of “Clean Up”:¹

According to EnviroStors site history, “All sub-OUs were remediated to residential standards with the exception of OU-3, which required a deed restriction allowing only industrial or commercial uses. Metals in groundwater were detected in isolated areas. DTSC approved no further action for OU-B with CERCLA 5-year reviews for the metals in groundwater. The Deed Restriction/Land Use Covenant covers OU-3 only.”¹

Future Plans:²

The 2017 5-year review stated that, “In 1999, approximately 73 acres of the former 167-acre Hercules Powder Company portion of the Site were sold to Bixby Development Company, LLC (Bixby). This included all of OU-1, OU-4 and OU-6 and most of OU-2. The portion of the former Hercules Powder Company site owned by Bixby is depicted on Figure 2. Based on DTSC certified completion of remedial actions for the operable units within the Bixby property, Bixby began developing these areas for residential use in 1999. The remaining areas of the former 167-acre site were sold to Hercules Bayfront, LLC in 2003, including all of OU-5, portions of OU-2 and the OU-3 dry land area. Hercules Bayfront, LLC planned to construct a transit village in these portions of the former Hercules site and conducted extensive earthwork in OU-2 and OU-5 in preparation for development of the village. Based on current observations, development of the transit village, other than the aforementioned earthwork, has not been initiated”²

Community Profile:³

Hercules is a city in western Contra Costa County, California. Situated along the coast of San Pablo Bay, it is located in the eastern region of the San Francisco Bay Area.

Census Tract #: 6013359105

Population: 5,054

CalEnviroScreen Percentile Score: 24

Pollution Burden Percentile: 28

Characteristics Percentile: 24

Notable Exposure Percentiles:

- Diesel Particulate Matter: 76
- Particulate Matter 2.5: 34
- Traffic: 36
- Lead from Housing: 4
- Drinking Water: 4

- Ozone: 11
- Toxic Releases: 57
- Pesticides: 0

Notable Environmental Effects:

- Cleanup sites: 84
- Groundwater threats: 0
- Hazardous waste: 75
- Impaired Waters: 83
- Solid Waste: 0

Notable Sensitive Populations:

- Asthma: 55
- Low-birth weight: 40
- Cardiovascular Disease: 39

Notable Socioeconomic Factor Percentiles:

- Education: 18
- Linguistic Isolation: 26
- Poverty: 8
- Unemployment: 32
- Housing Burden: 23

Demographics/Community Profile:

- Race/Ethnicity:
 - 12% Hispanic
 - 19% African American
 - 17% White
 - 48% Asian American
 - 5% Other

1. Department of Toxic Substances Control. "Hercules Property LTD". *EnviroStor*. https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=07280016
2. Cameron-Cole, LLC. "Fourth five-year review report of operable unit 3 dry land area Hercules Properties, LTD, Site Hercules, California" *EnviroStor*. January 2018, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/1496096551/Hercules%20Properties%2C%20LTD%20Site%2C%20Hercules%2C%20CA_%202017%20Five-Year%20RA%20Review%20Report_Jan.%202020.2018.pdf
3. Office of Environmental Health Hazard Assessment. "Census Tract: 6013359105." *CalEnviroScreen 4.0*, October 2021, <https://calenviroscreen-oehha.hub.arcgis.com/#CalEnviroScreen>

CASE STUDY 23: Hunters Point Naval Shipyard Superfund Site

Location:¹

Address: Southeast San Francisco
San Francisco, CA 94124
San Francisco County

Proximity to Bay: On the shoreline

Site Size: 936 Acres (493 on land, 443 in water)

Site Overview:¹

Status: Active as of 5/1/1986

Site Type: Federal Superfund

Facility Type: Shipyard (Closed Base)

Oversight Agencies: US EPA (lead regulatory agency), DTSC, and RWQCB

On the National Priorities List: Yes

Years of activity as shipyard: 1869-1991

Type of Contamination: Radioactive and hazardous waste soil and groundwater contamination, contamination in San Francisco Bay, and emissions into the air.

Contaminants of Concern:^{1,2}

A full list of contaminants of concern can be found on both the US EPA Superfund site profile for “Hunters Point Naval Shipyard” and the DTSC HPNS profile.^{1,2}

Some of the contaminants include:

- Asbestos
- Metals (including arsenic, lead, mercury, chromium)
- Methane
- Petroleum (TPH)
- Polychlorinated Biphenyls (PCBs)
- Polynuclear Aromatic Hydrocarbons (PAHs)
- Radioactive Isotopes (from atomic bomb test residues and from radiological testing lab)
- Volatile Organics (VOCs) including Trichloroethylene (TCE) and Vinyl chloride

Site History:^{1,3,4,5}

The 866-acre Hunters Point Naval Shipyard Superfund (HPNS) Site is located in the Bayview Hunters Point neighborhood in southeast San Francisco and extends into San Francisco Bay. HPNS was operated as a commercial dry dock facility from 1869 until December 29, 1939, when the Navy purchased the property. The site was then home to a Naval shipyard from 1945 to 1974 and the Naval Radiological Defense Laboratory (NRDL) from 1948 to 1960. NRDL activities contaminated soil, dust, sediments, surface water and groundwater with petroleum fuels, pesticides, heavy metals, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs) and radionuclides. The Shipyard was also used by the Navy to sandblast and refurbish ships



involved in atomic bomb tests in the Pacific Ocean, leaving dangerous radioactive contamination at the site. Other Navy activities at the Shipyard also left toxic and radioactive contamination. According to the EPA Superfund site profile, in 1974 the Navy ceased shipyard operations at HPNS, placing it in industrial reserve and transferring control of the property to the Office of the Supervisor of Shipbuilding, Conversion, and Repair in San Francisco. From May 1976 to June 1986, Triple A Machine Shop, Inc. leased most of HPNS from the Navy and operated these leased areas as a commercial ship repair facility, further contaminating the site.^{1,3,4,15}

The Navy is responsible for the investigation and cleanup of the site. U.S. EPA is the lead regulatory agency. U.S. EPA and the California EPA (Department of Toxic Substances Control (DTSC) and Regional Water Quality Control Board (RWQCB)) are responsible for overseeing and enforcing Navy cleanup actions to ensure it is done properly and protective of public health and the environment. While the Navy and government regulatory agencies are involved in cleanup, monitoring, and testing activities, many residents, community, environmental justice, and environmental groups are concerned that these activities are inadequate and are not trusted to be properly conducted. The accuracy of testing at the site and of the cleanup itself has been a major issue of concern due to serious allegations that federal contractor Tetra Tech EC committed widespread fraud.

HPNS was identified for BRAC [Base Realignment and Closure] closure in 1991.⁴

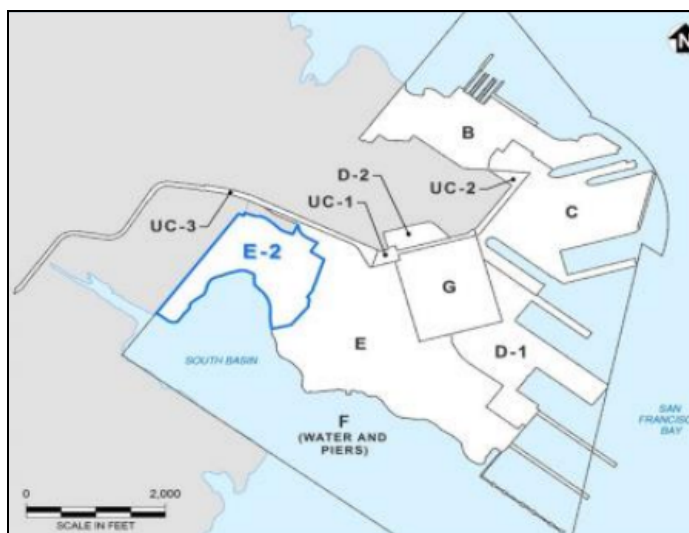


Image displays how the HPNS has been divided into parcels.
Sourced from a Navy Factsheet on the E-2 Landfill⁵

Site Remediation and Status and Overview of “Clean Up”:^{3,4,6,7,8,9,13,18}

The US Environmental Protection Agency (EPA) placed HPNS on the Superfund National Priorities List (NPL) in 1989, and split HPNS into seven different parcels. The EPA is mandated to provide the lead regulatory oversight of the “cleanup” with the involvement of California

EPA's DTSC and RWQCB. The remediation efforts include bioremediation, soil cover/capping, decontamination, offsite disposal, and other methods.^{3,4}

The "cleanup" plan being implemented by the Navy and government regulatory agencies involves leaving significant amounts and high levels of radioactive and hazardous waste capped at the site, including at and near the shoreline where rising sea levels and rising groundwater threaten to inundate and spread the contamination on land and into the San Francisco Bay.¹⁴

Tetra Tech EC was contracted by the Navy to conduct testing and cleanup. Whistleblowers claimed that Tetra Tech EC supervisors had workers replace contaminated soil with clean soil and dump the contaminated soil into open trenches across Hunters Point and tamper with data that analyzed radiation levels, among other illegal activities. Two company supervisors were sentenced to federal prison for falsifying records in 2018. Since then, the Navy has declared Tetra Tech's data unreliable and have begun plans to retest.^{6,7,9}

In light of the serious allegations of fraud, on September 13, 2016, US EPA and DTSC sent a letter to the Department of the Navy requiring investigation of the allegations and stating "that the Navy will not propose any further transfers of Navy property at HPNS without results of these investigations and/or any other Navy action necessary to clarify the actual potential public exposure to radioactive material at and near the HPNS"¹⁶

The Navy has divided the site into several parcels and brief description of the proposed and/or approved "remediation" methods used at each parcel can be found on the EPA's superfund site profile for Hunters Point Naval Shipyard.³

The Navy was allowed to transfer Parcel A to the San Francisco Redevelopment Agency in 2004 by declaring the Parcel "clean" with no further action required - based on a certification from Tetra Tech EC that the site was clean. After community residents and community and environmental justice groups demanded new testing, DTSC and the California Department of Public Health did conduct minimal testing that was not comprehensive, yet a radioactive object was found close to new homes built by Lennar.¹⁷ Comprehensive core sampling under homes and public areas still has never been conducted at the former Parcel A despite the allegations of fraud and the discovery of a radioactive "deck marker" from prior Navy operations. Lennar has now built hundreds of townhouses in this area that still may be highly contaminated.

The 2021 annual update of cleanup achievements for HPNS includes information surrounding the Navy's retesting, "In late 2017, the Navy completed a comprehensive evaluation of radiological data collected by Tetra Tech EC (TtEC). The Navy concluded that TtEC results are unreliable and that new data is required. New Data for Accurate Results."⁴

Testing of other parcels and controversy about the adequacy of testing and test results continues between the Navy and EPA, and among residents and community, environmental justice, and watchdog organizations who do not trust the Navy or government agencies' assurances about proper cleanup.¹⁸

2022 San Francisco Civil Grand Jury Report:¹³

On June 14, 2022 the San Francisco Civil Grand Jury released an extensive report about the threat posed by rising groundwater and sea levels to contaminated areas at the Hunters Point Naval Shipyard Superfund Site. The report, entitled “Buried Problems and a Buried Process: The Hunters Point Naval Shipyard in a Time of Climate Change,” documented the failure of the Navy and government regulatory agencies to assess the threat posed by rising sea levels and groundwater due to the plan to leave some contamination buried at and near the shoreline of San Francisco Bay.

The Civil Grand Jury seeks to answer two questions:

1. When the sea level rises, what will happen to the shallow groundwater in the residually-contaminated soil under [the] apartment buildings and office towers [at the Hunters Point Naval Shipyard]?
2. Have the Navy and the regulators [US EPA, DTSC, CA Waterboard] that oversee the cleanup evaluated the risks posed by groundwater rising with sea level rise in the Shipyard? Has the City and County of San Francisco evaluated these risks?

The Civil Grand Jury found that neither the Navy, federal regulators or the City and County of San Francisco had evaluated the risks posed by rising groundwater and sea levels to the Shipyard Superfund site.

The report found that, “The intersection of rising groundwater and buried contaminants poses a credible risk to human health and well-being. Given the rapidity with which the climate is changing, the City needs to take immediate and sustained action to protect its residents” (pg 4 of CGJ report).

In addition, “The Jury’s research found that when sea level rises, shallow groundwater near the shore rises with it, and can damage infrastructure, cause flooding from below, and mobilize contaminants in the soil. In the low-lying Shipyard, where the Navy intends to leave hazardous toxins buried, experts told the Jury that rising groundwater poses special risks to health and safety, and to future development” (pg 3 of the CGJ report).

From the Civil Grand Jury press release, “Hunters Point is part of the biggest development in San Francisco since the 1906 earthquake,” said Michael Hofman, Jury Foreperson. “Yet neither the Navy nor the City is paying attention to what’s going to happen there when sea level rise pushes the groundwater closer to the surface.” “There’s so much at stake in the Hunters Point Shipyard,” Hofman said. “And the City isn’t devoting the right resources to anticipate problems like groundwater rise at the Shipyard, while there’s still time to do something.”¹³

Future Plans:

Lennar/ Five Point Corporation is a large corporate developer hoping to build thousands of mostly luxury homes at the Shipyard despite well documented problems with the adequacy of the cleanup and future “remediation” plans.

Community Profile:¹²

The Hunters Point Naval Shipyard is located in the Bayview Hunters Point neighborhood in the the Southeast region of San Francisco along the San Francisco Bay shoreline. The Bayview

Hunters Point community is majority-minority, with over 80% of residents identifying as Non-White. There are many sensitive populations in Bayview Hunters Point; this community is in the 96th percentile for asthma and the 100th percentile for low birth weight. Bayview Hunters Point has been impacted by historic and current contamination and pollution from a variety of sources since the establishment of the Shipyard during World War II.

Census Tract #: 6075980600

Population: 690

CalEnviroScreen Percentile Score: 83

Pollution Burden Percentile: 69

Characteristics Percentile: 84

Notable Exposure Percentiles:

- Ozone: 4
- Particulate Matter 2.5: 34
- Diesel Particulate Matter: 99
- Toxic Releases: 43
- Traffic: 7
- Lead from Housing: 10
- Drinking Water: 15
- Pesticides: 13

Notable Environmental Effects:

- Cleanup sites: 91
- Groundwater threats: 100
- Hazardous waste: 93
- Solid Waste: 95
- Impaired Waters: 83

Sensitive Populations:

- Asthma: 96
- Low Birth Weight: 100
- Cardiovascular Disease: 46

Notable Socioeconomic Factor Percentiles:

- Education: 52
- Linguistic Isolation: N/A
- Poverty: 56
- Unemployment: N/A
- Housing Burden: 87

Demographics/Community Profile:

- Race/Ethnicity:
 - 21% Hispanic
 - 34% Black
 - 25% Asian American
 - 14% White
 - 6% Other

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3. US EPA. "Hunters Point Naval Shipyard San Francisco, CA." Superfund Site, <https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0902722>
4. NAVFAC. "Former Naval Shipyard Hunters Point." *Naval Facilities Engineering Systems Command*, <https://www.bracpmo.navy.mil/BRAC-Bases/California/Former-Naval-Shipyard-Hunters-Point/>
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10. City and County of San Francisco. "Bayview Hunters Point." *Office of Community Investment and Infrastructure*, <https://sfocii.org/bayview-hunters-point>.
11. San Francisco Planning. "India Basin Mixed-Use Project," *San Francisco Planning*, <https://sfplanning.org/india-basin-mixed-use-project#about>.
12. Office of Environmental Health Hazard Assessment. "Census Tract 6075980600." CalEnviroScreen 4.0, October 2021. <https://experience.arcgis.com/experience/11d2f52282a54ceebeac7428e6184203/page/CalEnviroScreen-4.0/>
13. San Francisco Civil Grand Jury. "Buried Problems and a Buried Process: The Hunters Point Naval Shipyard in a Time of Climate Change." June 14, 2022 <https://civilgrandjury.sfgov.org/report.html>
14. Daniel Hirsch, Maria Caine, Taylor Altenbern, Haakon Williams, and Audrey Ford, "From Cleanup to Cover Up", *Committee to Bridge the Gap*, August 2019, <https://www.committeetobridgethegap.org/hunters-point-reports/FromCleanupToCoverup.pdf>
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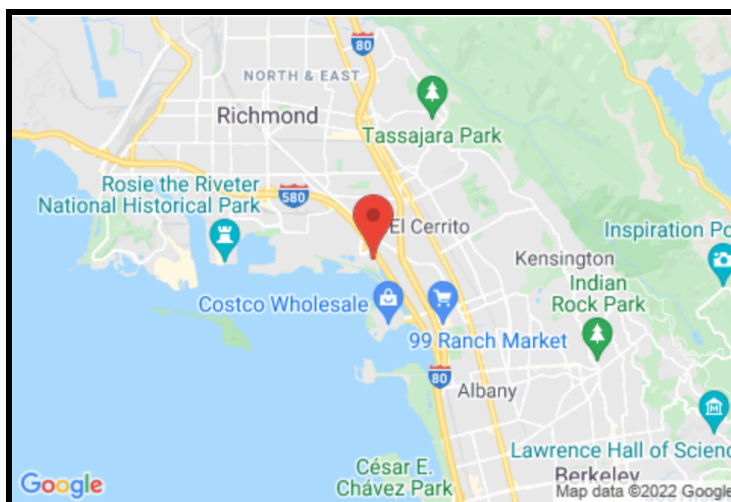
CASE STUDY 24: Liquid Gold Oil Corp

Location:¹

Address: Hoffman Blvd & S 47th St
 Richmond, CA
 Contra Costa County
Proximity to Bay: ~328 feet
Site Size: 29 Acres

Site Overview:¹

Status: Active
Site Type: Federal Superfund, State Response, Former NPL
Facility Type: Manufacturing
Oversight Agencies: DTSC, US EPA
On the National Priorities List: No
Years of activity: 1974-1982
Type of Contamination: Sediment, soil



Contaminants of Concern:¹

- Metals: Chromium VI, Lead, Mercury and compounds, Nickel, Zinc
- Polychlorinated Biphenyls (PCBs)
- Polynuclear Aromatic Hydrocarbons (PAHs)
- TPH-Motor Oil

Site History:¹

According to EnviroStors site history, "The site was owned by the Southern Pacific Transportation Company and is now owned by Union Pacific Railroad. From 1974 to 1982, the site was leased by Liquid Gold Oil Corporation to store, re-refine and recycle oil and other substances. The hazardous substances stored in over 20 storage tanks and drums included waste motor oil, organic solvents, bunker oil, diesel fuel, oil-water emulsions and mixtures and tank bottom waste. As a result of site operations, hazardous substances leaked or spilled onto the ground and were discharged into ponds, sumps and ditches, and drained into wetland areas.

Subsequently, site remedial investigations were performed, remedial actions completed, and the site was delisted by the U.S. Environmental Protection Agency from the National Priorities List in 1996.”¹

Site Remediation and Status and Overview of “Clean Up”:^{1,2}

According to the EPA's site profile for Liquid Gold Oil Corp states that, “Site cleanup finished in 1995. Remaining contaminated soils have been covered with a vegetated cap, the site is fenced and a deed restriction prohibits residential and other uses. After cleanup, EPA took the site off the NPL in 1996.”²

According to EnviroStor, “The site is currently in operation and maintenance. Groundwater monitoring occurs biennially. UPRR and East Bay Regional Park District (EBRPD) are currently discussing a land transfer as a portion of the site cap is encroaching onto EBRPD property. A Remedial Action Workplan for the 2.45 acre Pistol Range was approved in March 2013. Remediation activities were subsequently conducted between September and December 2013. The remedy included removal of 7,400 tons of lead-impacted soil, on-site treatment by a state-permitted transportable treatment unit to stabilize the soil to reduce soluble lead concentrations, and off-site disposal to ECDC Environmental Landfill in East Carbon, Utah. Backfill was imported, and the area hydroseeded. New fencing was also installed around the site boundary. The cleanup goal for lead was 320 mg/kg. Confirmation sampling indicated that the 95% UCL was 78 mg/kg, below the residential screening level of 80 mg/kg. Consequently, a land use covenant is not necessary and the remedy was certified in December 2015.”¹

Future Plans:³

As of now, an inspection and report is completed by the EPA every 5 years. With the most recent inspection being in 2020, the site is found to be an open space that is closed to public access. No remedy is taking place, however, old oil wells are now covered by concrete caps. The 2020 report found that one cap (MW-13) had sunk and was decommissioned. There are currently plans to refill the well with concrete.³

Community Profile:⁴

The site is just North of the Hoffman Channel and is between the San Francisco Bay Trail and Highway 580. The site neighbors both the Panhandle Annex and Richmond Annex neighborhoods. This community is in the 100th percentile for cleanup sites and 98th percentile for hazardous waste facilities meaning it is of the most contaminated communities in California. High levels of contamination likely contribute to the high occurrence of asthma within the population (99th percentile).

Census Tract #: 6013380000

Population: 5,931

CalEnviroScreen Percentile Score: 75

Pollution Burden Percentile: 74

Characteristics Percentile: 68

Notable Exposure Percentiles:

- Ozone: 3
- Particulate Matter: 37
- Diesel Particulate Matter: 96
- Toxic Releases: 77
- Traffic: 68
- Lead from Housing: 25

- Drinking Water: 4
- Pesticides: 0

Notable Environmental Effects:

- Cleanup sites: 100
- Groundwater threats: 91
- Hazardous waste: 98
- Impaired Waters: 93
- Solid Waste: 0

Sensitive Populations

- Asthma: 99
- Low Birth Weight: 55
- Cardiovascular Disease: 72

Notable Socioeconomic Factor Percentiles:

- Education: 33
- Linguistic Isolation: 43
- Poverty: 51
- Unemployment: 77
- Housing Burden: 34

Demographics/Community Profile:

- Race/Ethnicity:
 - 27.4% White
 - 23.1% Hispanic
 - 23.6% African American
 - 19.2% Asian American
 - 0.5% Native American
 - 6.3% Other

1. Department of Toxic Substances Control. "Liquid Gold Oil Corp (07290039)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=07290039
2. United States Environmental Protection Agency. "Superfund Site: Liquid Gold Oil, Corp. Richmond, CA." *EPA Superfund*, <https://cumulis.epa.gov/supercpad/cursites/esitinfo.cfm?id=0902660>
3. US Army Corps of Engineers Seattle District. "FIFTH FIVE-YEAR REVIEW REPORT FOR LIQUID GOLD OIL CORPORATION SUPERFUND SITE CONTRA COSTA COUNTY, CALIFORNIA." *U.S. Environmental Protection Agency*, Oct. 28, 2020, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/1879700183/EPA-Final-100021409.pdf
4. Office of Environmental Health Hazard Assessment. "Census Tract: 6013380000." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54ceebeac7428e6184203/>

CASE STUDY 25: Mare Island Naval Shipyard

Location:

Address: W End Of Tennessee Street,

Mare Island, Vallejo, CA 94590

Proximity to Bay: ~1,640 feet

Site Size: 5,600 Acres

Site Overview:¹

Status: Active As Of 5/1/1989

Site Type: State Response

Facility Type: Closed Base

Oversight Agencies: DTSC (Lead), RWQCB

On National Priorities List: No



Years of activity: 1854-1996

Type of contamination: Contaminated surface/structure, indoor air, other groundwater affected, sediments, soil, soil vapor

Contaminants of Concern:¹

- Dioxin
- Explosives (UXO, MEC)
- Metals: Arsenic, Cadmium, Chromium (VI) - Hexavalent, Chromium III, Copper and compounds, Lead, Mercury (elemental), Mercury and compounds, Nickel, Other Inorganic Solid Waste, Sludge, Zinc
- Organochlorine Pesticides (8081 OCPS): DDD, DDE, DDT
- Petroleum: TPH-MOTOR OIL, TPH-diesel
- Polychlorinated Biphenyls (PCBs)
- Perfluorinated Alkylated Substances (PFAS): Perfluorooctane Sulfonate (PFOS), Perfluorooctanoic Acid (PFOA)
- Polynuclear Aromatic Hydrocarbons (PAHS)
- Radioactive Isotopes
- Uncategorized: HALOGENATED SOLVENTS, HYDROCARBON SOLVENTS, ORGANIC LIQUIDS WITH METALS, UNSPECIFIED ACID SOLUTION, UNSPECIFIED SLUDGE WASTE, UNSPECIFIED SOLVENT MIXTURES, WASTE OIL & MIXED OIL, Asbestos Containing Materials (ACM), Munitions Debris (MD), Polynuclear aromatic hydrocarbons (PAHs)
- Volatile Organics: Tetrachloroethylene (PCE), Trichloroethylene (TCE), Vinyl chloride

Site History:^{1,3}

According to EnviroStors site history, “Mare Island was in continuous use as a United States Naval shipyard from 1854 through 1996. Mare Island is approximately 3.5 miles long and 1.25 miles wide, covering approximately 5,600 acres. Activities that have generated hazardous waste include: metal plating; lead acid battery refurbishing; oil handling and reclamation; abrasive blasting; ship construction and repair, nuclear and diesel submarine construction and repair; leaking transformer oil storage tanks; discharge of wastewater to Mare Strait; landfill disposal of solvents; polychlorinated biphenyl (PCB) contaminated fluids leakage, asbestos wastes generation; hazardous wastes handling; land disposal of contraband and miscellaneous ordnance, trinitrotoluene (TNT), and fulminate of mercury; and waste ordnance detonation. With two (2) significant property transfers in 2002, the Navy transferred property title and environmental responsibility for extensive portions of Mare Island. These 2 areas are known as the Eastern Early Transfer Parcel (EETP) and the Western Early Transfer Parcel (WETP). Lennar Mare Island assumed environmental cleanup responsibility for the EETP, and Weston Solutions Inc. assumed environmental responsibility for the WETP. The Navy thus retained environmental responsibility for the remaining areas of Mare Island.”¹

The Mare Island Landfill, part of the Mare Island Naval Shipyard, was first a historical dump and later in the 1960s and 1970s became a permanent landfill (60s and 70s). In the 1980s, the landfill became a Class 1 RCRA Permitted Hazardous Waste Landfill.³

Site Remediation and Status and Overview of “Clean Up”:^{1,3}

There are now many listings for the Mare Island Naval Shipyard in Envirostor. “With two (2) significant property transfers in 2002, the Navy transferred property title and environmental responsibility for extensive portions of Mare Island. These 2 areas are known as the Eastern Early Transfer Parcel (EETP) and the Western Early Transfer Parcel (WETP). Lennar Mare Island assumed environmental cleanup responsibility for the EETP, and Weston Solutions Inc. assumed environmental responsibility for the WETP. The Navy thus retained environmental responsibility for the remaining areas of Mare Island.”¹

Future Plans:¹

There will be five year reviews to follow the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) until the California Environmental Protection Agency Department of Toxic Substances Control (DTSC) no longer deems these necessary. The next 5-year review is due in 2028.¹

Community Profile:²

The Mare Island Naval Shipyard site lies on the Bay shoreline, to the west of Vallejo and North of Richmond. The surrounding community is majority-minority, with over 50% of residents identifying as Black or Hispanic. Notably, Mare Island is in the 99th percentile for asthma and 92nd percentile for low birth weight.

