



2022 SECNAV Environmental Award *Sustainability—Industrial Installation*

Naval Weapons Station Seal Beach And Detachments Fallbrook & Norco

INTRODUCTION

Naval Weapons Station Seal Beach (NAVWPNSTA-SB) and Detachments Fallbrook and Norco continue to make exceptional progress to achieve Executive Order and command sustainability goals, having exceeded FY21 targets for energy reduction, water conservation, recycling, elimination of hazardous waste, and the implementation of Low Impact Developments to eliminate stormwater runoff. Accomplishments are integrated within the command’s Environmental Management System (EMS), providing a framework to engage all organizations in the pursuit of sustainability, resiliency, pollution prevention and improved environmental quality. Central to the program’s success is the installation’s command leadership, which continually raises the bar for meeting our environmental objectives by expecting each tenant organization to contribute fully.

NAVWPNSTA-SB is critical to the Navy’s mission through the storing and loading of ordnance, missile maintenance, and weapons systems assessment, all in support of the United States Pacific Fleet. The three locations, which are approximately 50 to 80 miles apart, are managed predominantly from Seal Beach. Challenges include operating within an immensely developed urban area within Southern California that effects prices due to the supply and demand of energy, water and waste. Moreover, California overall has the most strict environmental regulations and the installation command must implement risk-based approach in addressing mission requirements, reduced funding support and the management of complex environmental projects.

Seal Beach



NAVWPNSTA-SB is the critical munitions supply point for Pacific Fleet surface ships home-ported in San Diego. The base is host to Navy Munitions Command Pacific, CONUS West Division (NMCPAC CWD), Naval Surface Warfare Center (NSWC) Corona Division, as well as several other Navy and USMC commands. The base is home to the Seal Beach National Wildlife Refuge, the only wetland fully contained within the fenceline of a naval installation.

Acres: 5,256 — Population: 750

Detachment Fallbrook

Detachment Fallbrook directly supports Marine Corps warfighters and has the only West Coast air-launched missile maintenance facility. A unique component of the mission is to load amphibious assault ships with munitions via vertical replenishment pictured here. The NSWC tenant conducts post deployment test and evaluation of weapon systems, ensuring quality control for the Sea Services.

Acres: 8,852 — Population: 234.



Detachment Norco



On Detachment Norco, NSWC Corona Division provides transparency to warfighting readiness through data analytics and assessment as well as assuring the accuracy of measurements. The installation's central feature is the Lake Norconian Resort historic district, which includes a shallow lake that is an important flyway stopping point for migratory birds.

Acres: 247 — Population: 2,019

BACKGROUND:

Environmental Management System Overview



Introduction: The **Environmental Management System (EMS)** is the core method of managing environmental programs, identifying pollution prevention opportunities, annually evaluating significant aspects and reducing environmental impacts of the installation and mission. Primary mission tenant commands and military training units aboard the installations are fully integrated into the host EMS and support achievement of sustainability goals.



PWO LCDR Nigel Morrissey presenting the Green E to Standard Missile Shop team



Key tenants include:

- Navy Munitions Command Pacific, CONUS West Division (NMCPAC CWD)
- Naval Surface Warfare Center Corona Division (NSWC CD)
- USMC 5/14 Reserve Training Center



Background: A signature feature of the EMS is the SMART Shop Process which provides supervisors with SMART Binders, a simple guide to effectively support the EMS. The process is a joint effort between the environmental team and the shop personnel in which they learn how to reduce environmental impacts and more effectively meet compliance and mission requirements. The shop’s “Environmental Points (EPs)” are mapped and environmental aspects identified. The Binder enables more effective management of environmental impacts and provides simple, easy-to-use training materials and a monthly self-check list.



The EMS SMART Shop Process dovetails with the installation command zone inspection program to inspect all facilities annually and identify facility gaps, building deficiencies, and assess energy and water conservation. Led by the Executive Officer, the multi-program inspections include NAVFAC staff, NAVOSH, fire safety, and facilities maintenance. Buildings compete with each other to score the highest and this program is extremely competitive. **The Green E** is issued once the SMART Shop is certified “EMS Conformant” by the Installations Environmental Program Director and Executive Officer. The certificate is valid for one year, until the next annual review.



The Green E Symbol of Sustainability



Noteworthy Achievements:

In the past two years, three NMCPAC operations have received the perfect score of 4.0. NMC Standard Missile Shop received a perfect score two years in a row, while NMC Underwater Weapons, and Fallbrook NMC Missile Maintenance also scored perfect in 2021.

Management Improvement Initiatives

Four focus areas were pursued by the installation using the EMS. “Sustainability and resiliency” were the new mantras presented with reduced funding and resources in FY21.

Leadership is committed to engaging all tenants and personnel.

