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LABOUR MARKET NEWS

Government of Alberta ■

Fort McMurray · Wood Buffalo

In-situ oil sands jobs

Open pit mining isn't the only way to get oil from the oil sands. In-situ is another recovery method being used in the Fort McMurray area. When the oil sand is too deep for surface mining, in-situ techniques are used.

Horizontal or vertical wells are drilled hundreds of feet into the ground. Steam, air or solvents are injected into the wells to separate the thick bitumen from the sand. Once it starts flowing, it's pumped up to a plant for processing (see page 2 for a more detailed explanation of the process).

There are several in-situ projects operating in the region, and more are under construction or being proposed. Jobs are available in three main areas:

- Exploration
- Construction
- Plant operations and maintenance

How many jobs are created?

While they are much smaller-scale operations than open pit mining, there are still many employment opportunities created by in-situ developments.

Before construction begins, seismic and exploratory drilling rig crews do tests to see how much oil is under the ground.

Did you know...

Only 20 per cent of the oil in the oil sands can be recovered by open pit mining. In-situ methods will be used to recover the other 80 per cent.

When the plants are being built, the number of construction workers needed is usually around 300 to 750 people. There are some larger in-situ projects in the works that will need from 1,000 up to 3,700 construction workers. Construction usually takes one to three years to complete.

And depending on how many barrels of oil they produce each day, most in-situ plants employ around 40 to 150 people in operations and maintenance.

Keep reading this month's edition of the *Labour Market News* to find out more about in-situ employment opportunities.

IN THIS ISSUE

UPCOMING ISSUES...

INDUSTRIAL CONSTRUCTION TRADES

This publication has been prepared by Alberta Employment and Immigration.

There are 91 active oil sands projects in Alberta. Of these, five are mining projects. The remaining projects use various in-situ methods to recover the oil (SAGD is the most common method in the Wood Buffalo region; see the sidebar below to learn more).

In-situ development is an area that has plenty of long-term potential. New technology is making it easier for companies to access deep deposits. And there is plenty of oil left to bring up.

In fact, there are 170 billion barrels of oil sands reserves still in the ground, and about 80 per cent of that will be recovered with in-situ technology.

"On the in-situ side, less than two per cent of the remaining oil is under active development," says Brian Harrison, manager of thermal heavy oil for Devon Energy, which is currently expanding its Jackfish SAGD project 140 kilometres south of Fort McMcMurray.

As the economy rebounds, new projects are expected. Just last month, Suncor Energy announced a $950 million expansion of its Firebag in-situ project.

Exploration: Drilling and seismic crews

Oil sands in-situ development begins with exploration. Before they invest millions of dollars in a project, oil sands companies need to know how much oil can be recovered below the ground.

"There is an exploration component in the oil sands. There have been a lot of mineral rights leased over the last five years. A lot of what's underneath the ground is unknown," says Peter Sametz, chief operating officer with Connacher Oil and Gas Ltd.

The company operates the Great Divide SAGD plant and is currently building its $345 million Algar SAGD plant. Both plants are located about 80 kilometres south of Fort McMurray.

Exploration work is often done in winter, when the muskeg is frozen. Drilling contractors are hired to drill exploratory core holes. While the rigs are specialized for the oil sands, regular rig crews are employed to do the work. The number of core holes that are drilled varies widely from year to year.

What is in-situ?

It's not a well-known fact, but about 80 per cent of Alberta oil sands are too deep for surface mining. When the oil sands are more than 200 feet deep, in-situ technology is used to bring the oil to the surface.

How does it work?

Oil sands bitumen is usually too thick and heavy to be pumped from the ground like conventional oil. In-situ technology uses either steam, air or solvents to soften the bitumen in the ground, and bring it to the surface using wells.

Steam, air or solvents are injected into the wells to help liquefy the bitumen. Once the bitumen starts to flow, it's pumped to the surface to be processed.

In the Wood Buffalo region, the most common in-situ method is Steam Assisted Gravity Drainage (SAGD).

