

RCAF wins engineering award for environmental excellence

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By David Elias



Major Chris Greaves (left) and Mr. Ronald Kent (right), of Stantec Architecture Ltd., accept an Award of Environmental Excellence from Mr. John Clark, of the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG), on May 15, 2014. The award recognized an innovative solution to treating waste water in the demanding environment of Canadian Forces Station Alert in Nunavut. Major Greaves, the base construction engineering officer at Joint Task Force (North) in Yellowknife, Northwest Territories, accepted the award on behalf of 1 Canadian Air Division.

A team of Royal Canadian Air Force engineers based at 1 Canadian Air Division Headquarters in Winnipeg, Manitoba, and personnel from Stantec Consulting Ltd., have won an award for environmental excellence for their work at Canadian Forces Station Alert, on the northern tip of Ellesmere Island in Nunavut.

The award was presented on May 15, 2014, by the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists at a ceremony in Yellowknife, Northwest Territories.

The Association recognized the waste water treatment system installed at Canadian Forces Station Alert, which is a constructed wetland system and unique in the world for its high latitude.

The citation reads: “in recognition of environmental excellence for the CFS Alert Constructed Wetlands Waste Water Treatment System – a practical demonstration of alternative treatment options in the High Arctic that successfully exceeds design and performance criteria in a demanding location and circumstance”

The project, which began in 2010, involves a terraced, overland flow system, designed by Stantec, that has established an Arctic wetland. It treats waste water at Alert and serves as a demonstration project for other Arctic communities.

“Our personnel are dedicated to Arctic science and engineering excellence and we are proud of the men and women involved in this project,” said Major-General Pierre St-Amand, the commander of 1 Canadian Air Division.

“Northern operations have the greatest success when relationships with local communities and the natural environment are made a priority, and we continue to move forward with our environmental stewardship responsibilities.”

“Waste disposal remains among the biggest challenges for Northern communities,” said project director David Strong, who is employed within the construction engineering infrastructure organization at 1 Canadian Air Division.

“This project serves as a sustainable, cost-effective model for resolving effluent treatment challenges in a manner that sustainably integrates with the surrounding environment.”

Initial costs for an industrial treatment plant installation were estimated at \$9 million, with up to \$1 million in annual operating expenses, which would include additional qualified operators.

The award-winning terrace solution involved a capital construction cost of just under \$1 million and therefore represents significant saving to Canadians.

“To do anything of this kind in the Arctic for under \$1 million is quite an accomplishment,” said Mr. Strong. “Typically it costs close to a million just to get building materials to the North – even before any kind of construction begins.”

Controlled overland flow is proving to be a viable treatment process in Canada’s far North. During winter months, wastewater is stored as ice in the disposal location. As the ice thaws in the spring, water is distributed in a thin film over the land’s surface where it is treated by evaporation, mechanical filtration and biologically active soil organisms.

“For a few years now, all personnel visiting CFS Alert have been mandated to use natural or biodegradable cleaning and personal care products,” said Ms Wanda Deong, the project manager. “Station personnel are generally aware of the environment, and are motivated to do their part in its protection.”

Canadian Forces Station Alert is located approximately 817 kilometres from the geographic North Pole and it is the most northern, permanently inhabited location in the world.