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Advanced Technologies Program Is on the Battlefield

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WASHINGTON, March 18, 2003—U.S. military planners cannot allow chemical or biological attacks to stop operations.

Two Advanced Concept Technology Demonstrations (ACTDs) are helping combatant commanders continue their missions in the face of chemical and biological threats.

The Restoration of Operations (RESTOP) ACTD and the contamination avoidance at seaports of debarkation ACTD are projects that find technologies to help keep airports and seaports open.

"If a base gets 'slimed,' operations still must continue," said Cindy Maclellan Wilson, the ACTD oversight executive for the two projects.

If an enemy uses chemical or biological weapons in a combat environment against a maneuver force, units can avoid or go around the contaminated area. That isn't possible with an airport or seaport. They are fixed and the facilities to unload planes and ships cannot be quickly duplicated elsewhere.

The ACTDs look at ways to alleviate the problem, better ways to quickly decontaminate areas, new procedures and concepts of operations, and new equipment to allow servicemembers to continue operations.

The RESTOPS project started in 2000. The idea was to restore operations on airfields quickly. The Defense Threat Reduction Agency and U.S. Pacific Command sponsored the effort.

"Chemical-biological situations are one of the hardest problems we try to handle," Wilson said. "We took a look at what concepts of operations and tactics, techniques, and procedures were being used and what was still needed."

The group conducted a technology call and received more than 170 technologies. The sponsors held field trials at the Army's Dugway Proving Ground, Utah, and selected 14 technologies and five concepts of operations they wanted to test.

"Before the ACTDs started, if you were subjected to a chemical or biological attack, that was the end game—the mission degradation was significant," Wilson said. "If we can keep moving at all, that's an improvement."

She said that unlike large acquisition programs, ACTDs often don't have hard numerical measures of effectiveness. "Commanders know, however, if something improves their effectiveness," she said.

With RESTOPS, one of the measures was sortie generation. "If your air base is contaminated, how do you keep your aircraft moving personnel and moving equipment?" she asked. "You know what your standard operating tempo is, so we said, 'let's minimize degradation as much as possible.'"

The ACTD included equipment, warning technologies, decontamination technologies, medical equipment, and personnel protection. Portions of the ACTD are being rushed to the Persian Gulf.

"One that appears to be extremely successful is the SAFE kit—Small Area Filtration Equipment," Wilson said. "These help you get fresh, clean air into a room that would otherwise be contaminated."

"It's a popular problem right now since everyone is going out and buying their duct tape and plastic sheeting," she said. "That's actually the militarily approved way to seal a room. If you've got a room that you need personnel working in, we cover up the vents, cover up the windows, then in the doorway we put in a SAFE kit. This is a filtration system that

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seals into the doorway. It lets you get fresh, filtered air rather than getting carbon dioxide poisoning or being contaminated by chemical or biological agents."

Another technology that has proved useful is the mobile chemical agent detector. This is a vehicle-mounted detection system that can detect agent vapors moving through an area. It can triangulate to identify chemical agent location and type.

Another useful tool is the RESTOPS information management system. "Basically it's a plug-and-play in your command-and-control system for use in a biological or chemical situation," Wilson said. "It helps show which areas of the base are contaminated, and commanders can move troops and resources as needed to protect or decontaminate them."

Prior to this system, she said, commanders relied upon grease pencils, maps, and word of mouth to allow them to identify contaminated from uncontaminated areas of the base and advise their troops.

Some things don't make the cut, which allows defense officials to redirect acquisition efforts and resources to more promising areas.

Officials tested RESTOPS technologies and procedures at Osan Air Base, South Korea, in February 2003. Some preliminary results have already been shared with the combatant commanders.

The time spent on RESTOPS gave the ACTD focused on seaports a leg up, Wilson said. The Contamination Avoidance at Seaports of Debarkation [CASPOD] ACTD had a 2002 start and is sponsored by U.S. Central Command.

"RESTOPS conducted a data survey its first year and looked at existing studies," she said. That work was easily transferred to CASPOD. "Because of the groundwork, CASPOD was able to hit the ground running."

Officials did a quick tabletop exercise in 2002 and were able to put together commercial off-the-shelf technologies quickly. Wilson received a Central Command memo saying that the flyaway capability CASPOD demonstrated had "significant military utility." The command asked for additional money for the capabilities now and recommended the program for the other combatant commanders, she said.

Wilson said DoD sent the command the extra money so they could immediately purchase the theater chemical/biological response package. "It will be sent to the field shortly," she noted. The package is protection suits, test kits, personnel safety equipment, detection strips, and special types of waste pumps to handle contamination.

The two projects also put thought into cross-contamination.

"What do you do if an airport is slimed and an aircraft is landing with equipment you need now?" she asked. "Can you land it? Once it's landed, who's going to touch the aircraft to off-load it? How do you ensure the equipment inside the aircraft hasn't been contaminated? Is your runway now contaminated because you have this dirty aircraft on it?"

Seaports have to deal with similar problems and then some. Usually, DoD hires local stevedores to offload ships. "What's their protection [from chemical and biological attacks]?" she said. "The problem isn't just around your port; the chain link fence doesn't stop it. What do you do?"

So the ACTDs not only deal with equipment and procedures for U.S. personnel, but also with the political realities that operations place DoD into.

Wilson said the best defense is to not get "slimed." But assuming it happens, the answer is to be able to continue to operate. "These two ACTDs are among the first to seriously look at this problem," she said.

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