Navy Region Center, Singapore (NRCS) is located on the island nation of the Republic of Singapore (ROS) at the southern tip of the Malaysian Peninsula, one degree north of the Equator. The mission of NRCS is to provide Fleet liaison between the host nation and naval, joint, or coalition military units conducting business in Singapore. NRCS provides facilities management in one of the most dynamic theaters and directly supports Pacific Command (PACOM) regional engagement and security plans, Forward Deployed Logistics Task Force Commander (CLWP/CTF-73). Including regional assignments, NRCS supports a total of 129 military members, 431 civilians, and 303 family members in an area covering 105 acres.

NRCS operates mainly in Sembawang and has regional responsibilities in Paya Lebar Air Base and Changi Naval Base. NRCS provides shore-side and administrative support to 22 military tenants:

- Commander, Logistics Group, Western Pacific
- Military Sealift Command (MSC), Sealift Logistics Command, Far East
- Naval Supply (NAVSUP), Fleet Logistics Center Site Singapore
- Navy Criminal Investigative Service, Greater Southeast Asia Field Office
- Naval Meteorology & Oceanographic Command, Far East Regional Office
- MSC Ship Support Unit, Singapore
- Special Boat Team Maintenance Facility
- Defense Contract Management Agency
- U. S. Coast Guard, Far East Detachment
- 497th Combat Training Squadron
- Naval Medical Research Unit 2 (NAMRU)
- Naval Computer & Telecommunications Area Master Station, Singapore
- Navy Exchange Singapore
- Defense Logistics Agency - Energy
- Naval Facilities Engineering Command Far East, Singapore (NAVFACFE)
- Special Operations Command Logistics Support Facility
- Air Mobility Squadron Detachment 2
- Customer Service Detachment Singapore
- U.S. Army Public Health Command District – WESPAC, Singapore branch
- Surface Deployment and Distribution Command
- Navy Federal Credit Union
- U. S. Embassy

With the implementation of the Environmental Management System, NRCS has identified two major aspects; energy and solid waste reduction. The motto at NRCS is that environmental compliance is everyone's responsibility. All tenants and commands are committed to:

(1) Implement pollution prevention and environmental management practices
(2) Ensure adherence to applicable policies
(3) Emphasize reduction, reuse, and recycling
(4) Continually review, measure, evaluate and improve
(5) Provide outreach and partnership when possible
(6) Minimize the impact to mission readiness

Program Summary

Supporting all facets of operations ranging from permits and compliance to cradle-to-grave management of hazardous materials, NRCS is committed to being a model steward in environmental and provides world-class customer-focused installation and facility support to operating forces in the Pacific Area of Responsibility (AOR). Through program leadership and proactive planning efforts, NRCS ensures mission accomplishment and protection of natural assets

and human health through implementation of the environmental management systems in everyday operations, waste management and safe drinking water. Successful execution of potentially competing tasks requires dedicated work and innovative solutions. The main objectives of the Environmental Strategic Plan at NRCS are to integrate all regulatory requirements and compliance through:

- Promoting Pollution Prevention (P2) as an integral part of supporting mission readiness and achieving local pollution reduction goals
- Reducing environmental liabilities and protecting public health and the environment by eliminating or minimizing the volume and toxicity of hazardous substances used on the installation
- Actively implementing and evaluating innovative methods and technologies to prevent resource depletion and adverse impacts to achieve DoD Measures of Merit (MOM)
- Actively integrating Environmental Management System (EMS) principles into all work processes on a continual basis

Environmental Program Focus Areas
EMS
Radon
Air Quality
Storm Water Mgmt
Solid Waste
Water Quality
HAZMAT
Hazardous Waste
Asbestos
Wastewater
POL
Medical Waste
Pesticides
Lead Based Paint
SPCC
UST/AST

The Environmental Management System is integrated into all environmental processes by using established procedures to identify significant environmental aspects. NRCS fosters an atmosphere that capitalizes on effective cross-functional teamwork to promote and advance program objectives. The Environmental Program strongly emphasizes compliance with all shore-side environmental programs, and exceeds requirements where possible with the Overseas Environmental Baseline Guidance Document (OEBGD). Program areas include air, water resources management, solid and hazardous waste management, spill prevention, asbestos management, and discharge monitoring for both U. S. and host nation requirements. Other focus areas include conducting natural and cultural resources reviews, providing pest management services, providing training to NRCS and tenant commands, overseeing P2 program initiatives, performing environmental quality assessments, and implementing applicable Executive Orders (EO) and Navy policies. All department heads and program managers participate as EMS cross-functional team members.

