



*The Petroleum Quality Analysis System-Enhanced, located at Kandahar, Afghanistan, with the 601st Aviation Support Battalion, provided expedient, qualitative petroleum laboratory testing for all U.S. Army units and contractors in and around Regional Command South. (Photo by Sgt. George W. Slaughter)*

# Petroleum Quality Analysis System-Enhanced Operations in Afghanistan

The 601st Aviation Support Battalion ran a laboratory to check fuel quality for units operating in and around Regional Command South in Afghanistan.

■ By Sgt. George W. Slaughter

In August 2013, the 601st Aviation Support Battalion deployed its Petroleum Quality Analysis System-Enhanced (PQAS-E) to Kandahar Airfield, Afghanistan, with Task Force Guardian in support of Operation Enduring Freedom.

In garrison, the Task Force Guardian PQAS-E team provided daily qualitative petroleum laboratory testing. To accomplish the mission in theater, the PQAS-E team needed to address and overcome multiple challenges, including the need to conduct 24-hour operations, acquire supplies for those operations, and learn in-theater shipping

and receiving procedures.

## About the PQAS-E

The PQAS-E is a self-sufficient, mobile fuel laboratory that uses current fuel analysis technologies to meet Military Standard 3004C, Quality Assurance/Surveillance for Fuels, Lubricants and Related Products.

PQAS-E operations are designed to be carried out by three military occupational specialty 92L (petroleum laboratory specialist) Soldiers. The system includes a 30-day supply of all expendable items, but it does not include the fuel needed to operate the attached generator.

## Garrison Operations

Before deploying to Afghanistan with Task Force Guardian, the PQAS-E was located at Marshall Army Airfield at Fort Riley, Kansas. At home station, the PQAS-E processed fuel samples for all of Fort Riley and Fort Sill, Oklahoma, including samples from civilian contractors. From October 1, 2011, to August 2013, the PQAS-E processed 1,440 samples, testing over 8 million gallons of fuel.

## Operations in Afghanistan

The mission of Task Force Guardian's PQAS-E at Kandahar Airfield was to provide expedient,

qualitative petroleum laboratory testing for all U.S. Army units and contractors in and around Regional Command South.

The PQAS-E, located in A Company's fuel and water platoon, could perform complete or modified A, B1, B2, C, and filter effectiveness analyses on kerosene-based fuels (JP8, JP5, Jet A, and Jet A-1), diesel, and motor gasoline. Samples were delivered to the PQAS-E from surrounding areas by both civilian and military transport.

Having the PQAS-E in theater minimized equipment downtime during the testing process. When a fuel source (such as a tank or a bag) is tested, the equipment is taken off-line until the test results return and the operators know the quality of the equipment or fuel.

Normally this process takes up to 72 hours because the sample has to be transported to an off-site laboratory. The PQAS-E, however, reduces the process to as few as 3 hours, depending on the distance from the source to the testing facility.

During the final months of the deployment, the PQAS-E also provided qualitative petroleum laboratory testing for the 328th Quartermaster Detachment and tested samples from parts of Regional Commands Southwest and South. During one 30-day period in theater, the PQAS-E tested samples for over 1.24 million gallons of fuel.

### **Overcoming Challenges**

While deployed to Afghanistan, the PQAS-E team had to adapt to overcome challenges never faced in garrison. These included on-call operations, new shipping and receiving procedures, supply acquisition, and personnel shortfalls.

**Providing on-call operations.** In a garrison environment, the PQAS-E has certain hours of operation, but in theater, the team was required to maintain 24-hour operations and perform its duties at a moment's notice. To accomplish this, all members of the team

trained on all aspects of PQAS-E operations and were required to maintain phone contact so that when emergencies arose they could be dealt with promptly.

**Learning new shipping and receiving procedures.** A second challenge was learning the in-theater shipping and receiving procedures for processing samples, which are different in Afghanistan than in garrison.

At Fort Riley, units submit samples by sending personnel from their unit with the sample in hand. If the sample is mailed to the PQAS-E from outside of Fort Riley, sampling supplies are not sent back to the unit submitting the sample.

In theater, however, samples from outlying forward operating bases are sent to the PQAS-E on aircraft. Since sampling supplies (such as sample cans and shipping boxes) are not readily available in theater, the PQAS-E must provide each unit with the sampling supplies to assist them in ensuring proper sampling standards and timelines are met each month. Each shipment of supplies contains a copy of the unit's most recent sample results.

**Acquiring supplies.** Another challenge the team faced in theater was the logistics of acquiring supplies for the PQAS-E, including supplies for testing samples and maintaining the attached environmental control unit and generator.

When the PQAS-E was originally issued to A Company from Rock Island Arsenal, Illinois, supplies were sent directly from Rock Island to the PQAS-E. During the deployment, the ordering process was transitioning from being Rock Island Arsenal's responsibility to a unit-level responsibility.

Some of the supplies required to conduct testing, including Milipore filter paper, are class VIII (medical materiel), which the unit supply clerk was not authorized to order. The PQAS-E's environmental control unit and generator did not use the same components as

other Army equipment, so the unit did not keep them in stock, making maintenance supplies difficult to obtain.

To overcome this gap in the transition process, the PQAS-E team worked with a supply noncommissioned officer at the troop medical clinic to fill class VIII needs. Additionally, maintaining daily communication with personnel in the prescribed load list office allowed the team to fill requests for special maintenance supplies.

**Overcoming a personnel shortfall.** The PQAS-E system is designed to be operated by three military petroleum laboratory specialists; however, the 601st Aviation Support Battalion's PQAS-E consisted of only two after one of the three redeployed. The two remaining laboratory specialists learned to communicate and function as a team as well as individually. Both learned all facets of PQAS-E operations in order to maintain the same level of PQAS-E support and achieve the mission. Daily meetings kept each 92L up to date on current tasks.

The key to overcoming these challenges was realizing that every potential issue had a resolution as long as team members were willing to learn new skills and maintain communication. By adapting to new conditions, the Task Force Guardian PQAS-E team demonstrated that it was prepared to uphold the standards of fuel testing, maximizing equipment operations time, and allowing units to conduct their missions.

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