Census Tract: 6095250801

Population: 4,135

CalEnviroScreen Percentile Score: 86

Pollution Burden Percentile: 83

Characteristics Percentile: 79

Notable Exposure Percentiles:

- Ozone: 15
- Particulate Matter 2.5: 37
- Diesel Particulate Matter: 48
- Toxic Releases: 59
- Traffic: 78
- Pesticides: 15
- Drinking Water: 33
- Lead from Housing: 28

Notable Environmental Effects:

- Cleanup sites: 92
- Groundwater threats: 98
- Hazardous waste: 95
- Impaired waters: 93
- Solid waste: 65

Sensitive Population Indicators:

- Asthma: 99
- Low Birth Weight: 92
- Cardiovascular Rate: 86

Notable Socioeconomic Factor Percentiles:

- Education: 42
- Poverty: 53
- Unemployment: 54
- Housing Burden: 52
- Linguistic Isolation: 29

Demographics:

- **Race/Ethnicity:**
 - White: 25%
 - Black: 32%
 - Hispanic: 21%
 - Asian American: 19%
 - Other: 3%

1. "Mare Island Naval Shipyard." EnviroStor, Department of Toxic Substances Control, 2021. https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=48970002.
2. Office of Environmental Health Hazard Assessment. "Census Tract: 6095250801." *CalEnviroScreen 4.0*, October 2021. <https://experience.arcgis.com/experience/11d2f52282a54cee8cac7428e6184203/>.
3. Chip Gribble. Interview. November 2021.

CASE STUDY 26: Military Ocean Terminal Concord (Concord Naval Weapons Station Tidal Area)

Location:¹

Address: Port Chicago Highway
Concord, CA 94520

Proximity to Bay: On Shoreline

Site Size: 12,992 acres

Site Overview:¹

Status: Active as of 2/10/2011

Site Type: Federal Superfund

Facility Type: Closed Base

Oversight Agencies: DTSC,
RWQCB, US EPA

On the National Priorities List: Yes

Years of activity: 1942- Present

Type of Contamination: Other
groundwater affected, soil



Contaminants of Concern:¹

- Metals: Arsenic, Cadmium and Compound, Cobalt, Iron, Lead, Manganese and Compounds, Nickel, Thallium and compounds, Vanadium and compounds

Site History:^{1,2}

According to EnviroStors site history for the Military Ocean Terminal Concord, "The Military Ocean Terminal Concord (MOTCO) is an active Army base. MOTCO is the West Coast ammunition terminal, and is one of two Army Military Surface Deployment and Distribution Command installations. It is home to the 834th Transportation Battalion. MOTCO is bounded by Suisun Bay to the north, the Cities of Bay Point and Pittsburg to the east, and the City of Concord to the south and west (see Figure 1). MOTCO encompasses the Tidal Area portion of the former Naval Weapons Station Seal Beach Detachment Concord (formerly NWS Concord). The Installation is composed of an approximately 115-acre Inland Area and an approximately 6,526-acre Tidal Area, which includes 2,045 acres of offshore islands. These two areas are connected by a stretch of Port Chicago Highway. MOTCO operates three ocean terminal piers

and an Army-owned rail system that connects with two major public rail lines. The Army's present mission at MOTCO is to process, ship, and receive military ordnance safely and efficiently. The MOTCO installation was formerly Department of the Navy lands within former NWS Concord. On 1 October 2008, MOTCO properties were transferred from the Navy to the Army per the recommendations of the 2005 Defense Base Closure and Realignment Commission. However, the Army's presence at MOTCO dates back to 1 October 1997, when the Army's Port Command was relocated from the Oakland Army Base to MOTCO and became the 834th Transportation Battalion. The City of Concord has been recognized as the Local Reuse Authority for the approximately 5,028-acres of former NWS Concord lands that were identified as surplus.

NWS Concord was placed on the federal National Priorities List (NPL) in December 1994. Due to the size and complexity of NWS Concord, this site has been divided into three areas: Inland Area, Tidal Area, and Litigation Area.”¹

According to EnviroStors site history for Concord Naval Weapons Station, “From 1944 to 1979 approximately 100 acres of CNWS wetlands and marshlands was used for disposal of chipped wood pallets and other wooden materials treated with wood preservatives at the marshland landfills. In addition to wood chips, the 33,650 tons of waste solvents, paints, household garbage, munitions, and construction debris were disposed of at the landfills. Contaminants include heavy metals, creosote, munitions and pentachlorophenol. Endangered species and other wetland wildlife inhabit some areas of the Tidal Area. Contaminants could be introduced to the food chain by birds, fishes, and other small animals that inhabit the marshland. In the late 1960's and 1970's the Navy purchased several land parcels in the Tidal area to create a buffer zone for the facility. Eight of the parcels covering approximately 310 acres were subsequently found to be contaminated. Due to the litigation the Navy brought against the adjacent property owners to recover cleanup costs for the contaminated acreage, these parcels are now referred to as the Litigation Area sites. These parcels are also known as Remedial Action Subsites (RASS) 1, 2, 3, 4. The RASS sites are found to be contaminated by at least six metals, including arsenic, cadmium, copper, lead, selenium, and zinc. The Inland Area encompasses approximately 6200 acres. Operations at the Inland Area have been primarily associated with routine ammunition transshipment, ordnance facility activities including munitions storage, support, supply, public works and administrative facilities. The Inland Area houses several production and maintenance facilities for weapons. The northwest corner of the Inland Area is used for support operations such as a 162-acre golf course. A Weapons Quality Engineering Center and an abandoned airfield are also part of the Inland Area.”²

Site Remediation and Status and Overview of “Clean Up”:^{1,3}

According to EnviroStors site history for the Military Ocean Terminal Concord, “The Army is responsible for environmental cleanup at MOTCO with oversight by the U.S. Environmental Protection Agency (EPA), the California Environmental Protection Agency (CalEPA) Department of Toxic Substances Control (DTSC), the San Francisco Bay Regional Water Quality Control Board (Water Board), the California Department of Fish and Wildlife, and other federal, state, and local natural resource trustees. The Army and regulators have a team approach to completing cleanup of the base. Environmental investigations and cleanup began on the former NWS Concord in 1983 and continue on MOTCO today.”¹

According to the EPA's site profile for Concord Naval Weapons Station, "The Navy began environmental investigations at NWS Concord under the Navy Assessment and Control of Installation Pollutants (NACIP) Program in 1982. The NACIP was converted to the Installation Restoration (IR) Program to be more consistent with CERCLA. In October 1999, the Inland Area was put on reduced operational status and, in 2005, the Defense Base Realignment and Closure (BRAC) Commission recommended NWS Concord for partial closure and realignment under the Base Realignment and Closure (BRAC) process. The final BRAC determination that was made resulted in the Tidal Area being transferred to the Department of the Army in 2008. The remaining area, the Inland Area, was operationally closed, and is being transferred for redevelopment. The Inland Area is being addressed through federal cleanup actions by the U.S. Navy and the Tidal Area is being addressed by the U.S. Army." ³

Also according to the EPA, "TIDAL AREA ACTIONS: Litigation Area -- Since 1983, NWS Concord has excavated contaminated soils from the Litigation Area and disposed of them off site. In addition, NWS Concord performed wetlands restoration activities. Replanting of the site finished in the fall of 1995. The Litigation Area Sites Feasibility Study (FS) and Proposed Plan have been issued, proposing additional remedial actions necessary to address contaminated aquatic sediments and wetlands soils. Site 1 Landfill -- The 2004 remedy for the Tidal Area Landfill (Site 1) consisted of a California Title 27 municipal solid waste multilayer prescriptive soil cap. Construction of the cap is complete." ³

Future Plans:³

As stated in the EPA site profile, "The property Tidal Area of NWS Concord is not intended for transfer or redevelopment for the foreseeable future." ³

The EPA Site profile also states: The Navy's Concord Restoration Advisory Board (RAB) normally meets to discuss the cleanup of the Inland Area on the second Wednesday of January, April, July, and October from 6:00am - 8:00pm, although this schedule does vary. Meetings are open to the public. The RAB is currently open for membership applications.

The RAB meets at:

Clyde Clubhouse

109 Wellington Avenue Clyde, CA 94520³

Community Profile:⁴

The site is located in Concord in a commercial area. Nearby neighborhoods include Shore Acres, Baypoint, and Clyde. This community has a high level of cleanup sites (95th percentile) and groundwater threats (94th percentile). High levels of pollution most likely contributes to the community's extremely high prevalence of asthma (96th percentile). This community is primarily White (37.9%) and Hispanic (25.6%).

Census Tract #: 6013315000

Population: 3,862

CalEnviroScreen Percentile Score: 76

Pollution Burden Percentile: 86

Population Characteristics Percentile: 59

Notable Exposure Percentiles:

- Diesel Particulate Matter: 57
- Ozone: 21

- Particulate Matter 2.5: 29
- Traffic: 91
- Drinking Water: 38
- Toxic Releases: 82
- Lead from Housing: 23
- Drinking Water: 38
- Pesticides: 0

Notable Environmental Effects:

- Cleanup sites: 95
- Groundwater threats: 94
- Hazardous waste: 89
- Impaired Waters: 87
- Solid Waste: 64

Sensitive Populations:

- Asthma: 96
- Low Birth Weight: 18
- Cardiovascular Disease: 81

Notable Socioeconomic Factor Percentiles:

- Education: 36
- Linguistic Isolation: 34
- Poverty: 46
- Unemployment: 57
- Housing Burden: 61

Demographics/Community Profile:

- Race/Ethnicity:
 - 37.9% White
 - 25.6% Hispanic
 - 13.2% African American
 - 16.9% Asian American
 - 3.2% Native American
 - 3.3% Other

1. Department of Toxic Substances Control. "Military Ocean Terminal Concord (07970004)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=07970004
2. Department of Toxic Substances Control. "CONCORD NAVAL WEAPONS STATION - INLAND AREA (07970005)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=07970005
3. United States Environmental Protection Agency. "Superfund Site: Concord Naval Weapons Station Concord, CA" *EPA Superfund*, <https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0902778>
4. Office of Environmental Health Hazard Assessment. "Census Tract: 6013315000." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/>

CASE STUDY 27: Moffett Federal Airfield

Location:^{1,3}

Address: 158 Cody Rd,

Mountain View, CA 94043

Proximity to Bay: ~328 feet

Site Size: 1,500 Acres

Site Overview:^{1,2,3}

Status: Closed

Site Type: Federal Superfund

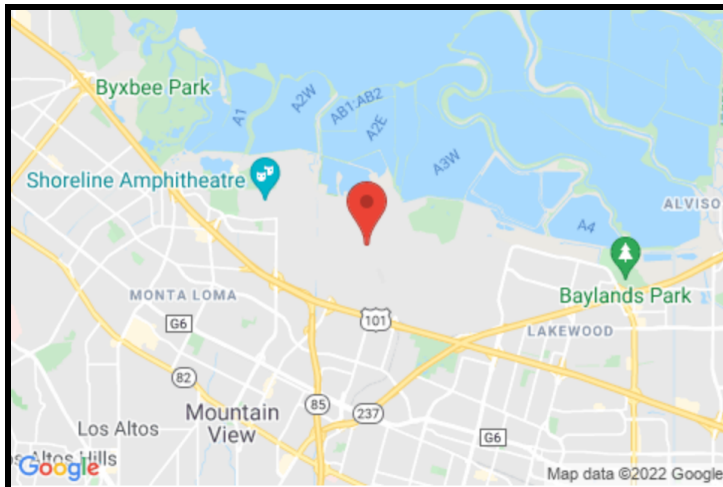
Facility Type: Closed Base

Oversight Agencies: US EPA (Lead),
RWQCB 2

On the National Priorities List: Yes

Years of activity: 1933-1994

Type of Contamination: Soil,
Groundwater, Sediment



Contaminants of Concern:^{1,2,3}

- Asbestos containing materials
- Pesticides
- Polychlorinated Biphenyls (PCBs)
- Sludge (paint)
- Unspecified oil containing waste
- Boiler Fuel
- Trichloroethylene (TCE)
- Volatile Organic Compounds (VOCs)

Site History:³

According to the EPA's site profile for Moffett Field Air Station states that, "The 1,500-acre Naval Air Station Moffett Field site is located in Moffett Field, California. Moffett Field was commissioned in 1933 as a naval air station to support a "lighter-than-air" (LTA) program. The LTA program involved training pilots to fly blimps and servicing the aircraft. Two years later, the LTA program ended and the station was transferred to the Army Air Corps, who used the facilities to train air cadets. During the Army's tenure, the National Advisory Committee for Aeronautics, the predecessor to the National Aeronautics and Space Administration (NASA), established Ames Aeronautical Laboratory on land northwest of Moffett Field, which later became NASA Ames Research Center. In 1942, the station was transferred back to the Navy and was officially named Naval Air Station Moffett Field. To support World War II, the LTA program was reactivated, and a "heavier-than-air" program was begun to support fighter planes. Hangars 2 and 3 were built to support the increase in activity. After World War II, Moffett Field continued to support major Navy aeronautical activities. The station became the largest naval air transport base on the west coast. In 1991, Moffett Field was recommended for closure under the Base Realignment and Closure (BRAC) process. In July 1994, the airfield was closed and Moffett Field was transferred to NASA Ames Research Center.

Military activities at the site contaminated groundwater, soil and wetlands with volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs) and pesticides. Cleanup activities are in various phases of completion. Operation and maintenance activities and monitoring are also ongoing.”³

Site Remediation and Status and Overview of “Clean Up”:³

Also according to the EPA's site profile, “The site is being addressed through federal actions. EPA is the lead regulatory agency overseeing the Navy and NASA's environmental investigation and cleanup work. The Regional Water Quality Control Board (Water Board) is the state support agency. The Navy participated in the Installation Restoration Program, a specially funded program established by the Department of Defense (DoD) to identify, investigate and control the migration of hazardous contamination at military and other DoD facilities. As the operator and property owner, NASA is also performing cleanup actions for areas of Naval Air Station Moffett Field where NASA was responsible for contamination. In addition, NASA is responsible for implementing Land Use Controls at the site... The Navy and NASA have identified over 30 hazardous waste sites at the site. The long-term remedies included sediment and soil excavation, treatment and off-site disposal. Initial actions included closure of abandoned wells, source control measures, bioremediation of contaminated soil and carbon adsorption treatment of groundwater. These activities finished in 1996. A groundwater extraction and treatment system operated at the site until 1997, when it closed down to allow for operation of a regional system. At Site 29-Hanger 1, the Navy applied a specialized coating to the exterior surface of Hangar 1 to seal building materials in 2003. Operable Unit 1 - Landfill Sites 1 and 2: Site 1 was a 12-acre landfill that operated from the mid-1960s to late 1970s. Site 2 was a 1-acre landfill used between the 1940s and 1952. The long-term remedy included consolidation of Site 1 and Site 2 refuse and a multi-layer cap to contain the wastes.”³

Also according to the EPA's site profile, “Final Site Remedies:

- Site 22 - Golf Course Landfill: The Navy operated this 11-acre landfill from 1950 to 1967. The long-term remedy included a biotic barrier made of gravel and cobblestone. The biotic barrier allows for future use as a golf course.
- Site 25 - Eastern Diked Marsh and Stormwater Retention Pond: This site includes NASA's 175-acre stormwater retention pond and the Eastern Diked Marsh, as well as about 52 acres owned by the Midpeninsula Regional Open Space District. The long-term remedy included restoring part of the area to a tidal marsh by excavating sediments, treating certain areas with lead and zinc contamination, and disposing of the sediments off site.
- Site 26 - East-Side Aquifer Treatment System (EATS) Area: The EATS area is near Hangar 3, where activities contaminated groundwater with VOCs. The long-term remedy included a groundwater extraction and treatment system of five extraction wells and an air stripper with carbon treatment. The Moffett Field storm drain system would receive the treated water. In 2014, the long-term remedy was changed to include enhanced treatment of contaminated groundwater in three areas and monitored natural attenuation for the rest of the plume area.
- Site 27 - Northern Channel: The site consists of the Northern Channel and ditches that drain into the channel. The long-term remedy included the removal of contaminated sediment in the channel and ditches to protect the site's ecosystem.

- Site 28 - West-Side Aquifers Treatment System (WATS) Area: This site consists of groundwater contamination on the east side of the runways, possibly contaminated by a former dry cleaning facility, former fuel storage and wash rack facilities, and former manufacturing facilities. In 1994, the Navy removed soil contaminants by demolishing a building and removing a tank and sumps.
- The long-term remedy included a groundwater extraction and treatment system. This site is part of the Middlefield/Ellis/Whisman (MEW) Study Area. The MEW Study Area Record of Decision addresses this area. The remedy included in-place vapor extraction and treatment to treat contaminated soils, extraction and treatment to treat contaminated groundwater, identification and sealing of potentially contaminated wells, maintaining inward and upward hydraulic gradients through pumping and treatment inside slurry walls, and regular monitoring of the slurry wall system.
- Site 29 - Hangar 1: The Navy constructed Hangar 1 in 1932 to house the giant airship U.S.S. Macon. Building materials at the hangar are contaminated with PCBs, asbestos, lead and zinc. The Navy recommended removing the siding and coating the structural steel frame of Hangar 1 in 2007. The Navy signed an action memorandum confirming the action in 2009.
- Area of Investigation (AOI) 14 - Former Soil Fill Area: The interim remedy consisted of the construction of silt fencing around the perimeter of the 8-acre area to prevent the erosion of contaminated soils into nearby Site 25. The final remedy requires the excavation and disposal of contaminated soils.
- No Further Action Sites: EPA selected “no further action” as the remedy for six sites because they did not present a potential threat to human health and the environment.
- Petroleum Sites: The California Leaking Underground Storage Tank Program is addressing the petroleum sites.

Cleanup Progress:

- OU1 - Landfill Sites 1 and 2: At Site 1, construction of the multi-layer landfill cap finished in 1998. Long-term maintenance of the cap and monitoring of landfill gas and groundwater began in 1999. EPA and the Water Board approved the closure of Site 2 in 2003 because site conditions qualified the area for unrestricted use. The most recent five-year review concluded that response actions at the site are in accordance with the remedy selected by EPA and that the remedy continues to be protective of human health and the environment in the short term. Continued protectiveness of the remedy requires incorporation of institutional controls in NASA’s master plan and evaluation of the effectiveness of the burrowing mammal abatement plan.
- Site 22 - Golf Course Landfill: Construction of the biotic barrier finished in 2003. Regular maintenance and long-term monitoring of groundwater and landfill gas is ongoing. The most recent five-year review concluded that response actions at the site are in accordance with the remedy selected by EPA and that the remedy continues to be protective of human health and the environment in the short term. Continued protectiveness of the remedy requires incorporation of institutional controls in NASA’s master plan.
- Site 25 - Eastern Dike Marsh and Stormwater Retention Pond: Restoration activities and cleanup finished in 2013.

- Site 26 - EATS Area: The groundwater extraction and treatment system in the original remedy began operating in 1999. In 2019, consistent with the new remedy, treatment mixtures were injected into contaminated groundwater in three areas. Monitoring will determine the performance of the treatment and the natural degradation process in decreasing levels of contamination in groundwater.
- Site 27 - Northern Channel: Active excavation of contaminated soils and sediments finished in 2007. Site restoration activities finished in 2012.
- Site 28 - West-Side Aquifers Treatment System (WATS) Area: The WATS began operating in 1998. The most recent five-year review concluded that response actions at the site are in accordance with the remedy selected by EPA and that the remedy continues to be protective of human health and the environment in the short term. Continued protectiveness of the remedy requires incorporating results of the vapor intrusion pathway study into site construction permit requirements, continuation of the pilot test and evaluation of need for institutional controls.
- Site 29 - Hangar 1: The Navy completed removal of the siding and coated the structural steel frame in 2012. In 2015, NASA assumed responsibility for long-term monitoring and maintenance of Hangar 1. NASA has evaluated options for removing the coating and contaminated paints on the steel frame and is planning to proceed with this work.
- Area of Investigation (AOI) 14 - Former Soil Fill Area: Construction of the silt fencing around the site was completed in 2014. The excavation and disposal of contaminated soils and removal of the silt fence was completed in 2019.”³

Future Plans:³

“As of December 2021, EPA had data on 48 on-site businesses. These businesses employed 3,270 people and generated an estimated \$91,320,269 in annual sales revenue.”³

The EPA site profile also states:

“The Navy’s Restoration Advisory Board (RAB) normally meets annually to discuss the cleanup of the site on the third Thursday of October from 7:00 to 9:00pm, although this schedule may vary. Meetings are open to the public.

The RAB meets at:

Mountain View Center - Redwood Room

201 S. Rengstorff Avenue Mountain View, CA 94041”³

Community Profile:⁴

Moffett Field is located on the southwestern edge of San Francisco Bay in Santa Clara County. The installation is bounded on the South and on the East by Lockheed and the City of Sunnyvale, on the West by the National Aeronautics and Space Administration (NASA) Ames Research Center and the City of Mountain View, and on the North by the San Francisco Bay. The site is located in a commercial area with many cleanup sites (96th percentile) due to the number of tech and industrial companies. Nearby neighborhoods are suburban and predominantly White.

Census Tract #: 6085504700

Population: 588

CalEnviroScreen Percentile Score: 42

Pollution Burden Percentile: 66

Characteristics Percentile: 29

Notable Exposure Percentiles:

- Ozone: 15

- Particulate Matter 2.5: 20
- Diesel Particulate Matter: 89
- Toxic Releases: 29
- Traffic: 99
- Pesticides: 0
- Drinking Water: 31
- Lead from housing: N/A

Notable Environmental Effects:

- Cleanup sites: 96
- Groundwater threats: 85
- Hazardous waste: 95
- Impaired Waters: 44
- Solid Waste: 0

Sensitive Populations

- Asthma: 2
- Low Birth Weight: 76
- Cardiovascular Disease: 3

Notable Socioeconomic Factor Percentiles:

- Education: 6
- Linguistic Isolation: N/A
- Poverty: 32
- Unemployment: N/A
- Housing Burden: 96

Demographics/Community Profile:

- Race/Ethnicity:
 - 18.5% Hispanic
 - 2.4% Black
 - 1.8% Asian American
 - 75.3% White
 - 2.9% Other

1. Department of Toxic Substances Control. "Moffett Federal Airfield, Stationwide (43450006)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=43450006
2. State Water Resources Control Board. "Moffett Field Naval Air Station- Tanks 62/62A (T0604192348)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0604192348
3. United States Environmental Protection Agency. "MOFFETT FIELD NAVAL AIR STATION MOFFETT FIELD, CA" *EPA's Superfund Program*, <https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0902734>
4. Office of Environmental Health Hazard Assessment. "Census Tract: 6085504700." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/>

STUDY 28: NAS Oakland

Location:^{1,2}

Address: Old Earhart Rd.,
Oakland, CA 94621

Proximity to Bay: ~1969 feet

Site Size: 65 Acres

Site Overview:^{1,2,3}

Status: Open

Site Type: Military Cleanup

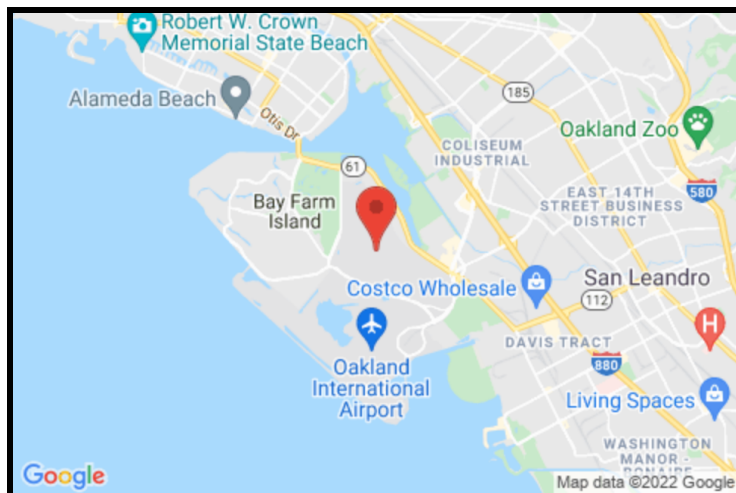
Facility Type: Closed Base (FUDS)

Oversight Agencies: RWQCB
(Lead), DTSC

On National Priorities List: No

Years of activity: 1944- Present

Type of contamination: Soil,
Groundwater



Contaminants of Concern:^{2,3}

- Gasoline
- Diesel
- Total Petroleum Hydrocarbons (TPH)
- Waste Oil/ Motor/ Hydraulic/ Lubricating

Site History:⁴

According to a Site Inspection Work Plan from 2005, “The Facility is a former Department of Defense (DoD) facility that was purchased from the Port of Oakland between 1944 and 1945. The U.S. Navy formerly used the Facility as a supply center that was occupied by administration buildings, lubrication and storage buildings, fuel tanks, airplane hangars, jet engine test facilities, general maintenance hangars, warehouses, and various paint storage buildings. On November 9, 1962, the entire Site was quit claim deeded back to the City of Oakland. The Site is currently owned and used by the Port of Oakland. Current site occupants include the U.S. Department of Transportation (DOT), U.S. Postal Service, Tricor Courier Services, Rolls-Royce Engines, Alaska Airlines, DHL (courier service), and the Federal Aviation Administration (FAA)”⁴

Site Remediation and Status and Overview of “Clean Up”:¹

According to EnviroStor, “Remaining improvements consisted of several buildings for administration, storage for paint, lubricants and other merchandise, and a gas station. Identified areas of concern include soil contamination in the vicinity of buildings 6, 7, 8, 9 and 10, in the form of TPH's and related compounds. Also, a vent pipe was observed near the former boiler house, which may indicate the presence of an underground tank. During a subsequent site visit, several additional tanks were located and identified as former DOD facilities. In addition, a test of the facility septic tank revealed the presence of PCBs, and the area was determined to have at one time been used to store electrical equipment, including oil-filled transformers.”¹

Also according to EnviroStor, “About 2 acres of the property, at the corner of Fairchild and Northrop Streets, are used as a staging area for an off-site bioremediation project. Improvements

consisted of an administration building, lubrication and storage facilities, a gasoline station, and various paint storage buildings. There are no indications of aboveground gasoline and lubrication oil storage tanks or a gasoline pump house.”¹

Future Plans:¹

EnviroStor also states, “The former gasoline station has been replaced with a parking lot. This property is known or suspected to contain military munitions and explosives of concern (e.g., unexploded ordnance) and therefore may present an explosive hazard.”¹

Community Profile:⁴

The site is located near residential areas including Bay Farm Island, Harbor Bay Isle, and Cluseum Industrial. It also borders commercial areas including the Oakland Airport. Oakland is an urban area located on the Bay. There are a high number of cleanup sites in the area (95th percentile). The cumulative environmental impacts lead to high asthma levels in the community (100th percentile). This community is predominantly Hispanic (53.5%) and African American (34.9%).

