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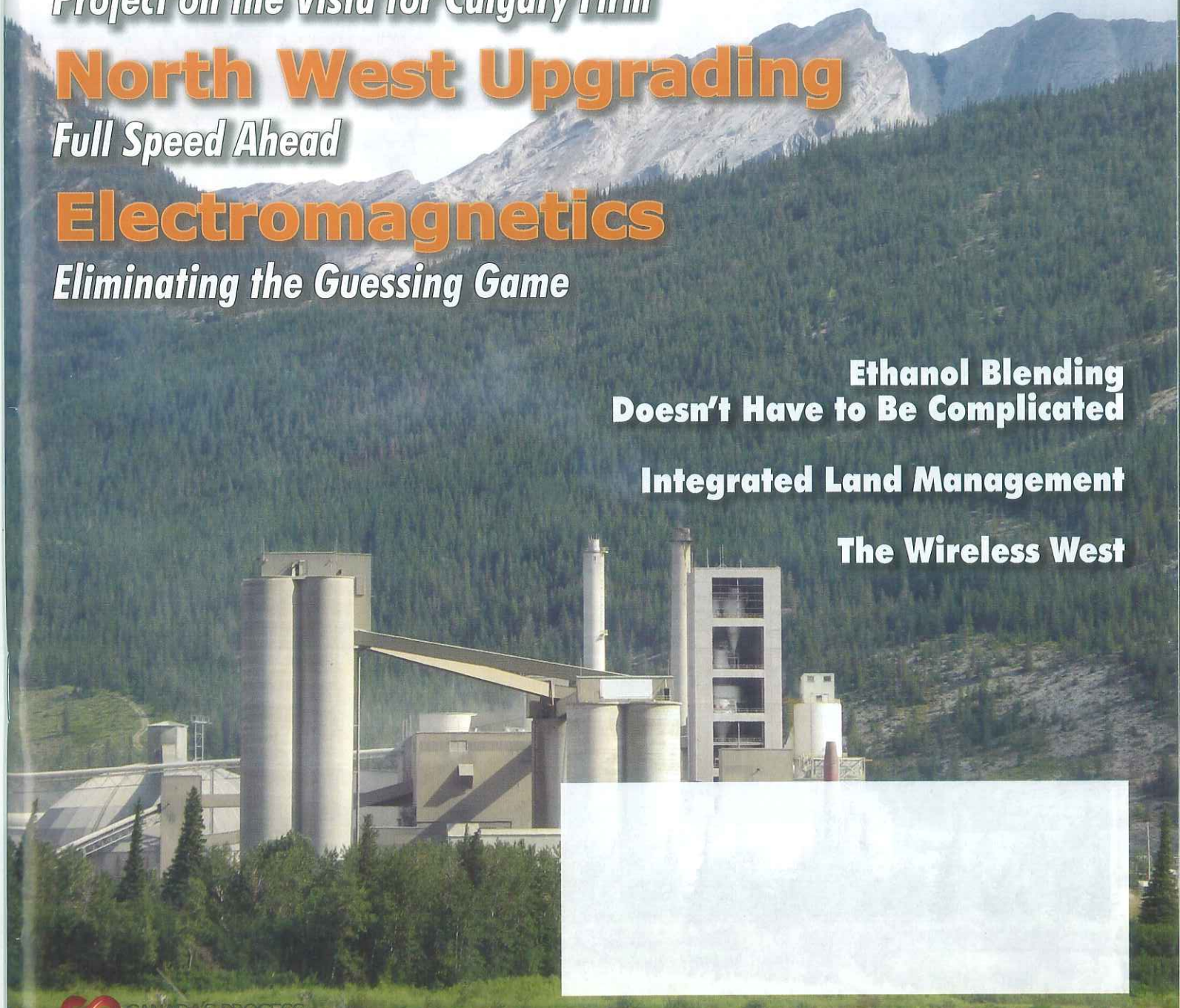

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by Rob Petkau

THAI Project

...is on the VISTA for Calgary-based engineering firm

Calgary-based engineering company Vista Projects Limited will play a key role in Petrobank Energy and Resources Ltd.'s May River project, but this is only the latest in a long string of participation in in-situ oilsands development.

Vista announced in February that it won the contract to provide front-end engineering design (FEED) services for the well pad and pipeline package of May River.

"We are delighted to be working with Petrobank for the May River Whitesand project," said Alex Campbell, founder and principal of Vista Projects. "Vista's long history in heavy oil and bitumen processing and its expertise in providing innovative solutions is a good fit for Petrobank's flagship technology and development."

