FY16-17 SUSTAINABILITY INDUSTRIAL INSTALLATION AWARD
NAVAL STATION EVERETT
EVERETT, WASHINGTON

Introduction

Naval Station Everett (NAVSTA Everett) is located in northwest Washington State with the main Waterfront Site on the Puget Sound at Everett, Washington. NAVSTA Everett is currently homeport to five destroyers, USS Momsen, USS Shoup, USS Gridley, USS Sampson, and USS Kidd, as well as Commander, Carrier Strike Group 11 and Commander, Destroyer Squadron 9. In addition, the base supports a Coast Guard buoy-tender and a Coast Guard coastal patrol boat. Military Sealift Command supply vessels and other visiting ships also use the Navy port on a regular basis. The station's Waterfront Site, commissioned in 1993, is a major presence along the Everett waterfront. A short distance west of downtown Everett with a popular marina and retail area along the north boundary and the former Kimberly-Clark industrial facility immediately south, NAVSTA Everett is a 117-acre developed site supporting port operations and vessel maintenance plus recreation activities including a 90-slip marina with 2,830 linear feet of space and about 13 acres of recreational areas.

The station's two nearby remote facilities are the Navy Support Complex at Smoky Point and Naval Radio Station (T) Jim Creek in Snohomish County. Including tenants, NAVSTA Everett is home to nearly 3,000 military and civilian personnel. It supports an active duty, and dependent population of over 7,500 and ranks as the fourth largest Snohomish County employer.

Naval Radio Station (T) Jim Creek is made up of 4,600 acres located about 25 miles north of Everett in the foothills of the North Cascade Mountains. The station operates a very low frequency (VLF) radio transmitting facility that relays communications from Naval Command to elements of the Pacific Fleet. The 4,600 acres includes old-growth conifer forest, lakes, streams, wetlands, fisheries, and threatened and endangered wildlife habitat. Morale Welfare and Recreation (MWR) supports outdoor recreational opportunities including camping, fishing, biking, and hiking.

The Navy Support Complex (NSC) site is located in Marysville, Washington on 52 acres, approximately nine miles northeast of the Waterfront Site. It has various support activities including the Navy Exchange and Commissary. The 52 acres consists of upland meadows, jurisdictional wetlands (native growth protective easement), detention ponds, bio-swales, improved and semi-improved grounds.

Additional segments of NAVSTA Everett's Area of Responsibility (AOR) are 14 different Navy Operational Support Centers (NOSC) located in 11 northwestern States. Four of these NOSCs are located upon Navy owned property which results in higher environmental compliance oversight requirements. The final piece of NAVSTA Everett's AOR is the Pacific Beach Annex located on the Washington coast. Environmental compliance oversight requirements at the Pacific Beach Annex primarily include drinking water, wastewater, and cultural resource management at the 52 acre site. The military mission at the Pacific Beach Annex consists of operating a fixed emitter antenna used for training exercises with Pacific Fleet assets. Non-mission related recreational activities also occur at Pacific Beach.

Background

Port and fueling operations plus ship, facility and utility operations and maintenance to support the mission pose special sustainability challenges at NAVSTA Everett's Waterfront Site. The operational tempo quickly shifts to a higher pace upon the arrival and departure of the destroyers and other ships. Operations are more variable than routine. Maintaining energy and water efficiency standards while a population fluxes with the arrival and departure of the destroyers also presents unique challenges. Consistent environmental excellence and sustainable practices during these rapidly expanding and contracting periods requires flexible and conscientious environmental management at all levels. Improvements to the environmental program have been key NAVSTA Everett goals for the past two years.

For Naval Radio Station (T) Jim Creek, sustainability challenges are part of supporting operation and maintenance of the antenna field and facilities along with the recreational facilities in this pristine area of old growth forest and salmon-bearing creeks. At the Naval Support Activity, Marysville, the challenges are similar to those of a large shopping district with acres of parking and typical commercial and maintenance operations. The parking area brings storm water management issues addressed by infiltration basins. The commercial operations of the commissary and NEX bring the management of refrigeration units and gasoline dispensing which are addressed by record keeping and the Spill Prevention, Control, and Countermeasures (SPCC).

