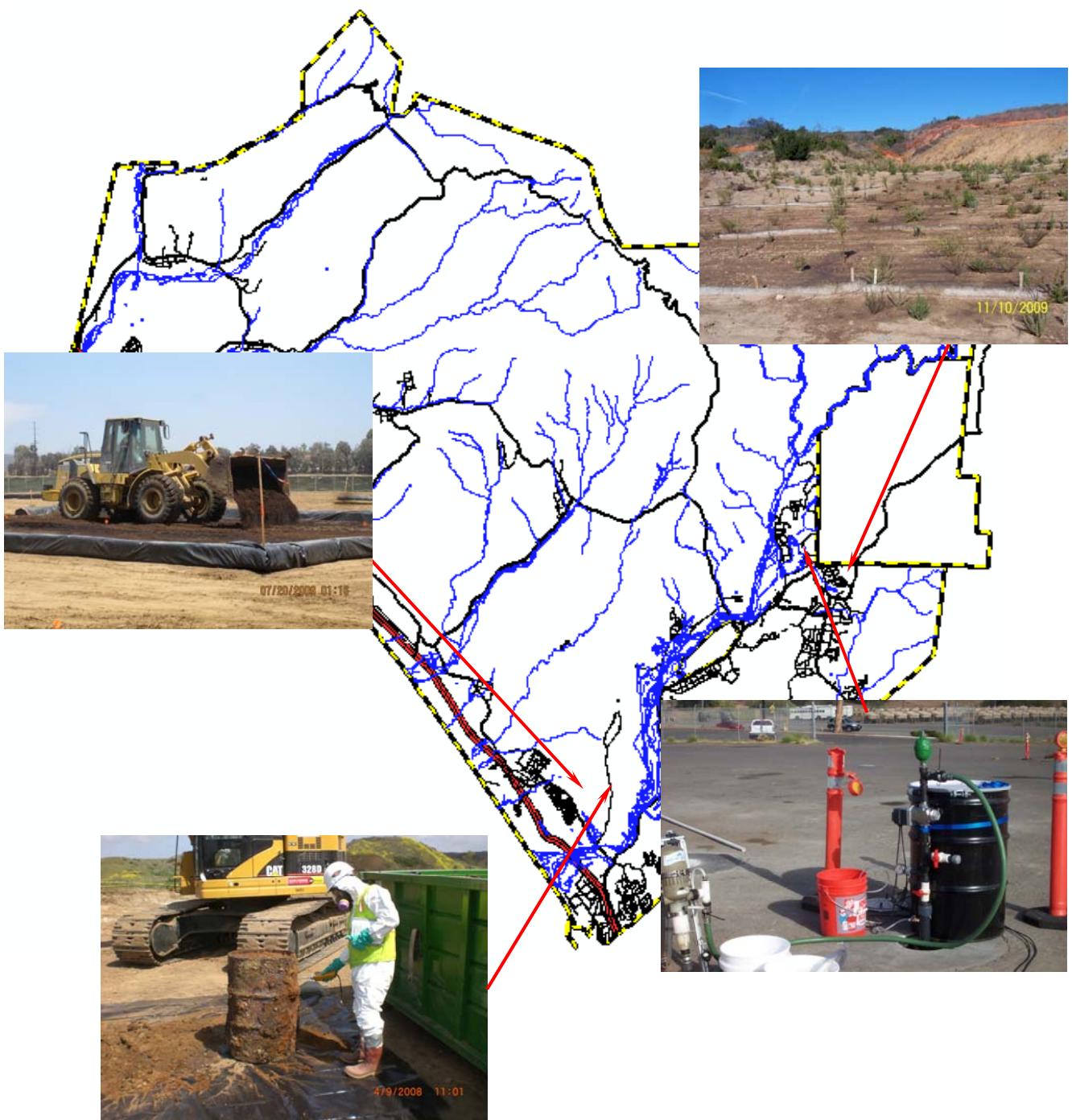


FY 2009 Secretary of Defense and Secretary of the Navy Environmental Award Nomination Environmental Restoration - Team Marine Corps Base Camp Pendleton



