# Petroleum news


page A5 Basins at top of the world explain Shell's interest in Alaska


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## November Mining News inside


## Kerr-McGee delays decision on ANS Nikaitchuq development

Kerr-McGee does not expect to make a decision on development of its Alaska North Slope Nikaitchuq discovery before the end of the year, as previously indicated.

Independent and major oil companies that do not own production facilities or pipelines on Alaska's North Slope have been keeping a close eye on Kerr-McGee's progress in getting affordable access to infrastructure for its proposed Nikaitchuq development. The latest news from the big Oklahoma independent will give credence to the naysayers who claim non-infrastructure owners can find oil in northern Alaska, but will never be able to get reasonable and affordable agreements with facility and pipeline owners to bring those discoveries online.

To date Kerr-McGee, which entered Alaska in January 2004 and announced its first discovery that same year, has set permitting records on the North Slope.

The company had initially hoped to both sanction Nikaitchuq development by the end of this year and begin construction of its first of four potential production pads.

If the company was able to remain on schedule it would pro-


*see* **KERR-MCGEE** *page A10*


## BREAKING NEWS



NORTH SLOPE

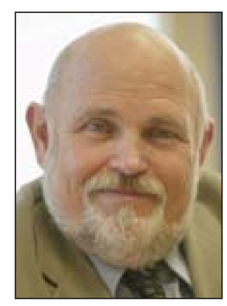
# Pt. Thomson deferred

*New DNR chief accedes to request from Exxon, owners to work on gas sales*

**By KRISTEN NELSON**

*Petroleum News Editor-in-Chief*

Commissioner Mike Menge of the Alaska Department of Natural Resources has granted a request from Point Thomson unit operator ExxonMobil Production giving the company until May 31, 2006, to appeal an October decision finding the unit in default, and granting a six-month extension for beginning development drilling at the field.



JUDY PATRICK

MIKE MENGE

A September decision, amended in October, by former Natural Resources' Division of Oil and Gas Director Mark Myers, denied an ExxonMobil request for an extension of the beginning of drilling. That date, based on commitments from the last expansion of the unit, required ExxonMobil to begin development drilling by June 15, 2006, in exchange for the state's agreement to an expansion of the unit.

At the time of the expansion the unit owners planned to develop Point Thomson as a gas cycling project, taking off condensates, selling those liquids down the trans-Alaska oil pipeline and re-injecting the gas. Re-injection at Point Thomson would be costly because the reservoir is highly pressurized.


*see* **POINT THOMSON** *page A11*


CANADA

# Government to the rescue

*Ottawa pumps Mackenzie line optimism by opening doors to commercial role*

**By GARY PARK**

*Petroleum News Canadian Contributing Writer*

With key pieces apparently falling into place there is a temptation to talk about a green light for the Mackenzie Gas Project.

Even Canada's self-styled national newspaper, The Globe and Mail, said the venture appears set to proceed.

But go easy on the assumptions, says Imperial Oil spokesman Pius Rolheiser.

"There is only one green light and that could be two years away," he told Petroleum News.

It will happen when regulatory approvals and permits are in hand, shipping contracts have been signed and the companies involved have given their final go-ahead.

Despite that cautionary note, what has happened this month is one of the strongest signals yet

*Contrary to all of the industry's usual instincts about state participation in energy projects, it appears that Ottawa will become a commercial partner in the C$7 billion venture — participation that would apparently be welcomed by the private sector.*


*see* **RESCUE** *page A12*


ALASKA

# Independents speak out

*House Oil & Gas told what independents need from State of Alaska – key issues permitting, facilities access, infrastructure*

**BY KRISTEN NELSON**

*Petroleum News Editor-in-Chief*

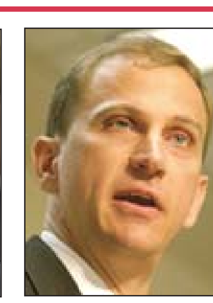
Large and small independent oil and gas companies and former State of Alaska officials responded Nov. 21 to a call from the House Special Committee on Oil and Gas. The committee wanted to know what the Legislature could do to encourage independent activity in the state.