Operations at all three locations generate substantial amounts of solid waste and wastewater. The station accepts and processes hazardous and solid waste from the ships, making reduction and minimization especially challenging. In-port ship support includes fueling and collection of compensating ballast water. In the rainy Pacific Northwest climate, storm water runoff to Puget Sound and salmon-bearing creeks is a significant environmental aspect along with spills and other discharges. Air quality is highly regulated and monitored by State agencies so that, while the station has relatively few emissions, these are significant due to the permit requirements. A systemic approach to environmental management is needed to meet these challenges.

The station successfully implemented 15 important sustainability projects since opening in 1994 but since NAVSTA Everett is a newer facility for the Navy, a more focused approach is needed to identify those sustainability priorities having the most benefit and those that would secure leadership's support. In addition, rigor in environmental management is needed to comply with new requirements in critical areas to avoid being vulnerable to regulatory penalty and to reduce

risks to the environment. Upgrading NAVSTA Everett's Environmental Management System (EMS) to support mission and compliance is a top priority. The EMS addresses the environmental aspects and impacts of projects. Equipment-specific EMS checklists for air assessments and the compensating ballast water treatment system continue to be considered and evaluated for benefits to other installations.

Stakeholder interaction and coordination is on-going in multiple areas including environmental management. The community planning liaison officer position newly hired in 2017 is important in coordinating with the community and local governments particularly to address environmental issues of mutual concern. The Earth Day and Energy Awareness projects are just a few examples of the continuous interaction with the community.

Summary of Accomplishments

Recycling Program

Naval Station Everett continues to exceed the diversion requirements from Executive Order 13693 with a 52% diversion rate in FY16 and 53% in FY17. Recycling education and outreach is always in the forefront. This includes providing program information to the newly homeported destroyers as well as to any visiting ships. As a result, during the past two years NAVSTA Everett has seen a significant drop in the amount of solid waste generated (a reduction of approximately 510.8 tons).

Replacing aging trucks with more fuel-efficient models and instituting new, larger designed containers for used cooking oil allow for better operational practices regarding material management and collecting/hauling.

Safety is always a priority. Additional safeguards were added to the large baler to increase employee safety when operating. Rails were added to roll-off containers for safety during the unloading procedure. These changes identified by the team, earned them a Star Work Center Safety Award and allow a greater focus on the recycling process.

The table below reflects recycled material totals over the last four years. It is noteworthy to recognize that the USS Nimitz changed homeport in January 2015, which reflects an overall reduction in total tons of material recycled post FY15.

Recycled Materials	FY14 & 15 in tons	FY16 & 17 in tons
Select Waste	509.1	360.6
Metal	396.1	428.2
Glass	36.8	22.9
Other	38.1	62.8
Paper	954.0	711.6
Plastic	80.1	39.9
Wood	299.2	232.9
Yard Waste	82.3	126.6
Food Waste	136.2	63.5

Table of Recycled Material Totals over Last Four Years

Compensating Ballast Water Process Improvement

Naval Station Everett continues to improve its prototype processing of compensating ballast (comp) water collected during the refueling of ships with discharge to the City of Everett's sanitary sewer system.

Zinc filtration vessels inside the CMU

Naval Station Everett's coordination with the City of Everett in diverting and treating comp water in this unique sustainability project is challenging but the benefits to Puget Sound are substantial.

Certain Navy ships, such as the Arleigh Burke class Destroyers, and Ticonderoga Guided Missile Cruisers, are designed with water compensating fuel (WCF) systems. Seawater enters the fuel (or ballast) tanks for compensation as fuel is consumed. The seawater that enters the fuel tanks is referred to as compwater and is used to maintain proper trim and ship stability. During refueling operations, incoming fuel displaces the compwater, which is discharged from the ship through overboard discharge ports. This poses an environmental risk because compwater contains a small but measurable amount of fuel. In the worst-case scenario, straight fuel could be inadvertently discharged overboard when ships' fuel tanks are overfilled due to faulty tank level indicators or operator error. Compensating ballast wastewater disposal costs are significant. The Compwater Management Unit (CMU) system provides the Navy a more cost-effective disposal method. Compared to current practice, implementation of the CMU system can result in savings of $0.20 per gallon process and disposal cost.

