

# SALESKI

IN SITU OIL SANDS PROJECT EXPANSION

PROJECT DESCRIPTION  
MAY 2011



LARICINA  
ENERGY LTD.



## LETTER TO STAKEHOLDERS

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We are very excited about our Saleski Project, a first-of-its-kind and high potential play targeting Alberta's Grosmont Formation. At Laricina, we pride ourselves in our ability to forge new plays while serving as an industry leader in the innovative use of proven and developing technologies.

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The Saleski Project showcases Laricina's pioneering and innovative approach, drawing on the groundbreaking ideas of our people and the partnerships with the communities where we operate to lead the way in oil sands development. Saleski is Alberta's first commercial steam-assisted gravity drainage (SAGD) development in the Grosmont Formation in the west Athabasca oil sands region. The Grosmont Formation holds approximately 23 per cent of Alberta's estimated oil sands resource, according to the Energy Resource Conservation Board (ERCB). Due to its high hydrocarbon potential, development in the Grosmont is a tremendous opportunity for the people of Alberta.

Development at Saleski will use established SAGD technology and solvent cyclic SAGD or SC-SAGD technology. The use of solvents reduces the amount of water needed to create steam for the SAGD process, which in turn reduces carbon emission intensity and water utilization. We will also limit our impact on wildlife and fresh water resources by using non-surface, non-potable water to create steam.

Laricina is committed to open and transparent communication with our stakeholders and nearby communities. As a part of this commitment, we will strive to provide you with regular updates and opportunities to learn more about the Saleski Project. This project description contains a complete summary of the Saleski Project's history, its current status and our future plans. We are available to answer your questions at any time, and we welcome and value your ongoing feedback.

On behalf of Laricina, I want to thank you for taking an interest in the Saleski Project. I look forward to building strong and lasting relationships with all of our stakeholders.

**Glen Schmidt**  
President and CEO, Laricina Energy Ltd.

## LARICINA ENERGY LTD.

Laricina Energy Ltd. is a privately held, Calgary-based company that is creating value by developing Canada's oil sands using innovative *in situ* technologies.

Laricina has a portfolio of targeted oil sands assets containing a variety of reservoir environments and geological character. These assets range from the familiar oil sands of the McMurray Formation to the less developed Grand Rapids and Grosmont Formations, all of which offer significant resource potential. Laricina's diverse portfolio of oil sands assets are at varied stages of development.

Laricina is a responsible energy company that will respond to the growing demand for crude oil through *in situ* oil sands development with an exceptionally experienced technical team.



Drilling operations at Saleski - February 2011.

## SALESKI DEVELOPMENT

Laricina is currently operating the Saleski Pilot, which is an approved 1,800 barrels-per-day project in the west Athabasca region of northern Alberta. We are currently seeking regulatory approval for Phase 1 of the Project's expansion, which will develop Saleski to a proposed production capacity of 12,500 barrels-per-day. Phase 1 will be the first of six expansion phases expected to increase Saleski's production to more than 270,000 barrels-per-day over a 30-year period.

In August 2006, Laricina and its joint venture partner acquired 19 sections of land in the Saleski area, located within the west Athabasca oil sands region. In 2006 and 2007, we acquired 48 additional sections of land, bringing our total land base in the area to 67 sections. Laricina is the project operator of Saleski, with a 60 per cent working interest.

The Grosmont Formation at Saleski is located between a depth of 300 and 375 metres below the surface. At these depths, recovery is conducted using well-established thermal recovery methods like those commonly used by oil sands producers in the more mature east Athabasca oil sands region. Laricina will use current and future innovations of *in situ* technology to develop its oil sands assets at Saleski, including SAGD and SC-SAGD.

In July 2009, Laricina received regulatory approval to proceed with the Saleski Pilot, which has an installed capacity of 1,800 barrels of bitumen per day. Pilot construction began in early 2010, and horizontal wells were drilled and completed in the summer and fall of 2010. Steam injection into the Pilot's first wells began on December 23, 2010.