Program Management

The Environmental Program consists of:

- 1 Environmental Engineer, and 1 Environmental Specialist and 1 Contractor. Responsible for planning and implementing a comprehensive environmental program.
- Base Operating Support (BOS) contractor, who is responsible for shore-side hazardous waste and material operations. Duties include hazardous material management; spill response and facility operations. They are responsible for safety data sheet requests, providing environmentally friendly substitutes, and minimizing HAZMAT usage and reducing waste streams. Performance is evaluated monthly to ensure satisfactory standards are achieved.

Annual self-assessments are performed and monitored to ensure corrective actions are continuously implemented. Annual evaluations provide information and feedback in a closed loop system to the program director to allow budget adjustment and best resource allocation. Root cause analysis is used to direct overall program strategic efforts and to ensure long-term sustainability of the environmental program with EMS implementation.

In previous years, NRCS Environmental, in consultation with NAVFAC Pacific, implemented EMS starting with the gap

analysis, established criteria, set goals and milestones, devised operational controls, implemented an internal assessment plan. In FY11/12, Environmental continued to refine the system, re-ranked all aspects and completed transitioning all environmental data to EMSWeb. This new system not only allows centralized storage of all records, it enhances transparency and minimizes findings/corrective actions tracking and recordkeeping efforts to the extent that the team can take on training to support increased missions. EMSWeb allows data organization and metrics to be graphically presented to stakeholders, cross-functional team members (N1, N3, N4, N5, N7, N8, and N9) and tenants to gather their review and input.

Orientation to Mission

Working closely with NRCS and its 22 regional tenants, the environmental team ensured EMS concepts and P2 tools were integrated down to the lowest level to support military readiness and all civil work. This has been demonstrated through cooperative screening of hazardous material purchased including those that were locally purchased and transshipped throughout the region. Inspection standards and compliance evaluations have been strictly enforced and corrective actions were tracked. Operation risk management principles were applied to all work processes to further evaluate potential impacts, reduce liability, and achieve cost savings, where possible. All the processes (host as well as tenants) were documented in Standards Operating Procedures (SOP) under EMS guidance together with their operational controls to ensure sustainability.

All renovations and new projects were reviewed based on EMS and environmental requirements including how to effectively manage significant environmental aspects to achieve environmental objectives and long-term mission sustainment. All contractors were trained prior to the start of their projects on how to provide supporting data and means to achieve EMS goals.

NRCS firmly believes that the best innovative solutions involve prevention by using the environmental/waste management hierarchy: First, prevent pollution at the source; then recycle and reuse. Pollution that cannot be prevented or recycled is treated in an environmentally safe manner. In order to achieve environmental objectives and long-term mission sustainability, NRCS environmental personnel reviewed all work processes together with tenants and PWD to promote "buy ins", environmental awareness and offer mitigations, where possible.

Our waste minimization initiatives undertaken in the past two years have strengthened our efforts in solid waste reduction and our Qualified Recycling Program (QRP). In FY12, NRCS was able to achieve an impressive recycling/composting rate of nearly 383 pounds per person per year. In addition, the team also provided annual refreshers to all buyers in NAVSUP Contracting, credit card holders, and BOS contractors, in Affirmative Procurement. Starting FY11, we added Non-Appropriate Fund personnel. NRCS has also had partnering sessions and weekly meetings with contractors routinely to receive feedback on sustainable recommendations and greening the environment issues. This type of enthusiasm and involvement has been critical to the success of the program.

In FY11/12 NRCS:

- Met objectives and goals in promoting long-term operational sustainability on process review and operations
- Evaluated fully all major and minor aspects of all processes at NRCS including those of the tenants

- Developed new and reaffirmed 19 work processes under EMS, 10 SOPs, 17 Management Procedures, and verified over 520 items in the Authorized Use List (AUL)
- Streamlined all work processes based on cost and mission benefits and tracked findings using EMSWeb
- Completed fourth annual EMS review and integrated environmental quality assessment into work centers to ensure sustainability
- Reviewed and updated all required plans (23) including overseas environmental liability in coordination with Public Works, tenant commands, program managers, and real estate planners
- On-time submission of all data calls to CNIC and other mission support requirements (over 300 internal/external)
- Recycled 21,375 lbs of batteries, plastics and used oil and added cooking oil, plastics and glass as items
- Conducted 3 on-site sales with Defense Logistics Agency and coordinated 3 opportune lifts. Diverted 811 items from local disposal. Increased our QRP revenue from $11,000 to $80,000.
- Achieved command savings and benefited the fleet at a number of levels through cost avoidance, well planned and sustainable missions
- Completed triennial environmental quality assessment in FY12 with the least findings among all regions

EMS Conformity
Achieved EMS conformance with no major or minor discrepancies – First in the Navy in 2009. Re-declared in 2012

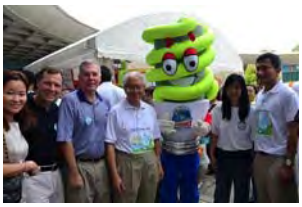
Technical Merit

The Environmental Program's primary objective was to go above and beyond basic compliance and remain customer-focused at all times. The program preferentially targeted the reduction of waste and discharge, while improving overall mission and environmental safety and health performance. The NRCS Environment Program continued to be diverse and covered all applicable areas within program budget and resource allocation. All savings realized were redirected to other unfunded environmental projects to further enhance NRCS environmental efforts.