Goal Owners develop creative solutions that incorporate achievable, smart steps toward sustainability goals.

Leadership

- Command Zone Inspections
- Goal Owners

Engagement

- SMART Shop Process and Supervisors
- Environmental Coordinators

Integration

- NSWC Corona Division
- NMC CONUS West

System

- Continual Measurement and Improvement
- Small Smart Sustainable Steps



ACCOMPLISHMENTS:

Hazardous Waste (HW)



Introduction: By sustaining an effective EMS, our Hazardous Waste (HW) Team worked closely with tenants in managing waste smartly as costs were paid by generator. Our EMS team met annually with shop supervisors to discuss program gaps, installation environmental goals and environmental costs. The HW team also provides all in-house training to generators, which has reduced risk for violations and better management of resources. Using a CY19 baseline, in CY21 we are tracking for >30% reduction in RCRA and non-RCRA hazardous waste generated. We exceeded goals in CY20 by reducing waste weight by 21%. This significant reduction is attributed to procuring sustainable amounts of hazardous materials and not having to dispose of it due to expiration.



Background: The HW team is comprised of three personnel that work collectively in 39 operational areas with 52 HW points across the three installations. The annual goal is a 10% reduction in generated hazardous waste, excluding construction debris. To ensure waste is properly profiled, the HW team has established a robust sampling program. All new projects are submitted to Environmental as part of NEPA to evaluate conditions, requirements, avoidance and minimization measures (CRAMM) which ensure practice owners are aware of specific environmental concerns. The CRAMM is integral to the signed CATEX. The HW management process is effective and permits SME's to review projects seeking any regulatory exemptions, while providing more efficient means to communicate to shop practice owners.



HW Team: Names from left to right, R. Wilson, J. Wilhelm, & S. Crandall



Recognizing Areas of Improvement

The annual Pollution Prevention (P2) Plan was completed in 2020 evaluating CY19 data. Blast grit was identified as largest contributor by weight (70%) at NAVWPNSTA-SB. The Environmental team worked with contractors to assess alternative materials besides aluminum oxide (AlOx) to find material that could meet program requirements and work toward reducing blast grit by 10%. AlOx remained the preferred abrasive due to tenant program requirements, though an equipment evaluation was completed on one blast booth and determined that equipment was not operating efficiently. Modifications to equipment will reduce the blast grit waste by greater than 30% by eliminating unnecessary expulsion of usable blast grit. A second blast booth and bag house was entirely replaced with a new system that met additional emission requirements of the local air district. Both blast booths should run more efficiently, saving money on materials, electricity and costs for disposal.



Engaging the Practice Owners through the SMART Shop Process

In order to help them stay in compliance all practice owners are empowered with training and information in a SMART Binder. Our staff engages at least annually with our SMART shops to continually educate and identify pollution prevention opportunities and potential sustainability prospects. The reduction of HW generated not only reduces pollution and costs, but also reduces risk from a regulatory perspective. This permits staff to focus on programs of higher risk for inspections, preparing contingency plans for spill incidents or conducting more in-house training.



Noteworthy Achievements:

- Diverted from Hazardous Wastes to Recyclable Wastes (i.e., recycled instead of landfilled) -

Lead-Acid Batteries: CY20 over 4 tons | Small Rechargeable Batteries: CY20 nearly 0.5 tons

Used Oil: CY20 over 4.7 tons | Aerosols: CY20 over 0.5 tons

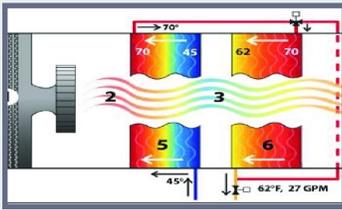
Energy and Water Conservation



Introduction: From FY18 through FY20, energy use slowly increased due to up-tempo operations and reduced energy management staff. However, to mitigate this increase and create a more sustainable installation, several projects began development to increase reliability, resiliency and efficiency. These three pillars are outlined in NAVFAC’s P-602, 3 Pillars of Energy Security.



Background: In FY19, a Utility Energy Services Contract (UESC) project was initially developed and sent out for Request for Proposal (RFP) in late FY20. This multi-discipline project was awarded in March 2021. The genesis of the UESC Project was a model of stakeholder interaction. With some preliminary investigation by all stakeholders and the contractor, multiple projects were identified on base that would benefit all concerned. Multiple discussions were held with building tenants that yielded great energy saving projects.



To address **Reliability**, a critical project will replace the existing end-of-life heating, ventilation and air conditioning system (HVAC) system in the missile production building. The new system will deploy two new high efficiency dehumidification systems which keep temperature and humidity within program defined requirements.



Three Pillars of Energy Security



Two photovoltaic systems at NAVWPNSTA-SB have been offline for several years due to maintenance funding issues. The UESC project will replace inverters to get these systems up and running again. This project supports **Resiliency** by lessening grid dependence for electricity.