We are currently seeking regulatory approval for Phase 1. This is the first of six potential phases of the Saleski Project's expansion. Phase 1 is a 10,700 barrel-per-day expansion that will bring the total field production to 12,500 barrels-per-day. Laricina is taking a staged approach to expand bitumen production capacity to 270,000 gross barrels-per-day over a 30-year period.

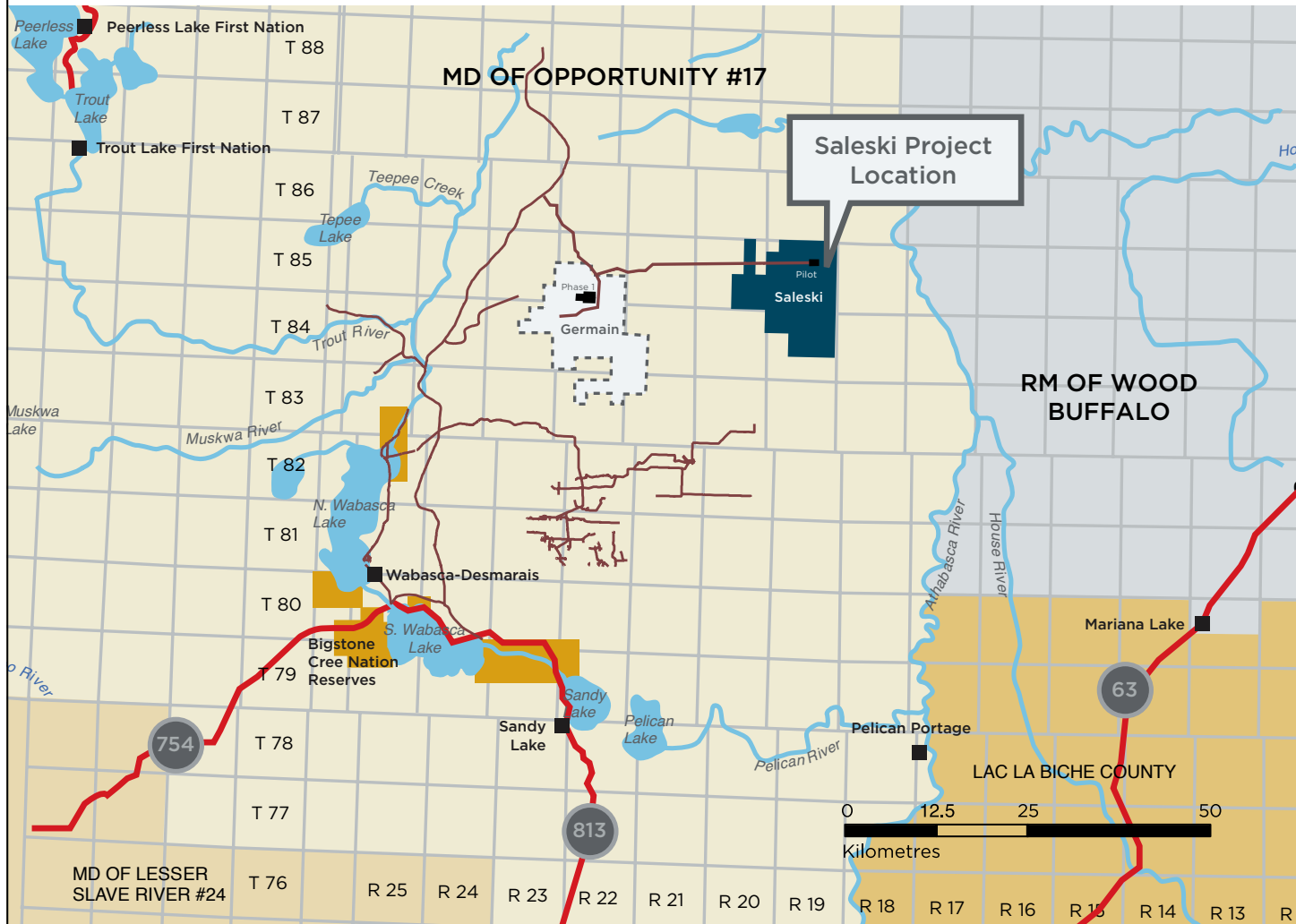
# SALESKI PROJECT LOCATION

The Saleski Project is located in the West Athabasca Oil Sands region, in Townships 84 and 85 and in Ranges 19 and 20 W4M.

