

Narrative Packet

In an effort to reduce the cost associated with solid waste, the Defense Commissary Agency, (DeCA) has written and implemented DeCA Policy 500-23 (Solid Waste Container Infrastructure) or SWCI. Moreover, DeCA has also included dehydration in the solid waste disposal process and waste to energy in the form of gasification in an effort to promote sustainability while creating beneficial reuse products. Utilizing all of these tools, DeCA can realize a significant cost savings while lessening the burden on landfill space, preserving natural resources, and generating products that are good for the environment.

The Environmental, Recycling, & Solid Waste Management Team consist of engineering, resources management, and store personnel. Although all members are not specifically assigned to the team, we act as one. Through collaborative efforts to include; Inter Service Agreement activity (ISA), the securing of contracts, and extensive discussions with installation and commissary personnel worldwide, the environmental team is able to reach Department of Defense (DoD) mandates and agency goals regarding recycling, solid waste, and environmental targets. The motivating factor, of the team, is the difference we can make and have seen, based on our efforts. On a daily basis, we are able to see the financial rewards the agency has reaped due to the team's diligence, knowledge and dedication.

The SWCI was created to align the proper solid waste capacity at each DeCA commissary, thereby, reducing the cost associated with retaining overage solid waste containers. Before the completion of the policy, there was no systematic method in determining what a store's waste capacity should be. DeCA was at the mercy of the installation, where in most cases, there was no scientific study completed to determine the capacity. DeCA conducted eight-week waste studies, at all of the commissaries, and 11 waste sorts in the U.S. and found that in most cases the capacity at each store could be reduced by 50%. The implementation of the policy is ongoing. Thus far, the solid waste container infrastructure implementation has resulted in a cost savings of \$ ~ 1.6M and in FY 12, the revenue generated from the sale of our recyclables was over \$7M. The implementation of DeCA policy 500-23, and continued efforts in recycling efficiency, has decrease DWCF spending and increased surcharge account revenue.

The SWCI also provides environmental benefits as well. Compactors are a source of storm water pollution, and with tighter environmental regulations, protecting the waterways by removing a potential liability is paramount to sustainable practices. As such, DeCA is removing as many compactors as possible. Another benefit of compactor removal is an increase in recycled cardboard (OCC) efficiency. Most of the time, a compactor is connected to the commissary through a chute. This provides an easy conduit to throwing out the OCC rather than recycling it. Removing the compactor eliminates the chute, which in turn, increase OCC recycling efficiency. Removing compactors has contributed to an increase in OCC recycling efficiency from 55% to 78%.

The implementation of DeCA Policy 500-23, and the recycling program, has worldwide implications. As solid waste costs continue to rise, especially in areas where commissaries exist on islands, DeCA looks at ways in which to save taxpayer dollars so that Defense Working Capital Funds (DWCF) can be utilized in other areas. The recycling and solid waste program is

one of the only programs that either make or save the agency money. Another area in which DeCA is progressing is in the use technology to promote sustainability.

DeCA understands that, as a grocery chain, we generated a great deal of food waste. In an effort to promote sustainability, DeCA conducted a food dehydrator pilot test at the 29 Palms commissary located in California. Through the two -month test, DeCA was able to reduce its food waste weight by 86-96%. Not only does this translate into a huge cost savings for the agency regarding waste disposal, it also produces two beneficial reuse products. DeCA is currently looking at potentially adding a solar component to the dehydrators in order to make the units truly Net Zero. Through the dehydration process, organic rich bio-solids are produced that can be used for a number of applications to include:

- Supplemental mulching for installation operations
- Fertilizer replacement for Leadership in Energy and Environmental Design (LEED) credit and cost reduction for fertilizer use
- Creation of animal feed in the form of pellets

Another reuse products generated by the dehydrators is sterile condensate or water. Again, there are a number of applications for which the generated water can be utilized:

- Irrigation
- Cleaning water
- Drinking water (when utilizing attachable filtering kit)

Not only is the creation of water great in any environment, but it adds additional value in areas that are arid and don't receive significant rainfall. DeCA was able to capture the production of 300 gallons of water throughout the pilot test.

Based on the dehydrator test, DeCA is currently developing a business case that will outfit all of the commissaries worldwide with dehydrators. Preliminary numbers indicate that DeCA's worldwide refuse bill would be cut in half to approximately \$3M/year. In order to truly explore all sustainable practices, another area that DeCA is exploring is waste to energy.

Due to the fact that the island of Oahu has approximately ~25 years of landfill space remaining, coupled with DoD solid waste reduction mandates, escalating energy, solid waste, and transportation costs, an alternative method to dispose of DeCA's refuse is needed. DeCA secured an organics diversion contract that diverts 90% of the food waste generated by the commissary from going to the landfill. However, in an effort to promote sustainability and energy security, the National Renewable Energy Lab (NREL), in conjunction with the US Army – IMCOM, and the US Navy Pacific command, has requested DeCA participation in an approximate nine to twelve month testing of a Gasifier at the Hickam Commissary. The Army owns the gasifier and NREL, under contract to NAVFAC, will be conducting the test and collecting all pertinent testing information/documentation. The commissary was chosen due excessive energy and solid waste disposal costs, the amount of solid waste generated by the commissary, and the available cardboard, produce waste, fats and bones, and grocery items that can be used for feedstock.

This gasifier would transverse solid waste to electricity, which would feed directly into the commissary. This is the first test conducted in the US with a solid waste gasifier, which requires estimations on test results. Present estimates with the gasifier operating 24 hours per day 6 days per week it would reduce DeCA's electric costs by 14%, which equates to approximately \$102K annually. The gasifier requires cardboard, which presently produces revenue of approximately \$50K. Solid waste costs for the Hickam commissary are \$88,346.00 annually.

Not only does DeCA's environmental program provide a great example of innovative approaches to saving money, all of the current sustainable projects can be transcended to all DoD entities for implementation.