



Commander, Navy Region Southwest NAVAL BASE SAN DIEGO, CA

2012 SECRETARY OF DEFENSE ENVIRONMENTAL AWARDS SUSTAINABILITY - NON-INDUSTRIAL INSTALLATION NOMINATION

INTRODUCTION

Naval Base San Diego (NBSD) encompasses approximately 2K acres of land and 326 acres of the San Diego bay, with 12 Piers and two channels offering 56K feet of berthing space to support 59 home ported ships and 213 tenant commands to include vessels of the U.S. Coast Guard, Military Sealift Command, Maritime Administration, and foreign countries. The Installation is divided into six distinct parcels: the operations, maintenance, and repair area along the shoreline (wet side), the campus comprised of training, lodging, dining, and family service facilities east of Harbor Drive (dry side), the Broadway Complex in downtown San Diego, the Mission Gorge Recreation Center, the largest naval medical center in the Pacific, and Naval Facilities Command Southwest Headquarters. The base has a daily transiting population of 34K military and civilian personnel, and accommodates 4K Single Sailors in the Navy's largest "Private-Public Venture" housing complex. NBSD is also responsible for land management of 16 family housing sites sprawled throughout San Diego County.

San Diego is America's sixth largest city and home to tourism, technology, telecommunications, biotechnology companies, and over the next decade our largest naval footprint on the globe. San Diegans take tremendous pride in their community and the local environment. In the spirit of community partnership, NBSD is a vigilant caretaker of its property and steadfast in compliance with environmental laws and regulations. NBSD assumed this responsibility with an aggressive compliance oversight program and developed strong relationships with San Diego's elected officials and the regulatory community.

Naval presence in the San Diego metro area is 50K and projected to grow, infusing San Diego with \$31B in direct and indirect economic benefit. To grasp the magnitude of this growth, the second closest industry at \$17B is tourism. NBSD leadership priority is responsible and transparent growth while effectively and efficiently caring for the Fleet, Fighter, & Family.

BACKGROUND

Environmental Aspects. NBSD manages 75 San Diego Air Pollution Control District (APCD) permitted sites and/or equipment, 44 San Diego County Department of Environmental Health permitted hazardous waste (HW) collection sites, a conditionally authorized Bilge and Oily Waste Treatment Facility permit, nine underground storage tank (UST) permits, 19 MWR and contractor Food Establishment Wastewater Discharge permits, an Industrial Wastewater (IWP) permit, and two National Pollution Discharge Elimination System (NPDES) permits (one for the facility industrial sites and one for the graving dock). In the past fiscal year, NBSD has had 159 site visits by six different regulatory agencies without a single Significant Non-Compliance (SNC) or High Priority Violation (HPV).

Sustainability. NBSD continues to work to define the principles of intelligent shore design to effectively and efficiently meet projected Fleet requirements. Intelligent shore design analyzes requirements with consolidation of like-services, demolition of inefficient structures, security enclaving, energy independence/assurance, and the Navy as a Top 50 workplace and community leader in environmental stewardship.

Green Procurement Program. Following Executive Order and SECNAV energy guidance, NBSD shaped an aggressive energy and green campaign designed to drive down consumption of utility commodities and establish the Navy as a Global Force for Green.

Community Involvement. NBSD established working relationships with the City of National City, the City of San Diego, the Main Street Association, the San Diego 8th District Council, the Barrio Logan Association and General Dynamics/NASSCO. In addition, NBSD annually convenes a Regional Oil Spill Working Group and Waterfront Oil Spill Symposium of senior afloat and shore leaders to deter oil spills, share best practices, and promote improved root cause analysis in ISIC investigations.

PROGRAM SUMMARY

NBSD's goal is to be the leader in facility support, innovative business practices, environmental stewardship, and community interaction through a professional workforce trained in the latest technological advances and with systems and infrastructure in place to support innovative designs.

In 2012, NBSD funded and executed numerous projects to reduce water and energy use. These projects are having a positive return on investment through reduced grounds contracts and energy consumption. In addition, NBSD has continued to execute an aggressive demolition program to reduce maintenance costs and effectively use existing infrastructure resulting in increased efficiencies, improved space usage and allocation, and consolidation of commands.

ACCOMPLISHMENTS

Process Modification or Improvement

NBSD developed a pilot computer energy reduction initiative with NMCI to shut down computers remotely during non-duty hours. A 65% reduction in utility usage (\$49) per computer was realized. Once fully implemented, annual savings are expected to be over \$402K. Annual Regional savings are anticipated to be greater than \$1M.

