Navy Environmental Quality Fact Sheet

Do you dispose of or treat wastewater from aircraft washing operations?

Would you like to improve this process in the following areas?

- ***Meet environmental compliance regulations***. Reduce wastewater disposal. Meet installation pretreatment discharge requirements. Media area is wastewater.
- ***Improve workers' safety and health***. No change to current operations.
- ***Increase productivity***. No change to current operations.
- ***Save money***. For activities without a nearby sanitary sewer system, significant reductions in costs are realized through recycling.

Closed-Loop Aircraft Washrack Wastewater Recycling System

The Closed Loop Aircraft Washrack Wastewater Recycling System (CLAWWRS) is an innovative process developed to recycle wastewater from aviation washing operations. CLAWWRS consists of a modified oil/water separator, an automated chemical treatment system, and an automated indexing filter. Ancillary equipment includes a load equalization tank, processed water holding tank, and a pressure washer system. Integrated automated controls and sensors simplify operations and prevent spillage due to equipment failures. The system components are industrial quality and suitable for outdoor application. The recycled water processed through the system can be reused on the next aircraft wash. Conformance tests performed on the recycled water demonstrated suitability in terms of cleaning performance and material compatibility. CLAWWRS has been approved for exterior aircraft washing by the cognizant authority for aircraft maintenance operations at the Naval Air Systems Command. A CLAWWRS is being used at Marine Corps Air Ground Combat Center Twentynine Palms. ***CLAWWRS is available through the Navy Pollution Prevention Equipment Program (PPEP).***

How can you achieve these improvements?

Use the Closed Loop Aircraft Washrack Wastewater Recycling System (CLAWWRS).

How does this system work?

CLAWWRS uses chemical treatment and diatomaceous earth pre-coat filtration to remove contaminants allowing reuse of water and detergent.

How will this system save you money?

Reduces fresh water and cleaning compound use and avoids the cost associated with wastewater disposal. Recycling removes the requirement to acquire discharge permits. CLAWWRS is most feasible for installations that must conserve water resources, have high contaminant loading, or activities without access to a nearby discharge point to a publicly owned treatment work (POTW). Equipment costs range from $140K - $200K for a 15 gpm system.

Typical Process Flow Diagram

MATERIALS
Water
Cleaning Compounds

→

PROCESS NAME
Aircraft exterior washing

→

WASTE PRODUCTS
Heavy metals
Oils and grease
Suspended solids

How can this technology eliminate or reduce pollution?

This technology permits the reuse and recycle of wastewater generated during aircraft washing operations. Implementation will result in the following pollution reductions:

- Dramatic volume reduction of wastewater.
- Dramatic reduction in detergent use and discharge.
- Reduction in volume of wastewater and contaminants discharged to POTWs.

Which installations can benefit most from this technology?

This technology can be used at activities that treat wastewater containing oils and greases, heavy metals, and suspended solids from aircraft exterior cleaning operations. Typical installations include:

- Naval air stations
- Naval aviation depots

How can this technology reduce regulatory compliance concerns?

This technology recycles wash water that is traditionally discharged after it is used to clean aircraft, thereby reducing wastewater volume. Implementation will result in the following regulatory compliance benefits:

- Helps activities comply with Executive Order 12902 for conserving water resources.
- Helps activities meet pretreatment standards for discharges of wastewater into a POTW (40 CFR 403).
- Helps activities meet the pretreatment and effluent limits of their NPDES permit (40 CFR 122).

Achieving Environmental Compliance Through Pollution Prevention

Every day the Navy faces the challenge of operating and maintaining the fleet while complying with environmental regulations. This burden can be reduced by using pollution prevention technologies and methods to reduce compliance requirements. This fact sheet is one in a series designed to encourage activities to use pollution prevention technologies and methods. The overall goal of this series is to promote sustained environmental compliance at the lowest life-cycle cost.

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