Using the latest technology and best management practices, major accomplishments and programs directly responsible for mission readiness within the past 2 years include:

- No notice of violation or citation from both U. S. and local standards
- Achieved environmental compliance and successful execution and enhancement of projects ensuring sustainability. Mitigation measures were used to minimize impacts in toxics, energy, water, and solid waste
- Achieved energy reduction (Top EMS aspect) of 38% based on 2003 baseline. This is equivalent to a savings of over 227K
- Through rigorous process control and monitoring, NRCS was able to achieve a 47% solid waste reduction (2nd Top EMS Aspect). (Recycled 641 tons out of 1,364 tons) and 47% reduction of shore-side hazardous waste (Recycled 2.8 tons out of 3.1 tons)
- Completed 100% of heat pump installation in all Bachelor and Visitor Quarters and achieved a 67% energy saving with this new system
- Completed 86% of solar heaters in all Duplex and Bungalows with an anticipated 33% savings in energy
- Completed installation of all water reduction devices (83) in wash basins and toilets in Bldg 7-4 as part of our water reduction initiatives

- First to implement a Navy Resident Energy Conservation Program overseas with great CNIC (N9) endorsement
- Enforced Freon recovery of air handling units prior to disposal
- Diverted 594 lbs of aluminum cans, 14,564 lbs of scrap, 14,564 lbs of paper and 7,238 lbs of pallets from the solid waste stream resulting in avoided cost of $2,445 and $6,050 in revenue
- Completed asbestos, radon and lead based paint comprehensive survey in both Housing and Industrial areas
- Monitored installation of backflow preventors (1,764 devices) to correct deficiencies in the Sanitary Survey to protect our water supply
- Established procedure to continually monitor host nation sites on national monuments and world heritage web to ensure historical and cultural compliance. Applied for applicable waivers at CNIC
- Established a Memorandum of Agreement with Public Health Laboratory for drinking water and waste testing and ensured all analyses are certified to U. S. standards
- Focused planning with EO 12114, EMS principles and operational sustainability in all new projects and in developing mitigations measures to minimize restrictions and support new missions
- Performed the full range of drinking water testing (281 samples per year) required by the OEBGD including coliform, inorganic chemicals, synthetic organics, total trihalomethanes, pesticides, lead and copper; and verified that our local water quality meets the Clean Water Act using the same U. S. protection standards for our sailors and personnel. Singapore was one of the few areas that met all standards in the last Navy wide assessment of Overseas Potable Water Systems with the Naval Inspector General Office
- Significantly increased our spill response capability by partnering with PSA and Royal Navy Liaison Office. Received an additional 2,000 feet of preventive booming equipment from the Oil Spill Equipment Program
- Continually sought process change/ source reduction to enhance long-term sustainability and to prevent resource depletion and adverse impacts on natural assets and human health
- Conducted joint pesticide research projects with NAMRU-2 and Singapore National Environmental Agency to support missions in similar areas
- Exceeded expectations in supporting training to U. S. military and tenants and certified all appropriate personnel to ensure technical competency. This included: Facility Response Team, Incident Command System and Tabletop Spill Response Exercise, EMS awareness, Hazardous Substance Incident Response and Management, and stormwater training using web modules
- Trained over 309 station personnel during the annual EMS review and refresher each year



Stakeholder Interaction

NRCS is in a very unique situation in that the command is smaller than some of the tenant commands it serves. This uniqueness allows NRCS to run the environmental program at the regional level while consolidating resources, maximizing program effectiveness, and overcoming many challenges with one voice. NRCS has created opportunities to ensure the full implementation of the Environmental

Strategic Plan and drawn in stakeholder involvement through partnerships, in-house training and outreach programs to promote public involvement and 2-way communications. In FY11/FY12, the environmental team achieved much success. Some examples follow:

