

# From Poland to Utah: DPG testing expertise is worth it



**Polish Soldiers and Dugway Proving Ground scientists load a biological detector into a trailer, prior to testing. The Soldiers were from the Military University of Technology in Warsaw. The Polish Soldiers expect to return to the U.S. next year, with improvements gleaned from this test.**

**Story and photos by Al Vogel  
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Twelve Polish soldiers recently came 5,500 miles to Dugway Proving Ground (DPG) to test a biological agent detector that may someday be fielded by U.S. troops and their allies.

The Polish Soldiers, all scientists specializing in optical or light technology, came from the Wojskowa Akademia Techniczna (Military University of Technology) in Warsaw.

Their 8,800-kilometer trip brought them to the remote high desert of Utah, to have their Mid Range LIDAR Detector tested by DPG's world-renowned experts in chem/bio defense.

LIDAR (Light Detection And Ranging) is a remote sensing technology that illuminates a target with a laser then analyzes the reflected light. In this case, LIDAR detects biological or chemical agents at a distance, without having to expose the detector to the agent.

Some years ago, the U.S. realized that it needed a biological detector with very specific features and capabilities. Through the Coalition Warfare Program, it was learned that Poland was developing a LIDAR detector that may meet its need.

The U.S. Departments of Defense, State and Homeland Security partnered with Poland, a member of NATO since 1999. They created the Transatlantic Collaborative Biological Resiliency Demonstration (TaCBRD), a three-year program

(2012-2015) to improve -- through research and testing -- capabilities to detect, withstand and recover from a biological attack or incident. The findings of TaCBRD will benefit U.S. and Polish forces, their allies and the public worldwide.

The two-week test at DPG determined the detector's strengths and weaknesses, from which an improved version will be created in Poland and tested next year.

All outdoor testing used simulants: benign microbes or substances with the same characteristics as actual agents. International treaties forbid outdoor testing with actual agent.

Interferents such as smoke, burning substances and dust were introduced with the simulants as well, to replicate authentic operating conditions.

Bill Ginley of the Defense Threat Reduction Agency (DTRA) was instrumental in bringing the Polish soldiers and their laser-based biological detector to DPG for testing. Ginley is the branch chief of the Nuclear Biological Chemical (NBC) Battlefield Management Division at Edgewood Chemical and Biological Center in Maryland.

Ginley explained that a long-term goal is to integrate the Polish detector's output with an Information Technology early warning system under development at TaCBRD.

When Polish soldiers return to the U.S. with a revised Mid Range LIDAR Detector, its improvements will be based upon DPG expertise and facilities world-renowned since 1942.

Dugway Proving Ground is far from Warsaw, but worth the journey for testing that may ultimately save countless lives.

**See Polish Test page 6 ►**



**The Active Standoff Chamber building (left, in distance), produces an airflow wall that retains the simulated biological agent in its open chamber. Unhindered by glass or plastic, the detector's laser can search across open air, just as it would in a real incident.**



# Bio detectors go through paces

► Continued from page 1

**West Desert Test Center** operated two systems as a referee, to establish an accurate baseline for comparison against other detectors. The LIDAR II detector uses a pulsing laser to identify biological agent and measure its concentration. The SAMPLE detector uses LIDAR to provide its range, bearing and relative concentration of the cloud.

**Physical Sciences Inc.** (PSI) of Andover, Mass., fielded its Analytic Infrared Imaging Spectroradiometer (ARIS), which uses passive infrared to take signatures of the scene at 32 different wavelengths. Through these signatures, it can distinguish between chemical or biological agents, said Bill Marinelli, executive vice president for the Defense System department of PSI.

Using computer tomography as in a CAT scan, the ARIS can provide a 3-D view of the cloud in real time. Marinelli has been to DPG a number of times, throughout ARIS' development.

"This is my baby. I've been working on this the past 15 years," he said.

**Chemring Detection Systems** of Charlotte, N.C. brought its Tactical Biological Detector (TAC-BIO), which uses ultraviolet light to detect aerosolized biological agents.

Dave Wendland, senior technician for Chemring, said using ultraviolet light this way is a fairly new technology. Though he and other Chemring employees have been to DPG numerous times, this is only the second iteration of this particular detector.



**Physical Sciences Inc. of Andover, Mass., demonstrated its Analytic Infrared Imaging Spectroradiometer (ARIS). The mobile unit uses passive infrared to search for biological or chemical agents.**

**The Polish Army** brought a LIDAR-based biological detector developed at the Wojskowa Akademia Techniczna (Military University of Technology) in Warsaw. (See Page 5)

Outdoor demonstrations under realistic conditions reveal what works or needs improvement, and promotes system innovation. Should terrorists attack with biological agents, actions must be based on accurate, current data.

Being able to assure decision-makers, "We field-tested this detector at Dugway, and it was accurate" has global implications.

The Life Sciences Division may host another biological detector demonstration the summer of 2014; details are unset. Interested firms or individuals should leave contact information by calling (435) 831-2116.



Photo by Al Vogel

## Polish soldiers meet Goshute Bear family

► Continued from page 5

Lonnie and Leanne Bear of the Goshute Indian Tribe in nearby Skull Valley graciously demonstrated their culture to the Polish Soldiers. Europeans are fascinated by the American West and Native Americans. For them, it was an unforgettable experience to have Leanne demonstrate traditional dancing, accompanied by Lonnie on a drum, and examine the intricate beading and construction of traditional clothing.