



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 under Commander, Navy Installation Command (CNIC):

- 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)
- Navy Exchange Singapore
- Naval Computer and Telecommunications Area Master Station, Singapore
- Defense Logistics Agency - Energy
- Naval Facilities Engineering Command (NAVFACFE) Far East, Singapore
- 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 (EMS), NRCS has identified two major aspects; energy and solid waste reduction. The motto at NRCS is that environmental compliance is everyone’s responsibility with NRCS Environmental as the lead. 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

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
IST/AST

NRCS Environmental Sustainment Team

The NRCS Environmental Sustainment Team consists of:



- One Environmental Engineer, Ms. Alice Wilson (Team Lead), NRCS (DoD Civil Service)
Primary Duties: Ensure environmental compliance of all environmental programs per Overseas Environmental Baseline Guidance Document (OEBGD) including EO12114, EMS, Shipboard Generated Industrial Waste Program, Radon, Other Accrued Environmental Liability, Contracting Officer Representative
Received 4 Special Act Awards and 1 Performance Award and 5 Letters of Appreciation
Membership: American Civil Works Association, Association of Civil Engineering Corps, Institute for Sustainable Infrastructure Tech Resource Management Subcommittee
- One Environmental Specialist, Mr. Teo Kok Sing, NRCS (DoD Host Nation Civil Service)
Primary Duties: Shipboard Generated Industrial Waste Program, EMS Implementation, Data Management, Training, Quality Assurance Evaluator
Received 2 Letters of Appreciation and 1 nomination for Cash Award
- One Environmental Specialist, Mr. Latt Aung Zaw, NRCS (NAVSUP Contractor)
Primary Duties: EMS Implementation, Internal assessment, Quality Assurance Evaluator, Hazardous Material Management, Training, File Management
Received 2 Letters of Appreciation and many accolades from supported commands/tenants

Program Management

Supporting all facets of operations ranging from permits and compliance to cradle-to-grave management of hazardous materials, the NRCS Environmental Sustainment Team is committed to being a model steward in the environmental arena 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, the team 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 these 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

Through the team, the Environmental Management System is integrated into all environmental processes by using established procedures to identify significant environmental aspects. The team fosters an atmosphere that capitalizes on effective teamwork to promote and advance program objectives. The team 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 under the team's responsibilities include



conducting natural and cultural resources reviews, overseeing pest management services, providing training to NRCS and tenant commands, overseeing P2 program initiatives, performing environmental quality assessments, and implementing applicable sections of Executive Orders (EO) 13423 on energy efficiency and sustainable buildings, 13514 on green house gas and 2010 and 2011 DoD Strategic Sustainability Performance Plan (SSPP). All department heads, program managers participate as EMS cross-functional team members.

Orientation to Mission

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

Working closely with NRCS and its 22 regional tenants, the environmental team ensures EMS concepts and P2 tools are 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 Standard Operating Procedures (SOP) under EMS guidance together with their operational controls to ensure sustainability.

Annual self-assessments are performed and monitored to ensure corrective actions are continuously implemented. Annual evaluations provided information and feedback in a closed loop system to the team 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 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.



All renovations and new projects were reviewed by the team 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 to provide supporting data and means to achieve EMS goals.

The team 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 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
- 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 datacalls 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 (an 86% increase).
- 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

Technical Merit

The team'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 were redirected back to other P2 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, 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
- 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 savings 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 thereby ensuring 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 OEBCGD including coliform, inorganic chemicals, synthetic organics, total trihalomethanes, pesticides, lead and copper; and verified that our local water quality meets the Safe Drinking Water Standards as the 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 boom 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 project with NAMRU-2 and Singapore National Environmental Agency to directly 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 546 station personnel during the annual EMS review and refresher

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 the team to run the environmental program at



a regional level while consolidating resources, maximizing program effectiveness, and overcoming many challenges with one voice. The team 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 and 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 information 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 CNIC Gateway and G2 websites 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 Singapore regulations to ensure compliance with host nation requirement
- 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 volunteer partnership programs with host nation in special events such as World Water Day. Over 25,000 participants were at the Event.

The team routinely met with local regulatory agencies and had developed great working relationships with Singapore authorities 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 to 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 by the team 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 by the team in NRCS's shared drive, CNIC Gateway and EMSWeb. Self-assessments and follow-up actions are fastidiously scheduled to ensure all facilities and processes are covered and reviewed at least once a year. The team also ensured continual training and act as a single point of contact for all environmental matters further enhanced effective information



dissemination. From the pitfalls, the team disseminated lessons learned to local commands and regional safety so they apply appropriate corrective actions to their programs. To further minimize adverse impacts of transient personnel, team members received cross-functional training and are required to keep up with state-of-the-art

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

*Excelling as a
Force Multiplier*

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 kept up-to-date by the team 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 Environmental Sustainment Team has demonstrated exceptional achievement in merging support to mission and having a successful environmental protection program. Their dedication has strengthened NRCS 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.

In the past two years, the team 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 and CTF-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 annual external audit of eight treatment and disposal facilities with the Defense Logistics Agency to ensure regulatory compliance with host nation and U.S. standards
- Continued dialogue with Hong Kong Environmental Protection Department on biomedical and flammable waste

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.