Companies using SAGD drill a pair of horizontal wells into the reservoir and inject hot steam into the upper well. This warms the bitumen and makes it flow down into the second well, where it's pumped topside.

An aerial view of Connacher's Algar in-situ project, located 80 kilometres south of Fort McMurray.

Other technologies being developed, such as Toe to Heal Air Injection (THAI) and Vapour Extraction Process (VAPEX), use air or solvents instead of steam.

In 2008, almost half of the oil recovered from Alberta's oil sands (213 million barrels) came from in-situ operations.

This compares to 264 million barrels from mining.

To learn more about in-situ oil sands projects in Alberta go online to oilsands.alberta.ca.

Quick fact:

In-situ is Latin for 'in place.'

When the price of oil drops, as it has done recently, exploration activity often falls too.

Still, there are drilling programs taking place this winter. For example, Statoil Hydro has announced plans to drill over 200 exploration wells this season for its proposed Kaikos Dehseh SAGD project near Conklin.

Other rig work

Besides exploration drilling, rig crews also drill the well pairs that supply the in-situ plants with oil. A well pair usually produces for six to eight years.

In Alberta, the majority of drilling contractors are located in Nisku (just south of Edmonton) and Calgary. Ensign Energy Services (ensignenergy.com), Precision Drilling (precisiondrilling.com), Akita Drilling (akita-drilling.com) and Nabours Canada (nabors.com) are some of the major companies doing drilling work in the Fort McMurray region, but there are others.

The best way to find work on a drilling rig crew is to contact the drilling contractors directly. The Canadian Association of Oilwell Drilling Contractors (www.caodc.ca) has a list of companies on its website. Some drilling companies will hire entry-level workers and train them on the job. In today's job market, taking a seven-day Pre-Employment Floorhand Training course through Enform (enform.ca) can help a candidate stand out. All drilling hands start out as entry-level leasehands or floorhands. The next step is to become a rig technician, which is a mandatory trade (see tradesecrets.alberta.ca for details). The top position is rig manager.

Rig crews typically work eight to 12-hour day or night shifts. A common rotation is two weeks on, one week off. Wherever the rig moves, the crews follow, so jobs may be in the Fort McMurray region or other locations across Western Canada.

There are also some seismic crews doing occasional exploration work in the region, using explosives and other tools to map the underground formations. Some positions, such as geologist, are very skilled. But there are also entry-level positions such as chainsaw buckers, survey helpers, driller helpers and line crew helpers. Seismic crews travel across Western Canada, working long hours in the bush.

To learn more about seismic jobs, visit the Canadian Association of Geophysical Contractors website (cagc.ca). Click on Careers, then HR Resources, for job descriptions.

SAGD plants use steam to recover oil from oil sands deposits that are more than 200 feet deep.

Oil sands companies post job openings in operations and maintenance on their websites. Check out the links below to see who's hiring.

OPERATING IN-SITU PROJECTS

- **ConocoPhillips** (Surmont): conocophillips.ca
- **Connacher Oil and Gas** (Great Divide): connacheroil.com
- **Devon Energy** (Jackfish): devonenergy.com
- **EnCana** (Christina Lake): encana.com
- **Japan Canada Oil Sands Ltd.** (Hangingstone): jacos.com
- **MEG Energy Corp.** (Christina Lake) megenergy.com
- **Opti Canada/Nexen Canada** (Long Lake): longlake.ca
- **Petrobank** (Whitesands): petrobank.com
- **Petro-Canada** (Mackay River and Dover): petro-canada.ca
- **Suncor** (Firebag): suncor.com

IN-SITU PROJECTS UNDER CONSTRUCTION

- **Connacher Oil and Gas** (Algar): connacheroil.com
- **Devon Energy** (Jackfish): devonenergy.com
- **EnCana** (Christina Lake): encana.com
- **StatOil Hydro** (Kai Kos Dehseh): statoil.com
- **Suncor** (Firebag): suncor.com