Census Tract: 6001409000

Population: 4,687

CalEnviroScreen Percentile Score: 97

Pollution Burden Percentile: 92

Population Characteristics Percentile: 94

Notable Exposure Percentiles:

- Ozone: 4
- Particulate Matter 2.5: 30
- Diesel Particulate Matter: 92
- Toxic Releases: 56
- Traffic: 82
- Pesticides: 0
- Drinking water pollution: 4
- Lead from Housing: 97

Notable Environmental Effects:

- Cleanup sites: 95
- Groundwater threats: 97
- Hazardous waste: 95
- Impaired waters: 95
- Solid waste: 78

Sensitive Population Indicators:

- Asthma: 100
- Low Birth Weight: 98
- Cardiovascular Rate: 68

Notable Socioeconomic Factor Percentiles:

- Education: 81
- Poverty: 76
- Unemployment: 70
- Housing Burden: 74
- Linguistic Isolation: 73

Demographics:

- **Race/Ethnicity:**
 - White: 2%
 - African American: 34.9%

- Hispanic: 53.5%
- Asian American: 4.8%
- Other: 4.7%

1. Department of Toxic Substances Control. "NAS Oakland (J09CA1051)(80000788)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=80000788
2. State Water Resources Control Board. "NAS AOC 7 - Maintenance Hangar (BLDG 6) (T10000008529)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000008529
3. State Water Resources Control Board. "Facility Wide (SL0600186810)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL0600186810
4. Eisert, James E., Gibbs, Alan D. "Site Inspection Work Plan Former Naval Auxiliary Air Station, Oakland" *GeoTracker*, 17 May 2005, [https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/2951139152/Site%20Inspection%20WP%20Naval%20Auxiliary%20Air%20Station%20Oakland%20\(may%2017%202005\).pdf](https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/2951139152/Site%20Inspection%20WP%20Naval%20Auxiliary%20Air%20Station%20Oakland%20(may%2017%202005).pdf)
5. Office of Environmental Health Hazard Assessment. "Census Tract:6001409000." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/>

CASE STUDY 29: Naval Station Treasure Island

Location:¹

Address: Treasure Island,
San Francisco CA 94130

Proximity to Bay: Island in Bay

Site Size: 1113 acres

Site Overview:^{1,2}

Status: Active

Site Type: State Response

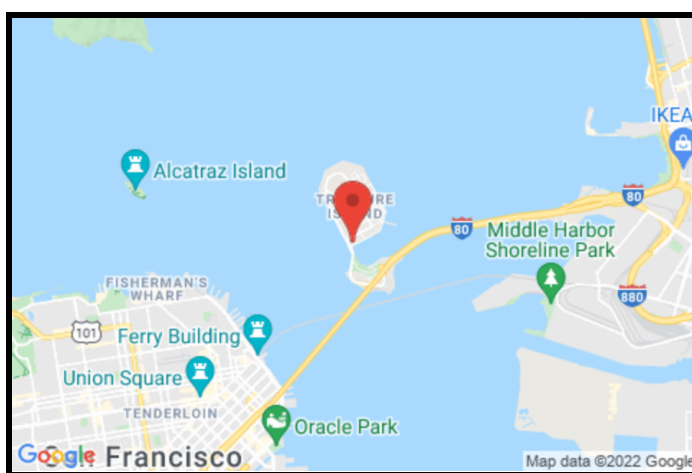
Facility Type: Closed Base

Oversight Agencies: DTSC, US EPA,
RWQCB

On the National Priorities List: No

Years of activity: 1936-1997

Type of Contamination: Indoor air, other groundwater affected, sediments, soil, soil vapor,
surface water affected



Contaminants of Concern:^{1,3}

- Dioxin (AS 2,3,7,8-TCDD TEQ)
- Metals: Lead, Arsenic
- Cumene
- Methane
- Petroleum: TPH-MOTOR OIL, TPH-diesel, TPH-gas
- Polychlorinated Biphenyls (PCBs)
- Perfluorinated Alkylated Substances (PFAS): Perfluorooctane Sulfonate (PFOS), Perfluorooctanoic Acid (PFOA)
- Sludge-Paint
- UNSPECIFIED OIL CONTAINING WASTE
- Polynuclear Aromatic Hydrocarbons (PAHs)
- Radioactive Isotopes
- Volatile Organics (VOCS): Benzene, Tetrachloroethylene (PCE), Trichloroethylene (TCE), Vinyl chloride

Site History:¹

According to EnviroStors site history, “Naval Station Treasure Island (NSTI) is located in San Francisco Bay (Bay), midway between San Francisco and Oakland, California. The facility consists of two contiguous islands: Treasure Island (TI), which is approximately 550 acres, and Yerba Buena Island (YBI), which is approximately 550 acres. Stormwater outfalls and offshore sediments (Site 13) encompass approximately 563 additional acres. Treasure Island is a manmade island that is anchored to a natural rock island (YBI), that was constructed of materials dredged from the Bay in 1936. The Island was developed as the location for the 1939 Golden Gate International Exposition. In response to a Navy request, in 1941, the City of San Francisco leased TI to the Navy for the duration of World War II. After the war, the City agreed to transfer the deed for TI to the Navy in exchange for government-owned land south of San Francisco where the San Francisco International Airport was later built. TI provided administrative and support facilities for processing Pacific-bound Naval personnel, and for the administrative operations of other Navy, Marine Reserves, and non-military Federal activities. Military activities at YBI date back to 1866. In 1993, NSTI was designated for closure under the Base Realignment and Closure Act of 1990. The base was closed on September 30, 1997, and is currently in the transfer process... Since closure of the base in 1997, nearly all of TI has been leased to the City of San Francisco for a variety of uses including movie production, an elementary school and daycare center, approximately 750 rental housing units, and an Olympic sailing school at Clipper Cove. In addition, 35 acres were transferred to the Federal Department of Labor for the establishment of a Job Corps center on TI. Portions of YBI were also transferred to the State to facilitate the construction of the new eastern span of the Bay Bridge. The remainder of the land on YBI includes housing controlled by the City of San Francisco and a U.S. Coast Guard Station that occupies the southern half of the Island.”¹

Site Remediation and Status and Overview of “Clean Up”:¹

Also according to EnviroStor, “In April 1988, a Preliminary Assessment/Site Inspection (PA/SI) Report of the facility was prepared for the Naval Energy and Environmental Support Activity (NEESA). Based on information from historical records, aerial photos, agency contacts, field inspection, and personnel interviews, a total of 20 areas were identified with potential contamination and for additional site investigation. These identified acres included: a medical clinic; a former foundry; a boiler plant; an old bunker; stormwater outfalls; a refuse transfer area; a car hobby shop; an oil recovery waste facility; a seaplane maintenance shop; an exchange service station; a hydraulic training school; a painting shop; two storage shed areas; a landfill; and fire training fuel tank releases. During subsequent investigations additional sites were identified that brought the total number of sites to 33.”¹

“EnviroStor includes separate profiles for 13 of the 33 sites that provide the current, ongoing and projected activities for each site. The previous reports and historical documents for these 13 sites were retained in this basewide profile. The 13 sites are:

- Site 6 - Fire Training School (4.54 acres, EnviroStor # 60001091)
- Site 8 - Army Point Sludge Disposal Area (3.12 acres, EnviroStor # 60001161)
- Site 11 - YBI Landfill (2.88 acres, EnviroStor # 60001162)
- Site 12 - Old Bunker Area (93.2 acres, EnviroStor # 60001092)
- Site 21 - Vessel Waste Oil Recovery Area (2 acres, EnviroStor # 60001093)
- Site 24 - Dry Cleaning Facility (20.46 acres, EnviroStor # 60001094)

- Site 27 - Clipper Cove (19.55 acres, EnviroStor # 60001095)
- Site 28 - West Side On/Off Ramp (10.53 acres, EnviroStor # 60001096)
- Site 29 - East Side On/Off Ramp (15.13 acres, EnviroStor # 60001164)
- Site 30 - Day Care Center (1.46 acres, EnviroStor # 60001097)
- Site 31 - Former South Storage Yard (2.02 acres, EnviroStor # 60001098)
- Site 32 - Former Training and Storage Area (2.6 acres, EnviroStor # 60001099)
- Site 33 - Water Line Replacement Area (4.89 acres, EnviroStor # 60001100)”¹

Several parcels of land on TI remain under federal ownership to allow the completion of remediation activities by the Navy. The Navy is required to complete all cleanup and remedial obligations before transferring their parcels to the Treasure Island Development Authority (TIDA). The Department of Toxic Substances Control (DTSC) is overseeing the cleanup.¹

Future Plans:^{1,4}

According to a San Francisco Examiner article from 2021: When the base closed in 1998, 2,000 formerly homeless residents were moved from San Francisco into former Navy housing. After supervisors approved development in 2011, the city began developing the island with plans to build over 8,000 homes over the next two decades.⁴

This project is still continuing as the Navy continues to remediate select sites of TI.¹

Community Profile:⁵

Treasure Island is a man-made body of land that lies off of the Bay Bridge in the San Francisco Bay. Formerly homeless residents were moved into temporary housing on the Island after the Navy Base closed, and there are currently thousands of homes being developed. The island has high rates of asthma (94th percentile) and low birth weights (98th percentile). High levels of traffic pollution (100th percentile) and groundwater threats (99th percentile) contribute to these higher than average rates. The population is predominantly Hispanic and African American.

Census Tract #: 6075017902

Population: 3,008

CalEnviroScreen Percentile Score: 89

Pollution Burden Percentile: 89

Characteristics Percentile: 78

Notable Exposure Percentiles:

- Ozone: 4
- Particulate Matter 2.5: 31
- Diesel Particulate Matter: 89
- Traffic: 100
- Lead from Housing: 70
- Drinking Water: 37
- Toxic Releases: 54
- Pesticides: 2
- Lead from Housing: 70

Notable Environmental Effects:

- Cleanup sites: 100
- Groundwater threats: 99
- Hazardous waste: 93
- Solid Waste: 53
- Impaired Waters: 83

Sensitive Populations:

- Asthma: 94

- Low Birth Weight: 98
- Cardiovascular Disease: 10

Notable Socioeconomic Factor Percentiles:

- Education: 47
- Poverty: 96
- Unemployment: 97
- Housing Burden: 62
- Linguistic Isolation: 47

Demographics/Community Profile:

- Race/Ethnicity:
 - 26% Hispanic
 - 22.2% African American
 - 13% Asian American
 - 0.8% Native American
 - 27.9% White
 - 10% Other

1. Department of Toxic Substances Control. "Naval Station Treasure Island (38370044)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=38370044
2. State Water Resources Control Board. "Parent Facility- Treasure Island Navsta (T10000009627)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000009627
3. Department of Toxic Substances Control. "NAVAL STATION TREASURE ISLAND/SITE 12-OLD BUNKER AREA (60001092)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=60001092
4. Montes, Daniel. "Treasure Island cleanup concerns persist as development proceeds". *San Francisco Examiner*, 9 Feb 2021, <https://www.sfxaminer.com/news/treasure-island-cleanup-concerns-persist-as-development-proceeds/>
5. Office of Environmental Health Hazard Assessment. "Census Tract: 6075017902." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54ceebeac7428e6184203/>
6. Smith, Matt, and Katherine Mieszkowski. "Treasure Island Cleanup Exposes Navy's Mishandling of Its Nuclear Past." *Bulletin of the Atomic Scientists*, June 28, 2018. <https://thebulletin.org/2014/02/treasure-island-cleanup-exposes-navys-mishandling-of-its-nuclear-past/>
7. Power, Maurice, John Egan, Scott Shewbridge, John deBecker, and J. Richard Faris. "Analysis of Liquefaction-Induced Damage on Treasure Island." (Dec 19, 1997), <https://pubs.usgs.gov/pp/1551b/report.pdf>.

CASE STUDY 30: O'Brien Corp

Location:¹

Address: 450 East Grand Avenue, South San Francisco, CA 94080

Proximity to Bay: ~164 feet

Site Size: 26 Acres

Site Overview:^{1,2}

Status: Certified/ Operation & Maintenance as of 2008

Site Type: Corrective Action

Facility Type: Paint manufacturing

Oversight Agencies: DTSC, RWQCB

On the National Priorities List: No

Years of activity: 1968-1999

Type of Contamination: Indoor air, other groundwater, sediments, soil, soil vapor, surface water

Contaminants of Concern:^{1,2}

- Arsenic
- Metals: Barium and compounds, Lead, Nickel



- Methane
- Naphthalene
- Other chlorinated hydrocarbons
- Petroleum: TPH- Motor Oil, TPH- diesel
- Toluene

Site History:¹

According to EnviroStors site history, “The site is located in South San Francisco, at the east end of Grand Avenue and located one mile east of Highway 1. The land uses for this area includes heavy industrial, manufacturing and mixed use commercial, and includes no permanent residential uses except for live-aboards in the local marinas (of which there are none at the property). The property consists of 27 acres of both native strata and imported fill materials. Manufacturing activities occurred at the property for over 100 years, beginning with the Steiger Terra Cotta Pottery Works (~1894) and W.P. Fuller (~1898). In 1927, W.P Fuller acquired the Steiger Terra Cotta Pottery Works. In 1968, the O'Brien Corporation purchased the property. ICI Glidden then purchased a 7-acre portion on the southwest portion of the property from the O'Brien Corporation. The entire 27 acres was then purchased by Cherokee Investment Partners (CIP) (effective June 30, 1999). The entire 27-acre property was then purchased by Slough Estates (also known as (aka) Slough Limited Lifetime Company (LLC) on December 11, 2000. Slough LLC then changed their name to HCP South San Francisco (SSF) LLC. HCP SSF LLC owned the property until August 23, 2018, at which point Genentech acquired the full property from HCP SSF LLC and assumed responsibility for the various agreements at the property... Historical manufacturing activities at the site underwent major changes over time and having included such products as ceramic items, white lead, plate glass, pigment and colorant pastes, rubber paint, red lead, enamel paint, varnish and resins, and more recently, latex paint products. The O'Brien Corporation was a paint manufacturer and managed its hazardous waste in drums, tanks and surface impoundments under an interim status document. In December 1987, a Resource Conservation Recovery Act (RCRA) Facility Assessment (RFA) was completed by US Environmental Protection Agency (US EPA) contractors. The RFA identified nineteen solid waste management units (SWMUs) and six areas of concern (AOCs). The main hazardous waste constituent of concern was lead; other constituents were metals, total petroleum hydrocarbons (TPH), volatile organic compounds, and semi-volatile compounds. The U.S. EPA separated the site investigation into two parts: soil and groundwater. Slough LLC/HCP SSF LLC was made responsible for the soil, and CIP was made responsible for the groundwater.”¹

Site Remediation and Status and Overview of “Clean Up”:^{1,3}

Also according to EnviroStor, “In April 2000, the US EPA approved a soil remedy including soil removal, capping, and land use restrictions. DTSC took the lead in overseeing the groundwater investigations in 2000. CIP filed a Deed Restriction with San Mateo County to restrict the property to industrial use in October 2000. In March 2001, CIP signed a Corrective Action Consent Agreement (CACA) with DTSC and continued the groundwater investigations. The entire property's groundwater investigation was documented in the 2005 RCRA Facility Investigation (RFI), which determined no further action was necessary. Slough/HCP was redeveloping the site into a biotech campus, Britannia East Grand, to be leased by Genentech. DTSC approved the revised soil remedy to allow contaminated soil being excavated from the northwest portion of the site and clean soil being imported to build a daycare center. Slough/HCP

also implemented a Methane Mitigation system to vent methane which was most likely produced by decaying marine biota in the bay mud under the property, and installed High Density Polyethylene (HDPE) liners under two of the site buildings to further prevent methane vapor intrusion. Slough/HCP entered an Operation and Maintenance Agreement with DTSC on March 25, 2008, for maintenance of the site and the remedial actions. A Deed Restriction/Land Use Covenant Amendment (LUC Amendment) was recorded with the county on May 7, 2008. In August 2008, the CACA between CIP and DTSC was terminated through an Acknowledgement of Termination and Satisfaction by both parties on August 6, 2008, which removed CIP from the corrective action process. Starting in 2007, HCP/Slough monitored the passive methane mitigation systems at the site, quarterly in 2007 and 2008, moving into semi-annual monitoring in 2009, and annual monitoring in 2010 and 2011. In August 2011, HCP/Slough requested to cease monitoring activities, and on March 16, 2012, DTSC approved this request, and the methane mitigation monitoring activities were discontinued. However, the LUC still requires maintenance of the methane mitigation systems, as well as the soil cap, to ensure they are functioning as long as the Land Use Covenant and associated documents are in place. The site activities up to 2018 were primarily yearly LUC inspection reports, to demonstrate that the cap and the methane mitigation systems are still in place and functioning. DTSC currently intends to revise the O&M to include a 5-year review process, so that the site remedy can be re-evaluated at regular intervals. In May 2017, Genentech began utilities trenching and other work associated with construction of Building B40 at the site and expansion of a cafeteria within Building B42, both partially within the capped portion of the property. At DTSC's request, Genentech implemented a Dust Control Monitoring Plan to demonstrate that the B40 construction activities were not generating dust above local air board requirements. Also, DTSC has requested various updates from Genentech related to the B42 expansion project and all activities affecting the cap and the contaminated soil areas beneath it, in terms of how they are meeting the requirements of the Site Management Plan. Both of these construction projects are anticipated to end later in 2019, and DTSC and Genentech are currently discussing how these activities will be documented, and whether existing site plans for managing future activities need to be updated... The buildings and associated hardscape portions of the Site, along with the landscaped areas, form the cap in place at the Site to limit access to potential residual concentrations of the chemicals of concern at the Site”¹

According to a Gas Monitoring and Control System Restoration Completion Letter from 2020, “The methane mitigation measures consist of a passive gas extraction system installed beneath each building slab, with subsurface gas monitoring points to evaluate methane concentrations. The gas extraction system is attached to a wind-driven turbine atop each building, which provides a low-level vacuum to passively extract the collected gasses from beneath the building foundation slab. The methane mitigation measures beneath the southern Phase II Buildings (Building 48 and Parking Structure B) consist of a passive gas extraction system beneath each building slab, with subsurface gas monitoring points to evaluate methane concentrations, as well as a continuous geomembrane gas barrier directly beneath the building slab underlying enclosed building areas. The GMCS (designed by Geosyntec) consists of a continuous geomembrane gas barrier consisting of 100-mil thick cold spray-applied geomembrane (Ecoline-S) installed on top of a nonwoven heat bonded carrier geotextile (Ecoshield-E). The geomembrane is separated from the reinforced concrete structural slab by a cushion geotextile (Mirafi S 1200). A 2-inch

diameter, Schedule 40, perforated and solid wall PVC pipes placed within a 6-inch thick layer of aggregate lies beneath the geomembrane layer underlying the structural slab in plan locations.”³

Future Plans:⁴

Genentech currently has construction projects planned for the site according to an article from the San Francisco Business Times. “Plans for biotech giant Genentech's headquarters expansion are moving forward after getting the thumbs up from South San Francisco. Proposed in 2017, the project is one of the Peninsula's largest real estate developments and part of a bustle of life science activity in South City. Genentech, which has 10,000 people on its 207-acre bayside campus, will be allowed to nearly double its current 4.7 million square feet to 9 million square feet under the plan [over the next 15 years]. The master plan provides an outline for development but doesn't commit Genentech to everything it outlines in its document.”⁴

Community Profile:⁵

The site is near a preschool, biotechnology companies, and the Bay Trail. This site lies in the Genetechs campus which is surrounded by commercial and industrial areas. This area is subjected to a high pollution burden percentile (95) as well as being in the 100th percentile for both groundwater threats and hazardous waste. This community is also predominantly Hispanic.

Census Tract #: 6081602300

Population: 4,196

CalEnviroScreen Percentile Score: 83

Pollution Burden Percentile: 95

Characteristics Percentile: 60

Notable Exposure Percentiles:

- Diesel Particulate Matter: 95
- Ozone: 8
- Particulate Matter 2.5: 33
- Traffic: 81
- Drinking Water: 80
- Toxic Releases: 54
- Pesticides: 0
- Lead from housing: 80

Notable Environmental Effects:

- Cleanup sites: 99
- Groundwater threats: 100
- Hazardous waste: 100
- Impaired Waters: 87
- Solid Waste: 97

Sensitive Populations:

- Asthma: 69
- Low Birth Weight: 53
- Cardiovascular Disease: 48

Notable Socioeconomic Factor Percentiles:

- Education: 61
- Linguistic Isolation: 58
- Poverty: 54
- Unemployment: 65
- Housing Burden: 43

Demographics/Community Profile:

- Race/Ethnicity:
 - 57.3% Hispanic

- 3.5% Black
- 26.9% Asian American
- 10% White
- N/A % Native American
- 2.1% Other

1. Department of Toxic Substance Control, "O'Brien Corporation The." *Envirostor*, https://envirostor.dtsc.ca.gov/public/profile_report?global_id=80001530
2. State Water Resources Control Board. "O'Brien Corp (SL18341761)" *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL18341761
3. Department of Toxic Substance Control. "Gas Monitoring and Control System Restoration Completion Letter." *EnviroStor*, Aug. 2020, https://envirostor.dtsc.ca.gov/public/deliverable_documents/1748671591/731677306.08%20JEL_RTC%20Letter_Gas%20Monitoring%20%20Control%20System%20Restoration%20Completion%20Letter_Genentech%20Bldg%2048_FINAL_082620.pdf.
4. Anderson, Ted. "Genentech Gets Nod for Big South San Francisco Expansion Plans." *Bizjournals.com*, 25 Nov. 2020, <https://www.bizjournals.com/sanfrancisco/news/2020/11/25/genentech-gets-green-light-from.html>.
5. California Office of Environmental Health Hazard Assessment. "Census Tract: 6081602300" *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54ceebeac7428e6184203/page/Draft-CalEnviroScreen-4.0/>

CASE STUDY 31: PG&E Hunters Point

Location:¹

Address: 1000 Evans Ave, Hunters Point Power Plant, San Francisco, CA 94124

Proximity to Bay: On Shoreline

Site Size: 30.3 Acres

Site Overview:¹

Status: Certified/Operation & Maintenance

Site Type: Voluntary Cleanup

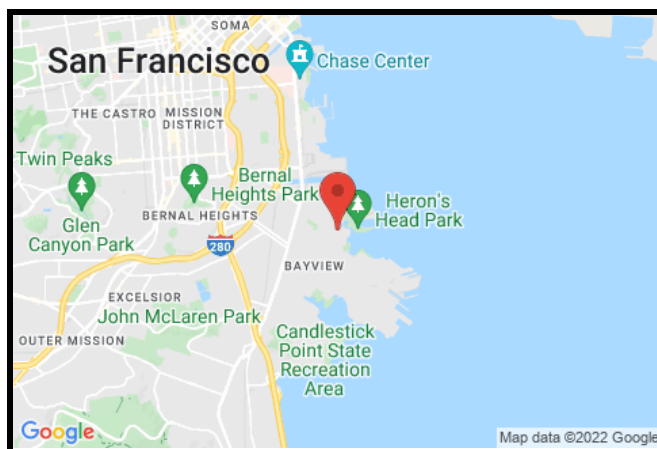
Facility Type: Power Plant

Oversight Agencies: DTSC

On National Priorities List: No

Years of activity: 1920s-2006

Type of contamination: Groundwater (uses other than drinking water), soil



Contaminants of Concern:¹

- Polychlorinated Biphenyls (PCBs)
- Polynuclear Aromatic Hydrocarbons (PAHs)
- Metals: Arsenic, Lead
- Petroleum: TPH - Motor Oil, TPH- Diesel

Site History:¹

According to EnviroStor, "In the early 1900s, the site area was used for ship and barge building. The original power generation plant was constructed on the Site in the 1920s and utilized fuel oil. In 1948/1949, two additional steam units and three additional aboveground fuel storage tanks were added to the plant and fill material was placed in the southeastern portion of the Site for development of this area. In 1958, an additional steam unit and three above ground fuel storage tanks were added. In 1969, the breakwater around the cooling water lagoon outlet was constructed. By 1975, the dike between the breakwater and Pier 96 was completed, creating the cooling water lagoon. Another aboveground fuel storage tank 8 had been added by this time. In

1976, a gas fueled turbine unit was constructed. By 1977, another above ground fuel storage tank had been added.”¹

Site Remediation and Status and Overview of “Clean Up”:¹

Also according to EnviroStor, “In 2002, PG&E removed 8 of the 9 aboveground fuel storage tanks which were primarily used to store heavy fuel oils. One aboveground fuel storage tank was retained to store the distillate fuel. The Plant was shut down on May 15, 2006. The aboveground plant structures have been removed and the below ground structures are being dismantled.”¹

Future Plans:¹

EnviroStor also states that, “Reports, containing the results of environmental media sampling conducted at the Site, indicate that the soil and/or groundwater are contaminated with hazardous substances, including total petroleum hydrocarbons, polycyclic aromatic hydrocarbons, metals and polychlorinated biphenyls. Much of the Site contains fill material derived from local serpentine rock which contains naturally-occurring asbestos and the metals, nickel, chromium and cobalt.”¹

Community Profile:²

This site is located in Bayview Hunters Point, along the Indian Basin. It is a residential area between Heron’s Head Park and Indian Basin Shoreline Park. The community is predominantly African American, Hispanic, and Asian American and is in the 98th percentile for groundwater threats and the 95th percentile for hazardous waste.

