

In this issue

Science and technology
enabling success in CF
operations

Goose Bay remediation
project showcases DCC's
technical expertise

DCC responds to storm
damage in record time

Teaching energy
conservation at home can
help save lives overseas

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[About DCC At Work](#)

DCC *at* WORK

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FEBRUARY 2011 / VOLUME 9, ISSUE 6

Science and technology enabling success in CF operations DCC supporting \$170 million overhaul of DRDC Valcartier research facilities

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[Read more](#)

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[Read more](#)

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During the Energy Challenge team members compete to produce the highest number of volts. From Left to Right, Brian Farrell, Guthrie School Principal, Maj Kevin Montgomery, Base Engineer, and Randy Boyd, Base Utility Officer, watch students compete while DCC Environmental Project Coordinator, Charles Calvert, records the results.

Teaching energy conservation at home can help save lives overseas

There may not be an obvious connection between elementary school children in Edmonton learning about energy conservation and Canadian soldiers in Afghanistan, however, there is — the kids learning the lessons are children of Army soldiers.

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[Important Notices and Disclaimers](#)

In this issue

Science and technology
enabling success in CF
operations

Goose Bay remediation
project showcases DCC's
technical expertise

Quick tendering allows DCC
to respond to storm
damage in record time

Teaching energy
conservation at home can
help save lives overseas

[Subscribe](#)

[About DCC At Work](#)

DCC *at* WORK

Learn more about current DCC projects and events

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DCC supporting \$170 million overhaul of DRDC Valcartier research facilities

The first part of the largest consultant contract ever executed by DCC in Quebec has begun [for the new state-of-the-art science and technology facility](#) at Defence Research and Development Canada (DRDC) Valcartier.

Once completed, the new complex, comprised of 25,000 m² of offices, laboratories and support spaces, will allow national defence scientists to pursue their world-class research efforts. DRDC Valcartier's infrastructure dates as far back as the Second World War, as such, a much needed renewal of their infrastructure is necessary to remain effective.

The idea is to create the most functional and inspiring a space as possible while incorporating the latest environmental standards. Many of DRDC's experiments require strict access controls, something that the current infrastructure does not always allow for. Designers will strive to achieve a silver rating or higher within the internationally-recognized LEED Green Building Rating System which encourages ecological building and development practices. The complex will also feature first-time security features built to the latest standards.

One of the most demanding requirements of the project is the need to design flexible laboratories that can be quickly, easily and completely reconfigured depending on the nature of the projects being carried out. This will enable scientists to react quickly to the needs of the Canadian Forces.

Engineer Carl Michaud, DCC's project director in DRDC Valcartier, says helping the Canadian Forces to achieve mission success is the driver behind every step of the new DRDC facility.

"We have to ensure that the new infrastructure allows scientists to successfully work in a research facility that provides the best results possible to maintain a state-of-the-art CF," says Michaud.

"Currently, the CF are in Afghanistan but in the future, they will probably be called upon to carry out other types of missions somewhere else. Consequently, the [operating] environment will change and new research and development projects will be submitted to DRDC Valcartier. The research that will be required to respond to those new missions has to be done in a facility that is designed to do the job."

"Through the consulting, contracting and construction process, DCC has a tremendous responsibility to ensure that DRDC and members of the CF receive the best possible outcome, both in terms of the new research facility itself and that best value for money is achieved."

Although the project is not slated for completion until 2017, Michaud says his first priority is to "ensure that the requirements that are identified before the awarding of any contracts are respected as the project advances, and that the project scope continues to be respected and maintained."

Michaud says DCC is achieving that through a strong emphasis on up-front planning and

consultation.

Following a \$13 million design phase, the project is expected to involve three construction phases. The first phase is expected to begin in 2013 and will cost approximately \$37 million. The second phase is expected to begin in 2013 and will cost approximately \$96 million. The final phase is expected to begin in 2014 and will cost approximately \$24 million. The overall project is anticipated to be complete by 2017.

Defence Construction Canada's Client Service Newsletter



Construction de Défense Canada
Defence Construction Canada

Canada

Last Modified: 3-18-2015

[Important Notices and Disclaimers](#)

In this issue

Science and technology
enabling success in CF
operations

Goose Bay remediation
project showcases DCC's
technical expertise

Quick tendering allows DCC
to respond to storm
damage in record time

Teaching energy
conservation at home can
help save lives overseas

[Subscribe](#)

[About DCC At Work](#)

DCC *at* WORK

Learn more about current DCC projects and events

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The Goose Bay remediation project showcases DCC's technical expertise

The \$300-million, 10-year project to clean up contamination at 5 Wing Goose Bay, Newfoundland and Labrador, is giving DCC a perfect opportunity to showcase its technical expertise.