NBSD's innovative port operations team designed, crafted and deployed an in house production first of its kind ship boom separator for use with surface ships and submarines. Per unit cost for each separator made from on hand materials: \$650. If adopted enterprise wide, these separators will provide significant enterprise cost savings as more effective oil booms ensure greater containment of overboard discharges, reducing overall harbor contamination. Additionally, port operations executed 3K man-hours in the replacement, cleaning, and restoration of 200 synthetic logs and 16K feet of permanent /response boom enabling continued environmental compliance and saving the enterprise \$240K in contract labor costs.

Compliance with E.O. 13423

NBSD continued hosting Electronics and Appliance Recycling events in a cooperative effort with DRMO, Clean Harbors, and Sustained Solid Waste. Over 11 tons of recyclable electronics from

waterfront ships and tenant shore commands was collected and refurbished for local school use and diverted from the landfill during NBSD's E-Waste Fair. Unusable items were recycled, saving thousands of dollars in disposal costs.

NBSD's Bilge Oily Waste Treatment System (BOWTS) processed nearly 18M gallons of bilge water through the plant, recovering \$1.2M in fuel for calendar year 2012, making the facility completely self sufficient.

NBSD continues promoting *SET DOG ZEBRA*, an energy conservation campaign designed to change behavior by prompting securing of lights and computers, and turning down thermostats at the end of the day.

NBSD has continued its highly successful forward leaning Zone Inspection Program led by CO/XO/CMC that includes the Facility Manager, Building Monitor, Installation Public Works, Safety, Environmental, and Fed Fire representatives. The Zone Inspection Program raises awareness of utility usage by tenants, leading to significant energy cost savings base-wide as well as facility improvements.

NBSD completed an energy analysis of our FFSC complex consolidation project and determined that demolishing five WWII structures and constructing a 57K SF facility will reduce net energy consumption through intelligent site planning, variable air volume HVAC systems, and photovoltaic panels.

NBSD executes the largest Transportation Incentive Program on the West Coast and is at the forefront of alternative transportation, continuing to explore ways to reduce traffic congestion in and around the base. The base provides van pool parking to incentivize mass transit behavior.

Compliance with E.O. 13514

Naval Base San Diego established an Environmental Management System (EMS) program that supports NBSD main-site, the Broadway Complex in downtown San Diego, the Mission Gorge Recreation Center, Naval Medical Center San Diego at Balboa Park, and all tenant commands within the NBSD footprint. NBSD's EMS is a proven effective tool for identifying operations where environmental impact may be minimized or eliminated through new processes. The result is the approval by regulators to retire permits for these activities, reducing liability and resulting in cost savings to the Navy. To manage this program, the Environmental Staff established the following parameters:

- **Goal:** Provide NBSD with the finest environmental compliance support through a rigorous inspection, review, and training program.
- **Objective:** Identify all aspects, develop inspection frequencies and individual inspection checklists for each aspect; develop a training program that familiarizes personnel working at sites or operating equipment with their responsibilities; and ensure all environmental staff receives EMS training.
- **Target:** Inspect all aspects at least monthly and develop a written record of all inspections. Provide annual EMS training to all personnel operating permitted equipment or at permitted sites. Annually review permit list to identify opportunities to retire permits.

NBSD's EMS program received an external audit 18 May 2009 and received its EMS Declaration of Conformance Memorandum 21 July 2009. In June 2012, NBSD received its triennial EMS external

audit which resulted in no major findings and was declared to be one of the best in the enterprise. NBSD's EMS program continues to remain in full conformance with EO 13423 and ISO 14001.

Training is fundamental to the effective and efficient implementation and execution of the NBSD EMS. Therefore, NBSD conducts two types of EMS training monthly: Basic Environmental Awareness Training for personnel in NBSD work-centers whose work has been determined to have or contribute to a significant environmental impact and EMS Training for supervisors and inspectors. Over 400 personnel have been trained this FY.

To meet regulatory benchmarks for copper and zinc in storm water runoff, NBSD partnered with NAVFAC and SPAWAR to develop a pier washing project to clean and monitor piers with varying degrees of foot, vehicle and ship traffic. This effort, if successful in meeting the established benchmarks and standards, will potentially save the Navy an estimated \$100M in infrastructure costs needed to divert and capture storm water from navy facilities in metro San Diego. In addition, NBSD obtained \$450K to design and build two storm water filtration systems and install at sites historically known for high level of pollutants and have shown difficulty in meeting storm water compliance standards.

NBSD is engaged with the San Diego Air Pollution Control District (APCD) and the Surface Warfare Enterprise to determine feasibility of implementing a plan which would measure/control paint use aboard ships within agreed upon compliance limits thereby eliminating the need for a new permitting structure.

As part of the Homeport Ashore Bachelor Quarters MILCON project (P-405), a six level parking structure was unveiled at NBSD in September featuring roof-top photovoltaic carports.

