



BAGRAM BIODIESEL

Now that U.S. troop withdrawal from Afghanistan is all but certain, is it time to say goodbye to Bagram Airfield's successful biodiesel program?

By Ron Kotrba

In early April, just days before President Joe Biden officially announced the U.S. would pull all its troops from Afghanistan by Sept. 11, 2021, Chris Waechter with Fluor Corp. already knew his time in-country was limited. Waechter is a country environmental manager with Fluor Mission Solutions in Bagram, Afghanistan, part of the Logistics Civil Augmentation Program (LOGCAP), a government contractor providing support to the U.S. Army. He has 30 years of environmental and hazardous waste management experience working alongside government and has been part of LOGCAP since 2005. In Afghanistan, Waechter manages all kinds of waste, including hazardous, medical, solid and water, in addition to pest management. Fluor is on the seventh extension of option year five, Waechter says, meaning the contractor has been in Afghanistan for 12 years now.

Twelve years is a long time, but it's still eight years shy of how long the U.S. has been in Afghanistan waging its generation-long fight against terrorism following the 9/11 attacks on American soil. In early April, before the official withdrawal announcement but after rumors had circulated, Waechter told *Biobased Diesel*[™], "We're still here, [but I am] still not sure if the U.S. is going to zero troops. We are transitioning to the new contractor (KBR) regardless—maybe two to three months left for Fluor."

Although the fate of Afghanistan-U.S. relations is uncertain, what is clear is that the biodiesel program Waechter helped establish at Bagram Airfield is a model to follow for every U.S. military installation, foreign and domestic.

The Bagram biodiesel program began in 2015. It started when the previous method of disposing of 6,500 gallons per month of used cooking oil (UCO) collected from Joint Operations Area and Forward Operating Bases in north Afghanistan became unavailable. Another contractor was being paid to haul UCO off-site for disposal at a wastewater treatment plant.

"In 2015, the local Afghan mayor said he didn't want to see more trucks delivering waste to the treatment plant off-base, as the local contractors were not managing waste correctly," Waechter says. "So, in 2015, we lost all means to dispose of the UCO, but wastewater treatment is not a good means for UCO disposal anyway. We needed another approach."

In March 2015, a novel idea was proposed to the Army and LOGCAP offices. "We suggested we institute a biodiesel conversion program in Bagram to manage the

UCO,” Waechter says, adding that the idea was offered as a cost-savings since fuel prices in-theater are exorbitantly high—often north of \$10 a gallon. “We turned to Springboard Biodiesel, as we were looking for a turnkey system for the local nationals to operate. Their labor costs less, and it would give them something to learn. That was the goal—easy, simple, quick, and train the locals.”

The concept was approved in a week. The biodiesel processing system ordered and installed included a BioPro™ 380EX main processing unit and SpringPro™ T76 dry-wash columns from Springboard

after this, the local Afghans running the biodiesel system were no longer allowed on base, and the biodiesel operations were taken over by staff.

UCO collection eventually expanded to include the entire country of Afghanistan, jumping from 6,500 to 10,000 gallons a month, which led to a 400-drum backlog. In Spring 2020, Waechter ordered a second BioPro™ 380EX. Once the new unit arrived, both old and new units were run together to double production and drive down the UCO stocks.

“Every military base out there could do this,” says Matt Roberts, president of

combined amount of CO2 and particulate matter kept out of the atmosphere from these multiple, small-scale producers is definitely impressive.”

UCO biodiesel is one of the lowest carbon-intensity diesel fuels on the planet, with carbon emissions reductions approaching 90 percent compared to petroleum diesel. Roberts estimates the biodiesel produced with Springboard units and consumed around the world has reduced annual carbon emissions by nearly 90,000 tons.

“A lot of people think biodiesel production is about giant plants converting millions of gallons a year with huge overhead costs, often times relying on government subsidies to stay open,” Roberts says. “But what we enable is for more people to get involved in this. We shrank the plant down to the size of an appliance, automated the process and made it easy for people to make biodiesel as inexpensively as possible.”

In Bagram, Waechter says the UCO biodiesel produced on-site is blended with JP8 jet fuel—the primary petroleum diesel fuel procured and used at the airbase—in 20 and 30 percent blends, and the blended fuel powers two of the four incinerators for trash and medical-waste disposal. The glycerin obtained from the biodiesel process also finds use on base. It is mixed in with other usable, recovered wastes to create an augmented fuel also powering the incinerators.

Fluor’s time in Afghanistan has run its course, and the U.S. military’s presence in-country is expected to be nonexistent come this fall, so what will become of the Bagram biodiesel units is still unknown. “I do believe that the new contractor will continue processing biodiesel,” Waechter says—at least as long as the base is operating.

As for Waechter, his future is less than certain as well. “I’m not sure where I’ll go,” he tells *Biobased Diesel*™. “We do still have AFRICOM, I may head down there after a few months break.”



With Springboard Biodiesel equipment, Bagram Airfield in Afghanistan can process the 10,000 gallons of UCO it collects per month into fuel to power incinerators on base. PHOTO: CHRIS WAECHTER, FLUOR CORP.

Biodiesel, which gave the base the ability to process 275 gallons a day. “I looked at and evaluated a few different systems,” Waechter says, “but the reviews and presentations on Springboard’s website, and the simplicity of use, made it a winner for what I was looking for.”

The system cost \$35,000 and the return on investment was less than a month. “It was pretty much a no-brainer,” Waechter says, adding that Bagram churned out its first batch of UCO biodiesel in early May 2015. Since then, through 2020, Bagram Airfield has manufactured about 500,000 gallons of biodiesel at a cost-savings to the military of well over \$4 million.

On Nov. 12, 2016, a tragic event occurred at Bagram Airfield. A suicide bomber penetrated security and detonated his vest-bomb, killing two U.S. soldiers and two U.S. contractors—a fifth dying weeks later from injuries. Many more were wounded. Waechter says

Springboard Biodiesel. “They’re feeding service men and women, and they could easily convert that UCO from the mess hall. Our system enables groups to make biodiesel for about \$1 to \$1.05 a gallon.”

Springboard Biodiesel is a leader in the small-scale biodiesel processing world. “It’s not a giant pond, but we’re definitely leading the way,” Roberts says. “In 13 years, we have sold more than 1,200 units and our systems now operate in 37 countries and all 50 states.”

Ninety-nine universities have purchased a Springboard Biodiesel BioPro™ system. Before the pandemic struck, Springboard was working with a university in Botswana looking at converting tallow and plant oils from indigenous crops.

“Conservatively, when we do the math, people are making about 9 million gallons a year collectively on our units,” Roberts says. “The cost-savings are high, but it’s not just about saving money. The

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