

NAS NORTH ISLAND - NAVY REGION SOUTHWEST NAVY ENVIRONMENTAL LEADERSHIP PROGRAM

COMPLIANCE

CLOSED-LOOP WASH RACK WATER RECYCLING SYSTEM

LEAD ACTIVITY

Naval Air Station (NAS) North Island

STATUS

Active

MISSION

Resolve water-related environmental issues associated with washing vehicles and small boats

REQUIREMENT

Maintenance of Navy vehicles includes periodic washing of these vehicles. The large amount of water consumed and discharged could be reduced if a closed-loop system were installed on site to recover the wash water for reuse. In addition, personnel would have a designated area to wash the vehicles as opposed to washing them in unauthorized areas.

DESCRIPTION

The Wash Rack Water Recycling System (WRWRS) implemented at NAS North Island reuses wastewater generated during vehicle washing. The WRWRS replaces a wash system that consumed large volumes of water.

The WRWRS combines high-pressure, low-volume, heated pressure washers and a water-recycling unit to provide a zero-discharge, self-contained, closed-looped wash rack. The system, comprised of oil/water separators, and water polishing and soil handling subsystems, operates automatically. Vehicle wash water flows into the primary sump which, when filled to a predetermined level, activates a closed-loop sump water circulation system. The water is pumped through a filter that separates the water from the soil. The water is directed to a secondary sump, then to an oil/water separator. The soil is back-flushed to a soil dewatering-storage bin. The



Closed-loop WRWRS at NAS North Island

recovered oil is directed to a container for disposal by the Navy. The water is directed to a storage tank and is reused.

The WRWRS is unique because it is completely self-contained, which helps reduce the amount of water used and wastewater discharged. The WRWRS is completely aboveground as opposed to the previous underground oil/water separator units, thus reducing the potential for subsurface contamination.

NAS North Island currently has two RGF model systems installed at Commander, U.S. Naval Air Forces Pacific Fleet (CNAF) Support Equipment Facility and Aircraft Intermediate Maintenance Department (AIMD). A third system was installed at the Morale, Welfare and Recreation (MWR) Golf Maintenance Shop. NAB Coronado currently has one WRWRS at the boat wash. As the existing WRWRS is not large enough to accommodate all vehicles at the boat wash, expansion to a larger WRWRS is proposed. The expansion by Enviromedial Services, Inc. will include a new wash bay, an innovative "crystal" oil/water separator and filtering system that uses processed burnt sugar cane ash as a filtering media, and a solids removal system. The system will be located at NAB Coronado. Additional Enviromedial Services, Inc. systems are planned for installation at NAS North Island.

A cost-benefit analysis was conducted for the WRWRS at NAS North Island by Jacobs Engineering Group. The analysis indicates that water consumption was reduced by approximately 1,136 gallons per year and hazardous waste generation was reduced by approximately 5,900 pounds per year.

BENEFITS

- Labor reduced
- Maintenance labor and parts reduced compared to using old World Water system
- Volume of water used and discharged during vehicle washing is reduced
- Water is saved due to the closed-loop system representing long-term cost savings to NAS North Island
- Discharges to the surrounding environment are reduced (pollution prevention)

ACCOMPLISHMENTS/CURRENT STATUS

Date	Activity
SEP 1998	A second wash bay and expanded wash rack system design completed
OCT 1998	Contract awarded for construction of wash bay
DEC 1998	Additional wash bay using Enviromedial Services, Inc. technology constructed at NAB Coronado
JAN 1999	Second washbay available for use

FUTURE PLAN OF ACTION & MILESTONES

Date	Activity
AUG 2002	An additional wash bay to be constructed at NAS North Island at the NAVAIR Support Equipment Facility

COLLABORATION/TECHNOLOGY TRANSFER

Enviromedial Services, Inc. designed the water treatment system for the wash bay that is being constructed by Pacific Treatment. Similar closed-loop systems may be appropriate for use at any facility where vehicle washing takes place.

BIBLIOGRAPHY

- NELP P2 Equipment Cost Benefit Analysis Study, NAS North Island and Jacobs Engineering Group Inc., April 1997.
- Vendors Brochure: "Hydro Engineering" Model HE4/2000 EHGV ACE Press "RGF" Model SM2 Ultrasorb Water Recycler

RELATED GOVERNMENT INTERNET SITES

[GSA Federal Supply Service Environmental Products](#)

RELATED NAVY GUIDEBOOK REQUIREMENTS

- 08055 Industrial Wastewater Disposal
- 08021 Design/Construction of Upgrades to Industrial Wastewater Treatment/Pretreatment

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