INTRODUCTION



Marine Corps Base (MCB) Camp Pendleton is the Marine Corps' premier amphibious training base, and the only West Coast military installation where comprehensive air, sea, and ground assault training can be executed. Several major commands and tenant organizations call Camp Pendleton home. Marine Corps Air Station Camp Pendleton (an autonomous command within the Base boundaries) provides much of the air support with a full service air facility capable of handling both rotary and fixed-wing aircraft. The U.S. Navy's Assault Craft Unit Five (ACU-5) offers high speed transfer of personnel, equipment, and supplies from ship to shore with a fleet of 36 landing craft air cushion. The Base's primary mission is to "...train Marines to win wars." Purchased in 1942 for \$4.2 million, Camp Pendleton encompasses roughly 125,000 acres with 17.2 miles of undeveloped coastline. Located just 38 miles north of San Diego, the Base maintains the longest stretch of undeveloped coastline and the only free flowing river in Southern California. The Base has a peacetime active duty population of approximately 38,000 Marines, sailors, and soldiers and an estimated civilian workforce of 4,000 federal employees and 2,500 civilian contracted employees. Camp Pendleton is arguably one of the busiest DoD installations with an average daytime population exceeding 60,000 personnel and contributes roughly \$1.2 billion annually to the local economy. More than 17,000 military dependents call Camp Pendleton home, residing in more than 6,600 housing units. In addition to its military value, the Base is a biological haven where multitudes of flora and fauna thrive. Over 450 species of wildlife, including birds, fish, reptiles, and mammals reside on the Base during all or part of the year. The Base provides special management for 12 federally endangered and four federally threatened species.



BACKGROUND

MCB Camp Pendleton and Naval Facilities Engineering Command Southwest (NAVFAC SW) teamed together to implement a successful Installation Restoration (IR) program.

Ms. Tracy Sahagun is the Resource Conservation and Recovery Act (RCRA) Division Manager for the Assistant Chief of Staff, Environmental Security at Camp Pendleton, California. Ms. Sahagun is responsible for managing both the RCRA and Comprehensive Environmental Response, Compensation and Recovery Act (CERCLA) programs for the Base. She manages these programs by balancing future land use needs for military training and environmental compliance obligations. Ms. Sahagun is currently pursuing her Leadership in Energy and Environmental Design accreditation and California Registered Environmental Assessor certification.

Ms. Theresa Morley is the lead Remedial Program Manager (RPM) for the Central Integrated Products Team at NAVFAC SW, serving the Marine Corps. Her responsibilities include managing the IR program for MCB Camp Pendleton and Marine Corps Mountain Warfare Training Center at Bridgeport, California. Her duties include managing funding, awarding and managing contracts, and coordination with the bases, regulatory agencies and other stakeholders with the goal of site closures and return of land use to military readiness. Ms. Morley holds a BS in Environmental Engineering and is a licensed Professional Engineer in California

for Civil Engineering. Ms. Morley was awarded the RPM of the Year award for NAVFAC SW in February 2008. She is also a member of the American Society of Mechanical Engineers.

ACCOMPLISHMENTS

During 2008 and 2009, the team's resourcefulness, dedication and innovative thinking provided for many successful accomplishments within Camp Pendleton's Environmental Restoration Program.

Accelerated Environmental Cleanup

The team developed a plan of action to cleanup 60 acres of former agricultural lands impacted by pesticides for development of new, Public-Private Venture (PPV) homes necessary to meet the expedited schedule in support of the Grow-the-Force (GTF) initiative. To accomplish this, the team worked with the contractor to spend some money up front on an intensive sampling regime, which led to better characterization and reduced the number of acres requiring cleanup from 60 to 10. The team also worked closely with the San Diego Regional Water Quality Control Board (RWQCB), making numerous phone calls and attending on-site meetings to explain the urgency of the project and secure two- to three-day reviews of work plans and reports. This teamwork allowed the contractor to complete an expedited cleanup of the ten contaminated acres in 6 months, the incredibly short timeframe required by the congressionally-mandated PPV schedule.



The impact on the numerous RCRA Facility Assessment (RFA) sites from planning and construction of GTF projects was one of the biggest challenges facing the team. There are very few cantonment areas that can be developed, so the density of GTF projects in the cantonment areas is intense.

To allow the Base to proceed with construction unhindered by land use controls (LUCs), the team formed an in-house/contractor partnership to evaluate the 99 RFA sites that were listed as open and prepared a report that documented the history, current status and recommendation for each of the sites. The team provided this report to the RWQCB and then visited each site with the Board to discuss the proposed recommendations. Because the Board was able to physically visit each site, review the information available, make decisions regarding the relative risk of each site, and discuss the recommendations and concerns with the team in the field, they agreed with 75 of the 99 recommendations for site closure. As a result, three quarters of the RFA program was granted closure with no land use restrictions, saving \$10M in future investigation and remediation costs, and allowing unrestricted use of the land for GTF projects.

The team developed protocol to be utilized in the site selection process for construction projects. This protocol assisted the Public Works Office in the selection of construction sites on or adjacent to IR sites and was instrumental for advance planning purposes to support the extensive amount of construction projects currently taking place. It reduced staff coordination time, streamlined the site approval process and is now being documented in environmental assessments and environmental impact statements. When it is determined that construction may be impacted by the presence of contaminated sites, this advance planning protocol is very useful in identifying funding requirements to expedite the cleanups.