Census Tract: 6075023103

Population: 2,890

CalEnviroScreen Percentile Score: 88

Pollution Burden Percentile: 82

Population Characteristics Percentile: 84

Notable Exposure Percentiles:

- Ozone: 4
- Particulate Matter 2.5: 32
- Diesel Particulate Matter: 86
- Pesticide Use: 18
- Toxic Releases: 44
- Traffic: 10
- Lead from Housing: 72
- Drinking Water Contaminants: 15

Notable Environmental Effects:

- Cleanup sites: 89
- Groundwater Threats: 98
- Hazardous Waste: 95
- Impaired Waters: 93
- Solid Waste: 9

Sensitive Population Indicators:

- Asthma: 96
- Low Birth Weight: 95
- Cardiovascular Rate: 46

Notable Socioeconomic Factor Percentiles:

- Education: 66
- Poverty: 98
- Housing Burden: 72
- Unemployment: 62

- Linguistic Isolation: 35

Demographics:

- **Race/Ethnicity:**
 - 3.6% White
 - 50.9% African American
 - 22.6% Hispanic
 - 18% Asian American
 - 4.9% Other

1. Department of Toxic Substances Control. "PG&E Hunters Point (38490002)." *EnviroStor*. https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=38490002
2. Office of Environmental Health Hazard Assessment. "Census Tract: 6075023103." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/>

CASE STUDY 32: Point Isabel

Location:¹

Address: End of Rydin Road,
Richmond, CA 94804

Proximity to Bay: On Shoreline

Site Size: 50 Acres

Site Overview:¹

Status: Certified O&M -
Land Use Restrictions Only As of
8/15/2011

Site Type: State Response

Facility Type: Landfill

Oversight Agencies: DTSC, RWQCB

On the National Priorities List: No

Years of activity: 1940s - 1960s

Type of Contamination: Soil, sediments

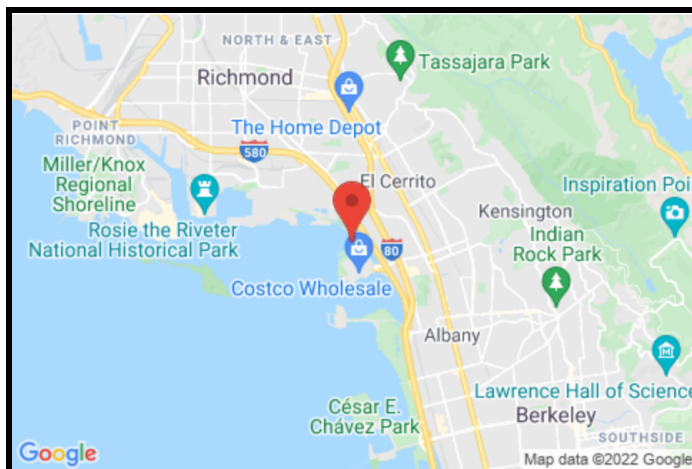
Contaminants of Concern:¹

- Lead
- Zinc

Site History:^{1,2}

According to EnviroStors site history, "The Santa Fe Land Improvement Company, now Catellus, has owned this vacant 50-acre site since the 1940's. Before 1965, the site was below the mean water level of San Francisco Bay. Catellus filled 20 acres of the site to raise the land surface to its present elevation. The fill material consisted of concrete rubble, asphalt, road base soils, and crushed battery casings. The site is vacant and used for recreation and access to the bay."¹

According to GeoTrackers site history, "Unauthorized dumping occurred prior to 1974 and included dumping of lead-acid battery casings. The USPS bulk mail facility began operations in 1974. USPS leased the Site to the East Bay Regional Parks District in the mid 1970s for what became Point Isabel Regional Shoreline. The site has been in recreational use since then. USPS



conducted Site investigations in the late 1980s and early 1990s to check for lead in upland soils, in response to similar investigations at the adjacent Catellus parcel (which includes Hoffman channel and uplands north of the channel). No significant levels of lead were found in shallow soils on the USPS parcel.”²

Site Remediation and Status and Overview of “Clean Up”:¹

Also according to EnviroStor, in 1981 DTSC's Abandoned Site Program inspected the site, collected samples, and recommended posting of site and removal of battery casings. The site was certified in 1987. Site remediation consisted of dredging the sediments to background levels of lead and zinc. About 4,500 cubic yards of sediments and soils exceeding 1,000 ppm of lead were disposed of offsite. An additional 15,000 cubic yards of contaminated soil from the shoreline were placed in an onsite pit and capped with clay. The shoreline was stabilized with hypalon film and rock/boulder fill. The site was landscaped to minimize erosion and infiltration and the cove was reseeded with mussels and clams. The Site was referred to the RWQCB for Operation and Maintenance (O&M) oversight. O&M activities include annual visual inspection of the cap and shoreline stabilization, and sediment, shellfish and groundwater sampling. On March 16, 1990, a Land Use Covenant was passed that prohibited day care, hospital use, residential use, and development without prior notification.¹

Future Plans:^{2,3}

The Water Board mandates annual inspections of the site.²

In the 2010 inspection, it was recommended that there is “more investigation of the potential occurrence/relationship of lead in soil and the black plastic (possibly ebonite) battery casing fragments at Point Isabel-North. Similar site studies have reported that these casing fragments may have lead in them. In addition, the soil surrounding the casing fragments may be impacted, either by leaching out from the fragments, or by being part of the same deposit in which the fragments were originally dumped. Sampling is recommended to investigate whether the fragments were sufficiently moved around during site grading and development to have separated them from any lead impacted soils during their original deposition/landfilling.

Additional locations for sampling should include:

- 1) Discrete sampling of both surficial black casing fragments and surrounding soil exposed at surface along pathways;
- 2) Discrete sampling of both black casing fragment and surrounding soils actively being exposed at edges of eroding cap areas; and
- 3) Analysis of black casing fragments mixed in within the beach sands of Point Isabel north to evaluate persistence of lead in an active leaching environment that might be expected in the beach sands.

After sampling is completed the potential mitigation and/or removal of the casing fragments and surrounding soil should be evaluated, including the options such as re-capping, routine physical removal of the casing fragments and surrounding soil, and/or installing protective barriers.

Detouring pedestrian and dog traffic around areas where erosion of the caps is occurring can be accomplished by building pathways or installing protective fencing or additional rip rap. Also, the role of burrowing animals (a few burrowing holes were observed) in the exhuming of casing fragments should be looked at as recommended in the December 2010 visit.

Annual inspection and maintenance of the culverts and storm grates should be completed to ensure a gradual and unobstructed sloping flow path into the storm drain grates. If soil needs to

be removed from the culverts, a Soil Management Plan should be developed to sample, segregate, /or/and dispose of these potentially lead impacted soils appropriately. Both the December 2010 Water Board and the April 2012 inspections noted that EBRPD needs to address the issue of preventing seepage through the protective soil cap. Ponds, swales, and slumps could easily be mitigated with minor maintenance infilling and grading to keep these areas from ponding (dogs were observed jumping in the ponds) EBRPD will be working with Stellar Environmental Solutions, Inc. during May 2012 to develop and begin implementation of sampling plan for areas where battery casing fragments have been observed and to develop a Soil Management Plan to determine the best methods and management practices needed to reestablish drainage in the perimeter drainage channels on the edge of the cap.”³

Community Profile:⁴

Point Isabel Regional Shoreline is located in Richmond, CA along the east side of the San Francisco Bay. The site is a large park used for walking, jogging, windsurfing, and birdwatching. The site is located on the Southwest Annex of Richmond which is used for both residential and commercial purposes. The community is in the 100th percentile for cleanup sites meaning it has an extremely high number of cleanup sites compared to other census tracts in California. High levels of pollution may give rise to high rates of asthma in the community (99th percentile).

Census Tract #: 6013380000

Population: 5,931

CalEnviroScreen Percentile Score: 75

Pollution Burden Percentile: 74

Characteristics Percentile: 68

Notable Exposure Percentiles:

- Ozone: 3
- Particulate Matter 2.5: 37
- Diesel Particulate Matter: 96
- Toxic Releases: 77
- Traffic: 68
- Pesticides: 0
- Drinking Water: 4
- Lead from Housing: 25

Notable Environmental Effects:

- Cleanup sites: 100
- Groundwater threats: 91
- Hazardous waste: 98
- Impaired Waters: 93
- Solid Waste: 0

Sensitive Populations:

- Asthma: 99
- Low Birth Weight: 55
- Cardiovascular Disease: 72

Notable Socioeconomic Factor Percentiles:

- Education: 33
- Linguistic Isolation: 43
- Poverty: 51
- Unemployment: 77
- Housing Burden: 34

Demographics/Community Profile:

- Race/Ethnicity:

- 27.4% White
- 23.1% Hispanic
- 23.6% African American
- 19.2% Asian American
- 6.3% Other
- 0.5% Native American

1. Department of Toxic Substances Control. "Point Isabel (07360034)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=07360034
2. State Water Resources Control Board. "Point Isabel Regional Shoreline (T10000001990)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000001990
3. Pietropaoli, Henry. "Eastshore State Park Properties Annual Inspection Summary." *Stellar Environmental Solutions Inc.*, 8 May 2012, https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo_report/9103043556/T10000001990.PDF
4. Office of Environmental Health Hazard Assessment. "Census Tract: 6013380000." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/>

CASE STUDY 33: Point Molate/Richmond NSC

Location:^{1,2}

Address: 527 Western Dr,
Richmond, CA 94801

Proximity to Bay: ~1,600 feet

Site Size: 276 Acres

Site Overview:^{1,2}

Status: Cleaned up as of 2014

Site Type: State Response (Military Cleanup Site)

Facility Type: Open Base- Naval Fuel Depot

Oversight Agencies: RWQCB San Francisco Bay

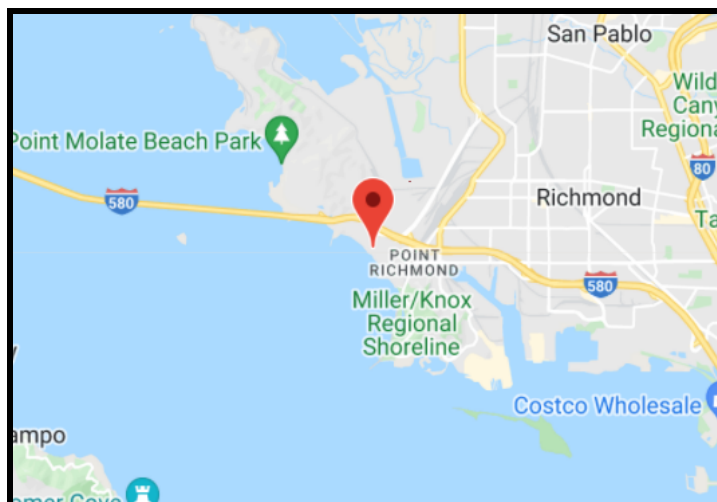
On the National Priorities List: No

Years of activity: 1942-1995

Type of Contamination: Soil

Contaminants of Concern:^{1,2}

- Sludge-Paint
- Waste Oil and Mixed Oil
- Diesel
- Other Petroleum
- Trichloroethylene (TCE)
- Vinyl Chloride
- Benzene
- Crude Oil
- Diesel
- Naphthalene
- Stoddard
- Solvent/Mineral Spirits/ Distillates



- Toluene
- Total Petroleum Hydrocarbons (TPH)
- Waste Oil/Motor/Hydraulic/Lubricating
- Xylene

Site History:²

According to GeoTrackers site history, “At the time the Navy began operations at the facility in 1942, Site-3 was a single pond formed by diking off a small embayment just west of the historic Winehaven Building. The pond was approximately ten to eleven acres in surface area, used to capture oily waste from facility operations. In 1973, the pond was reconfigured to three smaller ponds with its use continuing as a site for treatment of oily waste water from the facility. In 1991, oil was observed in San Francisco Bay adjacent to these ponds and was determined to be coming from the waste oil and sludge deposited within the ponds.”²

Site Remediation and Status and Overview of “Clean Up”:^{1,2}

Also according to GeoTracker, “In 1995, the Navy installed a subsurface extraction trench along the shoreline to capture oil-contaminated groundwater as an emergency and interim remedy. The result of that remedy was that additional oily discharge was stopped. In 2003, the ponds were removed from service and backfilled after removal of contaminated material to a depth of ten feet below ground surface. During this period, the groundwater extraction treatment system continued to operate. A more permanent remedy is anticipated as part of the upcoming/pending property transfer which will cleanup Site-3 to a level in which further discharge will not occur nor for which continued groundwater extraction will be required. Specific remedial plans for source removal will be presented that would allow for the reduction of or eventually eliminate the need for long-term monitoring requirements also.”²

Future Plans:^{4,5}

According to an email, Re: Point Molate - City/RWQCB Call Summary:

“1. Public outreach: The City will prepare a summary of past and planned future public outreach efforts related to site investigation and clean up; and planned coordination between the City and developer for public outreach related to redevelopment. The City can provide the summary by the end of March 2022.

2. Ecological assessment:

a. RWQCB staff asked the City to evaluate risks to the environment (e.g., ecological receptors) posed from known or suspected contamination at the site. The City’s consultant is already investigating site contamination for the purpose of preparing human health risk assessments. Those assessments should include environmental/ecological risk assessments as well. The City will coordinate with its consultant to include the environmental assessment with the human health assessment. The City and RWQCB staff discussed whether the City needs an order (e.g., 13267 or order amendment) to conduct the work. The City will discuss the possible need and let RWQCB staff know either way. The City will coordinate with the Navy on funding. The City will provide an update to RWQCB staff by the end of March 2022.

b. RWQCB notes here, but was not discussed during the call, that RWQCB staff reviewed the March 24, 2003, Human Health and Ecological Risk Assessment Installation Restoration Site 4 report. That report does not include an ecological risk assessment for IR Site 3, IR Site 2, and

other areas outside the north shoreline, south shoreline and drum lot 1. Furthermore, the assessment

used fuel product action levels instead of ESLs as screening criteria. The report also recommended that corrective action be implemented for the south shoreline to address risk to the environment. It is not clear if that corrective action was implemented.

3. Sea level rise vulnerability evaluation: RWQCB staff asked the City to provide a sea level rise vulnerability evaluation to determine if sea level rise and groundwater rise will result in impacts to human health and the environment caused from remobilization of contamination in soil, groundwater, and soil gas. Due to the uncertainties of impacts of SLR and groundwater rise on the environment and human health, the City may also prepare an adaptability plan, if necessary, based on the result of the SLR assessment. The City will coordinate with its consultant to conduct the SLR vulnerability assessment. The City will coordinate with the Navy on funding. The City will provide an update to RWQCB staff by the end of March 2022. ”⁵

According to an article from the East Bay Times, in February 2022, a judge threw out an environmental lawsuit against proposed development at Point Molate. The development proposes “to build 1,425 housing units and more than 400,000 square feet of commercial space on 193 acres of the city’s Point Molate peninsula.”⁶

Community Profile:^{3,4}

Just North of Highway 580, this site is near Atchison Village, a public housing development that includes 450 apartments, and Point Richmond. This community has a high number of cleanup sites (99th percentile), groundwater threats (99th percentile), hazardous waste (100th percentile), and impaired waters (90th percentile). “Richmond has the second lowest median income in the entire nine county Bay Area. Nearly 83% of Richmond's 106,469 residents identify as people of color, a majority of whom suffer from health disparities caused by the myriad of environmental burdens prevalent throughout the community.”⁴

Census Tract #: 6013378000

Population: 3,327

CalEnviroScreen Percentile Score: 71

Pollution Burden Percentile: 92

Characteristics Percentile: 49

Notable Exposure Percentiles:

- Ozone: 4
- Particulate Matter 2.5: 36
- Toxic Releases: 95
- Pesticides: 18
- Diesel Particulate Matter: 87
- Traffic: 66
- Pesticides: 18
- Lead from Housing: 40
- Drinking Water: 4

Notable Environmental Effects:

- Cleanup sites: 99
- Groundwater threats: 99
- Hazardous waste: 100
- Impaired Waters: 90
- Solid Waste: 83

Sensitive Populations:

- Asthma: 97
- Low Birth Weight: 70
- Cardiovascular Disease: 63

Notable Socioeconomic Factor Percentiles:

- Education: 23
- Poverty: 15
- Unemployment: 3
- Housing Burden: 28
- Linguistic Isolation: 38

Demographics/Community Profile:

- Race/Ethnicity:
 - 68% White
 - 18.5% Hispanic
 - 3.9% African American
 - 5.8% Asian American
 - 3.8% Other

1. Department of Toxic Substances Control. "POINT MOLATE/RICHMOND NSC (07970002)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=07970002
2. State Water Resources Control Board. "NFD POINT MOLATE SITE 3 - TREATMENT PONDS (DOD100372200)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=DOD100372200
3. Office of Environmental Health Hazard Assessment. "Census Tract: 6013378000." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6ca7428e6184203/>
4. Lindsay, William. "CalEnviroScreen 3.0 Draft Comments." City of Richmond, Oct. 21, 2016, <https://oehha.ca.gov/media/downloads/calenviroscreen/comments/richmondcityofces30.pdf>
5. Margarete, Beth. "Point Molate- City/ RWQCB Call Summary" *GeoTracker*, 7 March 2022, https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/1574414908/Point%20Molate%20email%207March2022.pdf
6. Lauer, K. 2022. "Richmond: Judge throws out environmental lawsuit against Point Molate development" *East Bay Times*. <https://www.eastbaytimes.com/2022/02/03/richmond-judge-throws-out-environmental-lawsuit-against-point-molate-development/>

CASE STUDY 34: Port of Richmond

Location:¹

Address: 1312 Canal Blvd, Richmond, CA, 94804

Proximity to Bay: ~328 feet

Site Size: 53 Acres

Site Overview:¹

Status: Certified/Operation & Maintenance

Site Type: State Response or NPL

Facility Type: Shipyard

Oversight Agencies: DTSC

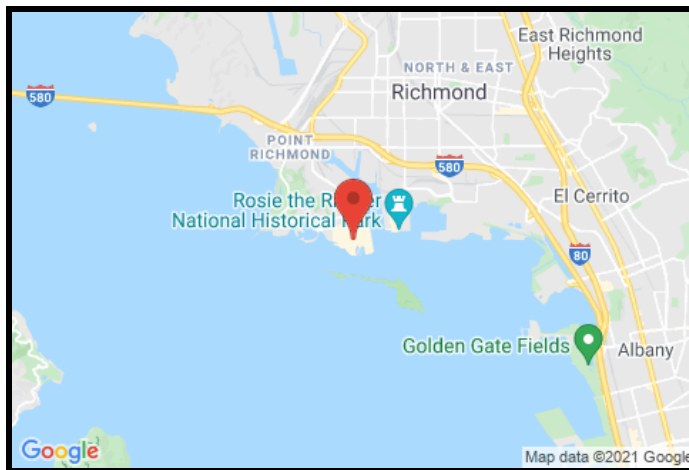
On the National Priorities List: No

Years of activity: 1942-1987

Type of Contamination: Other groundwater affected, soil

Contaminants of Concern:¹

- Metals: Cadmium, Copper, Lead, Nickel, Total Chromium, Zinc
- Polychlorinated Biphenyls (PCBS)
- Asbestos Containing Materials (ACM)



- Polynuclear Aromatic Hydrocarbons (PAHs)

Site History:¹

According to EnviroStor, “The site has been leased to various businesses, including ship maintenance and repair companies, scrap metals and salvage yards, and auto importers. Hazardous waste was disposed in waste piles at several locations on the Site. These waste piles contained asbestos, lead, copper, and polychlorinated biphenyls, abandoned drums, and solvent containers. The Site is divided into three operable units (OUs). OU-1 is the upland area which is approximately 53 acres. OU-3 is the offshore area which comprised of the shoreline and sediments, and OU-2 is the inlet area. In 2002, approximately 120,000 cubic yards of soil from the adjacent Seacliff Marina Site were consolidated. Portions of the Seacliff site were originally part of Shipyard #3.”¹

Site Remediation and Status and Overview of “Clean Up”:²

According to an Annual Inspection report from 2016, “Between April and August of 1987, approximately 1,300 cubic yards of lead-contaminated sand and approximately 1,800 cubic yards of asbestos-contaminated sand were removed. Post-removal verification sampling in September '87 identified residual contamination, which resulted in the additional removal of contaminated soil. In March 1988, SPA graded 28 acres on the western portion of the Site, installed a storm drain system, and covered this area with up to two feet of road base aggregate. A Final Remedial Design was approved on June 14, 1996 for OU-1. OU-1 construction activities commenced in 1998 and were completed in June 2004. Remediation occurred in three stages and consisted of: 340,000 cubic yards of dredge material from three San Francisco Bay dredging projects off-loaded, dried and placed as a partial capping layer in the upland area of the Site; 113,700 cubic yards of contaminated soil at the adjacent Seacliff Marina Site relocated to the Western Fill Area in OU-1; and remaining dredge material used to construct the final layers of the containment cap. Bay mud, treated with a lime agent to improve soil strength, was used for the top 18 inches of the cap followed by an 8” layer of aggregate base rock and a 2” layer of asphalt concrete. The project also included site drainage and utility improvements. DTSC approved a RAP in February which identified capping as the preferred alternative; however, The San Francisco Bay Conservation and Development Commission disapproved the cap design. Subsequently, SPA developed a Remedial Design and Implementation Plan that included a nonet-fill cap comprised of bay mud. OU-2 was divided into three zones based on proximity to the Bay: the Upland Zone, which included the area along the OU-1 border and peninsula area; the Revetment Zone, which comprised the shoreline along the inside of the inlet; and the Subaqueous Zone, which included the sediments in the intertidal zone and submerged areas of the inlet. OU-2 construction activities began on July 7, 2005 and were completed in May 2006. Construction occurred in conformance with the RDIP that was approved by DTSC in April 2005 and included the following: installing a 2.5 foot sub-aqueous cap comprised of bay mud in the inlet; installing a cap comprised of 6 inches of bay mud, one foot of aggregate base rock, geotextile, 6 inches of rock backing, and 18-24 inches of rip-rap along the shoreline in the Revetment Zone; and installing asphalt concrete pavement in the Upland Zone. Approximately 6,700 cubic yards of contaminated sediment were removed from a 2.5 foot cut across 0.94 acres of marsh and mudflat in the inlet area and along the shoreline. Site drainage controls were improved and contaminated sediments that remained in place were capped with clean bay mud. Clean-up standards developed by DTSC were met where excavation occurred.”²

Future Plans:²

Currently, future plans include annual checks of the OU-1 and -2 caps. If there is extensive cracking, which includes “numerous cracks of any length that encompasses an area of approximately 400 square feet, or an individual crack that is 1” wide and 10’ long, cracking will be repaired.”²

Community Profile:³

This site is at the foot of the Richmond Harbor Channel in south Richmond. The area surrounding the site is zoned for both residential and commercial uses. The site neighbors the Point Richmond and Brickyard Cove neighborhoods. This community is in the 100th percentile for cleanup sites and 98th percentile for hazardous waste facilities meaning it is one of the most contaminated communities in California. High levels of contamination likely contribute to the high occurrence of asthma within the population (99th percentile).³

Census Tract #: 6013380000

Population: 5,931

CalEnviroScreen Percentile Score: 75

Pollution Burden Percentile: 74

Characteristics Percentile: 68

Notable Exposure Percentiles:

- Ozone: 3
- Particulate Matter 2.5: 37
- Diesel Particulate Matter: 96
- Toxic Releases: 77
- Traffic: 68
- Pesticides: 0
- Lead from Housing: 25
- Drinking Water: 4

Notable Environmental Effects:

- Cleanup sites: 100
- Groundwater threats: 91
- Hazardous waste: 98
- Impaired Waters: 93
- Solid Waste: 0

Sensitive Populations:

- Asthma: 99
- Low Birth Weight: 55
- Cardiovascular Disease: 72

Notable Socioeconomic Factor Percentiles:

- Education: 33
- Linguistic Isolation: 43
- Poverty: 51
- Unemployment: 77
- Housing Burden: 34

Demographics/Community Profile:

- Race/Ethnicity:
 - 27.4 White
 - 23.6 % African American
 - 19.2% Asian American
 - 0.5% Native American
 - 23.1% Hispanic
 - 6.3% Other

1. Department of Toxic Substances Control. "Port of Richmond (Shipyards #3) (07370030)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=07370030
2. Indermill, Megan. "2016 Annual Inspection Report Port of Richmond Shipyards No. 3 Site." DTSC, 18 January 2017, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/5916033685/2016%20DTSC%20Annual%20Inspection%20for%20P%20Rich.%20SY%20203.pdf
3. Office of Environmental Health Hazard Assessment. "Census Tract: 6013380000." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/>

CASE STUDY 35: Reaction Products

Location:¹

Address: 840 Morton Avenue,
Richmond, CA 94806

Proximity to Bay: ~1476 feet

Site Size: 3 Acres

Site Overview:¹

Status: Active as of 11/7/1996

Site Type: State Response or NPL

Facility Type: Chemical

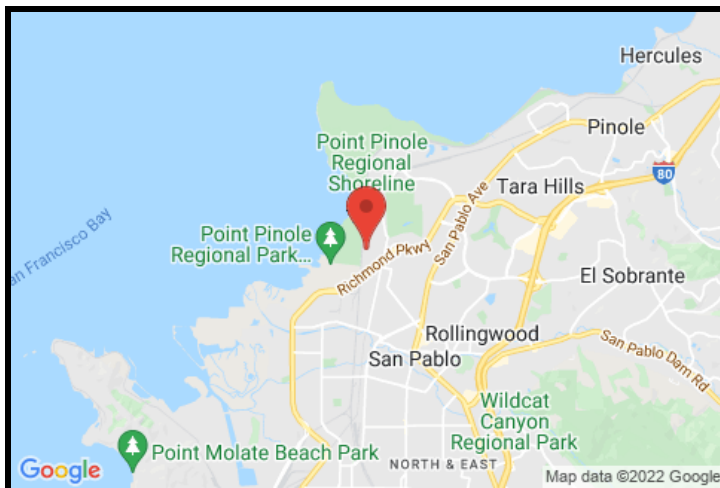
Manufacturer

Oversight Agencies: DTSC

On National Priorities List: No

Years of activity: 1950s-1990s

Type of contamination: Other groundwater (uses other than drinking water), soil



Contaminants of Concern:¹

- 1,1-Dichloroethylene
- Trichloroethylene (TCE)

Site History:¹

“Reaction Products began operations in the 1950's as a manufacturer and wholesaler of chemical mixtures for industrial uses. Soil and groundwater investigations at the site in the 1990's showed that soil and groundwater were contaminated with chlorinated solvents.”¹

Site Remediation and Status and Overview of “Clean Up”:¹

According to EnviroStor, “Contaminated soil was excavated in the late 1990's. In 2003, the remedial investigation (RI) and baseline health risk assessment for the site was completed. The RI report documented the nature and extent of chlorinated solvent contamination in groundwater at the site. The cleanup plan for contaminated groundwater was approved in 2006, and the selected remedy, enhanced in situ bioremediation, was implemented in 2007.”¹

Future Plans:¹

Also according to EnviroStor, “Since 2007, groundwater contaminant concentrations have decreased, but some chlorinated solvent concentrations still exceed commercial/industrial risk-based cleanup levels. Semi-annual groundwater monitoring is ongoing.”¹

Community Profile:²

This site lies in Richmond, California, west of Highway 80 and on the eastern shoreline of the San Francisco Bay. The surrounding community is a majority-minority community, with 84% of the community identifying as non-white; 44% of residents in the community are hispanic.