Saleski is approximately 70 kilometres northeast of the community of Wabasca-Desmarais, in the Municipal District of Opportunity #17. The Saleski Project's Phase 1 expansion will be located to the southwest of the Pilot plant site in Township 85 and Range 19 W4M. This will allow the Phase 1 development to use a number of the components constructed and used for the Pilot, including roads, fuel gas pipelines, source and disposal wells and the construction and operations camp.

## LEGEND

- Communities
- Bigstone Cree Nation Reserves
- Saleski Leases
- Germain Leases
- Highway
- Road
- Rivers
- Lakes



## TECHNOLOGY

SAGD involves drilling pairs of horizontal wells. The upper well is used for steam injection while the lower well is used for oil and condensed water production. Steam is continuously injected into the reservoir from the upper well to heat bitumen to a point where it flows by gravity to the lower production well where it can be extracted from the ground with a pump.

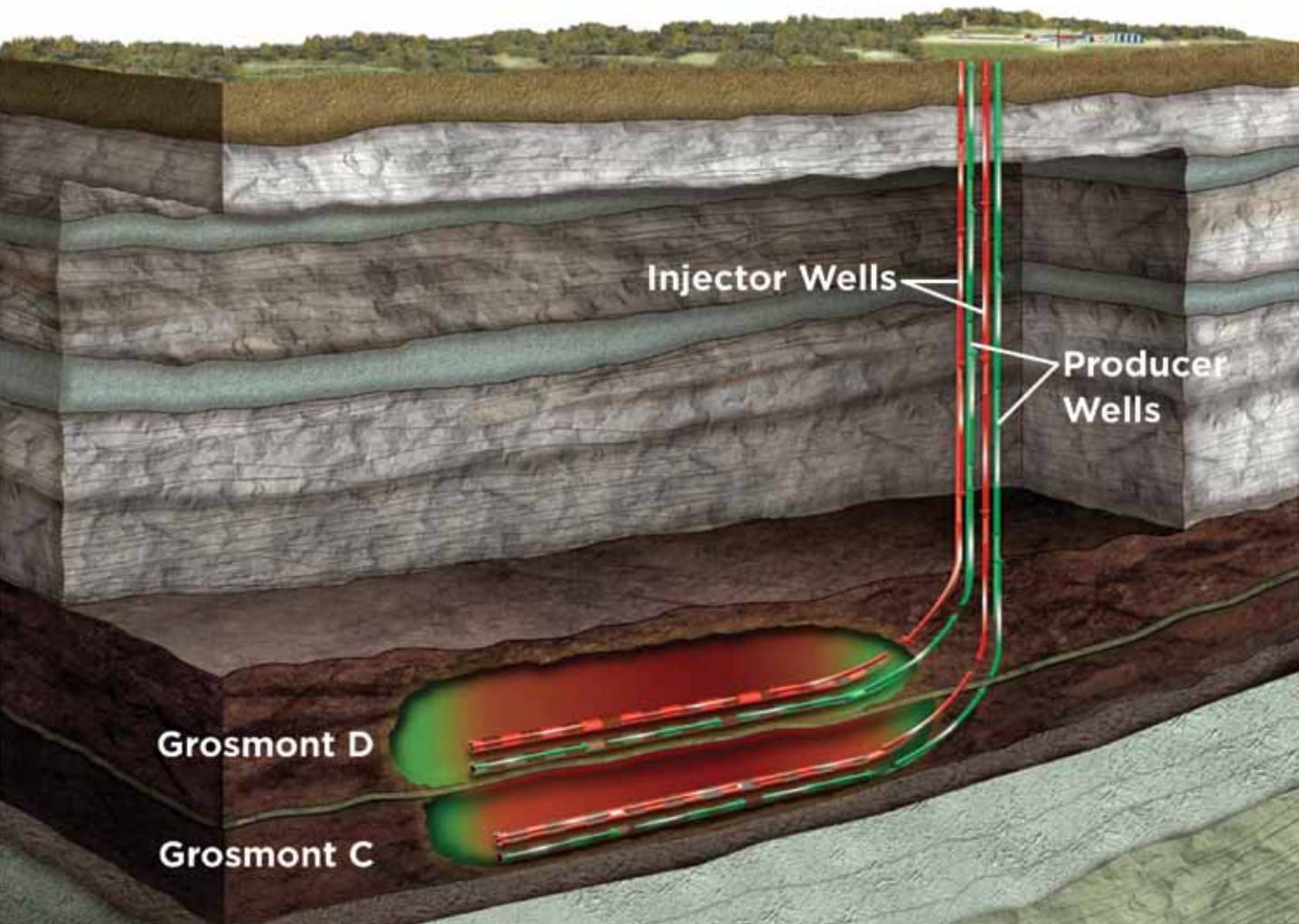
To date, SAGD technology has been effective in gaining commercial production of bitumen from sandstone formations such as the McMurray and Grand Rapids Formations. Laricina's resource delineation, testing and modelling have indicated that the Grosmont, a carbonate formation, has the geological characteristics needed for commercial bitumen extraction using SAGD technology. Laricina is targeting two zones (labelled zones C and D) which are separated by a thin layer of shale, referred to as a marl. Horizontal wells will be drilled in these two zones in a stacked manner from a common well pad, which is estimated to be 200 metres by 400 metres in size. The initial well pads will be designed to accommodate 20 stacked well-pairs with 100 metres between each pair in the reservoir and 800 metres of horizontal reach.