What can the Legislature do to spur more activity from independents in Alaska and to have a more robust oil and


*see* **INDEPENDENTS** *page A8*


FORREST CRANE

MARK HANLEY



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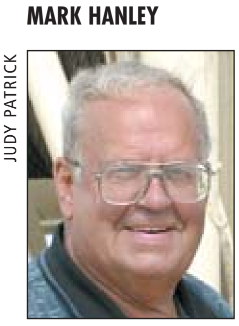
JUDY PATRICK



ARLEN EHM

DAVID BOELENS

JUDY PATRICK

*Permitting "is where leasing was 10 years ago. Why don't we have areawide permitting?"* **—Ken Boyd, former director of the Division of Oil and Gas**

# contents

**Petroleum News** *A weekly oil & gas newspaper based in Anchorage, Alaska*

● NORTH SLOPE

# Anadarko: Alaska at the brink

*Houston-based independent has 2.2 million net acres and data, believes it is positioned in prospective areas for next significant wave of oil and gas exploration on Alaska's North Slope*

**By KRISTEN NELSON**
*Petroleum News Editor-in-Chief*

Anadarko Petroleum Corp. has an interest in almost 5 million acres in Alaska and 2.2 million net acres, and believes it is well positioned for the next significant wave of exploration in Alaska, the company's frontier exploration manager, Greg Hebertson, said Nov. 16.

Anadarko's position in land ranges from 22 percent in and around Alpine to 100 percent on the eastern North Slope, he told the Resource Development Council's annual conference in Anchorage.


Greg Hebertson, frontier exploration manager, Anadarko Petroleum Corp.

Anadarko has also invested in new North Slope data, participating in more than 35 exploration wells and possessing more than 5,000 miles of 3-D seismic and close to 2,000 line miles of proprietary 2-D data.

"We feel we have accumulated an enviable position with respect to data and are positioned well for the next wave of significant exploration in Alaska," Hebertson said.

The data have allowed Anadarko to increase its "geotechnical understanding of the basins, maturing a deep inventory of opportunities and building a land and data position that will allow us to execute exploration programs well into the future."

## Looking for anchor fields

Anadarko is looking for anchor fields, fields like Alpine — in which Anadarko is a partner — that can support their own infrastructure. It believes Alaska is one of the last places in North America where anchor fields can be found. That infrastructure then supports satellite development "and serves as a hub for satellite exploration in the future."

Anadarko looks for "outstanding technical partnerships," such as its partnership with ConocoPhillips Alaska (formerly ARCO Alaska and Phillips Alaska), Union Texas Petroleum and Pioneer Natural Resources in the National Petroleum Reserve-Alaska, and its joint venture with Petro-Canada in the Foothills.

Hebertson said "the right technical partnership is a critical part of our long-term strategy and as a result we're not timid about deferring or delaying projects until such partnerships are in place."

There are commercial challenges in operating in Alaska, and Anadarko will "actively work to mitigate these risks."

"You will see Anadarko taking a leadership position in addressing issues that impact the delicate commercial aspects of our projects," he said.

## Lack of infrastructure a challenge

The U.S. Geological Survey and Minerals Management Service see great resource potential onshore and offshore Alaska, he noted, but currently available infrastructure is focused on existing fields, "which severely impacts the industry's ability to access and to economically exploit these future resources." In nearly 40 years of exploration on the North Slope "we have exploited less than 10 percent of the available area."

Alpine was the last major anchor discovery on the North Slope and pushed infrastructure 20 miles to the west from Kuparuk, but "new anchor exploration is needed" to access other resources.

There are a number of challenges in anchor exploration: high costs, long lead times for exploration and appraisal and limited road access.

Hebertson said that while these challenges are not insurmountable individually, collectively "they make projects less competitive with other opportunities within a given portfolio."

