



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 164 military members, 379 civilians, and 377 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 23 military tenants:

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| <ul style="list-style-type: none"> • 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 Center Asia (NMCRA) | <ul style="list-style-type: none"> • Naval Computer and Telecomm-unications Area Master Station, Singapore • Navy Exchange Singapore (NEX) • Defense Logistics Agency - Energy • Naval Facilities Engineering Command Far East, Singapore (NAVFAC) • Special Operations Command Logistics Support Facility • Air Mobility Squadron Detachment 2 • Customer Service Detachment Singapore • Western Pacific Veterinary Command, Detachment Singapore • Surface Deployment and Distribution Command • Navy Federal Credit Union • Maritime Staff Element • U. S. Embassy |
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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. 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 Department of Defense (DoD) Measures of Merit (MOM)
- Actively integrating EMS principles into all work processes on a continual basis

Environmental Program Focus Areas
EMS
Radon
Air Quality
Storm Water Mgmt
Solid Waste
Drinking Water
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 Public Works Officer, 1 Environmental Engineer, and 1 Environmental Specialist. 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 wastestreams. 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 provided information and feedback in a closed loop system to the program director to allow budget adjustment and best resource allocation. Especially in today’s climate of doing more with less, 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 2009, 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. Since then, Environmental continued to refine the system, reranked 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. The team was able to gain efficiency and support increased missions in overseeing compliance of the new Littoral Combat Ship. EMSWeb allows data organization and metrics be graphically presented to top management, stakeholders, cross-functional team members (N1, N3, N4, N5, N7, N8, and N9) and tenants to gather their review/input.

Orientation to Mission

Working closely with NRCS and its 23 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 including those that were locally purchased and transshipped throughout the region. Inspection standards and compliance evaluations were strictly enforced and corrective actions tracked. Operation risk management principles were periodically 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.

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 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 continued to review all work processes together with tenants and PWD to promote 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 FY13, NRCS was able to achieve an impressive recycling/composting rate of nearly 535 pounds per person per year (up 39%). In addition, the team also provided annual refreshers to all buyers in NAVSUP Contracting, credit card holders, BOS contractors and Non-Appropriate Fund personnel, in Affirmative Procurement. NRCS has also had partnering sessions and weekly meetings with contractors routinely to receive feedback and discuss sustainable practices or other greening the environment options. This type of enthusiasm and involvement has been critical to the success of the program.

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





In FY12/13 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 in the Region
- Developed and reaffirmed 20 work processes under EMS, 10 SOPs, 17 Management Procedures, and 831 items in the Authorized Use List
- Streamlined work processes using innovative technologies based on cost and mission benefits and tracked findings using EMSWeb
- Completed fifth 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 datacalls to CNIC and other mission support requirements (over 300 internal/external)
- Recycled 217,031 lbs of batteries, plastics, used oil, cooking oil, plastics and glass (up 400%). Increased our QRP revenue to over \$11,000
- Conducted 2 on-site sales and 4 opportune lifts with Defense Logistics Agency. Diverted 1,883 items from local disposal.
- Achieved command savings through cost avoidance and well planned missions
- First to implement a Navy Resident Energy Conservation Program overseas with great CNIC (N9) endorsement.

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 effectively 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 protect and enhance NRCS environmental efforts.



Major accomplishments and programs directly responsible for mission readiness on the shore side within the past 2 years include:

- No notice of violation or citation from both U. S. and local standards with increase mission support
- 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 36% based on 2003 baseline. This is equivalent to a savings of \$70K per year
- Through rigorous process control and monitoring, NRCS was able to achieve an average of 41% solid waste reduction (2nd Top EMS Aspect). (Recycled 1,051 out of 2,549 tons)
- Achieved 51% reduction of shore-side hazardous waste (Recycled 5.8 tons out of 11.2 tons)
- Completed 100% of funded heat pump project installation in all Bachelor and Visitor Quarters and achieved a 67% energy saving
- Completed 100% of solar heaters installation in all Duplex and Bungalows with an anticipated 33% savings in energy



- Completed 2 energy booklets and implemented a coupon program with NEX to award energy savers
- Completed installation of water reduction devices (83) in wash basins and toilets in Bldg 7-4 as part of our water reduction initiatives
- Set up Region/Installation Water Quality Boards to oversee compliance
- Enforced Freon recovery of air handling units prior to disposal
- Diverted 1,408 lbs of aluminum cans, 29,854 lbs of scrap, 86,306 lbs of paper from the solid waste stream resulting in avoided cost savings of over \$3,576
- Completed asbestos, radon and lead based paint comprehensive survey in both Housing and Industrial areas
- Completed corrective action and installed 2,000 backflow preventors 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 the use of 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 (289 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 3,080 feet of preventive booming equipment from the Oil Spill Equipment Program
- Continually sought process change/ source reduction alternatives to enhance long-term sustainability to prevent resource depletion and minimize adverse impacts on natural assets and human health
- Conducted joint pesticide research project with NMRCA 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 541 station personnel during the annual EMS refresher
- Awarded lighting retrofit of 9 buildings



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 FY12 and FY13, 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 offered briefings to ship personnel
- Used the local newspaper (Merlion), bluescreen (closed circuit television), command website as means to disseminate special bulletins and invite participations to special events
- Provided EMS awareness to over 4,627 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 energy newsletters, and Consumer Confidence Report to communities (public and in-house)

- Set up fairs and Information Booths within funding constrains at National Day Celebration, Earth Day, Fun Runs events to promote awareness. Topics included past environmental projects, asbestos removal, dengue awareness, energy, water testing, waste management, water flushing, 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 NMCRA 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 35,000 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 mission is 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 to conduct root cause analysis and as the primary means of communication to ensuring transferability of lessons learned.

Environmental documents are 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 to further enhance effective information dissemination.

In FY13, all environmental data was entered into EMSWeb. Major claminant 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.

Project Impact/Outcomes

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 2013. 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 342 USN and USNS ships and processed over 347,991 lbs of shipboard hazardous waste and biomedical waste for local disposal (nearly as much as Pearl Harbor) . By eliminating the need to retrograde these materials to Japan or CONUS, the program enhanced personnel safety and minimized spills. 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 include:
- NRCS had the cheapest shipboard waste disposal cost across the Navy at an average of \$0.25 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
 - Received approval from Hong Kong Environmental Protection Department to allow biomedical 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.