Case Study: Oil & Grease Discharge Remediation at Stewart & Stevenson HEMTT/FMTV Facility

Location: Killeen, Texas

Background:

Stewart & Stevenson, a defense contractor, was tasked with refurbishing military vehicles (HEMTT & FMTV) returning from Iraq and Afghanistan under a U.S. Army contract. Upon completion, these vehicles required thorough washing before being shipped back overseas.

However, the facility's **wash operations** generated oil and grease-laden wastewater, which flowed into an **open drainage ditch**. The accumulation of hydrocarbons in the ditch posed an environmental risk, as runoff would eventually enter **municipal drainage systems**, potentially violating environmental regulations. **Immediate action** was required to address the issue before an upcoming inspection by the **U.S. Environmental Protection Agency (EPA)** and the **Texas Commission on Environmental Quality (TCEQ).**

Proposed Solution:

X4 Environmental Inc. recommended integrating **X4JH2000**, a synergistic hydrocarbon remediation product, into Stewart & Stevenson's heated pressure washing system. The combination of **heat and X4JH2000** would effectively break down oil and grease, making hydrocarbons more accessible for microbial degradation in both **wash water and soil.**

To further ensure compliance with environmental regulations, X4 Environmental Inc. designed a **closed-loop treatment system** to manage the contaminated runoff:

1. **Runoff Capture & Treatment:**
    - A **1,000-gallon poly tank** was installed to **capture** the wash water before it entered the drainage ditch.
    - Using a **2-inch discharge pump**, the captured wash water was continuously **circulated and treated** with X4JH2000 for **20 to 30 minutes** to facilitate hydrocarbon breakdown.
2. **Safe Discharge:**
    - Once treated, the wash water was released into the **ground drainage ditch**, ensuring that hydrocarbon levels remained within **permissible environmental limits.**
    - This **treatment cycle was repeated daily**, becoming a **standard operating procedure (SOP)** at the facility.

Results:

- **Initial Hydrocarbon Contamination:** Samples from the wash water before treatment indicated **Total Petroleum Hydrocarbon (TPH) levels exceeding 35,000 ppm (3.5%)**—well above regulatory limits.
- **Post-Treatment TPH Levels:** After implementing X4JH2000 and the **recirculation process**, laboratory analysis confirmed that **TPH levels dropped below 1,000 ppm—well within TCEQ's discharge limit of 2,000 ppm.**
- **Regulatory Compliance:** The solution **enabled Stewart & Stevenson to remain compliant** with environmental standards while continuing their operations **without disruption.**

Conclusion:

By integrating **X4JH2000 into their wash process**, Stewart & Stevenson successfully addressed their oil and grease discharge issue while maintaining compliance with **EPA and TCEQ regulations.** The treatment system provided:

✅ **Rapid & Effective Hydrocarbon Reduction** – 35,000 ppm reduced to <1,000 ppm
✅ **Environmentally Friendly Solution** – Eliminated risk of oil runoff into municipal drainage
✅ **Operational Efficiency** – Seamless integration into existing processes
✅ **Regulatory Compliance** – Passed inspections from EPA & TCEQ

This case study highlights the effectiveness of **X4JH2000 as an in-situ remediation solution** for industrial wash water contamination, offering both **cost-efficiency and environmental sustainability**.