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Laricina's Saleski Pilot is the industry's first to recover bitumen from a carbonate deposit using well-established SAGD technology as a recovery method.

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*Well trajectories in the Grosmont C and D zones.*



## THE SOLVENT ADVANTAGE

SC-SAGD is an improvement to SAGD technology that involves the co-injection of solvents and steam into the reservoir in a series of phases. Bitumen viscosity can be reduced using either heat (steam) or solvents. In the SC-SAGD process, as in the SAGD process, wells are started with steam. However, unlike in the SAGD process, the steam injection rate is reduced and solvent is co-injected into the chamber to aid in reducing the bitumen viscosity. The solvents being contemplated are a combination of a heavier hydrocarbon (>C<sub>5</sub>, diluent, or condensate blend) and a lighter hydrocarbon such as propane. By combining solvent injection with steam, Laricina expects to realize a material reduction in the cumulative steam-oil ratio, reduced water use and air emissions, increased bitumen production rates and improved overall recovery, as compared to the SAGD process. Laricina will be testing SC-SAGD at the Pilot.



## PRODUCTION FACILITIES

In addition to horizontal wells and well pads, surface facilities will be required to generate and distribute steam and solvents, gather well production, process bitumen and treat produced water. While a number of components from the Pilot will be used in additional phases, additional roads and other offsite infrastructure will be required.

Saleski Phase 1 will consist of the following components:

- Central processing facility
- Associated infrastructure such as office building, storage sheds
- Soil storage areas, borrow pits
- Equipment lay down and staging area
- Operational and construction camp facilities
- Electrical substation
- Well pads
- Observation wells
- Groundwater monitoring sites
- Water source and disposal wells
- Gathering corridors including roads, gathering pipelines and transmission lines, and natural gas pipeline (for fuel gas).