Embracing technology, NBSD implemented a Fast Payback project to install a new HVAC controls system at ADM Robinson Recreational Center. The new control technology is being evaluated to determine applicability at other Navy facilities.

NBSD partnered with SDG&E to develop and execute energy conservation projects under a Utility Energy Service Contract.

NBSD has partnered with San Diego's electrical utility provider, San Diego Gas and Electric (SDG&E), to alleviate power shortages due to maintenance issues at the San Onofre Nuclear Generating Station. To prepare for potential electrical grid overloads, Naval Base San Diego (NBSD) established a power reduction plan to respond to this potentiality. When necessary, SDG&E will deliver a Demand Response notification to Commander Navy Region SW detailing the time and duration of critical electrical periods. In response, NBSD is asked to take predetermined measures to reduce the power requirement of base facilities for the duration of the Demand Response period. By doing so, NBSD is doing its part by load shedding to reduce the likelihood of blackouts and failures within the Southern California electrical infrastructure. In August, NBSD's Demand Response participation by all shore commands returned 2MG watt hours of power to SDG&E grid.

NBSD continues to look for ways to reduce our carbon footprint by transforming areas to pedestrian friendly walking paths and bike lanes, by installing bike racks on every pier and at every major shore command, and by promoting a base wide 'Plant a Tree' program.

Recycling Program

The Integrated Solid Waste Management Program (ISWMP) at NBSD utilizes the EPA's disposal hierarchy to influence how every pound of solid waste generated on the installation is managed. The ISWMP is made up of several divisions, all determined to reduce the amount of solid waste taken from NBSD to the local landfill while utilizing the diverted material in the most environmentally sustainable manner.

Commencing at leadership levels, recycling regulations are communicated and enforced by base leadership and reminders are frequently transmitted via bi-weekly emails updates and quarterly Stakeholder mtgs. Tenant commands build upon the base guidance by enforcing the standard and providing quality assurance on the piers. NBSD Port Operations and Environment departments provide another layer of quality control before the recycling bins are emptied at the Base Recycling Center. A final check is made by ISWMP personnel to ensure proper diversion from the landfill. The robust layered defense collects, processes, and sells eligible recyclable materials diverted from the Municipal Solid Waste (MSW) stream. Qualified Recycling Program materials include office paper, newspaper, cardboard, glass, plastic bottles, cans, pallets, scrap metal, toner cartridges, etc. In addition to the recyclable materials diverted from the landfill directly by the QRP, MSW has been diverted from on base programs such as DECA, NEX, and DRMO.

The largest volume of solid waste generated on most installations comes from construction and demolition (C&D) projects. In FY 12, Naval Base San Diego diverted a total of 44.8K tons of solid waste from landfill disposal. This represents a 71.41% overall diversion rate with a disposal cost avoidance of \$942K.

Navy Exchange and Commissary implemented recycling programs clearly evident with bins in their facilities promoting the program, and self sufficient with Navy's Recycling Program employees emptying the containers around the base

MWR has begun the process of contracting to recycle food vendor cooking oil. Once fully implemented, \$3K in annual disposal fees are expected to be saved, which includes the value of in kind services.

Education, Outreach, and Partnering

NBSD's Environmental Office "Green Team" continues to be fully committed to its outreach program, participating in numerous events throughout San Diego County to promote the Navy's environmental leadership. In FY12, NBSD Environmental Office personnel manned a public relations booth at nine large San Diego metro environmental/community events. Volunteers provide handouts, videos and use visual displays to communicate the Navy's commitment to being a good neighbor and environmental steward during:

S.D. Port Tenants Assoc. Operation Clean Sweep Exhibit; Wings over Gillespie Air Show; USS Midway Museum Legacy Week Exhibit; Safety Fair Exhibit; CITADEL Rumble Earthquake Fair; Cigarette Litter Prevention Campaign (Kick Butts); Earth Fair @ Balboa Park; Electronics Recycling Event; Holiday Lights Event Exhibit; and the USMC Miramar Air Show.

NBSD's Community Service Program created partnerships and included 170 volunteers and 2.3K volunteer hours with Habitat for Humanity, CALTRANS, "I Love a Clean San Diego," and Main Street Clean Up.

NBSD, in partnership with the City of San Diego, collected 8K lbs of floating trash from Chollas Creek, reducing contamination in San Diego Bay. This year, established a MOU with the City officially recognizing NBSD's service to the Barrio Logan Community with every rain storm that sweeps trash and debris into Chollas Creek only to be boomed and removed by the Navy downstream before contaminating the San Diego Bay.

NBSD was selected as a finalist for the 2012 National Gold Medal Awards for Environmental Excellence in Park and Recreation Management.