- Open training opportunities for seven classes to host nation personnel and surrounding militaries in hazmat, spill response, EMS, and incident planning to allow cross-organizational partnerships
- Enhanced environmental support for all tenant commands and visiting vessels under Seventh Fleet AOR and conducted briefings to ship personnel
- Used the local newspaper (Merlion), bluescreen (closed circuit television), command website as means to disseminate energy tips and invite participations to special events
- Provided EMS awareness to over 3,448 individuals/visitors (ECATTS, Indocs, etc.) and surrounding communities including Royal Navy Liaison Office, Australian Liaison Office, New Zealand Defense Support Unit, Republic of Singapore Navy, PSA Corporation, and Interagency Auxillary Police Force
- Used the Command Bulletin Boards and Commander, Navy Installation Command (CNIC) Gateway and websites (G2) to post special events, energy, and EMS information.
- Developed and distributed EMS and/or energy newsletters (quarterly) , and Consumer Confidence Report (annual) to communities (public and in-house)

- Set up fairs and EMS Information Booths at various events such as National Day Celebration, Earth Day, Fun Runs, and Playground Cleanup to promote environmental awareness. Topics included completed projects such as asbestos removal, energy, water testing, waste management, etc.
- Established the process to review all new host nation regulations to ensure compliance with Singapore law
- Conducted joint spill exercises with British, PSA and Singapore Navy
- Worked with Singapore Civil Defence Force in annual flushing of water lines
- Conducted pesticide research project with NAMRU-2 and Singapore National Environmental Agency
- Established community outreach services and partnership programs with host nation in special events such as World Water Day. Over 25,000 participants were at the Event.

NRCS routinely met with host nation agencies and had great working relationships with Singapore authorities including Public Utilities Board and other nations' regional offices, co-located in our area.

Transferability

A key facet of the NRCS' success is to provide a sense of personal contribution and ensure programs are well maintained and can be successfully transitioned through the change of commands and personnel. Instructions/standard operation procedures, and meticulous record keeping were used to conduct root cause analysis and as the primary means of communication to ensuring transferability of lessons learned. Environmental documents are well publicized and posted in NRCS's shared drive, CNIC Gateway (G2) and EMSWeb. Lessons learned and pitfalls were disseminated to local commands and regional safety so they could also learn and apply appropriate corrective actions to their programs. To further minimize adverse impacts of transient

personnel, all environmental personnel received cross-functional training and are required to keep up with state-of-the-art information. A single point of contact was used for all environmental matters to further enhance effective information dissemination.

In FY12, all environmental data was entered into EMSWeb. Major claimant and commands can now view any program progress and plan of actions and milestones on-line. Information is available to DoD commands on request.

Project Impact

The environmental strategy and program, as established, is expected to endure over time. This has been validated by the Triennial External Audit recently completed in May 2012. With the increased missions and personnel (over 30%) in Singapore over the past few years, environmental findings have decreased to near nil. Besides reaching our targeted program goals and milestones, our efforts were being recognized as one of the best installations with the least compliance findings. Currently, all planning records are up-to-date and all host nation staff are trained and qualified to maintain the system as established. With the transfer of all pertinent documents, SOPs and records to EMSWeb, it is a certainty that the program will flourish with top management support.

Other Mission Accomplishments

Over the past several years, the NRCS environmental program has demonstrated exceptional achievement in merging support to mission and having a successful environmental protection program. This dedication has strengthened our relationship with the host nation. With this trust, the approval time from local regulators for our Shipboard Generated Industrial Waste (SGIW) Offload Program was reduced from two weeks to mere hours.

Excelling as a Force Multiplier

In the past two years, the Environmental Program supported over 378 USN and USNS ships and processed over 357,000 lbs of shipboard hazardous waste and biomedical waste for local disposal (15% increase in ship support). By eliminating the need to retrograde these materials to Japan or CONUS, the program enhanced personnel safety and minimized spills. More importantly, this program had greatly enhanced the combat effectiveness of CTF-73/74 by allowing ships and submarines to properly manage waste and remain excellent stewards of the environment.

Other noteworthy milestones for the past two years include:

- NRCS had the cheapest shipboard waste disposal cost across the Navy at an average of $0.20 per lb
- Completed an annual external audit of eight treatment and disposal facilities with the Defense Logistics Agency to ensure regulatory compliance with U. S. and host nation standards
- Continue dialogue with Hong Kong Environmental Protection Department to request biomedical and flammable waste offload
- Staging of 5K shop towels at NRCS

The success of this program could allow other surveyed ports to offload shipboard generated wastes and would greatly enhance U. S. Fleet's capabilities in the future. Additionally, our noteworthy Fleet Support programs did not sacrifice shore compliance efforts resulting in increased regulatory scrutiny or operating expense. All the program areas were reviewed based on full life-cycle costs of the processes prior to implementation thereby ensuring continued savings into the future.