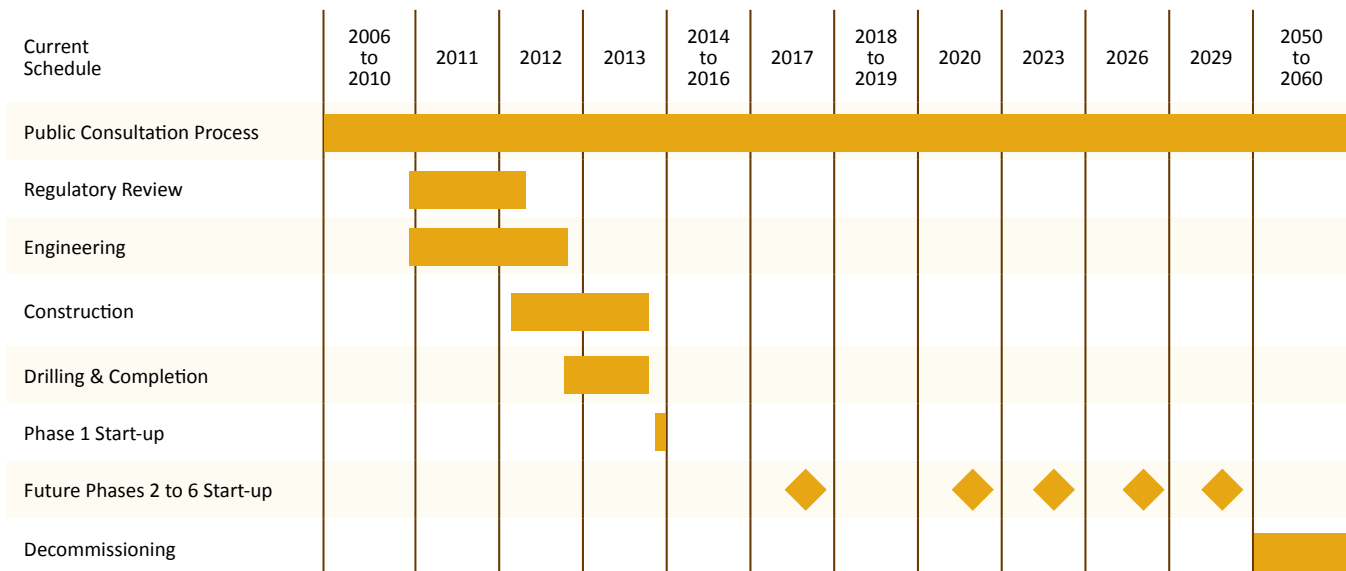
# SALESKI EXPANSION OVERVIEW

Phase 1 will expand and integrate the original 1,800 barrel-per-day Pilot into a 12,500 barrel-per-day bitumen recovery operation. Pending regulatory approval, we expect to begin initial field construction on Phase 1 in late 2012. The initial focus will be on drilling 20 well pairs, establishing 10,700 barrels-per-day of production capacity.

Operating activities are scheduled to begin with first steam scheduled in the fourth quarter of 2013, and full production rates achieved 12 to 18 months after initial production. Following Phase 1, Laricina intends to carry out five additional expansion phases aimed at achieving production of 270,000 gross barrels-per-day over 30 years. Future project phases will increase production by approximately 25,000 to 60,000+ barrels-per-day as Project design, execution and enhancements are proven with each expansion.

Beginning with the Phase 1 expansion, Laricina is seeking to develop the Saleski Project into a full commercial-scale production facility.

## SALESKI PROJECT EXPANSION TIMELINE



## COMMITMENT TO OUR STAKEHOLDERS

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Laricina plays a positive role in the communities where we operate through meaningful consultation and contributing to community well-being through donations, partnerships and volunteerism. This commitment has been integral to Laricina's operations in the Wabasca area since 2006.

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We work in an open, transparent and inclusive manner with all the communities and stakeholders that may be impacted by our operations. Laricina's goal is to ensure that our projects are well understood by our stakeholders. We work to achieve this goal by ensuring our teams are available for consultation in a number of different ways including, but not limited to, community initiatives, public forums and website updates.

Laricina is committed to collaborative and transparent consultation with all of our stakeholders, including the Bigstone Cree Nation, the Métis Local 90 and the MD of Opportunity #17. In 2010 and 2011, Laricina hosted workshops, held formal and informal meetings and provided written updates on Saleski's plans and activities and received feedback from our stakeholders that our consultation efforts were being positively received. The understandings and dialogue results from our ongoing public consultation initiatives will serve as the basis for Saleski Project expansions going forward.



