Online Edition
CAPITAL FLYER
Andrews Air Force Base, Maryland

Program maintains safety, saves money, environment

It would be a tall order to ask that a single program save money, protect the environment and maintain flight safety. However, that's exactly what happened when the Air National Guard, Navy and the Air Force Reserve jointly implemented an environmental protection program to collect and recycle waste aircraft de-icing fluid.

The shared program was the brainchild of Duane N. Peterson, District of Columbia Air National Guard environmental protection specialist. For this innovative thinking, the 113th Wing received the Air National Guard Environmental Quality Award for Team Excellence.

''Aircraft de-icing is a tough area to save money because it's directly related to safety," said Mr. Peterson. ''However, by sharing resources, we were able to save money and protect the environment."

So why is aircraft de-icing so important here? There are two aspects to the issue -- flight safety and protecting the environment.

''As part of winter flight safety procedures, aircraft are routinely cleaned of snow and ice accumulation, or de-iced," said Mr. Peterson. ''De-icing is primarily carried out using chemicals so the impact on the environment must also be considered."

The attention paid to aircraft de-icing is much deserved. Statistics show that since 1968, at least 10 takeoff accidents in North America have been attributed to wing surface ice contamination, according to the Federal Aviation Administration.

''Research has shown that as little as 0.8 of a millimeter of ice on the upper wing surface of an aircraft can reduce lift by 25 percent and also increase the drag," said Roy Rasmussen, head of the ground de-icing program at the National Center for Atmospheric Research in Boulder, Colo.

An aircraft stays in the air due to an upward force called lift. Lift is created by a difference in pressure between the air flowing over the wing and the air flowing under the wing.

''When winter precipitation accumulates on aircraft surfaces, it disturbs the airflow over lifting areas," said Mr. Rasmussen. ''This can cause a reduction in lift and controllability at takeoff with possibly catastrophic results. In preparation for takeoff under winter conditions, aircraft surfaces are routinely cleaned of precipitation with de-icing fluid."

Managing de-icing doesn't stop with safety as the chemicals used, primarily glycol, can have impacts on the surrounding environment.

''State and federal legislation requires that we collect waste aircraft de-icing fluid chemicals," said Mr. Peterson. He explained that de-icing operations are subject to the National Pollutant Discharge Elimination System, the Code of Maryland Regulations and the Code of Federal Regulations.

The regulations are in place to prohibit de-icing glycol from entering nearby waterways so that aquatic organisms are protected. The glycol used to de-ice aircraft biodegrades in the environment very quickly, rapidly depleting available oxygen for aquatic species.

''In order to comply with the environmental legislation, we hired Inland Technologies, a company that specializes in collecting and recycling the waste de-icing fluid," said Mr. Peterson. ''The company collects the spent de-icing fluid and recycles it."

The recovered glycol is re-used for things like automotive coolant and plumbing anti-freeze. Monitoring tests have shown that since the program has been in place, there have been zero permit violations.

Inland operates similar programs at McGuire Air Force Base, N.J., and Grand Forks AFB, N.D., as well as at large civilian airports including Washington Dulles International Airport, Dulles, Va., and Ronald Reagan Washington National Airport, Arlington County, Va.

''In a perfect world, flight operations would always be scheduled for warm, sunny summer days," said Mr. Peterson. ''Since the world isn't perfect, it's nice to know that because of our efforts, our waterways are clean, and what was once waste is now being re-used as coolant in someone's car."