Census Tract: 6013392200

Population: 11,304

CalEnviroScreen Percentile Score: 85

Pollution Burden Percentile: 75

Population Characteristics Percentile: 83

Notable Exposure Percentiles:

- Ozone: 8
- Air Quality: PM 2.5: 37
- Diesel Particulate Matter: 60
- Pesticide Use: 9
- Toxic Releases: 60
- Traffic Density: 27
- Lead from Housing: 65
- Drinking Water Contaminants: 4

Notable Environmental Effects:

- Cleanup sites: 98
- Groundwater Threats: 70
- Hazardous Waste Generators & Facilities: 89
- Impaired Water Bodies: 87
- Solid Waste: 98

Sensitive Population Indicators:

- Asthma: 93
- Low Birth Weight: 86
- Cardiovascular Rate: 79

Notable Socioeconomic Factor Percentiles:

- Education: 63
- Linguistic Isolation: 64
- Poverty: 36
- Unemployment: 54
- Housing Burden: 73

Demographics:

- **Race/Ethnicity:**
 - White: 16%
 - African American: 17%
 - Hispanic: 44%
 - Asian American: 19%
 - Other: 4%

1. Department of Toxic Substances Control. "Reaction Products (07280013)". *EnviroStor*. https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=07280013.
2. Office of Environmental Health Hazard Assessment. "Census Tract: 6013392200." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54ccebca67428e6184203/page/home/>.

CASE STUDY 36: Romic Environmental Technologies Corp

Location: ^{1,2}

Address: 2081 Bay Rd

East Palo Alto, CA 94303-0000

San Mateo County

Proximity to Bay: On the shoreline

Site Size: 12.6 Acres

Site Overview: ¹

Status: Active

Site Type: Federal Response

Facility Type: Waste management facility

Oversight Agencies: DTSC, RWQCB, US EPA

On National Priorities List: No

Years of activity: 1954-2007

Type of contamination: Other groundwater affected (other than drinking water), soil, soil vapor

Contaminants of Concern: ^{1,2}

- Volatile organic compounds (VOCs)
- Metals: Antimony and compounds, Arsenic, Barium and compounds, Beryllium and compounds, Cadmium and compounds, Chromium III, Chromium VI, Cobalt, Copper and compounds, Lead, Mercury (elemental), Mercury and compounds, Molybdenum, Nickel, Selenium, Silver, Thallium and compounds, Tin, Total Chromium (1:6 ratio Cr VI:Cr III), Vanadium and compounds, Zinc
- Organochlorine pesticides (8081 OCPS)
- Petroleum
- Polychlorinated biphenyls (PCBs)
- Semi-volatile organics (270 SVOCs)

Site History: ^{1,2}

In 1954, Hird Chemical Corporation began operations at the site, utilizing it as a hazardous waste management facility. Romic Chemical Corporation (now Romic Environmental Technologies Corp.) took over the site in 1964, operating until 2007.¹

According to the EPA, “Historical facility operations included solvent recycling, fuel blending, wastewater treatment, and hazardous waste storage and treatment. Soil and ground water beneath the site became contaminated as a result of Romic's past operations and that of its predecessor companies dating back to the 1950s. The primary contaminants in the soil and groundwater are volatile organic compounds (VOCs). Typical VOCs found at Romic are solvents such as trichloroethene (TCE) which were used to clean metal parts. Groundwater contamination extends across most of the site to a depth of at least 80 feet below ground surface. The ground water is salty and is not a drinking water source.”²

Site Remediation and Status and Overview of “Clean Up”: ^{1,4}

According to EnviroStor, “DTSC granted Romic Chemical Corporation an Interim Status Document (ISD) in April 1981 and issued a hazardous waste facility permit in May 1986. Romic



submitted a state permit modification and initial federal permit application in May 1989. The USEPA and DTSC issued the federal permit and modified the state permit in July 1990. The federal permit was appealed and then reissued in July 1992. The state permit, which was originally issued in 1986 and later modified, came up for renewal in May 1991. Under the USEPA Resource Conservation and Recovery Act's (RCRA) Part B permitting procedures, a Part B permit is required to be renewed periodically. In accordance with the Part B procedure for renewal, the Facility is allowed to continue to operate under the terms of its 1986 permit pending the renewal of the Part B permit.

The Facility had submitted an application for the Part B permit renewal and modifications to continue operating the hazardous waste treatment and storage operations. DTSC had been processing the renewal application, and also had a 120-day public comment period on the Draft Permit and Draft EIR in 2005. The permit was not completed as Romco had several releases and as a result DTSC ordered Romco to close. Romco has other violations that are currently under DTSC investigation.”¹

Also according to EnviroStor: Later in 2008, Phase I—closure of all above-ground hazardous waste management—commenced. All the surface structures, including distillation towers, storage tanks, and hazardous waste drum storage buildings were demolished in 2009. Later treatment included enhanced biological treatment, in which a mixture of cheese whey, molasses, and water was injected into the subsurface to enhance the natural breakdown of the contaminants. Other parts of the clean-up approach include excavation and removal of contaminated soils, monitored natural attenuation and maintenance of the existing site cover. Phase 2 of the cleanup, subsurface investigation followed by clean-up of the soil and groundwater contamination, has not commenced.¹

In 2015, the Land Use Covenant and Agreement was published in San Mateo County, which prohibits day care and elder care facilities, schools, hospitals, groundwater extraction, and food cultivation on the site.⁴

Future Plans:¹

According to EnviroStor:

- Full-scale treatment system was expected to be in operation by 2020 but was delayed to the pandemic
- According to DTSC:
 - 2022: Remedy expected to be constructed, operating properly & successfully
 - 2023: Remedy construction expected to be complete
 - 2024: Corrective action determination expected to be complete¹

Community Profile:⁴

The facility is located in East Palo Alto, located right next to the San Francisco Bay. The surrounding area is a mix of industrial and residential zones, with over half of residents of Latino heritage (59.5%).

Census Tract #: 6081611800

Population: 4,479

CalEnviroScreen Percentile Score: 63

Pollution Burden Percentile: 73

Characteristics Percentile: 49

Notable Exposure Percentiles:

- Ozone: 11
- Particulate Matter 2.5: 17
- Diesel Particulate Matter: 49
- Toxic Releases: 24
- Traffic: 60
- Pesticides: 0
- Drinking water: 45
- Lead from Housing: 99

Notable Environmental Effects:

- Cleanup sites: 75
- Groundwater threats: 96
- Hazardous waste: 93
- Impaired waters: 83
- Solid Waste: 42

Sensitive Populations:

- Asthma: 47
- Low Birth Weight: 22
- Cardiovascular Disease: 13

Notable Socioeconomic Factor Percentiles:

- Education: 85
- Linguistic Isolation: 42
- Poverty: 64
- Unemployment: 78
- Housing Burden: 88

Demographics/Community Profile:

- Race:
 - 59.9% Hispanic
 - 17.9% African American
 - 15.8% Asian American
 - 4% White
 - 2.4% Other

1. Department of Toxic Substances Control. "Romic Environmental Technologies Corp. (80001633)." *EnviroStor*, www.envirostor.dtsc.ca.gov/public/profile_report?global_id=80001633
2. United States Environmental Protection Agency "Romic Environmental Technologies, East Palo Alto, California." *EPA*, 19 Jan. 2017, <https://19januarv2017snapshot.epa.gov/www3/region9/waste/romic-eastpaloalto/index.html>.
3. United States Environmental Protection Agency. "Bay Road Holdings LLC (Formerly Romic Environmental Technologies Corporation)." *EPA*, 13 July 2020, www.epa.gov/ca/bay-road-holdings-llc-formerly-romic-environmental-technologies-corporation.
4. Department of Toxic Substance Control. "Land Use Covenant and Agreement." *EnviroStor*, 2015, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/2992573380/Conf_LUC.pdf
5. California Office of Environmental Health Hazard Assessment. "Census Tract: 6081611800" *CalEnviroScreen 4.0*, October 2021, <https://oehha.ca.gov/calenviroscreen/report/draft-calenviroscreen-40>

CASE STUDY 37: Safety-Kleen of California Inc.

Location:¹

Address: 6880 Smith Ave.
Newark, CA 94560, Alameda County
Proximity to Bay: ~33 feet
Site Size: 7 Acres

Overview:^{1,2}

Status: Active
Site Type: State Response
Facility Type: Hazardous waste facility
Oversight Agencies: California DTSC
On The National Priorities List: No
Years of Activity: 1985- Present
Type of Contamination: Soil and Groundwater



Contaminants of Concern:¹

- Chlorine
- Metals: Lead, Mercury (elemental)
- Petroleum: motor oil, TPH-diesel, TPH-gas
- Polynuclear Aromatic Hydrocarbons (PAHs)
- Volatile Organics (8260B VOCs): Tetrachloroethylene (PCE), Trichloroethylene (TCE), Vinyl chloride

Site History:¹

According to EnviroStor, the Safety-Kleen of California facility (previously known as Evergreen Oil, Inc.) was built in 1985 on a previously undeveloped parcel. A State Hazardous Waste Permit was issued in 1985 to store and recycle used oil and for storage and transfer of antifreeze. In December 2004, a Resource Conservation and Recovery Act (RCRA) permit was issued. Renewed in 2014, this permit authorizes storage and treatment of hazardous waste in tanks and containers, as well as the treatment and storage of used oil in aboveground tanks. ¹

Site Remediation and Status and Overview of “Clean Up”:¹

Also according to EnviroStor, the Department of Toxic Substances Control received an RCRA Facility Investigation (RFI) Report in April 2007 and recommended that Safety-Kleen prepare and submit a Ground Water Sampling Plan and Human & Ecological Risk Assessment Plan. Although the soil samples did not indicate that there was significant surface oil contamination or release from the re-refinery area, groundwater samples indicated significant groundwater contamination beneath portions of the facility. Groundwater investigation results indicated that shallow groundwater beneath the site is contaminated by petroleum products and VOCs. Since this report, DTSC has reviewed a Supplemental Site Investigation/Characterization Plan document to take updated soil samples that are needed to fill the data gaps in order to properly conduct a human health risk assessment. Because the most recent soil samples are from 2006, new samples would more accurately represent the current site conditions after spills and/or releases that have occurred since 2006. In December 2010, DTSC received a Ground Water

Monitoring and Sampling Analysis Plan (SAP). DTSC approved the revised SAP in May 2011. The groundwater monitoring network was installed in May 2012 and consists of 8 wells all screened in the uppermost aquifer. Based on groundwater sampling from 2012, the concentrations detected in groundwater from wells throughout the site indicate relatively clean conditions for a site used as a refinery since 1985. Some VOCs were detected above screening levels while petroleum products were not detected above laboratory reporting limits. However, Newark is located in the Niles Cone, which is part of the Alameda County Water District, a managed groundwater basin for domestic use. All of the groundwater is considered beneficial use and needs to be cleaned up to meet state standards. In 2011, the state issued the following actions: Human Exposure Under Control (CA 725), Groundwater Mitigation Under Control (CA 750), and Remedy Construction (CA 550). Since then, no cleanup action has been taken.¹

Future Plans:¹

According to EnviroStor:

- Project Wide Remedy Selection and Statement of Basis by 2022
- Project Wide Remedy Constructed: Operating Properly & Successfully by 2022
- OU-2 Groundwater Corrective Measures Study Report by 2022
- Project Wide Corrective Action Completion Determination by 2024¹

Community Profile:^{1,3}

The Safety-Kleen facility is in an urbanized area of Newark, and is surrounded by industrial use. Newark is surrounded by the city of Fremont and is to the south of Union City. The community is predominantly Asian American (38.3%). This census tract is in the 98th percentile for hazardous waste and 87th percentile for groundwater threats. High levels of pollution may be attributing to high occurrences of low birth weight (94th percentile).

Census Tract: 6001444601

Population: 5,787

CalEnviroScreen Percentile Score: 65

Pollution Burden Percentile: 65

Population Characteristics Percentile: 57

Notable Exposure Percentiles:

- Ozone: 15
- Particulate Matter 2.5: 29
- Diesel Particulate Matter: 85
- Toxic Releases: 40
- Traffic: 89
- Pesticides: 0
- Drinking Water: 8
- Lead from Housing: 27

Notable Environmental Effects:

- Cleanup sites: 85
- Groundwater Threats: 87
- Hazardous Waste: 98
- Impaired Waters: 0
- Solid Waste: 85

Sensitive Population Indicators:

- Asthma: 76
- Low Birth Weight: 94
- Cardiovascular Disease: 67

Socioeconomic Factor Indicators:

- Education: 45
- Linguistic Isolation: 24
- Poverty: 4
- Unemployment: 59
- Housing Burden: 21

Demographics/Community Profile:

- **Race:**
 - 38.3% Asian American
 - 31.9% White
 - 25.3% Hispanic
 - 3% Other
 - 1.4% African American

1. California Department of Toxic Substances Control "Safety-Kleen of California." *EnviroStor*, www.envirostor.dtsc.ca.gov/public/profile_report?global_id=80001757.
2. United States Environmental Protection Agency "EPA RCRA ID: CAD980887418." *EPA*, https://ordspub.epa.gov/ords/cimc/?p=CIMC%3ARCRA%3A%3A%3A%3A%3API14_RCRA_HANDLER_ID%3ACAD980887418#cleanup
3. Office of Environmental Health Hazard Assessment. "Census Tract: 6001444601." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6cac7428e6184203/page/home/>.

CASE STUDY 38: San Quentin State Prison

Location:¹

Address: I-580 Main St.
San Quentin, CA 94964

Proximity to Bay: On the shoreline

Site Size: 40 Acres

Site Overview:^{1,2}

Status: Open--Monitoring as of 6/9/2016

Site Type: Voluntary Cleanup

Facility Type: Hazardous Waste Facility

Oversight Agencies: RWQCB

On the National Priorities List: No

Years of activity: 1852- Present

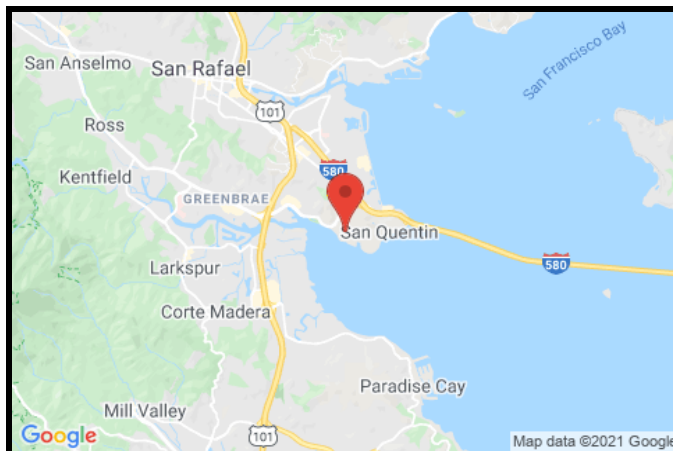
Type of Contamination: Other
Groundwater, Soil, Soil Vapor

Contaminants of Concern:¹

- Tetrachloroethylene (PCE)
- Trichloroethylene (TCE)
- Vinyl Chloride

Site History:²

According to GeoTracker, "The dry cleaner at San Quentin State Prison is housed in Building 39. Building 39 consists of three separate buildings: the dry cleaner building, the Labcon building, and the mattress factory building. Previous investigations in the vicinity of Building 39 indicate that soil and groundwater have been impacted by Stoddard Solvent and PCE and their breakdown products. Four monitoring wells, numerous temporary soil borings, and four permanent sub-slab soil vapor monitoring points have been installed beneath and in the vicinity



of Building 39. In addition, three ambient air samples were collected inside Building 39 and one ambient air sample collected outside Building 39 as a background sample.”²

Site Remediation and Status and Overview of “Clean Up”:²

Also according to GeoTracker: “In a letter dated 12/12/08, the Water Board concurred that monitored natural attenuation as the remedial strategy for the site is the appropriate strategy. Historical and current groundwater analytical data indicates that biodegradation of the VOCs in groundwater has and is continuing to occur. The concentrations of PCE and TCE have decreased to low concentration or are below detection limits while cis-1,2-DCE, 1,1,1-TCA, and vinyl chloride concentrations are either increasing or have stabilized. There is also analytical evidence that the vinyl chloride is breaking down to methane and ethane. Analysis of the groundwater for natural attenuation parameters confirms that the subsurface environment in the vicinity of the Building 39 is conducive for the continuation of biodegradation of VOCs. Elevated chlorinated solvent concentrations in sub-slab soil vapor are addressed to mitigate any concern about vapor intrusion into Building 39.”²

Future Plans:³

In 2007, SHN Consulting Engineers & Geologists, INC sent a letter to the RWQCB outlining their plans for conducting soil, groundwater, and soil gas sampling at the Dry Cleaner Area. Oversight and verification is still taking place. Building 39 of the Dry Cleaner Area is still under use with no set remediation plan.³

Community Profile:⁴

San Quentin is the oldest state prison in California and is a prison for men in Marin County. This site's overall CalEnviroScreen score is very low when compared to most of the other sites examined in this report.

Census Tract #: 6041121200

Population: 6,414

CalEnviroScreen Percentile Score: 15

Pollution Burden Percentile: 70

Characteristics Percentile: 5

Notable Exposure Percentiles:

- Ozone: 6
- Particulate Matter 2.5: 27
- Diesel Particulate Matter: 68
- Toxic Releases: 53
- Traffic: 95
- Pesticides: 0
- Lead from Housing: 31
- Drinking Water: 7

Notable Environmental Effects:

- Cleanup sites: 61
- Groundwater threats: 72
- Hazardous waste: 76
- Impaired Waters: 87
- Solid Waste: 89

Sensitive Populations

- Asthma: 2
- Low Birth Weight: 6
- Cardiovascular Disease: 7

Notable Socioeconomic Factor Percentiles:

- Education: 24
- Linguistic Isolation: 27
- Poverty: 25
- Unemployment: 18
- Housing Burden: 51

Demographics/Community Profile:

- Race/Ethnicity:
 - 9.9% Hispanic
 - 1.9% Black
 - 6.7% Asian American
 - 76.1% White
 - 5.2% Other

1. Department of Toxic Substances Control. "San Quentin State Prison (CAD070178173)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/hwmp_profile_report?global_id=CAD070178173&starttab=
2. State Water Resources Control Board. "San Quentin State Prison (SL20238856)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL20238856
3. Aveggio, John. "Revised Site Investigation Work Plan, San Quentin State Penitentiary, Dry Cleaner Area, San Quentin, California, SLIC File No. 21S0020." SHN Consulting Engineers and Geologists Inc, Nov. 27, 2007, https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/5927335441/21S0020%2011-27-07%20REVISED%20SIE%20INVESTIGATION%20WORK%20PLAN.pdf
4. Office of Environmental Health Hazard Assessment. "Census Tract: 6041121200." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/>

CASE STUDY 39: Selby Slag**Location:**¹

Address: Shoreline/Marsh adjacent to Carquinez Strait
Selby, CA 94802
Contra Costa County

Proximity to Bay: On Shoreline

Site Size: 66 Acres

Site Overview:^{1,2}

Status: Open- Verification Monitoring as of 7/29/2009

Site Type: State Response

Facility Type: Metal Reclamation

Oversight Agencies: DTSC, RWQCB

On the National Priorities List: No

Years of activity: 1872-1971

Type of Contamination: Other groundwater, sediments, soil, surface water affected

Contaminants of Concern:¹

- Antimony and compounds
- Arsenic
- Cadmium and compounds
- Copper and compounds



- Lead
- Nickel
- Zinc
- Petroleum: TPH-MOTOR OIL, TPH-diesel

Site History:¹

According to EnviroStor, “The Selby Smelting and Lead Company began operating a metal smelting and refining plant at the Site in 1876. ASARCO took over the operation of the plant in 1912 and operated it through 1971. The smelting and refining plant produced lead and other refined metals, including gold, silver, and copper. An estimated 2.3 million cubic yards of slag that was generated by the metal smelting and refining plant remain on the Site. From about 1971 to 1976, Virginia Chemicals operated an acid-refining plant on a one-acre portion near the east end of the Site. Acid-affected groundwater is still present in this area of the Site. In 1977, ASARCO sold the upland portion of the Site to Wickland Oil. Wickland leased the tideland portion of the Site from State Lands Commission (SLC) in 1981. In March 1989, ASARCO, Wickland Oil and SLC entered into a Consent Judgment which was approved by the United States District Court. CS Land purchased the Site from Wickland and assumed Wickland’s liabilities for cleanup of the Site. CS Land then became a subsidiary of ConocoPhillips. ASARCO declared bankruptcy in 2005 and settled its environmental liability for the Site in 2008 through a settlement agreement with DTSC, SLC, and CS Land that was approved by the bankruptcy court.”¹

Site Remediation and Status and Overview of “Clean Up”:³

“Interim remedial measures (IRMs) are cleanup activities that protect public health and the environment during the development of long-term solutions. To reduce the mobility of the metals in the slag at the Site, DTSC prescribed the following IRMs from 1992 through 2006:

IRM 1: Approximately 100,000 cubic yards of soil from an acid-affected area in the eastern region of the Site (the former sulfur dioxide plant area) was excavated, treated with limestone to neutralize, and backfilled under a cap.

IRM 2: Approximately 98,000 cubic yards of offshore sediments (slag mixed with bay sediments) were dredged, deposited on-site, and incorporated under a cap.

IRM 3: After the placement of the dredged offshore sediments, the Site was graded, a storm water run-off drainage system was installed, and the Site was capped with 4 inches of asphalt topped with a slurry seal to prevent stormwater infiltration.

IRM 4: The sewage oxidation pond was filled with soil and closed in 2006 after sewer lines were constructed to transport sewage to the Rodeo Sanitary District Wastewater Treatment Plant.”³

Future Plans:^{1,3}

“Draft RAP and Draft EIR were made available for public review from January 11- April 12, 2018. DTSC is currently finalizing responses to comments, final EIR and Final RAP.”¹

According to the Selby Slag Remediation Project: Draft Remedial Action Plan and Draft Environmental Impact Report: “The draft RAP summarizes previous studies and describes the possible cleanup alternatives. The proposed remedy is a combination of several alternatives described in the draft RAP and consists of the following actions:

- *Install a shoreline wall:* The shoreline wall would prevent discharge of contaminated groundwater into the bay and tidal water leaching of contaminants from the Site. Final

design of the wall would consider anticipated sea level rise and design code requirements. The shoreline wall would be installed using pile driving equipment, drill rigs, and excavators. It would consist of steel sheet piles, or posts, that have interlocking edges. The finished shoreline wall would be flush with the elevation of the Site.