PROPOSED IN-SITU PROJECTS

- **Canadian Natural Resources Ltd.** (Kirby): cnrl.com
- **Chevron** (Ells River): chevron.com
- **EnCana Corporation** (Borealis): encana.com
- **Enerplus Resources Fund** (Kirby Lease): enerplus.com
- **E-T Energy Ltd.** (Poplar Creek): e-tenergy.com
- **Husky Energy** (Sunrise): huskyenergy.com
- **Ivanhoe Energy** (Tamarack): ivanhoe-energy.com
- **Japan Canada Oil Sands Ltd./Nexen Canada** (Hanginstone): jacos.com
- **KNOC** (Blackgold): knoc.co.kr/ENG/main.jsp
- **MEG Energy Corp.** (Christina Lake) megenergy.com
- **N-Solv Corporation** (Pilot Plant): n-solv.com
- **Paramount Resources** (Hoole): paramountres.com
- **Petrobank** (May River): petrobank.com

To find work on a seismic crew, contact seismic companies. Many are based in Calgary. Check the CAGC website under 'Membership Link' for a list of companies. The CAGC also operates a seismic job board at juggy.ca.

Plant operations and maintenance

Most in-situ projects include steam generation and water recycling plants, which operate 24 hours a day, 365 days a year. A few in-situ developments, such as Suncor's Firebag and Nexen's Long Lake SAGD plants, also have refineries. The refineries upgrade the oil before it's sent to market.

The largest percentage of workers at the in-situ plants are power engineers, process operators and maintenance tradespeople. Devon's Jackfish site, for example, has about 100 plant employees, and about 75 of them are in operations and maintenance.

Power engineers generally work with high pressure boilers and process operators work with equipment that processes oil or gas. The minimum education needed for these positions is a high school education and a fourth class power engineering ticket.

People with previous operations experience working at pulp or paper mills and chemical plants, or as oil and gas battery operators, may be able to transfer their skills to become power engineers or process operators.

To learn about power engineer and process operators, read the October 2008 edition of the *Labour Market News* titled *Process operators: Maintaining a career in the oil sands industry* at woodbuffalo.net/LMNMAIN.html.

Maintenance tradespeople working at the plants include instrumentation technicians, millwrights and electricians. Some tradespeople are permanent,

3-D animation

Devon Energy Corporation has developed a 3-D animation that shows how the SAGD in-situ process works at the company's Jackfish project.
To view it, go online to:
capp.ca/canadaIndustry/oilSands/oil-sands-videos/Pages/Video-Oil-Sands-in-situ.aspx

Construction work

Oil sands companies don't hire construction workers directly. If you want to work on an in-situ construction project, you'll have to apply for a job with a construction contractor.

Contractors employ everyone from general labourers to heavy equipment operators, tradespeople, project managers and more. They build everything from access roads and pipelines to steam and water plants to upgraders.

To see what types of construction workers are needed at different stages of an oil sands project, go online to woodbuffalo.net/PDFs/Life.pdf.

Contact the contractors

There are dozens of contractors across the province working in the region. Not all of them have offices here. You can call the Wood Buffalo Labour Market Information phone line (780-715-0222) to get a list of contractors working in the region.

You can also go online to find a list of websites for companies that work in the region. Visit woodbuffalo.net/linksEMPLIntro.html. Some oil sands companies list their contractors on their websites (see page 3 for website addresses).

You can also try contacting local trades unions to see if work is available (go to woodbuffalo.net/linksFACTSUnion.html for a list of unions).

The Labour Market Information Centre in Fort McMurray (9915 Franklin Ave. in the Provincial Building) posts jobs.

And lots of jobs are advertised through word-of-mouth, so it's important to try and build a network of contacts in the local construction industry.

Improve your chances of finding work

Construction activity has slowed recently, so there is increased competition for jobs. To improve your chances of getting hired, it's a good idea to update your safety training. See page 6 for details.

full-time workers employed directly by oil sands companies. Some, such as welders, may be hired as-needed on a contract basis.