A stable tax regime is important, he said, and regulations need to be based on sound science. Regular and predictable lease sales are important as is "access to available facilities."

Exploration incentives encourage exploration, he said, and Anadarko encourages continuation and expansion of that program.

"An aggressive incentive program is one way to help Alaska projects compete with opportunities worldwide."●

ANCHORAGE

## Public forum on the gas pipeline

The University of Alaska Anchorage has announced a public forum entitled "The Alaska Natural Gas Pipeline: What's It All About?" to examine important issues relating to the proposed gas pipeline. Arranged by the university's Institute of Social and Economic Research and the International Association of Energy Economists, the forum will take place on Nov. 29 from 7 p.m. to 9 p.m. in UAA's Wendy Williamson Auditorium.

*Jim Whittaker, Fairbanks North Star Borough mayor; Jim Clark, chief of staff for Gov. Murkowski; and Joe Marushack, ConocoPhillips Alaska will present at the forum.*

Jim Whittaker, Fairbanks North Star Borough mayor; Jim Clark, chief of staff for Gov. Murkowski; and Joe Marushack, ConocoPhillips Alaska will present at the forum. Larry Persily, Anchorage Daily News; Judy Brady, Alaska Oil and Gas Association; Jim Sampson, AFL-CIO; and Rose Helens-Hart and Lindsay Eberhardt, UAA Speech and Debate team members, will question the presenters.

UAA Chancellor Emeritus Lee Gorsuch will moderate.

This will be the first of a series of public policy forums funded by the Lee Gorsuch Public Policy Fund, an endowment within the University of Alaska Foundation. The endowment was created upon Gorsuch's retirement from the university to recognize Gorsuch's contributions to public policy analysis in the state of Alaska. The annual income from the endowment will provide financial support for one or more annual events, each addressing an important or emerging public policy issue in the state.

You can make tax-deductible contributions to the endowment at http://www.uaa.alaska.edu/giving/givingform.cfm or by mailing a check for the Lee Gorsuch Public Policy Fund to the UAA Office of Development, 3211 Providence Dr., Admin Bldg., Ste 236, Anchorage, AK 99508.

—ALAN BAILEY

## ANCHORAGE

# Letter describes Anchorage oil seep

As a footnote to the article in Petroleum News' Nov. 13 issue about the oil and gas potential under Anchorage, Alaska's largest city, geologist Robert Blodgett has discovered a letter dated July 25, 1921, to Alfred J. Brooks of the U.S. Geological Survey describing an oil seep "within less than a mile of the town of Anchorage."

The oil seep appears to be the one that Brooks described in that same year and the writer of the letter, attorney A.G. Thompson, described the seep as "traveling upon a stratum of clay about 25 feet beneath the level of the plateau and finding an exit back of Chester Creek near the Spenard Road."

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Thompson says that the seep is "typical of those of the Katalla region, showing in the first instance before we dug it out, the blossom or yellow skum (sic.) of the oil exuding from the ground in connection with water." Thompson also said that he was secretary of the Anchorage Oil and Development Co. which had been drilling a well to 300 feet, four miles east of Anchorage, presumably referring to the Old Wildcat well that Petroleum News mentioned in the Nov. 13 story. That well contained "some indication of oil," according to Thompson, although no records of what the well found appear to exist today.

"In view of the exceptional advantages of drilling and prospecting this section for oil provided by the railroad and steamship transportation, it seems very desirable that the geological survey take at least a reconnoissance (sic.) of this field at an early date, this fall if possible, and I would urge that you divert one of your survey parties … to this field before snow covers the ground," Thompson said.

Thompson goes onto say that there will likely be "an oil boom here" before the first of the year. We don't know what Brooks' response was although he did publish an article about the seep. But the oil boom didn't occur — or, at least, not for another 50 years. And that's another story.