NBSD showcased its environmental initiatives at the Port Tenants Association Operation Clean Sweep (OCS). OCS is a San Diego Bay cleanup partnership between the Unified Port of San Diego and the Navy that's held annually. This year over 17 tons of trash was collected in the bay cleanup.

Tours for civilian groups to include city officials, business leaders, or school children, include discussion and promotion of NBSD's Recycling Program to ensure those outside the fence line have a greater appreciation for Navy's environmental stewardship.

Reductions Achieved

NBSD established its Smart Landscape Master Plan in 2007. Smart irrigation controllers and artificial turf saved 5.9M gallons of water in FY12.

In 2012, NBSD's photovoltaic projects saved 3.2 MBtu of power and \$103K while LED street and parking lot lights saved an additional 2.2MBtu of power and \$82K. Smart irrigation controllers and artificial turf saved a total of 10 million gallons of fresh water in 2012.

As part of the Green Gov program, NBSD enacted a Shipboard Resource Energy Management mock billing system for afloat assets which provided unprecedented visibility on energy usage with an eye toward encouraging conservation. This competitive program among home ported ships with an annual recognition program coined the "Biggest Loser" recognized the ship (with pennant) that represented the greatest percentage reduction in energy consumption throughout the year. This practice further encouraged ships to reduce energy consumption while integrating best practices which are distributed for enterprise use. Since inception, electric usage has been reduced over 25% percent, and water usage has been reduced over 15 percent. It is estimated that through the Shipboard Resource Efficiency Management Program alone, the Navy saved an estimated 5.6 MBTU. The effectiveness and efficiency of the system was such that CPF accepted ownership for the monitoring program for enterprise wide application. In the near term, a similar successful model of mock billing will be undertaken for use with NBSD's 213 shore based tenant commands.

Full implementation of an Advanced Metering Infrastructure is underway to equip all buildings with smart meters. Once the installation is metered completely, shore tenant commands will engage in a similar biggest loser competition to incentivize energy and water conservation.

NBSD executed over \$217K in energy rebate funds, including low cost energy initiatives, and a Restoration Modernization Energy (RME) project that increased the solar thermal capability at ADMIRAL Prout Pool by utilizing an intelligent pool pump controller.

NBSD is reducing carbon emissions by encouraging personnel to use van pools, car pools, bus routes and trolleys through its Transportation Incentive Program.

With the installation of a new pedestrian turnstile, we eliminated the need for nearly \$300K worth of repairs to the Chollas Creek foot bridge.

Master Planning and Green Buildings

NBSD executed (with no additional staffing) the transition of all BUMED Balboa Hospital Class one and two property and BOS/IM responsibility for non medical shore mission areas of the Naval Medical Center San Diego.

Established a Parking Lot Task Force to address Naval Medical Center San Diego's major facility concern if the city reclaims the O Parking Lot as a construction laydown area and alternate parking lot for Balboa Park civilian employees. Task Force initiatives are consideration include initiatives to reduce carbon footprint such as mass transit, van/car pooling, more bicycle stowage racks, and satellite parking lot with mass transit shuttle.

NBSD relocated SATO/CTS to the administrative sector on the NBSD "wet" side, closed Balboa Hospital's PSD, realigned services to NBSD, and moved the Center for Surface Combat Systems (CSCS) and the Navy Post Graduate School element to the Training Support Center.

An \$8.5M contract was awarded to a local company to energy modernize and repair Rambur Hall on NBSD's dry side. All new buildings on NBSD will be LEED Silver certified in order to advance green technology.

NBSD is partnering with the City of San Diego to install a "Small Chlorination System" on the 1M gallon reserve reserve water storage tank at the Naval Medical Center. Prior to installation, Navy had to discharge the water because it routinely fell below acceptable potable water standards.

Capitalizing on the latest in communication technology, NBSD continues its Q-Code Energy Conservation Messaging System which utilizes a Smart Phone Application to allow members of our Training Support Command, one of NBSD's largest tenants, to utilize a Q code scanning system to electronically dialogue in real time with the NBSD Energy Team. This method allows timely response by our utility section of the Naval Facilities Engineering Command to provide next business day response to utility concerns, saving resources and expediting minor facility repairs before they become major.

NBSD's steam contract with Applied Energy is scheduled to expire within the next six years. This 1940s era centralized system was built to serve the Navy's steam powered fleet; as all surface assets are gas turbine and diesel powered this steam is no longer required. The second user of steam is our fixed assets; NBSD plans to replace this with a series of natural gas fired boilers at its buildings. We anticipate reductions in maintenance, infrastructure and fuel costs.

NAVFAC and NBSD leadership are pursuing a fully functioning NET ZERO integrated waste management facility, including conversion technologies, which manages ship, shore and municipal non hazardous waste, generates alternative energy, and increases NBSD's disposal diversion rate to 100%.