*Members of Laricina's clean-up crew working along the Wabasca Lake.*

## PEOPLE

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At Laricina, we pride ourselves on being a good neighbour and creating opportunities for the communities where we operate. As Phase 1 gets underway, we will continue to buy and hire locally, conduct safety training for our workers and award local contracts associated with the development of Saleski whenever possible.

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Based on current estimates, our total investment in Phase 1 will be between \$400-450 million, which will produce economic benefits for the regional community. The Phase 1 project will create



approximately 300 to 450 jobs during the construction phase, and it is anticipated that future phases will require similar labour capital.

Laricina intends to work closely with local Aboriginal groups in the region to build strong community ties and help communities broaden their economic base. Specifically, we will help grow local Aboriginal economies by identifying spin-off economic opportunities from our operations and focusing on services communities can offer the oil industry. Accordingly, our company and employees will also continue to focus on education and awareness initiatives, such as community-wide career fairs and employment information sessions.

The Saleski Project will benefit all Albertans by contributing to the province's oil sands development and will provide an important offset as conventional oil production declines.

## ENVIRONMENT

Specifically, the use of solvent technology will increase bitumen recovery while reducing steam and energy use. This will result in higher efficiency and, consequently, reduced carbon emission intensity and water utilization.

No surface water will be used to generate steam for the Saleski Project. Instead, non-potable water will be drawn from deep wells in the lower Grand Rapids Formation. Treatment facilities will ensure that the Project's produced water is recycled and used for generating steam to inject into the wells. Based on preliminary estimates, Laricina expects to use approximately 600 cubic metres per day of non-potable, subsurface water to support 12,500 barrels (1,985 cubic metres) of production per day during steady operations.

Laricina is committed to mitigating the physical disturbance of the surrounding environment and impacts on wildlife. Our goal is to reclaim developed lands to achieve an environment similar to pre-disturbance conditions, resulting in reclaimed landscapes that are compatible with the surrounding area. The Saleski site also has numerous wildlife cameras placed around the Project area. The cameras monitor the woodland caribou and other wild species in the Project area. The data obtained from these cameras will assist us in understanding the wildlife population and habitat while also helping us identify areas where mitigative measures, such as wildlife crossings, should be applied.

Laricina has been collecting and assessing baseline data since 2007. In 2008 and 2009, we sponsored a collaborative, field-based Traditional Land Use Assessment with the Bigstone Cree Nation and local trappers. Information collected will be used to support additional environmental and socio-economic measures for future

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Innovative technologies applied at the Saleski Project will allow Laricina to manage and mitigate environmental impacts commonly associated with oil sands development.

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expansion. Preliminary baseline studies in the area include work on existing surface and groundwater conditions, air quality, wildlife population and habitat inventories, vegetation and soil conditions, aquatic resources, human health, traffic, socio-economic effects and historical resources. Laricina will continue to engage the local Aboriginal communities to understand traditional ecological knowledge and traditional land use.

*Two adult Sandhill Cranes and their offspring traverse the Wabasca area. Laricina plans to develop Saleski in a responsible manner that respects the environment.*



## REGULATORY

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Laricina filed a regulatory application for the first phase of the Saleski Project expansion on December 23, 2010. This application sets in motion our regulatory process for Saleski Phase 1.

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In November 2010, Laricina submitted its First Nations Consultation Plan (FNCP) to Alberta Environment (AENV) for review and approval. After receiving approval for the FNCP, we filed the regulatory application with the Energy Resources Conservation Board (ERCB) and AENV on December 23, 2010 to begin the regulatory review process for the Phase 1 expansion of Saleski.

If approvals are granted, we expect construction of Phase 1 to begin in late 2012.

*Laricina conducted Traditional Land Use assessments in 2008 and 2009, drawing on information shared by Bigstone Cree Nation land users.*



*A curious caribou as seen by Laricina's remote camera. Remote cameras monitor caribou and other wild species to assist in understanding the wildlife population and identifying areas where mitigative measures should be applied.*



## CONTACT INFORMATION

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For further information regarding the Saleski Project Expansion, please contact:

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