—ALAN BAILEY



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● CANADA

# Big drilling drive pays off in Canada

*2004 saw unprecedented upstream activity, with 99.5% replacement rate for natural gas, 119% for oil and 136% for oil sands*

By GARY PARK

*Petroleum News Canadian Contributing Writer*

It took a mammoth effort in money and drilling, but the end result of unprecedented upstream activity in 2004 was that Canada added more oil and gas reserves than it produced.

After completing 23,000 wells and spending C$33 billion (plus C$6.2 billion for the oil sands), the industry's production replacement rates for the year were 99.5 percent for natural gas, 119 percent for conventional oil and 136 percent for the oil sands.

Canadian Association of Petroleum Producers Chairman Ross Douglas, in releasing the annual reserves report, said the results were "no small feat considering reserves naturally decline about 20-30 percent each year."

The association only recognizes reserves in developed oil sands projects, thus its 7.4 billion barrels of oil sands reserves are a mere fraction of the 174 billion barrels the Alberta Energy and Utilities Board estimates are recoverable using current technologies.

Conventional crude reversed its trend of recent years by producing 500 million barrels and adding 600 million barrels to reserves, raising reserves at the end of 2004 to 4.4 billion barrels.

But that modest increase stemmed largely from the addition of more than 200 million barrels from Newfoundland's White Rose field, which has just come on stream.

For 2004, Alberta replaced 94 percent of conventional crude production, ending the year with 1.7 billion barrels; Saskatchewan had a 113 percent replacement rate raising its total to 1.32 billion barrels and British Columbia posted a 36 percent replacement rate, entering 2005 with 100 million barrels. The Northwest Territories and Yukon replaced only 25 percent of their output, dropping below 100 million barrels. Offshore Atlantic Canada, helped by White Rose, rose 196 percent to 900 million barrels.

### Oil sands mining reserves up

Oil sands mining reserves were up 1.5 percent to 5.3 billion barrels, after adding 298 million barrels and producing 217 million barrels for a replacement rate of 137 percent, replacing 137 percent of production, while in-situ reserves edged up 2.4 percent to 2.1 billion barrels.

*Natural gas wells are forecast to reach 16,500 in 2005 and 17,700 in 2006, while conventional oil wells are expected to hit 4,000 this year and 4,200 in 2006.*

British Columbia reaped the rewards of its exploration incentives, replacing 210 percent of its natural gas production, boosting reserves by an impressive 1 trillion cubic feet to 10.27 tcf. Alberta had one of its stronger years in recent times, with an 83 percent replacement rate, leaving reserves at 41.7 tcf.

Of the other regions, the Northwest Territories and Yukon saw their gas reserves shrink 4.7 percent to 400 billion cubic feet; Saskatchewan was down 3.3 percent to 3 tcf; and offshore Atlantic Canada, whose only production is from Nova Scotia's Sable project, tumbled 17.4 percent to 700 billion cubic feet.

### Three-quarters of gas wells in shallow plays

Of the record 15,126 gas wells in 2004, three-quarters were in the shallow plays of southeast Alberta and southwest Saskatchewan and, because the bulk were in established pools, they made only a marginal contribution to reserves. The tally also included 2,500 coalbed methane wells in Alberta's Horseshoe Canyon.

However, the industry is encouraged by a move to tackle deeper gas targets in northwestern Alberta and northeastern British Columbia.

CAPP is counting on another record drilling year in 2005 and 2006, with all wells (including oil sands, in-situ and service) reaching 23,000 this year and 24,500 next. Natural gas wells are forecast to reach 16,500 in 2005 and 17,700 in 2006, while conventional oil wells are expected to hit 4,000 this year and 4,200 in 2006.

