



FY 10 CHIEF OF NAVY OPERATIONS ENVIRONMENTAL AWARDS ENVIRONMENTAL RESTORATION – INSTALLATION Hunters Point Naval Shipyard

NARRATIVE

INTRODUCTION

The Navy's mission at Hunters Point Shipyard (HPS) is to cleanup shipyard contaminants to make the property available for transfer and productive reuse. HPS works diligently to involve the regulatory agencies, local community, and redevelopment agencies to expedite the restoration. HPS operated as a naval shipyard from 1939 to 1974. It remained relatively unused until 1976. At that time, most of HPS was leased to a private ship-repair company, which operated for 10 years. The Naval Radiological Defense Laboratory (NRDL) and its predecessors operated at the shipyard from 1946 to 1969. There are currently no military personnel on the site. The San Francisco Police Department leases a building that houses a crime lab and employs approximately 25 civilian personnel. America's largest artist community, The Point, leases space at the shipyard that supports about 100 local artists.

Environmental Setting

HPS is located along California's coast in southeastern San Francisco. It is located within the Hunters Point Shear Zone, consisting of serpentine rock naturally high in manganese, arsenic, and asbestos. The shipyard was expanded during the 1940s and 1950s by reclaiming tidelands through cut and fill operations. HPS included a total of 936 acres; 493 acres on land and 443 acres beneath San Francisco Bay. Seventy-six acres were transferred in 2004.

HPS is a peninsula bounded by the Bayview/Hunters Point neighborhood and San Francisco Bay.



Over half of all land zoned for industrial use in San Francisco is located in the Bayview/Hunters Point neighborhood.

Community Aspects

San Francisco and the surrounding Bay Area communities are politically and environmentally active. The neighborhood is culturally diverse. The 2000 census shows a residential population of 4,815 within a 1-mile radius of HPS. The population is 70% African American, 10% Pacific Islander, 9% Hispanic, and 7% Asian. The median household income is \$34,246 and the median age is 24 years.

The Bayview neighborhood has higher unemployment and smaller incomes than other parts of San Francisco. Realizing this, the Navy has become part of the neighborhood, developing guidelines, and

working within existing programs to ensure local small businesses and residents have the opportunity to take part in the cleanup.

Early Transfer

The Navy is also working with the San Francisco Redevelopment Agency (SFRA) for a potential early transfer of Parcels B and G to help stimulate redevelopment. The City of San Francisco requested an early transfer to allow construction of a new football stadium for the San Francisco 49ers, and to expedite development of affordable housing and commercial businesses. With an aspect of the cleanup remedy requiring a parcel-wide cover, it is more effective and efficient to combine that effort with redevelopment. Hunters Point has both a Record of Decision (ROD) and Remedial Design in place for both parcels making it much easier to quantify the effort and cost, a typical stumbling block for many early transfer efforts. For the early transfer to succeed, 1) all radiological cleanup in soil and buildings must be complete; 2) we must complete as much remediation as possible should be completed to reduce the cost of early transfer; and 3) we must conduct a parcel-wide soil vapor survey must be performed. The efforts applied to early transfer accelerate cleanup and provide a boost to the local redevelopment and economy.

BACKGROUND

Disposal practices, spills, and releases from shipyard operation are responsible for numerous environmental problems.

Contaminants include industrial cleaning solvents, fuels, oils, metals, radioisotopes and materials posing potential explosive hazards (MPPEH). Radiologically impacted sites include 52 building or former building sites; 6 dry docks; 8 IR sites; all ships'

berths; 5 Piers; 34-miles of sanitary and storm drain system, nearly 150 outdoor/open areas, and the offshore sediments comprising Parcel F. These sites were radiologically impacted based on their historical uses including: repair, use, and disposal of radio-luminescent dials, gauges, and deck markers, gamma radiography. In addition, releases may have occurred as NRDL conducted decontamination of and scientific research on ships present during atomic weapons testing, and scientific research on the effects of radioactivity on materials, plants, and animals.

The U.S. Environmental Protection Agency (EPA) placed HPS on the National Priorities List (NPL) in 1989. Cleanup is accomplished in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), which was amended by the Superfund Amendment and Reauthorization Act of 1986. In 1991, the Department of Defense listed HPS for closure as part of the Base Realignment and Closure (BRAC) program. After cleanup, the property will be transferred to the SFRA.

Challenges

- The cleanup area is massive with more than 860 acres remaining.
- Large-scale, heavy industry associated with ship repair was conducted by the Navy from 1939 to 1974 and from 1976 to 1986 by Triple A Shipyard, a private shipyard that filed for bankruptcy in 1986.
- The presence of radionuclides and the proximity to San Francisco Bay add additional levels of difficulty to the cleanup by requiring innovative methods and coordination with additional regulatory agencies.

