

WASTE MINIMIZATION AT FLEET OPERATIONS

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ABSTRACT

Fleet operations take place 365 days a year, day and night, and affect all our daily lives in one way or another. The largest Federal Fleet operation in a single location, located at the Nevada Test Site, runs on such a schedule. A fleet operation of this size, encompassing every vehicle type and size from sedans through 400-ton tractor-trailers, generates commensurate amounts of waste. This presentation/paper presents innovative management techniques which have been successfully employed to manage and minimize generated waste and reduce operating costs at the same time!

INTRODUCTION

Fleet operations affect our everyday lives in ways we are not always aware. Goods and services arrive and are provided by fleets both large and small, all over the world. The United States Department of Energy has the largest centrally located federal fleet at the Nevada Test Site (NTS). This fleet is operated and maintained by the prime contractor, Reynolds Electrical and Engineering Co., Inc., at the Fleet Operations Department (Fleet).

This fleet of over 3,500 light, medium and heavy duty vehicles, generates a lot of waste in the act of operating and maintaining vital functions. The maintenance facilities, totaling over 8 361 square meters (90,000 square feet) of floorspace, are equipped to address waste minimization in innovative ways.

Waste minimization efforts go back over five years at Fleet, resulting in the elimination of approximately 283.9 kiloliters (75,000 gallons) of waste which was previously generated. Through the successful implementation of a comprehensive preventive maintenance program for light and heavy duty vehicles, the periodic replacement of antifreeze, transmission oil, and differential fluids no longer takes place.

IMPLEMENTATION OF INNOVATIVE DIRECT MANAGEMENT ACTIONS

In FY85, Fleet conducted oil analysis tests for all categories of vehicles. This information was used to determine the longest practical oil change intervals, minimize generated wastes, and reduce costs.

In FY87, the use of antifreeze treatments was implemented, extending the useful life of the coolant indefinitely, resulting in another significant waste reduction.

In FY88, Fleet researched, procured and installed a parts washer capable of using environmentally-safe cleaning products. This .6-kiloliter (150-gallon) unit replaced an 6.9 kiloliter (1,800-gallon) heated caustic tank, resulting in an annual cost savings of \$47,000 by eliminating a hazardous waste stream, reduced operating and maintenance time and a significant improvement in productivity. Use of this environmentally-safe parts washer has proven so successful, it serves as a model for the Environmental Compliance Office (ECO) which is now procuring these for use at other installations at NTS, including Fleet's Area 12 maintenance facility.

Fleet has taken a leadership role in many other areas of waste minimization and environmental conscientiousness. In FY89, Fleet eliminated the use of 1.5 kiloliters (400 gallons)

of toxic ethylene glycol in one location, and substituted environmentally-safe products where possible. Efforts are continuously underway to evaluate substitute products which are both occupationally- and environmentally-safe, and results of these tests are shared with the ECO.

Examples of successful product evaluations include substitutes for:

1. Stoddard solvent
2. Heavy duty degreaser
3. Floor cleaning soap
4. Heavy duty parts cleaning compound
5. Machine cutting oil

In FY90, Fleet designed and installed a cost-effective single-point product dispensing station used at the Area 23 maintenance facility. This station places virtually all liquid products used by the shops in a single, controlled location resulting in the elimination of seven separate satellite waste accumulation sites and reducing the possibility of a spill into the environment.

In FY91, Fleet is eliminating the use of petroleum-based solvents altogether. The substitution of recyclable, biodegradable solvents reduces the solvent waste stream by approximately 4.5 kiloliters (1,200 gallons) this year. This accomplishment is the result of several years of researching and testing suitable substitutes.

We currently secure all storage vessels containing hazardous and non-hazardous wastes, new products and unused empty vessels. All are locked to prevent a spill into the environment, unauthorized use, or the mixing of wastes. These precautions protect the environment, prevent waste, fraud or abuse of government property, and reduce waste disposal costs by preventing mixed waste problems.

Solid wastes at Fleet have been addressed through several cost-effective methods. Recycling is practiced wherever possible by segregating empty containers (paint, various product, freon, aerosol, etc.) into designated special disposal containers for resale to vendors through government excess property sales. This action costs little at Fleet's end and results in greater revenues upon sale rather than disposal as waste.

Fleet pioneered the concept and implemented the initial contract for recycling used motor oil, unusable fuel, and used antifreeze products at NTS. As this successful plan grew significantly in just a short time, Fleet turned these responsibilities over to Defense Waste Management to complete the expansion of the program. This program was cost-effectively

administered by a single exempt employee as a part-time responsibility.

Fleet has achieved the enviable position of generating "only" a single hazardous waste. This sole hazardous waste stream will soon be eliminated with recycling of used paint thinner upon installation of appropriate equipment by another department. Fleet will soon be hazardous waste stream free!

A Fleet employee's suggestion, received through the Employee Suggestion Program recommends eliminating the cloth rags currently used, substituting a biodegradable paper towel-like product at a significantly lower cost than either the present method or the use of "rental rags." This will result in a reduction in the loading of the landfill, just as recycling of containers has done.

Another employee suggestion addresses crushing oil filters to reduce bulk and recover additional quantities of recyclable oil. This suggestion will be implemented in the near future and expanded to crush other appropriately sized containers.

Fleet provides fueling services to all NTS users in an environmentally-safe manner. The main service station is undergoing upgrading of the underground plumbing and electronic monitors are in place to provide immediate warning

and shutdown in the unlikely event of a loss of fuel from the facility. The other three service stations are designated to receive similar upgrades this and next calendar year.

As a result of another direct management action, asbestos-free brake linings have been installed on all fleet vehicles for several years. This results in significant improvements in the environment, and occupational health and safety for employees as older asbestos brake linings wear and are removed from service.

Due to these many innovative direct management actions, Fleet expects the amount of generated liquid wastes to be reduced by approximately 56.8 kiloliters (15,000 gallons) in FY91 alone. Solid wastes will also be reduced and many biodegradable and environmentally-safe products will enter the approved product lists.

IN CLOSING

Fleet's commitment to improvements in the areas of ES&H has always been strong, and fits in well with REECO's concept of Total Quality Management. It can be expected that Fleet will continue to be a leader in the efforts to fully understand and achieve conformance to customer requirements at all times. We will conduct our operations in a manner that will yield defect-free products and services.