Capital spending is targeted for 2005 at C$37 billion, including C$28.5 billion on conventional and C$8.5 billion on the oil sands. Another jump is in store for 2006 to C$39 billion — C$30.2 billion on the conventional side and C$8.8 billion in the oil sands. ●

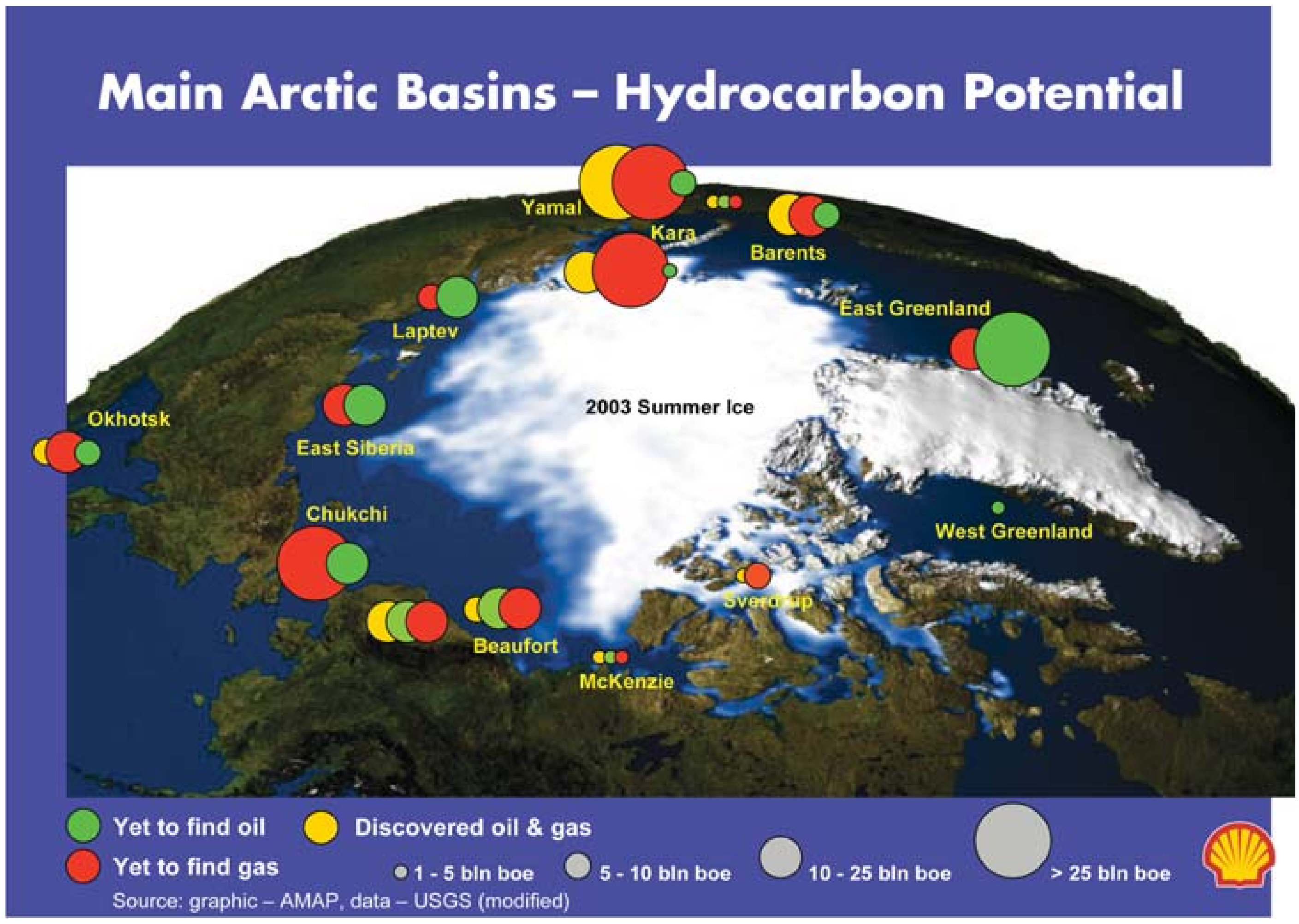
● ARCTIC

# Shell: Arctic 'tantalizing opportunity'

*Basins at the top of the world believed to hold 25 percent of undiscovered oil and gas, explaining Shell's interest in Alaska*

**By KRISTEN NELSON**

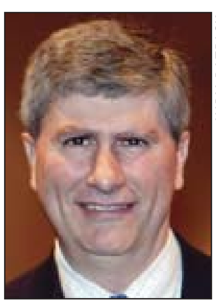
*Petroleum News Editor-in-Chief*




As energy demands have grown, discoveries have not kept pace, Chandler Wilhelm, Alaska exploration manager for Shell Offshore Inc. told the Resource Development Council's annual conference.