- *Dredge/excavate slag from the bay (and placement on-site)*: Slag from the outside, or bayside, of the wall would be removed and placed on-site. Following the slag removal from the bay, the dredged area would be filled with clean material and rock, where necessary, to prevent erosion of the shoreline. Water-based equipment (such as tugboats and transport barges) and land-based equipment (such as excavators) would be used to dredge/excavate slag from the bay and transport it to the Site.
- *Asphalt capping*: The Site is currently covered by an asphalt cap. Capping involves placing a cover over contaminated material to keep it in place. The existing cap would be temporarily removed from portions of the Site to allow the dredged slag from the bay to be placed. The opened cap area would be regraded and repaved with new asphalt.
- *Groundwater management system (upgradient)*: Install a groundwater management system consisting of groundwater pumping wells located outside the Site (upgradient) and a containment wall near the western end of the Site to prevent groundwater from entering the Site. The pumped groundwater will be discharged to a local stormwater system.
- *Groundwater collection and disposal (interior)*: Install a groundwater collection system consisting of pumping wells located inside of the Site to keep contaminants from entering the bay. The treatment system would clean groundwater before discharging to the local stormwater system. Waste generated from the treatment processes would be transported to a permitted landfill.
- *Institutional controls*: A land use covenant would be recorded for the portion of the Site owned by CS Land, Inc. and a consent agreement between the Commission and DTSC would be executed for the portion of the Site owned by the Commission, to prevent sensitive uses such as residences, schools for persons under age 18, hospitals, and daycare centers. A land use covenant is a legal document that restricts certain land uses on a property. Future land use will be determined by the property owners.
- *Long-term operation and maintenance*: Ongoing maintenance of shoreline walls, the upgradient groundwater extraction system, the on-site groundwater extraction and treatment system, and the asphalt cap would continue long-term

After approval of the RAP, it would take about two years to complete the design plans, select contractors and obtain necessary permits. The work would start in late 2020 and take about two and a half years to complete. DTSC will distribute a Work Notice to the community prior to the start of work. Minimal impacts are expected to neighboring communities.”³

Community Profile:⁴

Selby is an unincorporated township in Contra Costa county. The land use around the site is primarily industrial, however there are suburban residential areas nearby. The community is predominantly Hispanic (32%) and suffers from high rates of asthma (93rd percentile). High levels of asthma may be due to high levels of toxic releases (80th percentile) and the high number of hazardous waste facilities in the area (97th percentile).

Census Tract #: 6013358000

Population: 6,285

CalEnviroScreen Percentile Score: 87

Pollution Burden Percentile: 86

Population Characteristics Percentile: 78

Notable Exposure Percentiles:

- Ozone: 12
- Particulate Matter 2.5: 34
- Diesel Particulate Matter: 77
- Traffic: 83
- Toxic Releases: 80
- Pesticides: 0
- Lead from Housing: 85
- Drinking Water: 4

Notable Environmental Effects:

- Cleanup sites: 84
- Groundwater threats: 84
- Hazardous waste: 97
- Impaired Waters: 83
- Solid Waste: 36

Sensitive Population Indicators:

- Asthma: 93
- Low Birth Weight: 86
- Cardiovascular Disease: 74

Notable Socioeconomic Factor Percentiles:

- Education: 52
- Linguistic Isolation: 28
- Poverty: 61
- Unemployment: 67
- Housing Burden: 53

Demographics/Community Profile:

- Race/Ethnicity:
 - 32% Hispanic
 - 24.3% White
 - 18.2% African American
 - 18.7% Asian American
 - 6.7% Other

1. Department of Toxic Substances Control. "Selby Slag (07330031)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=07330031
2. State Water Resources Control Board. "Kinder Morgan - Rodeo/Crockett Terminal - Selby Pond Release (T10000000089)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000000089
3. California Department of Toxic Substances Control. "Selby Slag Remediation Project: Draft Remedial Action Plan and Draft Environmental Impact Report Available for Review." *DTSC*, Jan. 2018, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/2504216074/Community%20Update_Selby%20final.pdf
4. Office of Environmental Health Hazard Assessment. "Census Tract: 6013358000." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/>

CASE STUDY 40: SFPP Brisbane Terminal

Location:^{1,2}

Address: 950 Tunnel Ave, Brisbane, CA

Proximity to Bay: ~1805 feet

Site Size: 25 Acres

Site Overview:^{1,3,4}

Status: Open- Verification Monitoring as of 6/19/2019

Site Type: Tiered Permit

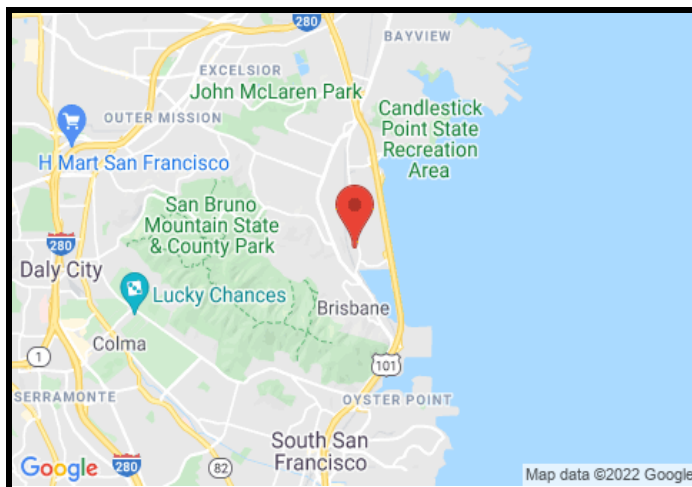
Facility Type: Bulk petroleum storage and distribution terminal

Oversight Agencies: SF Bay RWQCB

On the National Priorities List: No

Years of activity: 1960- Present

Type of Contamination: Aquifer used for drinking water supply, groundwater (uses other than drinking water), soil, surface water



Contaminants of Concern:¹

- Benzene
- Diesel
- Gasoline
- Methyl tertiary-butyl ether (MTBE)
- Tertiary butyl alcohol (TBA)

Site History:¹

According to GeoTracker, “The facility is a bulk petroleum storage and distribution terminal that provides aviation fuel to San Francisco Airport as well as gasoline and diesel fuel to various retail stations. The eastern portion of the facility is located on the closed Brisbane municipal landfill while the western portion is situated on a bedrock outcrop. Twenty one aboveground storage tanks (ASTs) reside on the western portion of the facility underlain by bedrock. Gasoline, diesel, and aviation fuels are brought to the facility via pipeline and are stored in the ASTs. The gasoline and diesel fuel stored in the ASTs is pumped into tanker trucks via five loading racks at the facility for distribution to Bay Area gasoline stations. Aviation fuel is piped directly from the facility to San Francisco Airport.”¹

Site Remediation and Status and Overview of “Clean Up”:^{4,5}

According to a Staff Summary Report from 2008, “SFPP has conducted numerous subsurface assessments to evaluate soil and groundwater conditions at the site since the early 1990s, some of which were in response to known spills and releases that occurred during tank filling or truck fueling operations. Assessment activities included the installation of 29 groundwater monitoring wells, 12 soil borings, tidal studies and aquifer testing, assessment of bedrock and landfill refuse occurrence, and installation of five separate phase liquid hydrocarbon (SPLH) monitoring and recovery well points. Several phases of remedial activities have been conducted at the site since 1998 in response to documented releases of petroleum fuel hydrocarbons to soil and groundwater and to address the presence of SPLH in specific portions of the site. Remedial actions have included SPLH recovery, soil excavation, groundwater extraction, and dual-phase soil vapor

and/or groundwater extraction. Historically, SPLH has been detected at different times in six monitoring wells and in the five SPLH monitoring points. However, throughout 2007, SPLH has been absent in all six monitoring wells and in all but one of the five SPLH monitoring points. When present, SPLH is removed using passive skimmers and hand bailing.”⁴

The June 2007 RAP proposes a comprehensive plan to cleanup and monitor petroleum fuel hydrocarbons in soil and groundwater. The plan proposes monitored natural attenuation as the preferred remedial alternative and provides lines of evidence to support its selection. This Order establishes appropriate cleanup standards and requires 1) performance monitoring to demonstrate MNA effectiveness, 2) removal of SPLH to the extent practicable, 3) trigger levels for potential off-site impacts, 4) completion of a contingency plan should additional remedial measures become necessary, and 5) a monitoring program to provide an ongoing assessment of groundwater conditions and impacts from potential new releases at the facility.⁵

Future Plans:⁶

According to a Preliminary PFAS Site Investigation Work Plan, “On March 19, 2021, the California State Water Resources Control Board (SWRCB) issued Water Code Sections 13267 and 13383 Order for the Determination of the Presence of Per- and Polyfluoroalkyl Substances at Bulk Fuel Storage Terminals and Refineries, Order WQ 2021-0006-DWQ (Order). The Order requires multiple bulk terminals and refineries to submit a work plan for preliminary investigation of potential per-and polyfluoroalkyl substances (PFAS) impacts to soil and groundwater which may have resulted from the use of PFAS-containing materials such as aqueous film-forming foam (AFFF). This Preliminary PFAS Site Investigation Work Plan (Work Plan) has been prepared for the Santa Fe Pacific Pipeline Partners Limited Partnership (SFPP, L.P.) Brisbane Terminal (the Site; Terminal) at 950 Tunnel Road, Brisbane, California, which was included in the Order.”⁶

Community Profile:^{1,7}

The facility is located in a light-industrial area of Brisbane and is bordered by Tunnel Avenue to the east and south, Union Pacific Railroad tracks to the west, and the closed Brisbane municipal landfill to the north and east. A wetland is located immediately adjacent to the northern facility boundary. The community is predominantly White and has a high hazardous waste percentile.

Census Tract #: 6081600100

Population: 5,051

CalEnviroScreen Percentile Score: 55

Pollution Burden Percentile: 85

Characteristics Percentile: 34

Notable Exposure Percentiles:

- Diesel Particulate Matter: 54
- Ozone: 8
- Particulate Matter 2.5: 25
- Traffic: 81
- Drinking Water: 63
- Toxic Releases: 38
- Traffic: 81
- Lead from Housing: 61

Notable Environmental Effects:

- Cleanup sites: 90
- Groundwater threats: 88

- Hazardous waste: 93
- Impaired Waters: 77
- Solid Waste Sites: 42

Sensitive Populations:

- Asthma: 47
- Low Birth Weight: 78
- Cardiovascular Disease: 23

Notable Socioeconomic Factor Percentiles:

- Education: 34
- Linguistic Isolation: 35
- Poverty: 15
- Unemployment: 10
- Housing Burden: 52

Demographics/Community Profile:

- Race/Ethnicity:
 - 17% Hispanic
 - 3% Black
 - 33% Asian American
 - 42% White
 - 5% Other

1. State Water Resources Control Board, "SFPP (Kinder Morgan) Brisbane Terminal." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report?global_id=SL372271174
2. "Pacific Operations." *Kinder Morgan*, March 2019, <https://www.kindermorgan.com/WWWKM/media/Documents/2019-March-Pacific-Ops-brochure.pdf>
3. Department of Toxic Substance Control. "SFPP Brisbane Terminal (71003515)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=71003515
4. CA Regional Water Quality Control Board. "Staff Summary Report." *California Water Boards*, 2008, https://www.waterboards.ca.gov/sanfranciscobay/board_info/agendas/2008/april/4c/sfppbrbane.pdf
5. State Water Resources Control Board. "Remedial Action Plan SFPP, L.P. Brisbane Terminal." *GeoTracker*, June 2007, https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo_report/3980558097/SL372271174.PDF
6. State Water Resources Control Board. "Preliminary PFAS Site Investigation Work Plan." *GeoTracker*, Aug. 2021, https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo_report/4008197188/SL372271174.PDF
7. California Office of Environmental Health Hazard Assessment. "Census Tract: 6081600100" CalEnviroScreen 4.0, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54ceebeac7428e6184203/page/Draft-CalEnviroScreen-4.0/>

CASE STUDY 41: South Bay Asbestos Area

Location:¹

Address: Ft Of Liberty St, Guadalupe River, San Jose, CA 95002

Proximity to Bay: On Shoreline

Site Size: 550 Acres

Site Overview:¹

Status: Active

Site Type: Federal Superfund

Facility Type: Landfill

Oversight Agencies: EPA (lead), RWQCB, EPA

On the National Priorities List: Yes

Years of activity: 1953-1982

Type of contamination: Soil



Contaminants of Concern¹

- Asbestos Containing Materials (ACM)
- Naturally Occurring Asbestos (NOA)

Site History:^{1,2}

According to EnviroStor, this area formerly comprised the Marshall landfill and the Santos landfill. This site has two main causes for asbestos contamination. Between 1953 and 1982 this site accepted the asbestos-contaminated waste from an asbestos cement pipe manufacturing plant. This waste was placed in the landfill and truck yard and was used for certain projects like raising the grade of the site.¹

According to the EPA, before joining the city of San Jose, the district of Alviso decided to construct a ring levee to shield low-lying zones from potential flooding using local quarried rock, which contained naturally occurring asbestos. Rainfall and wind then swept the contaminants from the levees and into the surrounding area of Alviso.²

Early in the planning process the, “EPA selected the following remedies for the Site to protect long-term human health and the environment:

- Paving asbestos-contaminated truck and industrial yards after soil sampling that determined the extent of necessary paving
- Monthly wet sweeping of Alviso streets
- Locating and removing obvious asbestos sources such as pipes and disposing of them in an off-site landfill
- Placing deed restrictions on landfills after verifying the adequacy of cover material pursuant to National Emission Standards for Hazardous Air Pollutants (NESHAP) Program for asbestos.
- Establishing institutional controls to ensure maintenance of remediation measures
- Routine maintenance and monitoring”²

Site Remediation and Status and Overview of “Clean Up”:^{1,2,3}

In 1985 the EPA placed this site on its federal superfund list and has been responsible for overseeing this site ever since.¹

The EPA site profile states that to clean-up contamination, the EPA and the United States Army Corps of engineers took two approaches. The first approach was to remove the ring levee, while the second approach was to install landfill caps, pave the truck yards with asbestos in their soil and restore the wetlands. The cap was comprised of 5 office buildings, pavement, and 18 inches of clean soil in the landscape areas. They also installed a passive gas collection system to remove any methane that collects under the cap. This system requires constant upkeep and annual inspection. According to the EPA's site inspection, which occurs every five years, steps taken to reduce contamination have proven to be effective in the short run and currently pose no threat to human health and safety. Since 1985 the Marshall landfill has been converted into the America Center, which is 70 acres of office and hotel spaces. The Santos landfill is now known as the Gold Street Tech Center, which also provides commercial office space. Other parts of the site are now wetlands, trails, and recreational areas like volleyball courts and basketball courts.²

“EPA and USACE conducted a Site inspection on February 4, 2020. No active remediation is currently being conducted on site.”³

Future Plans:²

The EPA profile also states, “Bixby Tech Center is responsible for repairing any passive methane gas vents that are not functioning and allowing methane gas to vent. They are responsible for repairing exposed joints within the concrete surface at three loading docks. EPA and USACE identified cracks in the northern portion of the asphalt landfill cap that will need to be repaired before the 2025 Five- Year Review. The following recommendation improves reliability of the remedy but does not affect current and/or future protectiveness: Summerset Mobile Estates did not submit a landfill cap inspection report, which is scheduled to occur every thirty months, for the 2020 EPA Five-Year Review Report. During the EPA and USACE 2019 Site Inspection, the asphalt cap was in excellent condition with no cracks or damage evident. EPA should consider conducting an intermediate cap inspection in 2023 if the Summerset Mobile Estates landfill cap inspection report is not submitted before then.”²

Community Profile^{4,5,6}

South Bay Asbestos Area is located in Alviso, an area containing salt ponds, salt marshes, mudflats, and access to the open bay. This site is near the Don Edwards San Francisco Bay National Wildlife Refuge, Alviso Marina County Park, and Baylands Park. There are high levels of contamination in the area (100th percentile for solid waste) and numerous cleanup sites. The residents in the surrounding community are predominantly Hispanic (58.9%). High levels of pollution may be attributed to low birth weight in the community (99th percentile).

Census Tract: 6085504602

Population: 2,355

CalEnviroScreen Percentile Score: 67

Pollution Burden Percentile: 82

Population Characteristics: 50

Notable Exposure Percentiles:

- Ozone: 15
- Particulate Matter 2.5: 19
- Diesel Particulate Matter: 29
- Toxic Releases: 30
- Traffic: 94
- Pesticides: 0

- Drinking Water Contaminants: 39
- Lead from Housing: 51

Notable Environmental Effects:

- Cleanups Sites: 99
- Groundwater Threats: 94
- Hazardous Waste: 93
- Impaired Water: 92
- Solid Waste: 100

Sensitive Populations:

- Asthma: 38
- Low Birth Weight: 99
- Cardiovascular Disease: 40

Notable Socioeconomic Factor Percentiles:

- Education: 73
- Linguistic Isolation: N/A
- Poverty: 28
- Unemployment: 36
- Housing Burden: 24

Demographics/Community Profile:

- Race/Ethnicity:
 - 20.2% White
 - 5.2% African American
 - 13.8% Asian American
 - 1.5% Native American
 - 58.9% Hispanic
 - 0.3% Other

1. Department of Toxic Substances Control. "South Bay Asbestos Area (43490060)." *Envirostor*, www.envirostor.dtsc.ca.gov/public/profile_report?global_id=43490060
2. Environmental Protection Agency. "SOUTH BAY ASBESTOS AREA Site Profile." *EPA*, 20 Oct. 2017, <https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0902250>
3. US EPA, and U.S. Army Corps of Engineers, Seattle District. "Five-Year Review for the South Bay Asbestos Superfund Site." *US EPA*, 21 Sept. 2020, <https://semspub.epa.gov/work/09/100021504.pdf>
4. California Office of Environmental Health Hazard Assessment. "Census Tract: 6085504602." *CalEnviroScreen 4.0*, Oct 2021 <https://experience.arcgis.com/experience/11d2f52282a54ceebeac7428e6184203/page/Draft-CalEnviroScreen-4.0/>
5. County of Santa Clara. "Alviso Marina County Park." *Santa Clara County Parks*, www.sccgov.org/sites/parks/parkfinder/Pages/AlvisoMarina.aspx.
6. *Alviso*. San Jose Convention & Visitors Bureau, San Jose McEnery Convention Center & Cultural Facilities, www.sanjose.org/neighborhoods/alviso

CASE STUDY 42: South Pacific Division Laboratory

Location:¹

Address: 25 Liberty Ship Way
Sausalito, CA 94965

Proximity to Bay: ~197 feet

Site Size: 1.3 Acres

Site Overview:¹

Status: Certified O&M - LUC

Site Type: Closed Base

Facility Type: Laboratory

Oversight Agencies: DTSC (Lead),
RWQCB2 - San Francisco Bay

On the National Priorities List: No

Years of activity: 1870-1997

Type of Contamination: Soil and
groundwater



Contaminants of Concern:¹

- Polychlorinated Biphenyls
- Petroleum Hydrocarbons

Site History:¹

“The area was first developed in the 1870's when the former Northwestern Pacific Railroad rail yard was constructed. The railyard was developed into the Marinship shipyard during World War II (1942). The building (Site) was constructed and operated as a machine shop. The U.S. Army Corps of Engineers acquired one building from the shipyard in 1948 and converted it into a geotechnical testing laboratory in 1950. An analytical laboratory capability was added in the early 1990s. The SPD Laboratory closed in 1997.”¹

Site Remediation and Status and Overview of “Clean Up”:¹

According to EnviroStor, “Investigations have identified Polychlorinated Biphenyls (PCBs) contamination in the soil and petroleum hydrocarbon contamination in the soil and groundwater likely associated with the former Marinship Electrical Shop operations. Other potential contaminants identified were solvents and metals. Solvents were detected sporadically at low concentrations in the groundwater. Elevated concentrations of arsenic in groundwater and of metals in the soil were detected sitewide and appear to be anthropogenic background. A soil removal action was completed in 2006 to remove PCB contamination detected above levels considered safe for commercial/industrial use. Low level residual PCB contamination remains in the subsurface north of the building. Land use restrictions have been applied to restrict the property from sensitive uses such as residential, hospital, or school.”¹

Future Plans:¹

Also according to EnviroStor, “As of May 2007, the U.S. Army has transferred the property to the General Services Administration for eventual transfer to the Veterans Administration who will renovate the building for consolidated medical testing operations. The land use will remain

commercial/industrial. In 2009, the Veterans Administration took ownership of the property for redevelopment as a medical lab. Ownership remains federal and use remains commercial.”¹

No further future plans mentioned, except to maintain commercial use of the site.

Community Profile:²

This site is located in a non residential area on the west shoreline of the Richardson Bay in Sausalito. This community is a majority white community, with a relatively low CalEnviroScreen score. There is a higher than average elderly population (65 and over) of 33% in this community.

Census Tract #: 6041130202

Population: 4,453

CalEnviroScreen Percentile Score: 15

Pollution Burden Percentile: 61

Characteristics Percentile: 6

Notable Exposure Percentiles:

- Particulate Matter 2.5: 25
- Diesel Particulate Matter: 60
- Toxic Releases: 59
- Drinking Water: 7
- Ozone: 4
- Traffic: 98
- Lead from Housing: 33
- Pesticides: 0

Notable Environmental Effects:

- Cleanup sites: 78
- Groundwater threats: 44
- Hazardous waste: 73
- Solid Waste: 53
- Impaired water: 90

Sensitive Population Indicators:

- Asthma: 32
- Low Birth Weight: 11
- Cardiovascular Disease: 23

Notable Socioeconomic Factor Percentiles:

- Education: 3
- Linguistic Isolation: 12
- Poverty: 17
- Unemployment: 10
- Housing Burden: 34

Demographics/Community Profile:

- Race/Ethnicity:
 - 7% Hispanic
 - 1% African American
 - 3% Asian American
 - 88% White
 - 1% Other

1. Department of Toxic Substances Control, State of California. “South Pacific Division Laboratory. (80001193)” *EnviroStor*.

https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=80001193

2. Office of Environmental Health and Hazard Assessment. “Census Tract: 6041130202”. *CalEnviroScreen*. <https://experience.arcgis.com/experience/11d2f52282a54ceebeac7428e6184203/page/Draft-CalEnviroScreen-4.0/>

CASE STUDY 43: Sunnyvale NIROP

Location:¹

Address: 1111 Lockheed Way, Bldg 101, Sunnyvale, CA 94089

Proximity to Bay: ~3281 feet

Site Size: 660 Acres

Site Overview:^{1,2}

Status: RWQCB as of 12/21/2005

Site Type: State Response

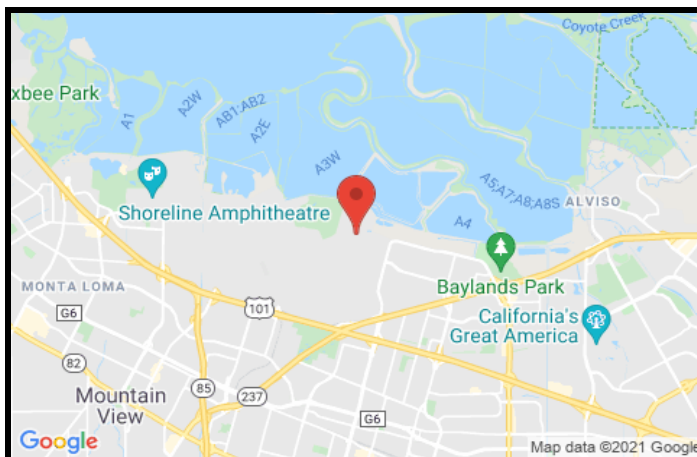
Facility Type: Aerospace manufacturing/maintenance

Oversight Agencies: SF Bay RWQCB

On National Priorities List: No

Years of activity: 1956- Present

Type of contamination: Other groundwater



Contaminants of Concern:^{1,2}

- Metals: Cadmium
- Pesticides - Wastes From Production
- Phytochemicals/Photo Processing Waste
- Polychlorinated Biphenyls (PCBs)
- Unspecified Acid Solution
- Unspecified Solvent Mixtures
- Waste Oil & Mixed Oil
- Volatile Organic Compounds (VOCs)
- Solvents - Trichloroethylene
- Caustics

Site History:^{2,3}

Lockheed owns and operates the aerospace research and fabrication facility located at 1111 Lockheed Martin Way. Prior to 1956, the site location was farmland. Emplacement of the first Lockheed facilities began in 1956 with the construction of Building 103. Manufacturing operations began in 1958. By 1963, most of the Lockheed manufacturing and chemical processing facilities were in place.³

The Sunnyvale Naval Industrial Reserve Ordnance Plant (NIROP) has been operated by Lockheed Martin Space (LMS) under Navy contracts. NIROP manufactured, assembled and tested ballistic missiles. The buildings at NIROP house laboratories, tool shops, industrial operations, and test facilities related to this function. Manufacturing activities at NIROP began in 1958 and have decreased over time, but the site continues to be used.²

Site Remediation and Status and Overview of “Clean Up”:³

According to GeoTrackers site profile for Lockheed Sunnyvale- Plant One Facility, “In January 1987, Lockheed presented the Regional Board with information that identified chlorinated and fluorinated VOCs, hexavalent chromium (Cr6+), and elevated nitrates (NO3) impacts to shallow groundwater beneath the site. These impacts were discovered during investigation and

monitoring activities associated with petroleum underground storage tanks (USTs). In response, the Regional Board requested further delineation of groundwater impacts throughout the site. In September 1987, the first phase of a site-wide groundwater investigation and hydrogeologic characterization was initiated to determine the lateral and vertical extent of groundwater contamination. The Phase I results identified impacts to two distinct groundwater zones. In response, the Regional Board adopted SCR Order No. 88-013 on January 20, 1988. A groundwater extraction and treatment system has been in full operation since 1993 and has proven to be effective in removing VOCs. In-situ biological treatment is currently being investigated as another remedy”³

Historically, petroleum hydrocarbons have been identified in soil and groundwater at specific locations at the site. Generally, petroleum hydrocarbon impacts were associated with UST leaks or spills. Petroleum hydrocarbon impacts have been remediated and no cleanup requirements are specified in the most recent Order No. 00-124, according to GeoTracker.³

Future Plans:⁴

According to the Annual Estimate for SCP Cost Recovery Oversight for Lockheed Plant One Facility the, “Water Board staff estimates that the following work will be performed during fiscal year 2021/2022:

- Review and comment on technical reports, including investigation work plans and reports to define the extent of pollution and remedial action plans and CERCLA documentation to clean up the site;
- Prepare written correspondence with responsible party, its representatives, and interested third parties, as needed;
- Conduct site inspections;
- Review fact sheets and public notices regarding site status; and
- Attend internal meetings with management and external meetings with the public or other interested parties as needed during site investigation, remediation, and/or redevelopment”⁴

Community Profile:⁵

This site lies east of Highway 101 in Sunnyvale, CA. The site is located in a commercial area near multiple tech and industrial companies. There are a high level of cleanup sites in the area. Neighborhoods near the site include Lakewood and Morse Park. The population is predominantly Hispanic. Cumulative environmental impacts are a contributing factor to this community having an extremely high occurrence of low birth weights.

