POLLUTION PREVENTION

WATERLESS WASH PROCESS

LEAD ACTIVITY
Public Works Center (PWC) San Diego Transportation Department
Naval Air Station (NAS) North Island

STATUS
Complete

MISSION
Reduce environmental impacts associated with vehicle washing

REQUIREMENT
Traditionally, fleet vehicles have been protected from the harsh effects of the environment by regularly washings with soap and water and waxing the exterior of the vehicle with car wax. However, because of environmental concerns associated with discharge of water to the storm drain and the limited protection provided by car wax, the Navy evaluated the waterless wash process as a zero discharge, nontoxic, long-lasting pollution prevention alternative to traditional vehicle washing and waxing.

DESCRIPTION
The Waterless Wash Process is a vehicle finish restoration and “dry” washing service that enhances vehicle appearance, provides long-term protection, and ensures environmental compliance by eliminating environmental concerns associated with vehicle washing and exterior maintenance. The first part of the Waterless Wash Process includes the restoration of the vehicles finish, sealing of the finish with a Teflon™ protective coating, and polishing the finish to a high luster. The restoration process is accomplished using liquid, clay-based nonabrasive emulsifiers that contain solid-suspending surfactants. The liquid is applied to the painted surfaces of the vehicle using a low-speed random orbital polisher. The emulsifier removes oxidized paint, road film, acid rain blemishes, and scuffs, and fills in minor scratches. All particulates created in this process are suspended in the liquid and trapped in the bonnets on the buffer. Once the surface preparation has been completed, a polisher is used to apply the protective sealant. The protective sealant is an acrylic liquid enriched with Teflon™ resins and contains a blend of glazes, catalysts, and cleaners. When the product cures, it fills the micro-pores in the finish and bonds with existing paint. Teflon™ is thermally stable and resistant to acid, alkaline, and oxidizing agents, thus providing superior protection from the elements and pollutants in the air. It has an extremely low coefficient of friction, allowing substances on the surface to be removed with ease.

To maintain the new look of the vehicle's finish, exterior maintenance is provided in the form of a "dry" wash at a frequency of once per month. The "dry" wash cleans the vehicle without any wastewater runoff, detergents, or other harsh or toxic chemicals. Because of the properties of the protective sealant, dirt, grime, and other materials on the vehicle surface are easily removed during the "dry" wash using a damp cloth; no water is necessary.

BENEFITS

- Enhances vehicle appearance
- Non-toxic, zero discharge alternative to traditional vehicle waxing and washing
- Reduces oxidation and surface pollution
- Saves approximately $1,070 per vehicle over the 6 year life-cycle of each fleet vehicle

ACCOMPLISHMENTS / CURRENT STATUS

Date	Activity
APR 1999	Prepare waterless wash demonstration plan
MAY 1999	Conduct demonstration of the waterless wash process
AUG 1999	Begin large-scale implementation of the waterless wash process on PWC fleet vehicles
APR 2000	Complete waterless wash evaluation report

FUTURE PLAN OF ACTION & MILESTONES

Date	Activity
SEP 2002	Continue maintenance and restoration of PWC fleet vehicles using the waterless wash process

COLLABORATION / TECHNOLOGY TRANSFER

Based on the waterless wash process demonstration results, PWC Transportation Department began implementation of the waterless wash process on all fleet vehicles at NAS North Island. To date, approximately 200 vehicles have been treated and are being maintained using the waterless wash process. PWC Transportation is evaluating options for expanding the waterless wash process to other tenant commands and installations.

BIBLIOGRAPHY

- Waterless Wash Evaluation Report, March 2000 (Tetra Tech)

RELATED GOVERNMENT INTERNET SITES

- None

RELATED NAVY GUIDEBOOK REQUREMENTS

- 10003 Cost Effective Waste Reduction

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