The basins which have been the source of most of the world's oil supply are in decline, "and new sources of oil and gas must be found" to meet the energy demands of the future, he said Nov. 16 in Anchorage.

Shell, he said, sees "the Arctic as a very tantalizing opportunity to develop new oil and gas resources," really "the last remaining frontier." The company's views tend to support studies by academics and agencies that circum-Arctic basins contain "about 25 percent of the world's remaining undiscovered resources," he said (see map of main Arctic basins).



JUDY PATRICK

**CHANDLER WILHELM**

All of these basins are outside of the control of the Organization of Petroleum Exporting Countries, Wilhelm said.

"Most of this potential lies offshore," he said, in an area with one-fifth of the world's ocean shelves, and "all of the essential ingredients for world-class hydrocarbon basins are present."

"Most of the basins are unexplored and undeveloped," but activities are accelerating, he said, with offshore licensing rounds in the Russian Chukchi Sea and Alaska's Beaufort Sea.

Wilhelm said Shell sees "significant opportunities" in Alaska's Arctic, where earlier this year it took a substantial Beaufort Sea position at a Minerals Management Service outer continental shelf lease sale.

## Arctic challenges

Wilhelm said there are a number of challenges to working in the Arctic.

Health, safety, environment and social performance issues include the sensitive environment, safety and indigenous people.

"Development of the offshore resources here in the Arctic in a sustainable manner is absolutely fundamental," he said.

Shell recognizes how "difficult and challenging" the social, environmental and economic aspects will be: "There's no misconception about that," he said. "And we must recognize that we're dealing with a sensitive environment and we have the responsibility to take very seriously the challenge of managing development with due consideration for the environment and the people who live there."

Under these conditions development will simply "take longer and require more care and attention" than an equivalent operation onshore.

Wilhelm also said Shell has the responsibility to engage others and "listen to what they say about issues that concern them."

## Cost a factor

The cost of Arctic development is another major challenge, he said.

Shell believes that technology solutions developed for other areas, "such as the deepwater," will have applications in the offshore Arctic.

Problems of ensuring that oil and gas keep flowing freely in subsea pipelines are "virtually identical in the Arctic to those experienced in 8,000 feet of water in the Gulf of Mexico, where temperatures are at or close to the freezing point along the seafloor" and hydrates can form.

Subsea to beach technology is similar to what is done in Norway, "and may someday have application in Alaska." The company's most recent subsea to beach tieback is at the Goldeneye field off northern Scotland where there are harsh offshore conditions. This prospect

see SHELL page A7

● NEW YORK

# Oil tops $58 as winter storm nears

*Some three-quarters of U.S. heating oil consumed in Northeast; refinery capacity limited by hurricanes just as winter production began; supplies up so far thanks to warm weather*

By CHRISTOPHER WANG

*Associated Press Writer*

Oil prices neared $59 a barrel Nov. 22 as the approach of a possible storm in the Northeast boosted expectations for increased heating oil demand over the next few weeks.

Crude oil futures saw a second day of gains after sliding to five-month lows the week of Nov. 14. Prices are about 20 percent above year-ago levels. A barrel of light, sweet crude for January delivery added $1.14 to settle at $58.84 on the New York Mercantile Exchange.

Other Nymex prices also advanced, with heating oil rising 2.7 cents to $1.736 per gallon, natural gas up 28.3 cents at $11.614 per 1,000 cubic feet and gasoline adding 3 cents to finish at $1.49 per gallon.