- The shipyard is the first naval facility in California to request a “restricted release”, acknowledging that some radiological waste is left in place protected by a clean soil cover.
- The community is concerned about environmental justice, and can be very vocal and aggressive. The Restoration Advisory Board (RAB) was dissolved after several years of ineffective community meetings. Newly-formatted monthly meetings are held in lieu of RAB meetings, complemented by an extensive community outreach program.

Program Management

Regulatory agencies and the Navy’s support offices are involved in the shipyard restoration. The HPS Base Closure Team (Navy, U.S. EPA, California Department of Toxic Substances Control, and California Water Board) hold monthly meetings to help manage and administer the cleanup.

The Radiological Affairs Support Office (RASO) and Naval Ordnance Safety and Security Activity (NOSSA) assist on specific projects. The National Marine Fisheries, National Oceanic and Atmospheric Association, San Francisco Bay Conservation and Development Commission, and the U.S. Army Corps of Engineers are involved in restoration activities within the tidal zone and Bay.

The regulatory agencies are often present during fieldwork and share their expertise with the Navy and their contractors. The trust developed among team members accelerated the approval of work plans and seven decision documents during FY 2009-2010.

The Navy, regulatory agencies, and SFRA closely track cleanup progress. The cleanup

schedule and program milestones are detailed in a Site Management Plan. It is reviewed monthly and updated as needed.

Significant Plans and Documents – FY 2009 - FY2010

Final cleanup actions were selected at seven parcels after successfully completing investigations and treatability studies. This accounts for over 55 percent of the terrestrial property remaining to be transferred and represents significant progress toward the Navy’s mission. The Records of Decision (ROD) during the award period include:

Parcel B Amended ROD - (54 acres)

Parcel C ROD - (74 acres)

Parcel D-1 ROD - (49 acres)

Parcel D-2 ROD- (5 acres)

Parcel G ROD- (40 acres)

Parcel UC-1 ROD- (4 acres)

Parcel UC-2 ROD- (4 acres)

Community Involvement

While the RAB was dissolved in 2009, the BCT holds monthly community meetings to discuss the cleanup progress and address community questions and concerns. The Navy has also provided updates to local faith-based groups, neighborhood improvement, school, and cultural groups, such as the Chinese-American community.

For over seven years, the Navy has maintained a partnership with Young Community Developers (YCD) providing vocational training and employment, chiefly as part of the Groundwater Monitoring and Radiological Cleanup Programs. Using this experience as a springboard, several YCD

personnel have gone on to accept employment with local engineering and construction firms.

“YCD is an integral part of the Groundwater Monitoring Program. Since 2004, four to six YCD personnel have been paired with a Navy contractor to collect critical groundwater data. “Our confidence in the YCD personnel has led us to hire two individuals as permanent Kleinfelder employees.” - - Gary Goodemote, Kleinfelder, Inc., Dec. 2010.

The Navy also partners with the San Francisco Mayor’s program called City Build. The program trains local low-income students in environmental restoration for six months. The Navy has assisted in the classroom and the Navy’s contractors have hired 18 graduates to assist in the cleanup. The Navy also developed guidelines to encourage local small businesses to take part in the cleanup effort. Notable participants include trucking, equipment rental, and engineering services.

PROGRAM SUMMARY

Objectives and Degree of Success

The team has:

- 1) Selected and implemented final cleanup remedies at seven parcels;
- 2) Prioritized sites for cleanup considering their degree of contamination and schedule for reuse;
- 3) Continued removal actions adjacent to San Francisco Bay to remove contamination with potential to adversely affect the Bay; and

4) Achieved free-release of over 90% of the radiological buildings on Parcels B, G, and D-2.

Progression from Studies/Investigations to Cleanup

Successful investigations led to finalization of seven RODs during the last two years. For example, previous pilot studies showed that injecting zero-valent iron (ZVI) can destroy chlorinated solvents and stimulate bioremediation more effectively and for a smaller cost than many other technologies. The remedial actions at Parcels C and G make use of this technology. Other remedies use durable soil or asphalt cover (i.e., sidewalks and parking lots) such as that found in an urban environment to prevent contact with soil contaminants.

Prioritizing Sites for Reuse

Parcels B, D-1, D-2, G, UC-1 and UC-2 are scheduled for transfer to SFRA within 2 years. Accelerated cleanup was possible due to congressional plus-ups of \$68M over fiscal years 09-10.