Washington, Alaska, and some locations on the East Coast have adopted 'zero-discharge' requirements. These locations do not allow Navy ships with WCF systems to refuel in port unless compwater is collected and processed on shore. With new and more stringent regulations on the horizon, it is anticipated that it will soon be required that all compwater be collected during in-port refueling operations Navy-wide.

Since its establishment in April 1994, NAVSTA Everett has been on the forefront of sustainability and has always complied with the local regulation of 'zero-discharge' in its navigable waters. The station developed its own collection system using a converted fuel barge to collect and transfer the large amounts of compwater to the Navy-owned pretreatment facility.

Naval Station Everett is currently the homeport for 6 Navy ships with plans for 1 more in the near future. Occasionally, a visiting WCF ship takes on fuel in port and must do so in accordance with NAVSTA Everett refueling operations procedures.

At NAVSTA Everett, a fuel barge and collection barge are placed alongside of a ship berth on a pier during in-port refueling. Hose connections are made to refuel the ship and capture its compwater discharge. As fuel is delivered from the fuel barge, compwater is displaced at the same rate to the collection barge. An average refueling evolution normally takes an entire day. After refueling, the collection barge is moved away from the ship to another location on the pier to be offloaded or transferred.

Without a CMU, compwater (an oily wastewater) is pumped to a pier oily wastewater riser connection using the barge transfer pump. From the pier riser, compwater is gravity fed in to a lift-station at the end of the pier. The lift-station then pumps compwater along with other oily waste to the NAVSTA Everett's Oily Water Treatment Facility (OWTF).

Segregating compwater from the other dirtier more complex oily waste such as bilge water is not feasible due to a common lift-station serving the piers to the OWTF. Other oily wastes are commingled with the cleaner compwater making treatment cost significantly higher than treating compwater by itself.

The purpose of the CMU system is to provide a more cost-effective and environmentally sustainable alternative to current methods of disposing compensated ballast wastewater generated during in-port refueling operations. Current disposal methods consist of collecting ballast wastewater in a collection barge and then pumping it to a Navy-owned OWTF at NAVSTA Everett. Because of the relatively small amounts of fuel (compared to bilge water) present in the ballast wastewater and the large volumes sent to the treatment plant, this method of disposal/treatment is very costly to the Navy. A typical refueling operation generates approximately 200,000 gallons of ballast wastewater containing approximately fuel fractions from 1 ppm to greater than 1,000 ppm. The typical Navy-owned OWTF accrue operation and maintenance cost of approximately $0.26 per gallon to treat oily waste. Therefore, a typical refueling operation incurs approximately $52,000 in charges associated with compwater treatment alone. In contrast, implementing the CMU system will cost $12,000 comparatively, resulting in a $40,000 savings per refueling evolution.

The CMU system was designed by the Naval Facilities Engineering and Expeditionary Warfare Center to remove hydrocarbons, heavy metals (e.g. zinc, copper, etc.), suspended solids, and debris that may be present in compwater. The clean or treated effluent from the system is discharged to the sanitary sewer while the separated oil fraction is discharged to NAVSTA Everett OWTF. The removed metals from the compwater are absorbed and retained in the

filtration media (activated alumina). Effective operation and maintenance of the CMU equipment is essential for successful treatment of this oily wastewater. The CMU system effectively treats the compwater collected from Navy ships to minimize disposal costs while also complying with state and local wastewater discharge requirements and protecting the environment and providing for sustainability.

Compwater is relatively clean, containing a small amount of fuel oil that is of concern and metals (mainly zinc) at levels usually below Publically Owned Treatment Works (POTW) requirements. Because of the relative cleanliness of compwater compared to other oily waste such as bilge water, it is more cost-effective to treat this wastewater separately. Rather than transferring the compwater from the collection barge directly to the OWTF, it is first passed through the CMU system where it is treated by separating the fuel fraction.