The project involves assessment and remediation of historical contamination, removing mostly petroleum hydrocarbons left over from the base's days as a U.S. air force installation.

DCC employees at 5 Wing Goose Bay, including Derek AuCoin, Jason Barnes and Shannon Mitchell, are working with colleagues Annette Murphy, Jordan Mooers and Yvonne Chabassol of the Shearwater office to develop and procure all the contracts required for project activities and oversee consultants' work.

"I believe our technical expertise is the most important benefit we bring to the table," says Annette Murphy, Environmental Program Manager at DCC Shearwater, who oversees the scheduling and logistics associated with all the DCC project personnel. "We understand the work and technology involved. We have a critical review and oversight on the work that's done."



Installation of a passive recovery trench, or drain system, to cut-off and collect any free product (petroleum hydrocarbons) that may seep from the tank farm through the groundwater into the stillwaters.

Most members of the DCC project team, she adds, have been environmental consultants and performed similar work in the past, so, for example, "we are able to critically review, on behalf of DND, the reports the consultants produce for the project."

Similarly, DCC staff assist DND to analyze the technological options for cleaning up the contaminated soil, determining which option would work best in the area's deep, very sandy soil. DCC also provides project management support to DND in other areas such as communicating with environmental regulators.

In addition, DCC has made efforts at conferences and tradeshow to get the word out about the project, to inform Canadians of the work being done and encourage a good response from contractors on tenders for project work.

The procurement options are numerous and complex, Murphy notes. In what might be a first for the organization, DCC assigned a dedicated procurement planner to the project team to manage the procurement strategy and bridge the gap between technical and contracting staff. Jordan Mooers is responsible for driving the procurement process, including preparing project procurement plans and determining the best contracting approach for each requirement.

In 2011, as the project moves fully into the implementation phase, one contract will go out for remediation at a tank farm, and several more for support functions, such as drilling and laboratory services. Planning will also begin shortly with DND for at least three remediation contracts to be let in 2012.

Defence Construction Canada's Client Service Newsletter



Construction de Défense Canada
Defence Construction Canada

Canada

Last Modified: 3-18-2015

[Important Notices and Disclaimers](#)

In this issue

Science and technology
enabling success in CF
operations

Goose Bay remediation
project showcases DCC's
technical expertise

Quick tendering allows DCC
to respond to storm
damage in record time

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conservation at home can
help save lives overseas

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[About DCC At Work](#)

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Learn more about current DCC projects and events

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Even when you are in the business of constructing and maintaining buildings, having parts of your own roof come off presents certain challenges to getting it—and the roofs of neighbouring buildings—fixed in a hurry.

The DCC staff at 14 Wing Greenwood, in Nova Scotia's Annapolis Valley, faced this situation last December, when a big wind and rain storm damaged several hangar roofs at the base, including that of Hangar 5, where the DCC offices are located.

Nonetheless, after power was restored and operations resumed, DCC employees were able—in just three days—to get a contract in place to get all the damage repaired.



Damage to the Hangar 5 roof at 14 Wing CFB Greenwood.

DCC used a contracting method called QRT, or Quick Response Tender. Designed and typically reserved for small dollar-value, single-trade projects, QRT nonetheless seemed the way to go this time, when the project was larger and more complex, due to the nature of the damage and urgency of getting it fixed, says Doug MacLeod, Contract Services Officer. DCC staff ensured that DND agreed with this approach and got the proper approvals for the larger than normal expenditure.

In the event, three interested contractors on Greenwood's QRT list attended the project briefing on the Wednesday afternoon following the Monday night storm, with two submitting bids the next day and the contract was awarded at 8 a.m. on the Friday. (In the meantime, DND had secured the damaged roofs with tarps.)

"Tenders generally take two to three weeks," says MacLeod.

"Using QRT usually takes a week, but we said, 'we need this tomorrow.'" Quickly tendering the

job also meant that DCC could access the services of experienced contractors, who were sure to be in demand after the storm, and to get a good price, because there was a competitive process.

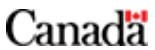
In addition to this contracting method working as intended—getting a rapid response in an urgent situation—this project was an excellent example of the partnership DCC and DND have established at the base over the years. “DND gave us a challenge, which we met, but they put their resources to it as well, ensuring that we had the approvals and specifications we needed quickly,” says MacLeod.



