Directorate of Public Works-Environmental

News Release
Immediate Release
May 9, 2006

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2-227th AV helicopter used to test new coating

The 1st Cavalry Division, 2nd Battalion, 227th Aviation Regiment, volunteered the use of a UH-60 Black Hawk helicopter for the first aircraft waterborne Chemical Agent Resistant Coating (CARC) demonstration on Fort Hood.

One of Fort Hood's Sustainability air objectives is to reduce the amount of Hazardous Air Pollutants by 10% this year. To attain this goal, personnel at the Directorate of Public Works implemented and developed a product substitution program for single-solvent CARC products, said K.C. Kunselman, DPW's National Emissions Standards for Hazardous Air Pollutants Program manager.

DPW specialists identified the sources of air pollutants and their research showed the paint booth as a significant source. The waterborne CARC became a method to replace single-solvent CARC products that have higher VOCs and release higher amounts of hazardous air pollutants.

"Fort Hood actively seeks technologies and processes to lessen the impact on the environment and the waterborne CARC paint was an initiative to do that," said Kunselman. "Our first concern is always the Soldiers and their safety, but when a product comes along that serves them better and makes environmental progress, we definitely want to assist with transition."

CWO 3 Fernando Estrella with the 2-227th AV, volunteered his aircraft to set the foundation for subsequent waterborne paint projects.

"The paint is an integral part of the aircraft's survivability," said Estrella, "and protecting our Soldiers in air assaults, air movements, sling loads, and other missions."

Marcus Douglas with DynCorp Fort Hood Support Division at the Directorate of Logistics, worked with Sherwin Williams to conduct the waterborne paint demonstration. Estrella's aircraft was masked, sanded, and prepared for the first aircraft waterborne demonstration on Fort Hood.

"The end product looks great," Douglas said. "The paint went on a lot smoother than the old CARC paint."

The DOL had previously been using a two component solvent-based CARC to paint aircraft and ground support vehicles on Fort Hood. The Army Research Laboratory cancelled the paint last August because of its high levels of volatile organic compounds and hazardous air pollutants.

Now that the cancelled solvent-based paint is out of the Army Supply System, DOL will transition to the one component solvent based or the two component water based product.

Although this was the first time Douglas' team has used the waterborne product, Douglas said that with time it will get better.

"It's a matter of getting used to the waterborne CARC," Douglas said, "knowing how to mix the paint and the quantities that you are going to have to use for a piece of equipment."

DynCorp plans to upgrade its CARC application system to the waterborne product because of the longer lifecycle, better durability, and the environmental factors.

Douglas will work with Sherwin Williams to find compatible equipment for the waterborne system. When the waterborne system is implemented within the next year, it will be used on equipment, aircraft, and ground support vehicles.

Sherwin Williams worked with the Army Research Laboratory with its formulation to enhance the waterborne CARC even further, said Keith Cox, Director of Marketing for Military Sherwin Williams. "Through Sherwin Williams' and the Army Research Laboratory's testing, from a durability rating of 1 to 10, the solvent base CARC that was cancelled was rated at 1, with the least performance, and waterborne CARC at 10," said Cox.

"CARC paint is important because the color and infrared requirements within the paint have a lot to do with the survivability of the Soldiers and equipment in the battlefield," said Cox.

The Army Research Laboratory set up a controlled environment with accelerated weathering and outdoor exposures to test the durability.

"In the accelerated chamber, the cancelled solvent- based CARC had a lifecycle of 600 hours, but the water dispersible CARC reached 6000 hours," said Escarsega, the Department of Defense Commodity Manager and Coating & Corrosion Team Leader at Army Research Laboratory.

Corrosion and durability are issues within the DOD because it costs the US Government millions of dollars to replace and repair equipment overseas that are subjected to harsh environments, Cox said. "It's important that the original manufacturers of the equipment and also the shops that do the refurbishment use good quality products," said Cox, "to have a longer lifecycle, minimize the downtime, and minimize the costs associated with having it repainted."