After the treatment process, the wastewater effluent can be discharged directly to the sanitary sewer system or POTW via the sanitary sewer (or the Collection, Holding, and Transfer system) pier riser at a cost of less than $0.06 per gallon. The small amount of fuel fraction effluent is sent to NAVSTA Everett OWTF where it may be separated and recycled or disposed.

Efficient Energy Management under E.O. 13693

Naval Station Everett continues to reduce it energy usage rate. FY16 had a decrease of 14,361 Million British Thermal Unit between FY15 and FY16, a 10.21% reduction in energy usage using the Secretary of the Navy criteria and performance data guidance for energy reduction progress tracking. Recent success results from conservation projects, sound energy management practices and promoting energy conservation awareness.

More than 20 projects implemented over the last five years funded by Bonneville Power Administrations' Utility Energy Service Contract, CNIC RMe Program and DOD Energy Conservation Investment Program, are bearing fruit. Re-commissioning of the 16 worst performing heating, ventilation, and air conditioning (HVAC) systems as identified by Energy Star Building Manager program, installation of more efficient light-emitting diode (LED) lighting at 99 percent of the exterior locations, and the installation of improved HVAC controls and centralized monitoring systems covering the 33 highest energy consuming buildings and empowering maintenance personnel to operate and maintain equipment more efficiently, and decrease overall energy consumption.

Naval Station Everett Public Works Department In-House Shops act promptly in response to information provided by Building Managers and occupants on comfort and centrally monitored Advanced Metering Infrastructure 15-minute energy use anomalies to identify potential energy waste. Shops personnel take the initiative to test new technologies such as LED lighting and continuously monitor and adjust HVAC controls. This requires a daily familiarity with the systems and controls by those who maintain the equipment.

Education, Outreach and Partnership

The station's promotion of sustainability is evident in the success of the 2016 and 2017 Earth Day and Energy Awareness Week events. Hailed as two of the most successful events at the

station, the Earth Day celebrations featured participation by the Port of Everett, the Mt. Baker Snoqualmie National Forest and other and civic organizations. The coalition of volunteers from Navy, Port of Everett, and the Forest Service made this one of the most successful community sustainability projects of the year.

In both FY16 and FY17 the Energy Awareness Weeks promoted energy conservation and recycling. Starting in FY15 the program expanded activities to include: awareness training to sailors, week-long static displays, and a one-day Energy Fair showcasing local companies' energy projects and capabilities.

Environmental Management System – NAVSTA Everett implemented all elements of an EMS in FY16 and FY17 with the focus being to directly support missions and reduce risks to operations through compliance and stewardship as well as environmental protection. Specifically, the station set new EMS goals and objectives, implemented operational controls, expanded work center and staff training and deployed a quarterly assessment program. The station updated critical plans such as the Spill Prevention, Control and Countermeasures (SPCC), Storm Water Pollution Prevention Plan (SWPPP) and the Hazardous Waste Management Plan (HWMP). All SPCC and SWPPP actions are completed and updated annually. The Environmental Division set up a new process to evaluate multiple actions throughout the station needed to support operational requirements and projects. Tighter controls are in place to prevent and respond rapidly to spills and to protect water and wastewater while minimizing impacts to mission. 150 projects received environmental review, consultation, and permit support to provide operational and project support ahead of schedule.

Material Management - The Hazardous Material (HAZMIN) Center established a hazardous material reuse program to redistribute unneeded material across NAVSTA Everett. The HAZMIN Center continues to work to add organizations to its management program.

Green Building – The Security Department's armory and indoor range completed an upgrade in FY17 to contain lead pollution that posed risks to air quality, storm water and personnel safety.

Air Quality – The Spokane Regional Clean Air Agency recognizes local businesses for the work they do to reduce air emissions and improve air quality in the community. Every two-years businesses are recognized for meeting local air quality requirements with a silver level recognition going to those businesses (1) where the facility has not been issued a Notice of Violation in the last two calendar years and during the most recent facility inspection, and (2) The Annual Registration Form and Fees are complete and submitted to Spokane Regional Clean Air by the required due date. The NOSC Spokane is a silver recipient for 2017-2018.

Water Conservation - Water conservation netted a 12% reduction in potable water usage between FY15 and FY16.