Removal Actions Adjacent to San Francisco Bay

The second stage of a highly successful removal action to remove PCBs is currently underway. This action removes the source of PCBs that may wash into SF Bay. Beach sand replaced at the culmination of Parcel E removal actions in 2004 (metal debris, slag, and burn waste) continues to be stable and provides restored habitat for a variety of seabirds and seals.

Innovative Cleanup - Zero-Valent Iron

HPS helped pioneer the use of ZVI injection to permanently destroy chlorinated solvents in groundwater (more than 95% reduction). Since first tested in 2002, the results have been transferred to other DoD facilities, NASA, and the private sector. Testing at Parcel G effectively eliminated the groundwater contamination saving the Navy \$1M in clean up costs.

On-site Radiological Laboratory

The Navy operates a state-of-the-art, on-site radiological laboratory to expedite cleanup. After successfully demonstrating the lab's QA/QC procedures, the regulatory agencies endorsed the lab. Most data are available for review after only 7 days compared to 21 days for a commercial lab.



Zero-valent iron injection work at HPS

Adopting the TRIAD Concept

HPS applied the TRIAD concept to an ongoing groundwater monitoring program. The new program saves approximately \$1M per year through increased efficiency, using modern equipment and technology, and embracing the TRIAD concept to emphasize flexibility and anticipate changes in site conditions.

As data becomes available, it is reviewed by the Navy and regulatory agencies. The

groundwater program can be modified on a quarterly basis to adapt to any changes in site conditions. Using this new approach, the Navy increased productivity, efficiency, and reliability and reduced materials usage and overall program cost.

Based on the groundwater program success, the TRIAD concept was applied to all fieldwork. This technique has streamlined data-gathering and decision-making, reduced field mobilizations, and has saved 3 to 5 months on each project.

Parcel B Final Remedial Action

Working closely with RASO and the regulatory agencies, the final remedial action was constructed at Sites 7 and 18 in Parcel B. It included radiological screening, 2 to 3 feet of clean soil cover and over 1,000 feet of revetment along the San Francisco Bay shoreline.



Pre-existing Parcel B shoreline (above) and restored shoreline (below).



Over 2,000 cubic yards of shoreline debris was removed and replaced with natural riprap stone. Concrete was recycled as temporary shoreline revetment at another site. Metal debris was radiologically cleared for reuse and recycled by a local metal salvage company.

Fill soil and rip rap were transported to the site by barge, thereby reducing truck traffic in the local community by over 100 trucks per day.



Fill soil is barged to the shipyard and unloaded at Dry Dock 3

PCB Hot Spot Removal Action

During Phase I of the removal action, over 50 waste drums and over 700 containers were excavated and disposed. Waste material included free-phase oils, PCBs, lead and radio-luminescent devices. Over 44,000 cubic yards of soil were removed.

During Phase II, another 37,000 cubic yards of contaminated soil will be removed. In addition to radio-luminescent devices, ordnance scraps were also discovered in the excavation, so further work is being coordinated with RASO and NOSSA. This removal action prevents PCBs and other contaminants from washing into SF Bay.



The PCB removal action has removed vast amounts of contaminated soil, debris, waste drums and containers.



This shows continued progress of the PCB removal action. A section of restored beach can be seen in the background

Soil Vapor Intrusion Survey

A soil vapor intrusion survey was conducted on Parcels B and G to identify potential exposure from vapors emanating from contaminated soil and groundwater. The survey results are integral to identifying the potential need for soil/groundwater remediation or other engineering controls.

Radiological Removal Actions

Cleaning the largest radiologically impacted Navy site in the country is a formidable task. A modernized on-site radiological laboratory supports the restoration. Radiological screening pads are used to

identify any radiological contamination in excavated soil.

There are currently 77-1000 square meter (1,000m²) soil screening pads. Vehicle Towed Arrays use a radiation detector array mounted behind an all-terrain vehicle to scan wide areas and produce maps using integrated GPS technology to indicate areas of increased radiological activity.

Over 14 miles of drain line has been removed and 140,000 cubic yards of soil have been screened. Twenty-five buildings have been surveyed and cleaned.

To support no further action, a “cradle-to-grave” data management system was developed that integrates results from radiological surveys, tracking of excavation results, soil remediation activities, waste characterization, backfilling and site restoration. A vast amount of concrete and asphalt is removed before drain lines are excavated. This material is recycled commercially or crushed and reused on-site.



Soil is tested for residual radioactivity and cleared for reuse or disposal



On-site asphalt recycling



Working with the regulatory agencies, local government and the community, the Navy has made significant progress in realizing its mission to clean up and transfer HSP for reuse.