Innovative Technology

The team spearheaded some exciting, new, innovative projects during the past two fiscal years. During the past two years, the team faced the daunting task of determining the source of multiple, dilute 1,2,3-trichloropropane (TCP) plumes that had required two Base drinking water production wells to be shut down due to contamination. The team signed a Military Interdepartmental Purchase request to have the U.S.

Geological Survey (USGS) scientists deploy their patented Combined Well-Bore Flow and Depth Dependent



Water Sampler to determine which geologic layer was contributing the contamination. The study exceeded all expectations. Not only did it obtain enough information to support installing the most-efficient screened intervals in future monitoring wells, it also provided information to propose remediation alternatives. The study was able to determine that in most of the wells, 50% of the groundwater flow was confined to a layer less than ten feet in height. The technology was transferable to the Base Office of Water Resources, which will use it when siting future production wells.

Another breakthrough technology that has tremendous potential for implementation is the work that Oregon Health and Science University has been doing to test zero valent zinc on 1,2,3-TCP in groundwater, a chemical that is very difficult to degrade. The technology performed very well in the lab and is now being tested in the field on Camp Pendleton's groundwater. The team worked with the Naval Facilities Engineering Service Center to integrate the needs of the Base for a potential remediation solution for their drinking water with the needs of the University and their contractor to find a suitable environment for bench-scale and field-scale testing.

The team also created and oversaw a treatability study to evaluate the effectiveness of different chemical and biological methods for remediating pesticide contaminated soil. The intention was to find an in-situ method of remediating the remaining 315 acres of the agricultural fields that will be converted to housing. While some of the technologies were able to reduce the concentrations of the most toxic pesticides at the site by half, the hundreds of millions of gallons of water that would be required to implement these technologies made them unattractive to the team. All of these projects will be briefed to other project managers at the Navy/Marine Corps IR Conference to be held during February 2010.



Under the oversight and management of the team, innovative measures were utilized to reduce restoration costs. During excavation activities, cost savings of \$21M from the costs projected by the investigation/remedy selection documents were realized by: chaining sites to eliminate mobilization/demobilization costs; using a greater percentage of small businesses with lower overhead; negotiating with the regulatory agencies to eliminate the backfill requirement at a couple of sites and restore the natural grade of the hillside; negotiating long-term contracts for equipment rental and transport/disposal to achieve cost efficiencies; and combining multiple required documents into one document organized internally by site.

Partnerships

The team's willingness to leverage the tremendous resources available to them is one of the reasons the IR program at Camp Pendleton is so successful. Between academia, contractors and other Navy and government resources, the team was able to make remarkable progress in assessing and cleaning up sites, often at little or no cost to the program. As mentioned above, the team made significant progress on the 1,2,3-TCP in drinking water by partnering with the USGS, Oregon Health and Science University, GeoSyntec and the Naval Facilities Engineering Service Center.

Navy and Marine Corps biologists, U.S. Fish and Wildlife Service, and state and federal risk assessors working in tandem with the team were able to determine that removal of the last two grids of lead contaminated soil at IR Site 30 would be more detrimental to the established, critical habitat and the federally listed endangered species than leaving the lead in soil. Through numerous conference calls, and

joint but independent risk calculations, the team convinced the regulatory risk managers that the risk had been reduced to an acceptable level, which allowed them to leave the soil in-place.



Transparency with the regulatory agencies has built an atmosphere of trust, and allows the Base to request expedited reviews when necessary. The team developed a deliverables spreadsheet that lets the agencies plan their workload, and notifies them when a deliverable will be late and why. The team also briefs the contents of work plans and reports at quarterly meetings with the agencies, before the documents are sent to them for review. This allows everyone the chance to voice concerns and issues and to resolve them before the contractor

spends time and money completing the draft. Briefing projects at this stage cuts down on review time and the number and severity of comments. Presentations are emailed to the agencies ahead of the meeting so the regulators have a chance to review the project and come to the meeting prepared with comments and questions.

The team met with the Environmental Protection Agency (EPA) and their counsel to provide an explanation of Camp Pendleton's processes to adequately maintain land use controls (LUCs). This meeting resulted in EPA's acceptance of our automated National Environmental Policy Act (NEPA) process, combined with the use of a Geographic Information System (GIS), as a tool to manage these sites. This eliminates the need to incorporate LUCs into the master plan, and eliminates the need to update the master plan as conditions change. It ultimately results in a cost savings to the Marine Corps. EPA has recommended that Camp Pendleton be a model for managing LUCs.

Community Relations

The team recently worked with a small business contractor to update the Community Involvement Plan. The community is generally supportive of the work done by the team. There is no active Restoration Advisory Board (RAB) since the community has stated in previous interviews that they have faith in the team and are too busy to meet, but would like to be kept informed via the newspapers or through the Base's website. When public notices or other public notification documents are sent out, the team takes out full page ads in both the Base newspaper and the local newspaper in addition to posting the documents on the website.

