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Introduction

Naval Medical Center San Diego's (NMCS D) mission is:

- Prepare to deploy in support of operational forces
- Deliver quality health services
- Shape the future of military medicine through education, training and research

The facility consists of approximately 6400 civilian and military personnel. It is located across Interstate 5 from downtown San Diego in the area known as Balboa Park. It is located on approximately 72 acres of land. San Diego is known for its mild year-round climate, natural deep water harbor and long association with the U.S. Navy. The population was 1,301,617 at the 2010 census. The city lies within deep canyons and hills, creating small pockets of natural parkland scattered throughout the city. The San Diego River runs through the middle of the city.

The economy of San Diego is influenced by its deep-water port, which includes the only major submarine and shipbuilding yards on the West Coast. Several major national defense contractors were started and headquartered in San Diego, including General Atomics, Cubic, and NASSCO. San Diego hosts the largest naval fleet in the world: in 2008 it was home to 53 ships, and over 120 tenant commands, and more than 35,000 sailors, soldiers, and Department of Defense civilian employees and contractors. About 5 percent of all civilian jobs in the county are military-related, and 15,000 businesses in San Diego County rely on Department of Defense contracts.

Tourism is a major industry owing to the city's climate, its beaches and numerous tourist attractions such as Balboa Park, Belmont Amusement park, San Diego Zoo, San Diego Safari Park, and Sea World. San Diego's Spanish and Mexican heritage is reflected in the many historic sites across the city, such as Mission San Diego de Alcala, and Old Town State Historic Park. San Diego County hosted more than 30 million visitors in 2009. The San Diego Convention Center hosted 68 out-of-town conventions and trade shows in 2009, attracting more than 600,000 visitors. San Diego's cruise ship industry is the second largest in California: each cruise ship call injects an estimated \$2 million into the local economy.

Background:

NMCS D ecoEMS program establishes objectives and targets for environmental programs according to the amount of impact the program might have to the environment. Annually the environmental department will evaluate all the aspects at the base and rank their impacts according to their impact on the environment. Executive Order 13514 was established on October 5, 2009. Executive Order 13514 requires installations to divert at least 50 percent of non-hazardous solid waste, excluding construction debris, by the end of fiscal year 2015. It states that installations shall increase diversion of compostable and organic material from the waste stream. An objective was established at NMCS D to divert at least 50% of non-hazardous solid waste, excluding construction and demolition debris by the end of fiscal year 2015, and increase the diversion of compostable and organic material from the waste stream. All cities in California

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are required to reduce, reuse, or recycle half of their waste or be subjected to a \$10,000 per day fine.

As the concern about landfill space increases, interest in composting is growing. The Miramar landfill is the only city run landfill in San Diego. We are using this landfill at no cost to the Navy. If we fill this landfill with wastes we will have to pay a private company to take care of our wastes. This will increase our waste costs. Composting will allow us to postpone the closure of the Miramar Landfill.

The Environmental team worked with the Nutrition Management Department to setup a composting program at the galley. The NMCS D Nutrition Management Department meets the nutrition needs of 2000+ patients, staff and visitors daily. The Nutrition Management Department serves meals to over 120 patients per day. Efforts are made to develop menus with seasonal local produce as much as possible. Avoidance of using non-seasonal produce minimizes the need for extended supply chain routes known to contribute to excess fuel waste and decreased air quality. By using the first in, first out (FIFO) method, food and material waste incurred by expired food items is minimized.

The Navy Region Southwest Sustainable Solid Waste (SSW) program office, in San Diego, provides policy, guidance, and direction to institutionalize and execute sustainable solid resource and waste management practices. Procurement policies from Navy Region Southwest are generated from a single acquisition strategy designed to support sustainability. Products purchased include: energy efficient products such as Energy Star appliances, recycled content products such as paper products and bio based products such as biodegradable food and beverage containers.

NAVFAC Southwest intends to implement composting at all other locations in the area using our lessons learned to get a composting program going. The team included members from NAVFAC Southwest so they know what it takes to get a program going at other locations. As the first food service operation in Navy Region Southwest to implement a food waste/recycling this program will serve as a benchmark for best practices. We stand by to offer any support and guidance.

Compositing is one of the only ways to revitalize soil due to phosphorus depletion. Compost can be used as an amendment to improve soil texture and increase nutrient and water holding capacity. Since San Diego soil lacks many nutrients in the soil, mixing compost with the soil is a great way to nourish plants and keep vegetation plentiful.

Compost is organic matter that has been recycled and decomposed and will be used as fertilizer or soil. It is a key ingredient in organic farming. Compost is very rich in nutrients and can be used in gardens, landscaping, horticulture and agriculture. The city of San Diego Environmental Services department has a compost program at the Miramar Greenery. At the greenery, compost is made from food waste and yard trimmings, placed in windrows, turned and watered for 70 days. The microorganisms digest nitrogen and carbon causing the windrow to sustain temperatures of 140-165 F. This process breaks down organic material into beneficial soil nutrients. The finished compost is screened to a particle size of one-half inch or less which also removes film plastic from the final product.

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Composting eligibility requires generators to be located in the City of San Diego and must be in full compliance with the City's Recycling Ordinance, including recycling of all mandated materials, providing convenient recycling to guests and staff by pairing well marked recycling and trash containers, and providing written information to staff and guests. The ordinance requires recycling of plastic and glass bottles and jars, paper, newspaper, metal containers and cardboard. Commercial and institutional properties must also recycle rigid plastics including clean food waste containers, jugs, tubs, trays, pots, and bucket.