The qualifications for tradespeople varies, but typically workers start out as entry-level apprentices. Over a period of three or four years, they learn the trade through a mix of on-the-job training and technical schooling.

Oil sands companies do hire apprentices, so keep an eye on their websites for job openings (see page 3 for a list of companies).

"Historically, we have hired journeypersons, right though all levels of apprentices, as the jobs become available," says Harrison, with Devon Energy.

To learn more about maintenance trades and how to become an apprentice, go online to tradesecrets.alberta.ca.

If you already have a trades ticket but are from outside Alberta, you may have to write an equivalency exam. For details, visit the TradeSecrets website or call Alberta Apprenticeship and Industry Training in Fort McMurray at 780-743-7150.

Where are the in-situ projects located?

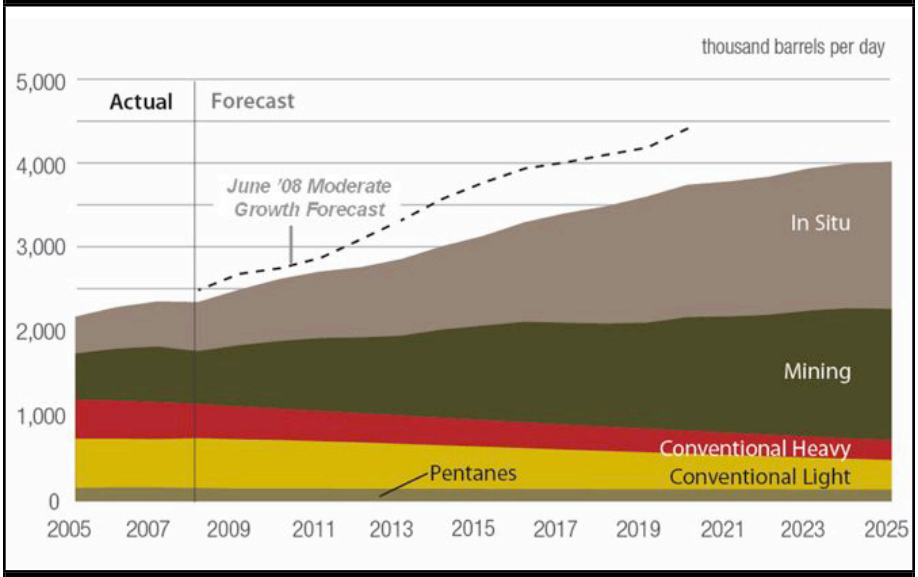
Wondering where all the in-situ projects are located? Most are in remote areas surrounding around Fort McMurray. The Oil Sands Developers Group (OSDG) has created an interactive map which shows in-situ developments in the Wood Buffalo region. Go online to oilsandsdevelopers.ca and click on *Oil Sands Map* in the menu bar.

Other people employed at the plant sites include engineers, technologists and technicians, managers and administrative staff.

Where to find current info

The status of different in-situ projects is always changing. For the most up to date information, check out the Oil Sands Projects quarterly report, which will be posted online at woodbuffalo.net.

Western Canada Oil Sands & Conventional Production Growth Forecast 2005-2025



Courtesy Canadian Association of Petroleum Producers, June 2009

Working conditions

Most in-situ developments are located in remote areas out in the bush.

Companies usually provide on-site camp housing for workers during all phases of an in-situ development, from exploration and construction to plant operations and maintenance.

Fort McMurray and other towns are usually too far away for workers to commute each day, so they stay their whole shift—usually one or two weeks—at the camp.

Don't worry, you won't be tenting!

Camps today are modern facilities much like hotels or dorms. Workers usually have their own rooms, although some may have to share rooms or bathrooms, depending on their job and their seniority. Food and housekeeping are provided.
Most facilities have amenities such as recreation and fitness centres, Internet and satellite television. Some even have Starbucks or Tim Horton's coffee shops.

Some camps are dry, meaning no alcohol is permitted.