Census Tract: 6085504602

Population: 2,355

CalEnviroScreen Percentile Score: 67

Pollution Burden Percentile: 82

Population Characteristics Percentile: 50

Notable Exposure Percentiles:

- Ozone: 15
- Particulate Matter 2.5: 19
- Diesel Particulate Matter: 29
- Toxic Releases: 30
- Traffic: 94
- Pesticides: 0

- Drinking water pollution: 39
- Lead from Housing: 51

Notable Environmental Effects:

- Cleanup sites: 99
- Groundwater threats: 94
- Hazardous waste: 93
- Impaired waters: 92
- Solid waste: 100

Sensitive Population Indicators:

- Asthma: 38
- Low Birth Weight: 99
- Cardiovascular Rate: 40

Notable Socioeconomic Factor Percentiles:

- Education: 73
- Poverty: 28
- Unemployment: 36
- Housing Burden: 24
- Linguistic Isolation: N/A

Demographics:

- **Race/Ethnicity:**
 - White: 20.2%
 - African American: 5.2%
 - Hispanic: 58.9%
 - Asian American: 13.8%
 - Native American: 1.5%
 - Other: 0.3%

1. Department of Toxic Substances Control. "Sunnyvale NIROP (43970002)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=43970002
2. State Water Resources Control Board. "Sunnyvale Naval Industrial Reserve Ordnance Plant (T0608576849)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0608576849
3. State Water Resources Control Board. "Lockheed Sunnyvale- Plant One Facility (SL1821F605)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report?global_id=SL1821F605
4. State Water Resources Control Board, and Phyllis Flack. "Annual Estimate for SCP Cost Recovery Oversight for Lockheed Plant One Facility, 1111 Lockheed Martin Way, Sunnyvale, CA, 94089, Santa Clara County." *GeoTracker*, 28 June 2021, https://documents.geotracker.waterboards.ca.gov/regulators/deliverable/documents/9860166251/1821F00_AEL%20FY%2021-22.pdf
5. Office of Environmental Health Hazard Assessment. "Census Tract: 6085504602." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/>

CASE STUDY 44: Tubbs Island Gunnery Range

Location:¹

Address: Southern tip of Sonoma,
On the coast of San Pablo Bay
Petaluma, CA 95476

Proximity to Bay: ~328 feet

Site Size: 2,500 Acres

Site Overview:¹

Status: No further action as of
5/2/2014

Site Type: State Response

Facility Type: Firing Range- Artillery

Oversight Agencies: DTSC

On the National Priorities List: No

Years of activity: 1942-1945

Type of Contamination: Soil

Contaminants of Concern:¹

- Explosives, (UXO, MEC)

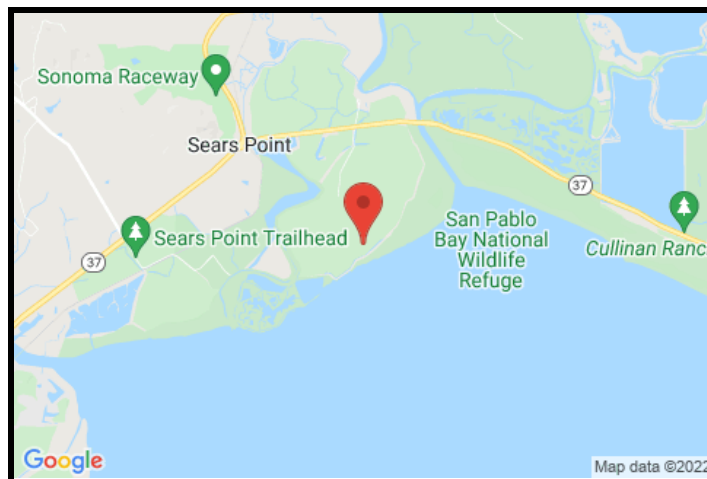
Site History:¹

“Facility served as a training range for aerial and ground-based gunnery, and dive- and skip-bombing. Some evidence exists for Tubbs Island to have been slated as a rocket firing range and chemical warfare training site. It also provided service as an auxiliary airfield. A skip bombing target, two dive bombing targets, and several range houses were constructed on the island. Gunnery ranges were surrounded by sand walls to capture ricocheting bullets. Documentation exists confirming use of the island for aerial chemical spraying. The compounds used include FS, a screening smoke made with sulfur trioxide-chlorosulfonic acid solution, and CNB, a tear gas containing chloroacetophenone in benzene and carbon tetrachloride. A dilapidated bunker with a missing door was observed at one point, and which appeared to contain several hundred shells of small-arms caliber.”¹

“Verification of ownership or leasehold by the DoD has yet to be obtained. However, documentation has been located indicating that on 14 February 1946, Headquarters Continental Air Forces requested that Tubbs Island Gunnery Range be declared surplus. Tubbs Island was one of four auxiliary airfields attributed to Santa Rosa Army Airfield. Records describe the island's use from 1942 to 1945 as a bombing, gunnery, and rocket range. The pilots were required to complete 150 hours of training and fly four training flights. This property is known or suspected to contain military and explosives of concern (e.g., unexploded ordnance) and therefore may present an explosive hazard.”¹

Site Remediation and Status and Overview of “Clean Up”:²

Soil samples were taken during a site visit on July 7, 2028. TestAmerica Laboratories analyzed the samples and found that “there is potential MC contamination in the surface soil at the Bombing, Strafing, and Rocket Range MRS. Eight non-essential nutrient MC metals (antimony, barium, copper, lead, magnesium, strontium, titanium, and zinc) were detected above



background levels in surface soils. Nitroglycerin was detected in surface soil. Four non-essential nutrient MC metals (antimony, barium, molybdenum, and strontium) were detected above background levels in surface water. Five non-essential nutrient MC metals (copper, manganese, strontium, titanium, and zinc) were detected above background levels in the sediment.”² Further MC sampling was recommended by the report.²

Future Plans:²

According to the Site Inspection Report Tubbs Island Bombing Range, “The current land use at the former Tubbs Island Bombing Range is farming of wheat, oat, and hay by Sears Point Farms, a lessee of VSFCD. The VSFCD also uses the land to store and spread biosolids from their treatment plants. The cultivated vegetation reportedly aids in the removal of heavy metals from the biosolids (USACE, 2001). There are no private residences located within the FUDS boundary; however, a radio station and associated antenna arrays have been recently constructed. The VSFCD owns the entire land portion of the site. The portion of the MRS that extends into the adjacent mud flats and waters of San Pablo Bay is owned by the State of California up to the mean high tide point. The California owned land is operated by the Fish and Wildlife Service as part of the San Pablo Bay National Wildlife Refuge. There is no anticipated change in the future land use of the Tubbs Island Bombing Range.”²

Also according to the Site Inspection Report Tubbs Island Bombing Range, “Based on the July 2008 SI field effort, the analysis results, and the historical record review, the Bombing, Strafing, and Rocket Range MRS at the Tubbs Island Bombing Range FUDS is recommended for RI/FS (Table 8.1). Munitions removal actions are not warranted at this time.”²

Community Profile:³

Tubbs Island is located at the southern tip of Sonoma County, on the coast of the San Pablo Bay. There are no residents living in Tubbs Island. The surrounding area is primarily farmland, however, there are a few hiking trails through Tubbs Island. The population is predominantly White (83.2%).

Census Tract #: 6097150100

Population: 2,631

CalEnviroScreen Percentile Score: 17

Pollution Burden Percentile: 44

Characteristics Percentile: 11

Notable Exposure Percentiles:

- Ozone: 15
- Particulate Matter 2.5: 16
- Diesel Particulate Matter: 27
- Toxic Releases: 45
- Traffic: 33
- Pesticides: 80
- Lead from Housing: 31
- Drinking Water: 62

Notable Environmental Effects:

- Cleanup sites: 0
- Groundwater threats: 71
- Hazardous waste: 36
- Solid Waste: 78
- Impaired Waters: 33

Sensitive Populations

- Asthma: 22
- Low Birth Weight: 36
- Cardiovascular Disease: 17

Notable Socioeconomic Factor Percentiles:

- Education: 33
- Linguistic Isolation: 17
- Poverty: 14
- Unemployment: 21
- Housing Burden: 20

Demographics/Community Profile:

- Race/Ethnicity:
 - 15.5% Hispanic
 - 0.9% Asian American
 - 0% Native American
 - 83.2% White
 - 0.4% Other

1. Department of Toxic Substances Control. "Tubbs Island Gunnery Range (J09CA7288)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=80001094
2. Parsons. "Site Inspection Report Tubbs Island Bombing Range." *U.S. Army Corps of Engineers, Sacramento District*, March 2009, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/4828977286/Pages%201-20%20from%20Tubbs%20Island%20Final%20SI.pdf; https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/4828977286/Pages%2021-40%20from%20Tubbs%20Island%20Final%20SI.pdf; https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/4828977286/Pages%2041-60%20from%20Tubbs%20Island%20Final%20SI.pdf; https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/4828977286/Pages%2061-111%20from%20Tubbs%20Island%20Final%20SI.pdf
3. Office of Environmental Health Hazard Assessment. "Census Tract: 6097150100." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/>

CASE STUDY 45: United Heckathorn**Location:¹****Address:** 8th & Wright

Richmond, CA 94804

Proximity to Bay: On Shoreline**Site Size:** 12 Acres**Site Overview:¹****Status:** Active**Site Type:** Federal Superfund**Facility Type:** Shipyard**Oversight Agencies:** DTSC, USEPA**On the National Priorities List:** Yes**Years of activity:** 1940-1960s**Type of Contamination:** Sediment, Soil**Contaminants of Concern:¹**

- DDD, DDE, DDT
- Dieldrin

Site History:²

"The United Heckathorn Co. Superfund site is located on the eastern shore of San Francisco Bay in an industrial area of the City of Richmond, California, and consists of two adjacent areas: an



upland area with contaminated soils, and a marine area with contaminated sediments in harbor channels, including Lauritzen Channel, Parr Canal, Santa Fe Channel, and Richmond Inner Harbor. From the mid-1940s to the mid-1960s, several companies used the site to process, package, and ship pesticides, particularly with dichlorodiphenyltrichloroethane (DDT). Poor management and housekeeping practices during the site's use as a pesticide processing facility released contaminants of concern (DDT and dieldrin) to upland soils and sediments.”²

Site Remediation and Status and Overview of “Clean Up”:²

“The U.S. Environmental Protection Agency (EPA) listed the site on the National Priorities List or Superfund list in 1990, which allows funds to begin an investigation to develop a remedy for the site. On October 26, 1994, EPA, with a robust public comment process, selected a remedy that consisted of capping the contaminated upland soils and dredging and offsite disposal of contaminated marine sediments.”²

All according to EPA's overview of clean-up activities:

Upland Area: “Construction of the concrete cap at the upland area began in July 1998 and was completed in July 1999. Over most of the 5-acre cap, the cap is made of reinforced concrete; a geotextile fabric and gravel cap in the railroad track area. The cap design included installation of a drainage system to collect surface runoff, including best management practices for stormwater pollution prevention. The Record of Decision (ROD), however, does not set a remediation level for stormwater discharge from the upland cap area. Prior to May 2014, site stormwater discharges went to the publicly owned treatment works. In response to third-party litigation regarding stormwater violations, Levin Richmond Terminal installed an on-site treatment system in 2014, at a central location on the western edge of the upland area. Stormwater from five interceptors is now pumped to this treatment system, which uses flocculation, settling, and sand filtration to remove contaminants. Influent and effluent to the treatment system is sampled monthly. In accordance with the discharge permit, treated stormwater is then discharged to the Lauritzen Channel via an outfall at the western edge of the upland area. Pursuant to the ROD, on August 2, 1996, the property owner of the upland area recorded an environmental restriction covenant, which limits the property to non-residential use.”²

Marine Area: “Sediment dredging of Lauritzen Channel and Parr Canal at the marine area began in August 1996 and was completed in March 1997. Montrose Chemical Corporation of California, Inc. performed the remedial action. Approximately 107,000 cubic yards of sediment was transported by rail from the site and disposed of at designated disposal facilities. After completion of the dredging operation, sediment samples were taken at the dredging area to confirm that the remedial action had been effective. An average of 18 inches of clean sand was placed over the dredged areas for the purpose of site restoration.”²

Five-Year Reviews: “EPA has conducted several five-year reviews of the site's remedy. These reviews ensure that the remedies put in place protect public health and the environment, and function as intended by site decision documents. The most recent review in 2016 concluded that response actions at the upland area of the site are in accordance with the remedy selected by EPA and that the remedy continues to be protective of human health and the environment. Capping of contaminated soil has

eliminated human exposure pathways and prevented erosion. Routine inspection and monitoring assure the protectiveness of the upland remedy at the Site. Continued protectiveness of the remedy requires routine inspection and monitoring. The most recent review concluded that response actions at the marine area of the site are not protective because concentrations of DDT and dieldrin in sediment, surface water, and tissue samples within the Lauritzen Channel have regularly exceeded the ROD remediation standards since 1999; and a re-evaluation of the risk to human health and the environment indicates that sediment in the Lauritzen Channel continues to pose a risk.”²

Future Plans:²

Also according to the EPA, “Sediment, surface water, and tissue data in the Lauritzen Channel continue to exceed remediation goals nearly twenty years after the remedy implementation. EPA is currently evaluating data and technologies to select a new remedy that addresses the remaining contamination in the Lauritzen Channel and prevents recontamination from occurring. In addition, EPA is currently participating in mediation with Potentially Responsible Parties on various site issues, in order to make progress towards selecting a permanent remedy.”²

Community Profile:^{3,4}

The Superfund site is located in Richmond Harbor, an inlet of the San Francisco Bay. “Richmond has the second lowest median income in the entire nine county Bay Area. Nearly 83% of Richmond's residents identify as people of color, a majority of whom suffer from health disparities caused by the myriad of environmental burdens throughout the community.”⁴

Census Tract #: 6013378000

Population: 3,327

CalEnviroScreen Percentile Score: 71

Pollution Burden Percentile: 92

Characteristics Percentile: 49

Notable Exposure Percentiles:

- Ozone: 4
- Diesel Particulate Matter: 87
- Particulate Matter 2.5: 36
- Traffic: 66
- Toxic Releases: 95
- Pesticides: 18
- Drinking Water: 4
- Lead from Housing: 40

Notable Environmental Effects:

- Cleanup sites: 99
- Groundwater threats: 99
- Hazardous waste: 100
- Impaired Waters: 90
- Solid Waste: 83

Sensitive Populations

- Asthma: 97
- Low Birth Weight: 70
- Cardiovascular Disease: 63

Notable Socioeconomic Factor Percentiles:

- Education: 23
- Linguistic Isolation: 38
- Poverty: 15

- Unemployment: 3
- Housing Burden: 28

Demographics/Community Profile:

- Race/Ethnicity:
 - 68% White
 - 18.5 % Hispanic
 - 3.9 % African American
 - 5.8 % Asian American
 - 3.8 % Other

1. Department of Toxic Substances Control. "United Heckathorn (07280015)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=07280015
2. United States Environmental Protection Agency. "United Heckathorn Co. Richmond, CA" *EPA Superfund*, <https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0902440>
3. Office of Environmental Health Hazard Assessment. "Census Tract: 6013378000." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee9ca67428e6184203/>
4. Lindsay, William. "CalEnviroScreen 3.0 Draft Comments." City of Richmond, Oct. 21, 2016, <https://oehha.ca.gov/media/downloads/calenviroscreen/comments/richmondcityofces30.pdf>

CASE STUDY 46: VWR Facility

Location:

Address: 3745-3775 Bayshore Boulevard, Brisbane, CA 94005

Proximity to Bay: ~328 feet

Site Size: 6.2 Acres

Site Overview:¹

Status: Active as of 8/14/2013

Site Type: State Response

Facility Type: Distribution facility

Oversight Agencies: RWQCB, San Mateo County LOP

On the National Priorities List: No

Years of activity: 1904- 2013

Type of Contamination: Groundwater, soil, soil vapor



Contaminants of Concern:¹

- Trichloroethane (TCA)
- 1,4-Dioxane
- Benzene
- Copper
- Dichloroethane (DCA)
- Dichloroethene (DCE)
- Diesel
- Lead
- Tetrachloroethylene (PCE)
- Trichloroethylene (TCE)
- Vinyl chloride
- Waste oil/motor/hydraulic/lubricating

- Zinc

Site History:^{1,2}

“Site Opened 8/14/2013. Previous site investigations identified soil impacts beneath the Parcel A building, which could be associated with damaged industrial waste and sewer lines. Petroleum hydrocarbons, metals, and low concentrations of chlorinated solvents have been reported in one soil sample collected beneath that building. Soil, soil vapor, and groundwater impacts have been identified beneath the Parcel B building, in the vicinity of former aboveground storage tanks and/or piping. Chlorinated ethenes, chlorinated ethanes, and petroleum hydrocarbons have been reported in soil, soil vapor, and groundwater samples collected from that area.”¹

Site Remediation and Status and Overview of “Clean Up”:²

According to the Semi-annual Post-remediation and monitoring report, “Univar/VWR has performed environmental investigation activities at the Site since 2013 with regulatory oversight provided by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB). Environmental investigations at Parcel A have focused on assessment of soil, soil vapor, groundwater, and indoor air conditions in the vicinity of the former VWR Chemical Handling Room, which consisted of three smaller rooms identified as the Chemist Room, Safe Storage Room, and Chemical Repack Room (Figure 3). Metals (associated with artificial fill and not associated with historical operations), petroleum hydrocarbons, and chlorinated volatile organic compounds (CVOCs) were identified in the subsurface beneath the former Chemical Handling Room. Previous environmental investigation results from activities conducted at Parcel A are summarized in the Draft On-site Remedial Investigation Data Summary Report (ERM, 2015). Following site investigation, remedial action activities were completed from March to September 2016. As detailed in the Final Parcel A Remedial Design and Implementation Plan (RDIP) (ERM, 2016), remedial action included soil source removal (excavation) and in-situ chemical reduction (ISCR) for impacted soil, soil vapor, and groundwater within the Parcel A target remediation area (TRA). The TRA was defined as the area containing soil, slab soil vapor, and/or groundwater concentrations (predominantly CVOCs and/or total petroleum hydrocarbons [TPH]) above risk based cleanup levels (RBCLs) (Figure 3). RBCLs were developed for Parcel A based on protection of human health and the environment, which include protection of the potential future beneficial uses of site resources (e.g., groundwater). Implementation of the remedial actions was subsequently documented in the Final Parcel A Remedial Action Implementation Report (RAIR) (ERM, 2017). Alyx Karpowicz, P.G. Semi-Annual Post-Remediation Monitoring Report September 27, 2019 2 A post-remediation monitoring program described in the RDIP includes monitoring slab soil vapor, groundwater, and indoor air to determine whether conditions meet the RBCLs (ERM, 2016). Slab soil vapor, soil vapor, groundwater, and indoor air are to be monitored semi-annually for a period of at least 3 years with analytical results documented in semi-annual monitoring reports and submitted to the RWQCB. Should conditions meet RBCLs at the end of the 3-year monitoring period, then the remediation at Parcel A would be deemed complete and site closure will be requested. If RBCLs are not attained at the end of the 3-year monitoring program, additional monitoring or remedial options may be recommended. As described in the RAIR, a baseline groundwater sampling event was conducted prior to remediation in March 2016. The first post-remediation semi-annual monitoring event was conducted in December 2016.”²

Future Plans:³

According to the 2022 Annual Estimate for SCP Cost Recovery Oversight for the Former VWR Facility, “Board staff estimates that the following work will be performed during fiscal year 2022/2023:

- Review technical work plans and reports, and monitoring reports;
- Conduct internal communications (i.e. meetings, memos, etc.) regarding project and written and telephone communications with discharger, its representatives and interested third parties as needed; and,
- Perform site inspections.

The following is the expected outcome of work that will be performed during the fiscal year 2022/2023:

- Review and respond to work plans, proposed cleanup plan for Parcel B, and monitoring reports;
- Maintain contact with other interested agencies and consultants; and,
- Perform occasional site inspections as needed”³

Community Profile:⁴

The site is located near Brisbane Lagoon and is located 0.3 miles away from Brisbane Elementary School. This community is subjected to high percentiles for cleanup sites (90th) and for hazardous waste (93rd). This community is also predominantly White (42.4%).

Census Tract #: 6081600100

Population: 5,051

CalEnviroScreen Percentile Score: 55

Pollution Burden Percentile: 85

Characteristics Percentile: 34

Notable Exposure Percentiles:

- Diesel Particulate Matter: 54
- Ozone: 8
- Particulate Matter 2.5: 25
- Traffic: 81
- Drinking Water: 63
- Toxic Releases: 38
- Pesticides: 35

Notable Environmental Effects:

- Cleanup sites: 90
- Groundwater threats: 88
- Hazardous waste: 93
- Impaired Waters: 77
- Solid Waste: 42

Sensitive Populations:

- Asthma: 47
- Low Birth Weight: 78
- Cardiovascular Disease: 23

Notable Socioeconomic Factor Percentiles:

- Education: 34
- Linguistic Isolation: 35
- Poverty: 15
- Unemployment: 10
- Housing Burden: 52

Demographics/Community Profile:

- Race/Ethnicity:
 - 17.1% Hispanic
 - 2.6% African American
 - 33.1% Asian American
 - 42.4% White
 - N/A % Native American
 - 4.8% Other

1. State Water Resources Control Board, "VWR Facility (Former)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report?global_id=T10000005054
2. White, Greg and Davis, Tim. "Semi-annual Post-remediation and monitoring report" *GeoTracker*, 27 September 2019, https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo_report/4792330265/T10000005054_PDF
3. Karpowics, Alyx. "Annual Estimate for SCP Cost Recovery Oversight for the Former VWR Facility, 3745 and 3775 Bayshore Blvd, Brisbane, San Mateo County" *GeoTracker*, 30 June 2022 [https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/9688504874/2020598_AEL%20FY22-23%20-%20Copy%20\(1\).pdf](https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/9688504874/2020598_AEL%20FY22-23%20-%20Copy%20(1).pdf)
4. California Office of Environmental Health Hazard Assessment. "Census Tract: 6081600100" *CalEnviroScreen 4.0*, October 2021 <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/page/Draft-CalEnviroScreen-4.0/>

CASE STUDY 47: Wildberg Brothers – Boliden Metech

Location:¹

Address: 349 Oyster Point Blvd.,
South San Francisco, CA 94080

Proximity to Bay: ~492 feet

Site Size: 5.5 Acres

Site Overview:^{1,2}

Status: Completed- CASE CLOSED
AS OF 3/21/2018

Site Type: Voluntary Cleanup

Facility Type: Metal Manufacturing

Oversight Agencies: DTSC, RWQCB

On the National Priorities List: No

Years of activity: 1907-1986

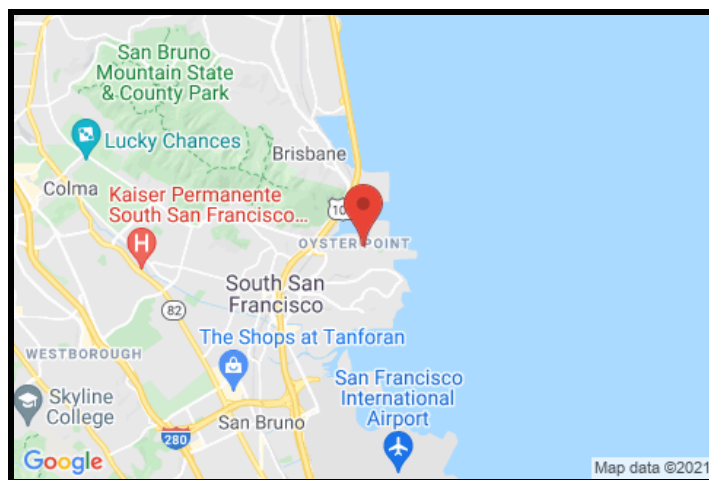
Type of Contamination: Soil

Contaminants of Concern:¹

- Antimony and compounds
- Arsenic
- Lead
- Mercury and compounds
- Nickel

Site History:¹

"The Wildberg Brothers Site, (aka Boliden Metech) is an abandoned metal reclamation plant which operated at this location between 1907 and 1986. The Site was reportedly used as an antimony smelting plant which operated for an unknown duration beginning in 1875. The Site was purchased in 1907 by the Wildberg Brothers Company who operated a metal reclamation facility. The operations included milling, sampling, assaying of scrap materials, electrolytic deposition of silver, cyanide stripping of gold, and copper concentration. Gold, platinum, palladium, silver and copper were recovered as finished products. Wildberg Brothers sold the facility to Refinement International (RMI) in 1980. RMI primarily used the facility for precious



metal scrap processing and refining. Stripping operations created a cyanide waste stream which was treated and discharged under permit to the sanitary sewer system. RMI sold the facility to Boliden Metech in 1983. Boliden used the facility primarily for precious metal scrap processing, but did not engage in refining operations at the Site. Operations conducted onsite consisted of material sorting, sampling, and assaying before the materials were containerized for shipment to Boliden facilities overseas for processing. Boliden processed approximately 5,000 pounds of spent cyanide stripping solution for gold recovery. The solution was pumped into a holding tank and zinc or aluminum was added to precipitate approximately 95% of the gold. The remaining solution was evaporated, mixed with silica, fired, and the remaining silicate solids were shipped overseas for further processing. Boliden discontinued all operations at the site in May 1986. All buildings on the site, with the exception of Building 1, the Office Building, Building 2, the Laboratory; and Buildings 11-12, the Melt Shop, and Mechanical Processing area, were demolished at that time. In 1980 overflow from the lagoon was observed spilling onto adjacent property owned by the Healy Tibbitts Construction Company. Sediment and groundwater samples taken by Healy-Tibbitts at that time showed no soil or groundwater contamination had occurred.”¹

Site Remediation and Status and Overview of “Clean Up”:^{1,2}

According to EnviroStor, “The lagoon/pond area was dredged and filled by Refinement International in 1981, under a dredging permit from the U.S. Corps of Engineers. In 1982 California Environmental Technology and Kaldveer Associates Inc. investigated soil contamination in the lagoon area. Based on the EPA report of the Healy Tibbitts site, and the confirmation samples taken by DHS on the Wildberg Brothers Site, DHS certified that all known areas of contamination on the site had been remediated in November 1987. The certification covered only those areas that DHS was able to sample, and did not include the areas which had been built over. In 1988 Boliden demolished the remaining buildings on the Site. The San Francisco Bay Regional Water Quality Control Board (RWQCB) required an investigation of possible groundwater contamination on the site. Kaldveer Associates then installed three monitoring wells on the Site, and reported concentrations of 8 parts per billion and 15 parts per billion of trichloroethene (TCE) in two of the wells.”¹

According to GeoTracker, “Approx. 412 cubic yards of contaminated soil was excavated from the site between October 9, 1997 and January 19, 1998. The impacted soil was transported offsite for treatment and disposal. The excavation was backfilled with clean soil and compacted.”²

Future Plans:²

In 1998, a closure/no further action letter was confirmed by the San Mateo County Health Services Agency. The case has been closed as of 2018. There are no site documents attached to Envirostor or Geotracker since 1998. The site is currently a 23 & Me facility.²

Community Profile:³

The site is located in Oyster Point, an urban neighborhood in South San Francisco. Oyster Point is a highly commercial area. Oyster Point Park and Marina are located next to the Wildberg Brothers site. Boarding the more commercial area of Oyster Point is the East Side neighborhood of South San Francisco. The census tract where this site is located has high levels of groundwater threats (100th percentile) and hazardous waste (100th percentile). The population is predominantly Hispanic (57.3%) and Asian (26.9%).