The team implemented a new outreach technique, to use online surveys to get input for the Community Involvement Plan update. The online tool Survey Monkey was used to notify people of the opportunity to complete the survey, and allowed them to do so at the time of day that was most convenient to them. Survey Monkey also allowed individuals to request a personal interview, if so desired, and no one did. This innovative approach eliminated the time consuming and sometimes fruitless process of setting up face-to-face interviews that impact people's busy lives. The positive response was overwhelming. People also commented that they felt free to be more honest when they were not sitting across from Navy and Marine Corps personnel during the interviews. It is interesting to note that even after that comment, most respondents indicated that by and large they were in agreement with how the program was being managed and with the level and type of community involvement.



Opportunities for Small and Small Disadvantaged Businesses

The team is very supportive of providing opportunities for small and small disadvantaged businesses to conduct program work at Camp Pendleton. Due to the size and complexity of some of the projects, the small businesses must reach back to tap into the infrastructure and resources of their large business subcontractors. This allows the best of both worlds, the opportunity for small businesses to do what they can with low overhead, and no loss of productivity or expertise to the government. In FY08, 84% of the total budget for

the IR program went to small businesses. In FY09, 96% of the IR program was awarded to small businesses, with 27% of that to a Service-Disabled, Veteran-Owned small business and 4% to an 8A firm.

Reducing Risk

Reduction of risk to human health and the environment while enabling the Base's mission to train Marines is our highest priority. Under the oversight and management of the team, cleanups were completed at six IR sites. A total of 52 acres was remediated and returned to the Marine Corps, unencumbered by land use restrictions.



During the remediation at IR Site 1D, a cell was uncovered with 90 drums and drum fragments containing paint, solvents, fuel, oil, pesticides, and caustics. The cell was excavated down to groundwater and it was obvious that groundwater was impacted. The team met with the regulatory agencies and, in exchange for working on a Record of Decision Amendment, received concurrence to immediately drill borings to collect groundwater samples and delineate the extent of contamination. When it was discovered that there was a plume with very high levels of Trichloroethene (TCE) heading towards the Santa Margarita River and endangered arroyo toad and tidewater goby habitat, the team met once again with the regulatory agencies to negotiate an expedient solution.

The team reiterated the urgency of addressing the situation while starting the budgeting, investigation and additional CERCLA processes. Because of the openness of communication between the team members and the regulators, Camp Pendleton was allowed to install a slit trench and remove the grossly impacted groundwater while starting the CERCLA process for groundwater at the site.

Green Remediation

The team and their contracting partners have been implementing Green and Sustainable Remediation (GSR) at IR sites for the past two years. For example, after remediating a 10-acre IR site, the team worked with the Base Land Use Manager to create five acres of wetlands. This will allow the Base to bank wetlands to use for mitigation when future projects encroach on existing wetlands.



Of the six sites that were recently remediated, most of the 52 acres was marginal habitat. In preparation for the completion of cleanup activities, native plants were "milked" and container stock was grown at numerous nurseries in the year prior to completion of the cleanup work. The container stock was planted at the sites and is edging out the invasive, non-native species at the site. It should be noted that the re-vegetated areas are weeded by hand and no pesticides have been used at the site. One of the most interesting aspects of implementing GSR techniques is finding what works and what does not.

During the 18-month cleanup process, the team implemented various Cleanup-Clean Air technologies to determine the "best" method of sustainable remediation with respect to reducing air pollution. Some of the field equipment had brand-new Tier 3-compliant engines, some were retrofitted with after-market diesel particulate filters, and others were run on a mix of 5% or 20% biodiesel fuel. The team hired the University of Riverside to develop cutting edge methodologies to quantify emission reductions for various pollutants, compare the efficiencies of the technologies and report on the results. The report is due during January 2010 and will be shared with the EPA for inclusion in their upcoming Clean Fuels Fact Sheet and their sustainable remediation website.



The team has always aimed for unrestricted land use as the end goal of site remediation. However, sometimes it is not technically or economically feasible. One site where this is true is the 23-acre Box Canyon Landfill. On a tour with the team, the EPA Region 9 Restoration Branch Chief, Mike Montgomery, suggested that this site would make a nice place for photovoltaic (PV) panels. The team discussed the project with the Base Energy Office and the project was nominated and approved for President Obama's American Reinvestment and Recovery Act. To avoid any delay in the \$20M project and its accelerated timelines, the team negotiated the preparation of an Explanation of Significant Difference instead of a Record of Decision Amendment for land use changes. The end result was a cost saving of approximately \$25,000. Once complete, Camp Pendleton will have the first PV installation on a closed landfill in Southern California. This is significant step towards meeting EO 13423 and the newly released Executive Order, "Federal Leadership in Environmental, Energy and Economic Performance," dated October 2009.