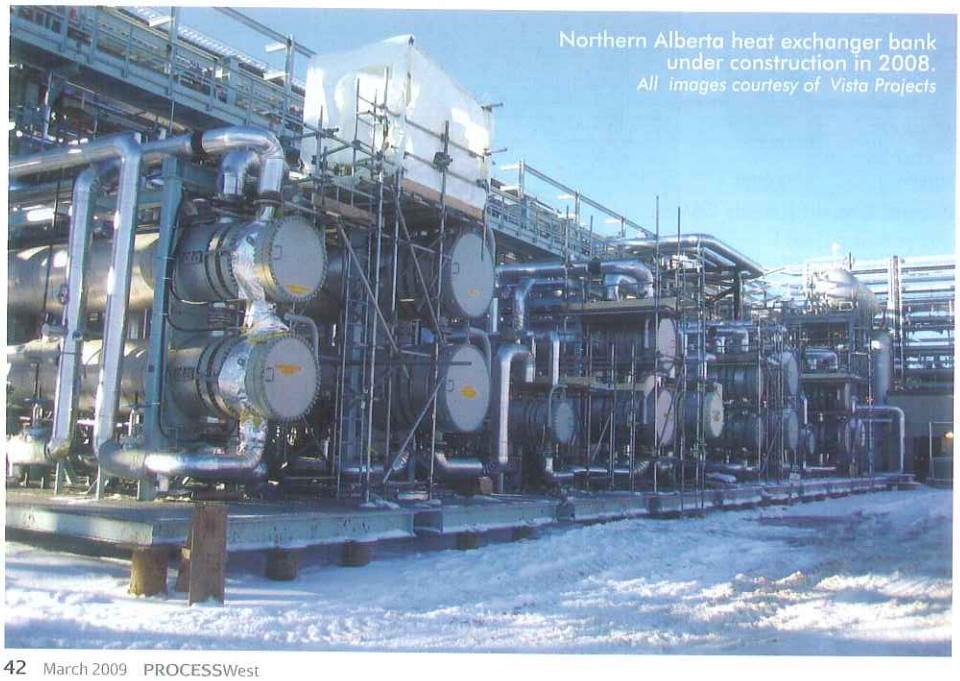
The northern Alberta venture will be a commercial application of Petrobank's patented toe to heel air injection (THAI) technology, aiming to produce 10,000 barrels of oil per day with no net water use.

THAI utilizes an in-situ combustion technique that injects high-pressure air into the structure that ignites the bitumen, causing the air to pressure the thermally cracked oil towards the producing well.

The system offers substantial environmental and operational cost benefits as compared to competing in-situ processes due to the minimal usage of energy and water. It also requires lower capital investment than steam-assisted production of bitumen, and produces higher-quality oil, according to a news release.

"Vista Projects was selected because we value their track record for solving complex problems in a cost-efficient manner," said Greg Deuchar, Whitesands project manager for Petrobank.

The Vista Projects well pad design will be the first of its kind to use the THAI technology on a commercial scale. The project will be constructed in three phases and is scheduled for completion in 2010.



Northern Alberta heat exchanger bank under construction in 2008.
All images courtesy of Vista Projects

The View on Vista

Vista is one of the oldest independent engineering companies in Calgary, but from the early 1980s to the mid-90s, it stayed small. About 20 employees concentrated on oil and gas projects including debottlenecks and non-routine maintenance.

"Our goal has always been technical projects, based on a really strong processing department," said Richard Campbell, managing principal of Vista Projects.

"But over the last five years, we've built up this other aspect of our company – largely because our city has become a lot more focused on schedules. Projects are getting more difficult, bigger and have more moving parts. So we've really focused to build on that area."

The company has grown to 150 employees, but he said it's never strayed far from its roots or core philosophy.

"What really drives our company – what's different about our company – is the nine owners of our company are all engineers, except for myself – I have a business background," said Richard Campbell.

"That means they love doing challenging engineering. They take a lot of pride in their work. We make decisions not often based on the short-term profitability, but we look at relationships with clients."

It also means that when something goes wrong, an owner is involved, and he or she has a personal stake in making things right.

"Having that level of accountability – pretty much any wealth we have is invested in Vista – makes it that much more important to make sure we do a

A model of the Christina Lake project.

good job," said Richard Campbell.

"A lot of the inside owners are looking for that kind of accountability, so we believe we're in a strong position, even in a down market."