Defence Construction Canada's Client Service Newsletter



Construction de Défense Canada
Defence Construction Canada



Last Modified: 3-18-2015

[Important Notices and Disclaimers](#)

In this issue

Science and technology
enabling success in CF
operations

Goose Bay remediation
project showcases DCC's
technical expertise

Quick tendering allows DCC
to respond to storm
damage in record time

Teaching energy
conservation at home can
help save lives overseas

[Subscribe](#)

[About DCC At Work](#)

DCC *at* WORK

Learn more about current DCC projects and events

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There may not be an obvious connection between elementary school children in Edmonton learning about energy conservation and Canadian soldiers in Afghanistan, however, there is — the kids learning the lessons are children of Army soldiers, many of whom are on overseas deployment in Afghanistan. They attend Guthrie School at Canadian Forces Base Edmonton.

The idea behind the joint DND and DCC program is to teach energy conservation to kids for their own awareness while at the same time encouraging them to share their lessons with their parents. Rationale — the more that soldiers practice energy conservation at home, it helps them to learn good conservation habits which are carried over in a theatre of operations. The fewer times they have to travel in convoys over hostile, dangerous territory to replenish vital supplies such as water and fuel, reduces the chance of soldiers being injured or killed.

“Through this program we are helping DND save money [on energy costs here at home], save lives in the big picture and the environment,” says DCC’s Environmental Services Team Leader at CFB Edmonton, Jason Allison.

“I’ve had many soldiers approach me about how their kids are always bugging them to turn off the lights and that’s exactly what we want,” Allison says.



Science teacher at Guthrie School, Paul Froese along with Grade 7 students are using an infrared thermometer to test the temperature of the insulating value of the sprung shelter’s walls.

However, the program is about more than just turning off lights. The kids are learning about

solar wind turbines, Geo and Solar thermal energy, LED lighting for buildings, and solar wind battery back-ups for computer systems.

To help the kids understand how difficult it is to produce energy, they participated in an Energy Challenge, the same as the one their parents have been participating in for the last four years. The students were broken-up into 10 teams of eight and had an opportunity to ride an elliptical machine or stationary bike for half an hour. The calories produced from each student were converted into watts per hour. Allison said, "At first the students thought this would be easy and they would have no problem beating the highest of the adults score. They soon realized just how difficult it is to produce raw energy."

As part of a department-wide effort to save energy, DND implemented Energy Performance Contracts or EPCs throughout various bases to assess energy consumption. Once inefficient systems are identified, options are identified to improve efficiencies.

A study done by Natural Resources Canada (NRCan) showed that with a combination of technological upgrades and education to change habits, it's possible for a building to reduce its energy consumption by up to 25 per cent. Allison says teaching kids to make those connections from a young age now will pay dividends in the future. In addition, the kids will help their parents with good conservation habits at home and at work.

Once the overall findings of the program are done (March 2011) the students present their recommendations to the Base Commander, the Base Engineer, and other high-ranking officers on different ways the Base can save energy.

CFB Edmonton Base Commander Lieutenant-Colonel Tom Bradley is excited to work with the students and hopes their energy conservation ideas will help inspire conservation awareness to become second nature to the soldiers. "The more energy we get used to saving in our everyday lives in Canada, the less energy we will need deployed on operations, which will in turn increase safety and security for our troops," LCol Bradley concludes.

Defence Construction Canada's Client Service Newsletter



Construction de Défense Canada
Defence Construction Canada

Canada

Last Modified: 3-18-2015

[Important Notices and Disclaimers](#)

[Newsletters 2011](#) > [DCC At Work - February 2011](#)



[Printer Friendly](#)

In this issue

Science and technology
enabling success in CF
operations

Goose Bay remediation
project showcases DCC's
technical expertise

Quick tendering allows DCC
to respond to storm
damage in record time

Teaching energy
conservation at home can
help save lives overseas

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Last Modified: 3-18-2015

[Important Notices and Disclaimers](#)

[Newsletters 2011](#) > [DCC At Work - February 2011](#)



[Printer Friendly](#)

In this issue

Science and technology
enabling success in CF
operations

Goose Bay remediation
project showcases DCC's
technical expertise

Quick tendering allows DCC
to respond to storm
damage in record time

Teaching energy
conservation at home can
help save lives overseas

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Look for the next issue of *DCC at Work* in April 2011.



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Last Modified: 3-18-2015

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