

Directorate of Environmental Integration Provides Support to the War Effort

By Mr. Al Vargesco

Disposing of used oil is a significant problem for a deployed Army. Estimates from the field show that the Army is generating 20,000 to 30,000 gallons of oil per week in Iraq. And the problem is exacerbated by the elimination of the Army Oil Analysis Program (AOAP). Even though there are contracts in place for the disposal of used oil, attacks on the convoys from insurgents are compounding the difficulty of proper disposal. Commanders have been forced to reduce or eliminate the transport of oil wastes. Stockpiling used oil is not an acceptable solution.

Used oil is normally handled eight times by Soldiers and/or civilians before disposal. This waste stream costs valuable time and money. But what if used oil could be eliminated as a significant waste to the Army? That is exactly what a team of Army environmental professionals

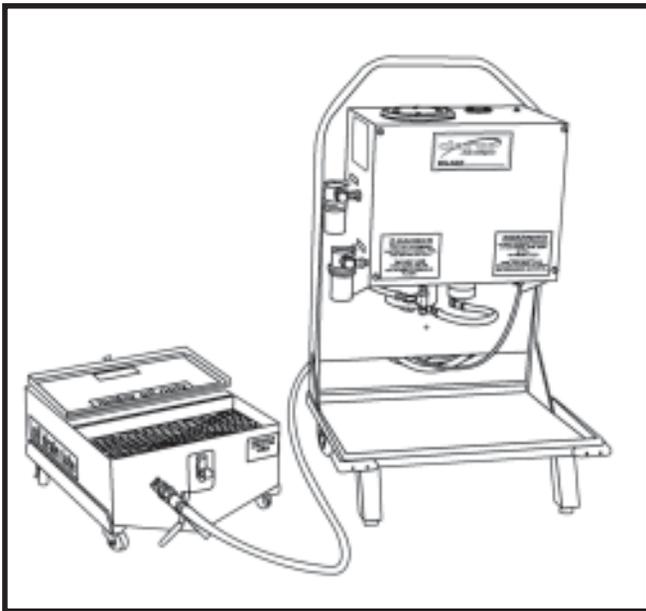
at the US Army Engineer School, Directorate of Environmental Integration (DEI), asked themselves.

DEI's research turned up a fuel-oil blending technology as a potential solution. Mr. Kurt Kinnevan, a professional engineer and a division chief with DEI, found a potential solution with a piece of commercial, off-the-shelf (COTS) equipment called a *fuel-oil blender*. The oil change alternative technology (CAT) built by Clarus Technologies, LLC, blends used oil (from a vehicle oil change) with diesel or JP-8, filters it, and returns it to the fuel tank to burn as blended fuel. The innovative concept uses waste stream as a fuel, requires less handling, causes no degradation to engine performance, and meets Environmental Protection Agency (EPA) standards.

Fuel-Oil Blending Benefits

- The oil CAT reduces the time required to handle waste, resulting in a time savings for Soldiers.
- The process changes a waste stream into a useable fuel source.
- The oil CAT pays for itself in a short period of time. (The \$3,000 price tag includes 10 filters, approximately one year of use.)
- The process was approved by the Tank Automotive Command (TACOM) during a contracted study in 1998.
- Guidelines in the Army Strategy for the Environment advocate zero footprint base camps for the future force—fuel-oil blending supports this goal.
- Fuel-oil blending can only be performed using oil drained from the crankcases of unit equipment.
- The vehicle emissions meet EPA standards when blended at 7.5 percent or less of the fuel tank contents.
- There is no degradation of engine life or performance.
- The oil CAT has a relatively simple construction and is easy to use.
- The replacement filters are the only recurring cost, but they must be handled as hazardous waste.

The system of fuel-oil blending has been used by commercial truck fleets for many years. One of the first uses of the oil CAT by the Army was at Camp Eagle, Bosnia, in 2004. According to personnel there, the system worked great. Personnel at Fort Drum, New York; Fort Lewis, Washington; Fort Campbell, Kentucky; and Fort Irwin, California, have also used the fuel-oil blending system. Mr. Kinnevan toured Clarus Technologies to inspect the facility, review the capabilities, and make recommendations to create a more user-friendly system for deployed Soldiers. Working closely with Central Command (CENTCOM), he helped draft an operational needs statement (ONS) for specific areas of operations. The ONS was endorsed by the Combined Arms Support Command (CASCOM) and the US Army Engineer School.



CAT fuel-oil blender



CAT blender in use

Mr. Vargesko is a doctrine, organization, training, materiel, leader education, personnel, and facilities (DOTMLPF) integration specialist with DEI, US Army Engineer School, Fort Leonard Wood, Missouri. Mr. Vargesko is a retired Army engineer officer. He has a bachelor's degree in geography from Indiana University of Pennsylvania and a master's degree in military art and science from the Command and General Staff College, Fort Leavenworth, Kansas.



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