Fly in, fly out

Some companies may fly employees to the work site, but this is usually only a perk offered to skilled workers. For example, Connacher has a charter plane that flies plant operations staff to its SAGD site from certain pick-up points, including Edmonton, Red Deer, Peace River or Bonnyville.

Other workers may be bussed to the work site from specified pick-up points. Some workers drive their own vehicles to the camp.

Pre-employment testing

Pre-employment drug and alcohol testing is a common requirement for most industrial and construction jobs—any job that brings you onto an oil sands site.

Safety first!

Safety training is a priority for construction contractors and oil sands companies in the Fort McMurray region. To work on an oil sands site, whether you're a contractor or a direct employee, you'll be required to have your Construction Safety Training System (CSTS) and Oil Sands Safety Association (OSSA) certificates.

If you're looking for work, getting some safety tickets looks good on your resumé and can help improve your chances of getting hired.

Construction Safety Training System (CSTS) – All workers on oil sands sites and all construction sites in Alberta require this safety training. It is a CD-ROM based course developed by the Alberta Construction Safety Association (acsa-safety.org) that takes no longer than five hours to complete. Contact ACSA, or the following local organizations, to arrange training:

- Fort McMurray Construction Association (fmca.net)
- Franco Job (acfawoodbuffalo.ab.ca)
- HSE Integrated Ltd. (hseintegrated.com)
- Keyano College (keyano.ca)

Oil Sands Safety Association (OSSA) – Initiated by local oil sands companies, OSSA training is the agreed local industry standard. All workers on the major sites must have this training. It is available through the following organizations:

- Oil Sands Safety Association (ossa-wb.ca) – Start with their website. Others may provide the training, but it is through OSSA.
- Fort McMurray Construction Association (fmca.net)
- Alberta BC Safety Inc. (albertabcsafety.com)
- Canadian and Industrial Construction Training (cict.ca)

Other safety training, from Fall Protection to First Aid and more, is available locally. For a detailed list of safety training options, go online to:

- woodbuffalo.net/trainSAFE.html

For information on resources and career decisions in Fort McMurray, contact us at:

Wood Buffalo Labour Market Information
780-715-0222

Email: info@woodbuffalo.net

Online: **www.woodbuffalo.net**
employment.alberta.ca

Alberta Employment and Immigration career and employment services

Fort McMurray

Wood Buffalo Labour Market Information
Ph. 780-715-0222
info@woodbuffalo.net

Canada-Alberta Service Centre
Labour Market Information Centre
Provincial Building, 9915 Franklin Avenue
Ph. 780-743-7192
Website: **employment.alberta.ca**

Other career/employment services

Fort McMurray

Fort McMurray Association for Community Living - CHOICES Employment Services
10010 Franklin Avenue, Ph. 780-791-3355
fmacl.ca

YMCA - Youth Connections
(in-school services only)
Ph. 780-791-7520

YMCA – Immigrant Employment Services
#201, 10011 Franklin Avenue
Ph. 780-791-1115 ymca.woodbuffalo.org

Franco Job
312 Abasand Drive, Centre Communautaire Scolaire, Boréal, Ph. 780-791-9779
acfawoodbuffalo.ab.ca

Athabasca Tribal Council Employment
9206 McCormick Drive Ph. 780-791-7445
atc97.org/employment

Keyano College Career Employment Services Ph. 780-799-1589 keyano.ca

Métis Employment Services
Ph. 1-888-486-3847, albertametis.ca

Career Planning Services
Toll free: 1-866-776-7773, olcconsulting.ca

Fort McKay

Fort McKay First Nation Employment & Training Office
Ph. 780-828-2430, fortmckay.com

Conklin

Conklin Employment Services
Nakewin Centre, Conklin, Ph. 780-559-8995

Employment and Training

Aboriginal Apprenticeship Initiative
Ph. 780-747-6500
(previously Aboriginal Apprenticeship Project)

Immigrant services

YMCA – Immigrant Settlement Services
#201, 10011 Franklin Avenue
Ph. 780-743-2970, ymca.woodbuffalo.org