These projects (and others including LED lighting efforts) combined contribute to the base **Efficiency** by producing cleaner electricity, reduced natural gas and increased water savings for the base.

Noteworthy Achievements:

- UESC Project Estimated Annual 18-year Savings Beginning in FY21 -
1,878 MWh of electricity saving \$333,307 | 3,513 MBTU of natural gas saving \$51,004
3,929 Gallons of water saving \$45,891

Other Sustainability Projects:

Two other sustainability projects were in development FY18 to FY20. Both are Enhanced Use Leases (EULs) that leverage open base acreage for full base automated black-start and islanding capability to support critical infrastructure. This in-kind consideration provides needed energy security and sustainability to the base.

- ⇒ **EUL #1** NAVWPNSTA-SB allows use of 59 acres of land for development of up to 10 MW of solar generation along with a battery energy storage system (BESS) and diesel generation backup. This will cover a 14-day outage 24 hours a day.
- ⇒ **EUL #2** NAVWPNSTA-SB Detachment Norco allows use of 8.3 acres of land for development of 2.5 MW of solar generation, 2.5 MW of BESS and 2.1 MW of diesel generation. Will cover a 14-day outage 24 hours a day.

NAVWPNSTA-SB continues to work towards our sustainability and energy security objectives.



Air Emissions



Introduction: Seal Beach and detachments are located in the strictest air districts in the country, the South Coast Air District and San Diego Air District. The installation manages 41 air permits and has annual inspections to ensure compliance. Fines can be up to a \$1M/incident and command expects all personnel to maintain 100% compliance for all operations. In addition, leadership encourages the Environmental Office to seek new sources of funding to help meet program objectives.

Privately Owned Vehicle (POV) Charging Station—“Other people’s money”



Background: The NAVWPNSTA-SB Environmental was awarded state grant funds in 2015 to fund the procurement and installation of multiple POV charging stations at Seal Beach. Seal Beach is the only installation in the Navy Region South West (NRSW) to acquire such funds and was able to coordinate construction award with Government Service Agreement (GSA) and complete project prior to funds expiring in June 2020.



This award was to procure and install new charging stations that would encourage installation personnel to purchase personal-owned electric vehicles. The charging stations will also help the installation reduce its Average Vehicle Ridership (AVR) which is used to calculate annual fees paid to South Coast Air Quality Management District’s Rule 2202.



Noteworthy Achievements:

From May 2020 through September 2021 the Navy Exchange (NEX) electrified 5,504 kWh for the charging of Electric Vehicles (EV)'s. A total of 3,287 kg of Greenhouse Gasses were saved from entering the environment through the use of these chargers.

This is equivalent to saving 690 gallons of gas that would have been used by gasoline powered vehicles. Two charging stations were used 366 times for a total charging time of 1,124 hours by 29 drivers on base. The chargers produced a total revenue for the NEX of \$1,240 in the same period.



Picture of POV Charging Stations located at installation NEX

Other Sustainability Projects:



Ship-to-Shore Electrification Project: In FY21, the MILCON Group confirmed that new ammunition pier funds could be authorized for construction of a new electrical substation that can provide electrical shore power to ships when in port. Seal Beach currently relies on ships using auxiliary power which releases tons of diesel particulates into the atmosphere. When completed the proposed ship-to-shore electrical substation will save the following annually:

Metric Tons of PM₁₀: 11.61 | Metric Tons of CO₂: 11,400 | Gallons of Diesel Fuel: 600,000

New Emergency Generators: Seal Beach procured two new Tier 4 portable emergency generators to replace three older Tier 0 engines. Replacement will reduce the particulate emissions and provide more reliable power during electrical outages.

Sustainable Solid Waste



Introduction: The NAVWPNSTA-SB Sustainable Solid Waste Program (SSW) has continued to thrive despite lack of Qualified Recycling Program funds and the outsourcing of recycling operations. SSW goal owners have steadily used effective planning processes associated with waste reduction and pollution prevention, while focusing on ongoing collaboration with the installation leadership, the tenant commands, and regional partners. EMS has been instrumental in screening out unfeasible options and evaluating improvements in the SSW.



Background: For over ten years, NAVWPNSTA-SB has developed a robust organic waste recycling program, removing and sending its green waste for composting and recycling, while promoting more sustainable waste management. Green waste recycling is incorporated in the installation's refuse contracts for all our installations.