SAGD Success

One of Vista's largest projects was at the Foster Creek steam-assisted gravity drainage (SAGD) project, located north of Cold Lake, AB. Alex Campbell, who acted as project manager for Vista on Foster Creek Phase 1C, said it was also one of the most complicated jobs he's worked on in his 40-year career.

"This multi hundred million dollar project involved doubling the production rate through a SAGD bitumen processing facility that had been designed with no consideration for future expansion," he explained.

From a technical standpoint, the layout of the plant was the major challenge. Normally, a processing facility is built with parallel pieces of equipment located beside one another.

"With this project, there was no space for some of the larger new parallel equipment, so for example, steam generators were in different locations separated by almost three football fields."

This type of situation occurred for many systems, requiring binders full of calculations by Vista's process engineers to make sure that the parallel systems could operate successfully with such wide physical separation.

"Another example was tankage in a service such as boiler feed water that normally would be piped together so the levels could ride up and down in all the tanks in parallel," said Alex Campbell.

"With these tanks spread widely apart, innovative level control strategies had to be devised and implemented to make the tanks work together as thought they were physically connected. For smaller equipment, there was the challenge of finding plot area to shoe-horn in equipment where limited space was available."

Achieving better heat integration to minimize the plant operating cost was also an objective. Vista devised a way to better use waste heat for preheating the combustion air to the steam generators, which yielded significant savings on fuel consumption.

Also, many small innovations were made to address problems with the existing plant. For example, the sampling system on the treaters was made more convenient for operator access by locating it to floor level instead of on an elevated platform and irritating vapours were evacuated with a unique fan-fume hood design.

"Connecting the new equipment required hundreds of tie-ins to the existing piping which all had to be meticulously located and engineered. The actual installation of these tie-ins was done over a very short plant shutdown where any design problems would have been disastrous," said Alex Campbell. "Happily, everything worked out well."

Another challenge was the pipe racks. Some of the rack steel had not been designed for the addition of any new piping so it was necessary to provide reinforcing of the steel by welding additional plate to the beams and columns.

"This is the only case I can think of in

The steam generators under construction are part of a Nothern Alberta project.

my career where steel was upgraded in this way. Then there was the problem of stringing new piping though already crowded racks, a challenge successfully met by our piping design team."

This plant expansion was completed at a cost and schedule that was quite close to the original projections and the commissioning went without any major difficulties – hardly the norm in the labour-squeezed sandbox.

"This expansion now operates at the new design capacity and in fact, this plant is now undergoing a further expansion phase to double the production through it yet again. The success on the initial Phase 1C project has led to many other projects with the client."

Materials Management

One Vista Projects showpiece is an automation-based materials management system that the company implemented with great success about a year ago.

"If you're building a half-billion-dollar facility, it's very difficult to get a handle on how many you need of this type of bolt, this type of flanges. The next step is trying to figure out where they all are, and where they all have to go," said Richard Campbell.

"It was really a logistical nightmare, and we were using exceptionally competent expeditors and procurement people, working in a manual way, to keep track of this. We saw a real big opportunity to automate all of this."

The first step was to build a system that would take information on all of the materials out of the firm's 3-D models and automatically compile it.

"We then put in the functionality to isolate in a very simple manner what material we need where, that it's been ordered, when it's going to arrive and where it's been. We've dramatically reduced the amount of labour we need to keep track of all that."

When Vista first implemented the new system, it reduced time by about 90 per cent – 750 hours, compared with the 10,000 hours employees spent doing the same work before. Now that the company has been using it for a while, officials note it typically reduces materials management time by about 80 per cent.

"The system relies on a strong user. But if you have a strong user, you have perfect data. There are much fewer touch points for human error," said Richard Campbell. "It's an example of us seeing a problem, and because of our superb skills sets, can find a relatively inexpensive solution that helps the client."

Giving Back

There are other examples of Vista's client-centred approach – one of which is the fact it regularly provides services for lower prices than were originally promised.

"If we don't need the money, we're not going to use it. We went to the client and said we're not going to use these hours, so you can allocate this money elsewhere. Their jaw kind of dropped," said Richard Campbell.

"Our view is it's really hard to find the people we need, and we don't want to waste their time when they could be doing something else that's interesting."

He said the practice of giving back hours goes back to the fact Vista is a company that builds long-term relationships.

"Being a private company, we don't have external shareholders who are demanding all this growth. We're trying to make decisions that we think will make us a better company for a longer term," he explained.

"Whenever you're given a choice, you build a relationship with a client. Time and again, we've proved to ourselves that making the right decision for our client is always of benefit to us as well."