



ON THE Horizon



One year after production start-up

February 28, 2009 will be fondly remembered by Canadian Natural Resources Limited as a landmark date for the company. It was when production at Horizon Oil Sands officially began.

That day marked the end of a flurry of construction activity that spanned four years on Phase 1 of the project. The process to build the plant began back in February 2005, when Horizon Oil Sands was officially sanctioned.

At times, the combined workforce of Canadian Natural and contract employees topped the 10,000 mark. More than 56 million man hours were worked on-site and the result was a world class oil sands mining, processing and upgrading facility.

"As a team, we accomplished a major milestone in the success of the Horizon Project," says Réal Doucet, senior vice-president, Horizon Projects.

"From vision to planning, design, construction and operation, the team made a tremendous effort to keep this project on the move despite all the challenges."

Canadian Natural ramped up to full Phase 1 production capacity (110,000 barrels per day) throughout 2009 as the plant continued to be fine tuned to design rates with a focus on safety, reliability, and cost control.

Future construction phases to increase the production capacity at Horizon Oil Sands are planned. ■

Bird deterrent system

uses state of the art technology

Keeping the water bodies at the Horizon Oil Sands site clear of waterfowl is a major priority and we're using state of the art technology to do it.

An 'On Demand' bird deterrent system was introduced at the Horizon site in the spring of 2009. It uses several radar and satellite stations to detect birds and 14 Long Range Acoustic Devices (LRAD) have been deployed to cover the surface area of the tailings pond.

When birds are detected, the LRAD activate by emitting a focused beam of sound (such as bird distress calls, sirens, etc.) sent out at up to 140 dB to disperse birds from the pond area. Because the system is triggered only when birds are detected, they do not get used to the sounds (referred to by scientists as habituation).

The system also includes laser units to provide an extra dusk and dawn deterrent. The lasers create patterns on the water surface making it unattractive for birds to land on.

LRAD was developed by the military and the same on demand system is used at the Calgary airport to protect airplane passengers.

"It has a high standard of performance," says Calvin Duane, manager of Environment for Canadian Natural.

Horizon's bird deterrent program also includes the use of propane cannons, effigies, vegetation removal to discourage nesting, and crews to perform manual hazing. The many steps that have been taken in the



Canadian Natural staff test a laser on one of the 'On Demand' bird deterrent system units when it was being set up in spring 2009.

area of bird deterrence at the Horizon site show just how important the issue is to our company.

"We've expended a great amount of effort to ensure that birds don't come into contact with the water bodies on site — we take this issue extremely seriously," says Duane. ■

Horizon tailings pond

...did you know?

- The Horizon tailings pond is built on clay soils, which prevents seepage.
- The pond is located approximately 11 km from the Athabasca River to further reduce the risk of seepage into the river.
- The pond has ditches and monitoring wells to test for any seepage.

Learn more about Canadian Natural at

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...is your Horizon Oil Sands newsletter and is published by Canadian Natural to provide information and promote stakeholder input. Your comments and suggestions are welcome.

Please contact us at:

Horizon Stakeholder Relations
Phone (780) 714-6161
Fax (780) 714-6162
Email: horizonproject@cnrl.com