

CTC's Rob Mason Co-Authors Report on Corrosion Enhancements for Military Facility Pump Components

CTC Teamed with ERDC-CERL to Demonstrate Corrosion Enhancements for Pump Components at Fort Polk

Tactical vehicles are essential pieces of equipment for our military. To keep them in top condition and ready to deploy at a moment's notice, Central Vehicle Wash Facilities (CVWFs) are located at military installations. However, if the CVWF has a corrosive water supply, the steel wash-rack pumps within can become vulnerable to accelerated corrosion and degradation. Left unchecked, pump failure can occur with little warning, taking the CVWF out of service for unscheduled maintenance. This can negatively impact the readiness of the unit that owns the vehicles.



A military vehicle goes through the Fort Polk Central Vehicle Wash Facility.

CTC, under the direction of the Office of the Secretary of Defense (OSD), was tasked by the U.S. Army Engineer Research and Development Center–Construction Engineering Research Laboratory (ERDC–CERL) with finding new coating materials to reduce corrosion on CVWF pump components. CTC identified and tested two advanced coating materials on critical internal pump components at Fort Polk, Louisiana, to evaluate cost and performance. One new pump had internal components coated with a thermally sprayed cobalt alloy, and matching components in another pump were coated chemically with electroless nickel (EN).

The pumps were used for 15 months, then disassembled and inspected. No significant corrosion or degradation of pump components was observed on either pump. However, pump components coated using the EN process performed slightly better than those coated using the thermally sprayed alloy. The EN coating was also less expensive, so it may be the preferred solution. While EN may be the more promising solution, both coatings are conservatively estimated to double pump service life when compared with the previous pumps.

The full report can be read [here](#).