Census Tract #: 6081602300

Population: 4,196

CalEnviroScreen Percentile Score: 83

Pollution Burden Percentile: 95

Characteristics Percentile: 60

Notable Exposure Percentiles:

- Diesel Particulate Matter: 95
- Ozone: 8
- Particulate Matter 2.5: 33
- Traffic: 81
- Drinking Water: 54
- Toxic Releases: 38
- Pesticides: 0
- Lead from Housing: 80

Notable Environmental Effects:

- Cleanup sites: 99
- Groundwater threats: 100
- Hazardous waste: 100
- Impaired Waters: 87
- Solid waste: 97

Sensitive Populations:

- Asthma: 69
- Low Birth Weight: 53
- Cardiovascular Disease: 48

Notable Socioeconomic Factor Percentiles:

- Education: 61
- Linguistic Isolation: 58
- Poverty: 54
- Unemployment: 65
- Housing Burden: 43

Demographics/Community Profile:

- Race/Ethnicity:
 - 57.3% Hispanic
 - 3.5% African American
 - 26.9% Asian American
 - 0.2% Native American
 - 10% White
 - 2.1% Other

1. Department of Toxic Substances Control. "Wildberg Brothers (Boliden Metech) (41330049)." *CalEnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=41330049
2. State Water Resources Control Board. "Wildberg Brothers (T10000008176)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000008176
3. Office of Environmental Health Hazard Assessment. "Census Tract: 6081602300." *CalEnviroScreen 4.0*, October 2021, <https://experience.arcgis.com/experience/11d2f52282a54cee6184203/>

CASE STUDY 48: Yosemite Slough

Location:^{1,2}

Address: Intersection of Yosemite and Hawes, San Francisco, CA 94124

Proximity to Bay: On Shoreline

Site Size: 15 Acres

Site Overview:^{1,2}

Status: Active

Site Type: Federal Superfund

Facility Type: Human-Made Water Channel (Bordering HPNS)

Oversight Agencies: U.S EPA

On the National Priorities List: No

Years of activity: 1940- Present

Type of contamination: Sediment



Contaminants of Concern:¹

- Poly-chlorinated biphenyls (PCBs)
- Lead

Site History:^{1,2}

“Between 1940 and 1970, much of the Yosemite Slough’s perimeter was filled to create more useable land. This was done with materials like soil, crushed rock, construction materials and other waste. Before the 1980s, stormwater carried sewage into the slough. The fill materials, sewage and nearby industrial activity polluted the slough with a mix of harmful chemicals. These chemicals included poly-chlorinated biphenyls (PCBs) and lead. As a result, the site’s sediments are harmful to humans, animals and plants that contact or eat them.”²

Yosemite Slough is adjacent to Parcel F of the Hunters Point Shipyard Federal Superfund Site.¹

Site Remediation and Status and Overview of “Clean Up”:^{1,2}

According to the EPA, “Since the 1990s, several studies have been carried out to better understand the nature of the sediments and contamination in Yosemite Slough. Although a cleanup of property to the north of Yosemite Slough has been conducted, no cleanup actions have been taken to address contamination within the boundaries of Yosemite Slough. In December 2013, the EPA completed the Engineering Evaluation and Cost Analysis for Yosemite Slough which summarized the contamination and risks at the site and compared different approaches to cleaning up the contamination. The EPA issued an Action Memorandum in March 2014 that identified digging out contaminated sediments and placing clean materials in their place as the main parts of the cleanup approach. The Action Memorandum also noted that additional studies were needed to design a better cleanup action. Since 2016, the EPA has been working with various parties involved with the site to conduct these additional studies.”¹

EPA adapted their 2014 cleanup plan to add more clean material to other areas of the slough. The EPA has not started cleanup yet.²

Future Plans:²

According to the EPA Superfund Site profile for Yosemite Creek, the EPA expects that the studies noted in the Action Memorandum will be done in 2023. The EPA will use information from all the studies to draft a cleanup plan design by 2024. The EPA will coordinate the cleanup plan for Yosemite Slough with the cleanup plan the Navy is developing for Parcel F of the Hunters Point Superfund site. A legal agreement with one or more parties will be needed for cleanup to start that requires responsible parties to pay for the cleanup.²

Community Profile:³

This site is located between the Hunters Point Naval Shipyard and Candlestick Point in the Bayview-Hunters Point neighborhood, in southeast San Francisco. This community is predominantly Hispanic and African American. The high levels of asthma and low birth weight may be attributed to high levels of groundwater threats and solid waste in the community.

Census Tract #: 6075023200

Population: 3,972

CalEnviroScreen Percentile Score: 92

Pollution Burden Percentile: 88

Characteristics Percentile: 85

Notable Exposure Percentile:

- Ozone: 6
- Particulate Matter 2.5: 33
- Diesel Particulate Matter: 99
- Toxic Releases: 43
- Traffic: 12
- Pesticides: 24
- Drinking Water: 15
- Lead from Housing: 97

Notable Environmental Effects:

- Cleanup sites: 86
- Groundwater threats: 97
- Hazardous waste: 94
- Impaired water: 87
- Solid waste: 98

Sensitive Population Indicators:

- Asthma: 96
- Low Birth Weight: 97
- Cardiovascular Disease: 46

Notable Socioeconomic Factor Percentiles:

- Education: 74
- Linguistic Isolation: 63
- Poverty: 49
- Unemployment: 58
- Housing Burden: 97

Demographics/Community Profile:

- Race/Ethnicity:
 - 43.7% Hispanic
 - 10.1% White
 - 27.3% African American
 - 16.9% Asian American
 - 2% Other

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2. U.S Environmental Protection Agency Region 9 San Francisco. "Fact Sheet: Yosemite Slough Site Update." *EPA*, Apr. 2021, <https://semsspub.epa.gov/work/09/100023606.pdf>
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CASE STUDY 49: Zeneca Richmond AG Products

Location:

Address: 1415 South 47th St
Richmond, CA 94084

Proximity to Bay: ~656 feet

Site Size: 86 Acres

Site Overview:

Status: Active as of 11/6/2004

Site Type: State Response

Facility Type: Chemical
Manufacturing

Oversight Agencies: DTSC

On the National Priorities List: No

Years of activity: 1887-1997

Type of Contamination:

Groundwater, sediments, soil, soil vapor



Contaminants of Concern:¹

- Metals: Arsenic, Beryllium, Cadmium, Copper, Lead, Mercury, Nickel, Selenium, Zinc
- Organochlorine Pesticides
- Carbon disulfide
- EPTC (S-Ethyl dipropylthiocarbamate)
- Pebulate
- Polychlorinated Biphenyls (PCBs)
- Polynuclear Aromatic Hydrocarbons (PAHS)
- Sulfuric acid
- Volatile Organics

Site History:¹

Zeneca's use of the site included hazardous waste storage, such as tanks and containers, illegal dumping, the manufacturing of chemicals, pesticides, herbicides and fungicides, weapons research, industrial treatment facility, and wastewater ponds. All of these contaminants have adverse health effects and can harm the surrounding community.¹

"Historically, this site was divided into three main areas: the manufacturing plant area, the Western Research Center and the unimproved open space area. Stauffer Chemical Co., and later Zeneca Inc. manufactured sulfuric acid and pesticides at the site from the late 1800's until the late 1990's. Cherokee Simeon Ventures (CSV) purchased the 86 acre site from Zeneca Inc. in 2002 to develop the property. The property is divided into 6 areas, now known as Lots 1, 2, 3, East Stege Marsh (also referred to as the "marsh", habitat enhancement area 1 or Habitat Area 1), Habitat Enhancement Area 2 (or Habitat Area 2) and the Southeast Parcel. Lot 1 was developed

into commercial space and is now known as the Campus Bay Business Park. Lots 2 and 3 are currently undeveloped and were zoned for light and heavy industry uses. The City of Richmond General Plan 2030 rezoned the upland portions of Lots 1, 2 and 3 to /business/light industrial. Other areas were designated as open space. The City of Richmond approved the Richmond Bay Specific Plan in December 2016, which includes the Site. Collectively, Lots 1, 2 and 3 generally make up what is known as the Upland area. East Stege Marsh (Habitat Area 1) is located between Lot 3 and San Francisco Bay and underwent habitat restoration. The San Francisco Regional Water Quality Control Board (Water Board) was the lead environmental agency overseeing the restoration and cleanup of the entire Zeneca Site. However, in November 2004, the environmental regulatory oversight of the Upland Area (Lots 1, 2 and 3) was transferred to DTSC and oversight of the marsh area was transferred in May 2005. The changes were made based upon the experience and expertise of each regulatory agency.”¹

Site Remediation and Status and Overview of “Clean Up”:^{1,2}

Zeneca closed the site in 1997 and cleanup began in 1999 which Zeneca was responsible for outlining and paying for. The cleanup was overseen by the San Francisco Regional Water Quality Board (RWQCB), and this first effort lasted until 2002. Site structures were demolished, toxic soil was treated through limestone mixing and then capped, and contaminated soil was excavated and moved to a landfill. In addition, the RWQCB rescinded Zeneca’s National Pollution Discharge Elimination System permit which allowed the company to dump a specific amount of wastewater into the San Francisco Bay.²

In 2005, the cleanup was taken over by the California Department of Toxic Substances Control (DTSC). In 2008, the soil in the Lot 1 PCB/VOC area was found to have elevated levels of PCBs and VOCs, and was excavated through the Removal Action Workplan.²

In December 2016, the Richmond City Council adopted the Richmond Bay Specific Plan (RBSP), to support residential development along Richmond’s South Shoreline (which includes the Zeneca Site).¹

After a period of back and forth negotiations and decisions regarding whether the remaining toxic waste at the Zeneca site would need to be cleaned before the development, the Richmond City Council retracted their endorsement of a cleanup and with this, voted to allow over 98% of the toxic materials to be left underneath the proposed high-density housing. This decision came along with the developers promising millions of dollars to local groups.²

Future Plans:²

In November 2020, Richmond voters elected a new council majority that supported a full cleanup, yet the lame duck majority still voted to leave the toxic material in place and build 4,000 housing units on top of it. Due to the toxic waste, no pre-schools, K-12 schools, or health or senior facilities will be allowed on the site.²

According to Carolyn Graves, a resident living near the Zeneca site, “Zeneca contaminants are leaving the site via documented groundwater plumes, and from the contaminants dumped into Stege Marsh as fill over the past 100 years. In particular, the half of Stege Marsh known as "Habitat Area 1" was an incomplete cleanup, stopped early as the Levine Fricke contractor was stopped before finishing when the Ridgway Rail breeding season started that year. They never returned to finish the cleanup. When they stopped the contaminant levels were higher at the bottom of the pit than those at the original surface. There are still high volumes of solid waste

remaining in the marsh, especially in the Zeneca area known as "Habitat Area 1", left buried in the early 2000's under a two foot cap of "clean" mud. The contaminants left in place include very high volumes of arsenic and sulfuric cinders, as well as high levels of pesticides, fungicides, and herbicides. The sulfuric cinders are particularly determinantal as they leach sulfuric acid which in turn mobilizes the arsenic and other metals such as lead, nickel, etc. The independent PEEIR studies by UC Davis in the late 1980s-early 1990s found Stege Marsh cordgrass and other aquatic plants transport the arsenic from below the clean mud and exudes it as salt where the arsenic, still harmful, can be eaten by wildlife or washed into the Bay waters. From there the arsenic can move with the tides, and contaminate near and far shorelines as well as aquatic life. Arsenic is colorless, odorless, and tasteless and absorbable through the skin as well via mouth; it is extremely toxic to both humans and wildlife, and is a known carcinogenic as well as causing other health problems. With the projected sea level and groundwater rise, transport of the remaining buried Zeneca hazards underground and into Bay waters and under neighboring properties will only worsen.

Community Profile:³

The site is just North of the Hoffman Channel and is between the San Francisco Bay Trail and Highway 580. The area surrounding the site is zoned for both residential and commercial uses. The site neighbors both the Panhandle Annex, Eastshore, and Marina Bay neighborhoods. This community is in the 100th percentile for cleanup sites and 98th percentile for hazardous waste facilities meaning it is one of the most contaminated communities in California. High levels of contamination likely contribute to the high occurrence of asthma within the population (99th percentile).

Census Tract #: 6013380000

Population: 5,931

CalEnviroScreen Percentile Score: 75

Pollution Burden Percentile: 74

Characteristics Percentile: 68

Notable Exposure Percentiles:

- Diesel Particulate Matter: 96
- Traffic: 68
- Drinking Water: 4
- Ozone: 3
- Particulate Matter 2.5: 37
- Toxic Releases: 77
- Pesticides: 0
- Lead from Housing: 25

Notable Environmental Effects:

- Cleanup sites: 100
- Groundwater threats: 91
- Impaired Water Bodies: 93
- Hazardous waste: 98
- Solid Waste: 0

Sensitive Population Indicators:

- Asthma: 99
- Low Birth Weight: 55
- Cardiovascular Disease: 72

Notable Socioeconomic Factor Percentiles:

- Education: 33

- Linguistic Isolation: 43
- Poverty: 51
- Unemployment: 77
- Housing Burden: 34

Demographics/Community Profile:

- Race/Ethnicity:
 - 23.1% Hispanic
 - 23.6% African American
 - 19.2% Asian American
 - 27.4% White
 - 6.3% Other
 - 0.5% Native American

1. Department of Toxic Substances Control. "Zeneca Richmond AG Products (07280002)." *EnviroStor*, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=07280002
2. Janis Hashe, "The Fight to Clean Up Another Richmond Brownfield: East Bay Express: Oakland, Berkeley & Alameda," *East Bay Express* | Oakland, Berkeley & Alameda, July 25, 2018, <https://eastbayexpress.com/the-fight-to-clean-up-another-richmond-brownfield-2-1/>.
3. Office of Environmental Health Hazard Assessment. "Census Tract: 6013380000." *CalEnviroScreen 4.0*, October 2021. <https://experience.arcgis.com/experience/11d2f52282a54cee6ac7428e6184203/>

CASE STUDY 50: Zoecon/Rhone-Poulenc

Location:¹

Address: 1990 Bay Road East Palo Alto, CA 94303 San Mateo County

Proximity to Bay: ~656 feet

Site Size: 26 Acres

Site Overview:¹

Status: Open- Long Term

Management- as of 6/9/2020

Site Type: Federal Superfund

Facility Type: Manufacturing- Pesticides

Oversight Agencies: RWQCB (lead)

On the National Priorities List: Yes

Years of activity: 1929- Present

Type of Contamination: Soil and Groundwater

Contaminants of Concern:^{1,2,3,4}

- Metals: Arsenic, Antimony, Cadmium, Lead, Mercury, Selenium
- Halogenated Organic Compounds
- Halogenated Solvents
- Hydrocarbon Solvents
- Organic Liquids (Nonsolvents) with Halogens
- Organic Monomer Waste, Including unrated resins
- Oxygenated Solvents
- Resins: Oxygenated solvents, Pesticides- Wastes from Production, Waste Oil & Mixed Oil



Site History:⁵

“The approximately 26-acre site is comprised of several individual properties and is defined to include areas with arsenic concentrations in soil greater than 20 milligrams per kilogram (mg/kg) of undried (wet) soil and sediment (Figure 2). The site includes the 1990 Bay Road property, which is the location of the former operating facility and the source of the arsenic contamination. The remainder of the site includes partly developed commercial properties to the north, south, and west; residential and mixed-use properties to the south; and 1.9 acres of tidal wetland located beyond the levee east of the 1990 Bay Road property.

The 1990 Bay Road property was originally used to formulate agricultural chemicals. From the 1920s until 1964, the property was owned by Chipman Chemical Company (Chipman) and used for manufacturing arsenic-based products, such as weed control compounds. In 1964, Rhodia Inc. (Rhodia), acquired Chipman and continued operations at the property until the late 1960s. In 1971, Rhodia sold the property to Zoecon Corporation (Zoecon), which began operations in 1972, after expansion of site facilities. Zoecon, which later became Sandoz Agro Inc. (Sandoz), manufactured biorational insect controls at the agrichemical facility. In 1978 Rhodia changed its name to Rhône-Poulenc Inc. (Rhône-Poulenc). In 1994, Rhône-Poulenc repurchased the real property from Sandoz. Catalytica, Inc. (Catalytica) purchased some of the property improvements from Sandoz and leased the real property from Rhône-Poulenc for use in the manufacturing of chemicals and pharmaceutical intermediates. Rhône-Poulenc became Aventis CropScience USA Inc. in 2000. Catalytica ceased operations in mid-2001. In 2001, the property and facility ownership were transferred to SLLI (Star Link Logistics Inc). SLLI is owned by Aventis Agriculture and Hoechst GMBH, both of which were wholly owned by Aventis S.A. Sanofi-Synthelabo purchased Aventis S.A. in 2004 and merged to create Sanofi-Aventis S.A., which later was renamed Sanofi S.A. Aventis Agriculture and Hoechst GMBH are wholly owned subsidiaries of Sanofi S.A.

The plant and office facilities were demolished in the spring of 2002 to facilitate site cleanup work. The 1990 Bay Road property is now vacant, except for an empty warehouse structure adjacent to Bay Road. A construction contractor leases the paved areas of the property as a support area to their nearby construction project, to store materials and for remote employee vehicle parking.”⁵

Site Remediation and Status and Overview of “Clean Up”:^{2,5}

According to a 5-year status report from 2019, “Remedial activities began at the site in 1981, when an initial investigation of the extent of arsenic in soil and groundwater was conducted. The RWQCB issued Cleanup and Abatement Order 82-001 dated 15 April 1982 requiring, in part, that Zoecon and Rhone-Poulenc institute a sampling and analysis program to determine extent of contamination of soil, surface water, and groundwater with heavy metals and organic compounds. In 1985, the site was proposed for inclusion on the National Priorities List (NPL) under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Also in 1985, the California Department of Health Services (DHS) issued Sandoz, the Facility owner and operator at the time, a permit to store and treat hazardous waste under the U.S. Environmental Protection Agency’s (U.S. EPA’s) Resource Conservation and Recovery Act (RCRA) authority (permit No. CAT000611350). In 1989, U.S. EPA formally removed the site from consideration for the NPL... From 1987 to 1991, the site was under the jurisdiction of DHS, which later became the Department of Toxic Substances Control (DTSC), pursuant to a Consent Order between DTSC, the RWQCB, and Rhône-Poulenc. Lead agency status changed in January

1991 to the RWQCB and the provisions of the Consent Order were vacated by stipulation, except those referencing cost recovery.”⁵

On June 19, 1991, 38 tons of contaminated soil was excavated from the site. Then on February 22, 2022, 45 tons of soil underwent physical and chemical treatment.²

“A Record of Decision (ROD) was issued by the U.S. EPA for the Upland OU in March 1992 (U.S. EPA, 1992), and the selected remedial actions were incorporated into Order No. 92-022. In 1994, Order No. 94-042 modified the boundaries of the Upland OU to incorporate the Upland OU Annex. Order No. 94-042 served as an explanation of significant difference, thereby amending the ROD to include the Upland OU Annex, which included the Non-tidal wetland portion of the adjacent PG&E property and the Torres property. In 1997, remedial actions for the South of Weeks Subarea were required by Order No. 97-095. Order No. 97-095 also served as an explanation of significant difference, thereby further amending the ROD to include the South of Weeks Subarea... A portion of the tidal marsh comprises the Wetland OU. Order No. 92-127 required an Ecological Assessment of the tidal marsh, which was finalized in 1998. A Feasibility Study was prepared for the Wetland OU in 2005, which was finalized in 2007 (Geomatrix and SSP&A, 2007). Order SCR-R2-2005-0033 for the Wetland OU was adopted in 2005... In 2009, the United States Department of Justice, on behalf of the U.S. EPA and the Department of the Interior, entered into a Consent Decree with SLLI to, among other things, release and agree to a covenant not to sue with SLLI with respect to Natural Resource Damages (NRD) claims relating to the site... Site investigation and cleanup activities have been ongoing at the site since the early 1980s and substantial remedial activities have been implemented and completed for the site. Since that time, the RWQCB has adopted several orders to regulate investigation and cleanup activities. In 2016, the RWQCB issued Order SCR-R2-2016-0037, which superseded and rescinded the previous orders for the site and compiled a comprehensive set of tasks for ongoing remedial measures, long term monitoring, and management of the site. The selected remedies were not changed by the new order.”⁵

Future Plans:⁶

“The 1990 Bay Road and 1175 Weeks Street properties are now being considered for developments into commercial/office space. To manage residual pollution during the development process, the Construction RMP has been developed as an addendum to the CSMP. The Construction RMP sets forth risk management protocols that will be required for the management of pollutant-impacted soil and groundwater during construction/development activities. Following the completion of construction, an additional addendum to the CSMP will be prepared to address post-development conditions on the 1990 Bay Road and 1175 Weeks Street properties.”⁶

Community Profile:⁷

The facility is located in East Palo Alto next to Cooley Landing Park. The surrounding area is a mix of industrial and residential zones, with over half of residents of Latino heritage (56.3%). There are a high number of groundwater threats in this community (98th percentile).

Census Tract #: 6081611900

Population: 10,333

CalEnviroScreen Percentile Score: 79

Pollution Burden Percentile: 87

Characteristics Percentile: 63

Notable Exposure Percentiles:

- Diesel Particulate Matter: 55
- Traffic: 73
- Lead from Housing: 75
- Drinking Water: 69

Notable Environmental Effects:

- Cleanup sites: 86
- Groundwater threats: 98
- Hazardous waste: 72
- Solid Waste: 80

Notable Socioeconomic Factor Percentiles:

- Education: 84
- Poverty: 48
- Unemployment: 9
- Housing Burden: 65

Demographics/Community Profile:

- Race/Ethnicity:
 - 56.3% Hispanic
 - 13.4% Black
 - 7.2% Asian American
 - 8.6% Pacific Islander
 - 10.3% White
 - 4.1% Other

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2. State Water Resources Control Board. "1990 BAY ROAD SITE - COMPREHENSIVE SITE (ALL AFFECTED PROPERTIES) (SL0608148082)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL0608148082
3. State Water Resources Control Board. "1990 BAY ROAD SITE - UPLAND OPERABLE UNIT AND ANNEX (T10000010289)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000010289
4. State Water Resources Control Board. "1990 BAY ROAD SITE - WETLAND OPERABLE UNIT (T10000010290)." *GeoTracker*, https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000010290
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