As part of the California legislature's SB 1383 Short-Lived Climate Pollutants implementation, food waste recycling at the Morale, Welfare and Recreation (MWR) Navy Golf Course (NGC) was added to the installation's waste service contract in 2020. This success is due to the Environmental office teaming up with the regional QRP Manager and the Seal Beach Facilities Service Contract team. NAVWPNSTA-SB is the first installation in NRSW outside the San Diego metro area to have successfully initiated the food waste recycling program. In spite of the COVID-19 pandemic, this new portion of the SB 1383 initiative was successfully carried out. This tremendous and innovative effort created a blueprint for other future waste diversion opportunities, and is considered a pilot program for other installations. Since inception in November of 2020, the NGC has diverted 1,200 lbs. of food waste from the landfill. In the past two years alone, NAVWPNSTA-SB has sent over 270 tons of combined green waste and food waste for recycling.



Past electronic waste roundup events held at NAVWPNSTA-SB have brought about tremendous success and helped further the Navy's environmental stewardship goals. In 2019, over 12 tons of electronic waste was collected and removed from the installation. The COVID-19 pandemic has made it challenging to hold events as Defense Logistic Agency (DLA) can only offer limited on-site assistance. In FY21 the Environmental office recognized the problem and formulated a solution that makes it easier for tenant commands to dispose of their e-waste without entirely relying on DLA. A training module was created and disseminated to all tenants, and environmental staff are accessible to provide in-house training as needed. NAVWPNSTA-SB considers proper collection and removal of e-waste critical in meeting our sustainability objectives.

The installation conducts monthly toner cartridge roundups that allow tenants to turn-in used and expired cartridges, keeping them out of landfills. Between FY20-FY21, over 2 tons of cartridges were recycled.

Noteworthy Achievements:

- Over the two years, NAVWPNSTA-SB and its Detachments Norco and Fallbrook collectively diverted over **2,720** tons of Construction and Demolition (C&D) waste from the landfill. This diversion consequently gave the Navy a total disposal cost avoidance of **\$183,500**. The effort also resulted in a diversion rate of **91%**, exceeding the DOD goal of **60%**. The success is attributed to the involvement and support of the Environmental office, FEAD, and C&D contractual personnel, as well as the integration of EMS in the project review process. Over **1,310** tons of municipal waste was diverted.
- The Environmental Office staff completed **12** beach clean-up events at the installation's only recreational beach, Barney's Beach, collecting **3.7** tons of trash and removing **44** sharps from the beach. The installation Security teams volunteered and organized **2** beach clean-up events with over **15** people participating at each outing and collected nearly a ton of trash and multiple sharps. Hazardous waste and recycled materials were segregated and properly disposed.
- To ensure Barney's Beach remains safe for families and sailors, in FY21 the installation began working with City of Seal Beach on an Intergovernmental Service Agreement (IGSA) where the installation would pay the City to clean our beach as part of the City's cleaning of adjacent beachfront.



Low Impact Development



Introduction: Low Impact Development (LID) for storm water management became an Energy Independence and Security Act requirement in FY11 for all projects over 5,000 square feet to mitigate the impacts of storm water runoff and nonpoint source pollution.



Background: The importance of this objective is of special interest in semi-arid southern California and in particular to Seal Beach which is home to the 1,000 acre Seal Beach National Wildlife Refuge and Anaheim Bay. Runoff at Detachment Fallbrook flows into the Fallbrook Creek which provides habitat to several endangered species.



The Environmental Office worked with planners and designers to ensure incorporation of multiple Low-Impact Development (LID) systems at Seal Beach, Fallbrook and Norco.



Incorporation of these systems help divert run-off containing grease and oils from flowing into adjacent waterways and creeks.

Noteworthy Achievements:



At Seal Beach the new MARFORRES Reserve Center is designed to support hundreds of Marines on weekends to complete reserve training in support of tactical transportation functions. Large parking areas to support tactical vehicles were constructed adjacent to a drainage channel that flows to Anaheim Bay and LIDs were constructed to ensure all runoff from paving areas are contained on site.



Newly installed LIDs will provide water storage of over 40,000 cubic feet across the three installations. Due to concerns from previous stormwater regulatory inspections, new construction must eliminate run-off from potential industrial operations. The design and construction through the new Marine Reserve Center is the most robust of any new construction at Seal Beach or Detachments.



Storm water retention basin built as part of the MARFORRES Reserve Center LID construction project.

Projects that Included LID FY20-FY21

Fiscal Year	Project	Acres	Cu Ft of LIDs	Construction Area (Acres)	
				-Increased Runoff Diverted to LID Systems-	
				Percent Impervious Before Construction	Percent Impervious After Construction
20-21	New MARFORRES Reserve Center	5.2	12,274	11%	71%
20-21	Fallbrook Army Reserve Center	16.7	34,176	15%	52%
21	Norco 5th Street Parking Lot	3.4	24,345	10%	60%

Implemented LID Measures

Grade to permeable surfaces | Bioretention | Filter/Buffer Strip | Swales: Grass, Infiltration | Infiltration Trench | Native Plant Landscaping