The City's commercial food waste recycling program system requires the following steps:

1. City staff meets with facility administrator, kitchen manager and/or maintenance supervisor
2. City staff provides technical assistance for on-site and logistics implementation
3. City staff trains all kitchen, maintenance and administration staff
4. Facility starts a "Pilot Program Phase" where facility's representative is required to accompany City staff to inspect and evaluate the first three loads at the Miramar Greenery
5. Once successfully completing the Pilot Program Phase, the facility becomes a regular participant of the program.

This step required meetings with the City official, environmental staff, NAVFAC Southwest Solid Waste Coordinators, and the Nutrition Management Department staff. Training was conducted by the City official and required 2 months of on hands training for over 100 staff to verify that we were recycling all the required wastes.

The Nutrition Management Department staff is 100% trained on recycling and food waste separation from the City of San Diego environmental specialist. The tour of the Greenery composting program was conducted. Instructional signage is posted at the food preparation and patron refuse drop off areas. Participant stickers for the Commercial Food Scrap Composting Program from the city of San Diego posted at galley entrances.

Recycle containers for food waste, and co-mingled containers for plastic, glass and metals are distributed throughout the food prep area as well as the dish washing area. Recycled materials from office supplies such as paper are collected in containers in our office area. These containers are emptied into their respective dumpsters. Food waste is free of trash and is converted into compost through the city of San Diego. Recycle and trash containers are also provided throughout the NMCSO campus. Cardboard is collected daily and placed in large bin on back dock. The City gave the OK for the program to commence starting the month of December 2013.

The Environmental staff engaged the Nutrition Management Department staff, city officials, and the installation personnel to make the composting at the galley a success. The galley is setup to keep the composting program going. The staff is trained and the food waste compactor is in place.

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Summary of Accomplishments:

- Metals: 97 tons/year. (e.g., copper, steel, aluminum, etc.)
 - Glass: 2 tons/year
 - Fibers: 370 tons/year (e.g., office paper, newspaper, cardboard)
 - Plastics: 8.5 tons/year (e.g., industrial, post-consumer, etc.)
 - Woods: 21 tons/year (only pallets)
 - Toners: 0.50 tons/year
 - Food Waste 177.5 tons/year
- Our composting and recycling program has reduced our waste disposal costs by 25%

The composting program was very successful. We are composting approximately 15 tons a month or 20% of our total waste stream excluding construction and demolition debris waste. With recycling included in the diversion factor we are diverting approximately 75% of our waste stream excluding construction and demolition debris. Executive Order 13514 established a goal to divert at least 50% of non-hazardous solid waste, excluding construction and demolition debris by the end of fiscal year 2015. We have surpassed this goal. The City of San Diego awarded us with an environmental award in 2014 for our composting program and BUMED identified it as a best practice.

	REFUSE	COMPOSTING	MIXED METALS	FIBERS	PLASTICS	PALLETS	GLASS	DEMO	Percentage composted (composting/(Composting+Refuse+Fibers+Plastics+Pallets+Glass))	Percentage Recycled (Fibers+Plastics+Pallets+Glass/(Composting+Fibers+Plastics+Pallets+Glass+Refuse))	Percent Refuse	Total Waste	Total Percent Diverted (Percentage Composted + Percentage Recycled)
Dec	14.34	12.85	2.95	25.29	0.14	0.78	0	0	22.80%	51.75%	25.45%	100.00%	74.55%
Jan	26.54	10.01	15.15	30.65	0.49	0	0	0	12.08%	55.88%	32.04%	100.00%	67.96%
Feb	11.68	17.11	10.53	27.99	0.7	2.3	0	0	24.34%	59.05%	16.61%	100.00%	83.39%
Mar	17.32	17.25	14.57	31.23	0.83	0	0	4.64	21.24%	57.43%	21.33%	100.00%	78.67%
Apr	7.81	15.69	6.49	34.08	0.32	1.17	0.61	3.44	23.71%	64.49%	11.80%	100.00%	88.20%
May	11.87	19.03	4.36	29.43	0.47	0	0	2.1	29.21%	52.58%	18.22%	100.00%	81.78%
Jun	33.84	14.17	5.8	30.08	0.53	0.68	0	0	16.65%	43.58%	39.76%	100.00%	60.24%
Jul	8.89	13.65	9.36	35.64	1.03	1.52	0	7.27	19.47%	67.84%	12.68%	100.00%	87.32%
Aug	8.51	16.06	6.2	32.94	1.86	0.9	0.76	22.51	23.89%	63.45%	12.66%	100.00%	87.34%
Sep	49.89	12.13	5.54	32.19	0.67	1.63	0.44	1.54	11.84%	39.49%	48.68%	100.00%	51.32%
Sum	190.69	147.95	80.95	309.52	7.04	8.98	1.81	41.5	19.81%	54.66%	25.53%	100.00%	74.47%

Through systematic training of our staff, we successfully instituted a comprehensive recycling and food composting program through the city of San Diego, diverting 177.5 tons/year of food waste 590 tons/year of recycled/diverted materials annually, 36,000 gallons of cooking oil/year is hauled off, rendered further and used for biofuel.