January Brent on London's ICE Futures exchange rose $1.07 to $56.41 a barrel.

### Weather driving prices

Oil prices have been dictated recently by weather in the northeastern United States, which consumes about three-quarters of the country's heating oil and is the world's biggest market for the distillate. Forecasts for a snowstorm during the busy Thanksgiving weekend sparked the rally.

AccuWeather had predicted the storm's arrival for later this week, but forecaster now say the cold front will bring a mix of rain and snow stretching from North Carolina to Maine beginning Nov. 22. Up to a foot of snow is expected in parts of Vermont and New Hampshire, according to AccuWeather meteorologist Brian Lovern.

> *"With another blast of cold weather headed to us this week, we may have seen the lows."*
> —Phil Flynn, an analyst with Alaron Trading Corp. in Chicago

Limited refining capacity following hurricanes Katrina and Rita stoked worries about supply shortages this winter, and many analysts remain mixed on whether the nation's inventories are sufficient for an expected spike in demand. On Wednesday the Energy Information Agency releases weekly data on petroleum inventories.

### High temperatures so far have kept supplies up

But tame temperatures so far this season have allowed reserves to build, one analyst said. Reports of growing supplies and falling demand the week of Nov. 14 pulled crude oil futures below $56 a barrel for the first time since June.

"We're starting the season in pretty good shape for heating oil and natural gas," said Sheraz Mian, senior oil analyst for Zack's Investment Research. "We had quite high temperatures at the start of the heating season. That has helped build inventory levels."

Mian, who estimates that annual crude demand may taper slightly this year but will return to normal growth in 2006, said the main variables for energy prices will be how low temperatures fall this winter and whether record prices have stunted economic growth.

### Some believe prices have bottomed

Regardless, some believe prices have bottomed out for the year as the winter cold starts to blanket the United States.

"With another blast of cold weather headed to us this week, we may have seen the lows," said Phil Flynn, an analyst with Alaron Trading Corp. in Chicago.

Analysts' projections for U.S. supplies were scattered. PVM Oil Associates of Vienna, Austria, estimated that U.S. heating oil demand would jump by about 7 percent above normal levels in key consuming regions this week.

Meanwhile, a survey by Dow Jones Newswires was mixed, with five analysts predicting crude stocks increases and four saying there would be a fall. Distillate stocks, which include heating oil, jet fuel and diesel, are likely to rise, the analysts said.

The London-based Center for Global Energy Studies warned of low distillate stocks in the United States after production was halted by the hurricanes when refineries normally begin boosting output before winter.

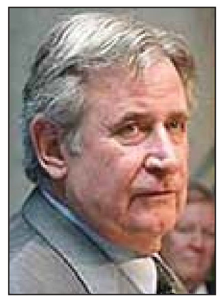
"Distillate output has suffered most from the refinery shutdowns, falling by 600,000 barrels per day from peak summer levels," the center said. "Imports have only made small inroads upon this supply gap. ... Stocks are now close to the bottom of the seasonal range." ●

## ALBERTA

# Alberta wealth fuels federal programs

Alberta Premier Ralph Klein is engaged in a cross-Canada mission to sell a message that his province is a vital cog in the national economy, armed with a new study that says Albertans feed more into the federal coffers than any other region.

Over 40 years to 2002, Alberta paid an annual average C$2,500 per head in federal taxes compared with C$758 from Ontario (seen as Canada's industrial heartland) and C$428 from British Columbia.


Alberta Premier Ralph Klein

The other seven provinces collected more than they paid into a national equalization program, with Quebecers collecting C$770 each and Prince Edward Islanders $4,700. The information was contained in a report by the University of Calgary's Institute of Sustainable Energy, Environment and Economy.

Economist and co-author Robert Mansell said Alberta is "by far the largest fiscal contributor" to federal programs at a time when some are calling for a larger share of Alberta's budget surpluses and C$13.2 billion in oil and gas revenues.

He said it would be unfair to expect Albertans to pay more.

Mansell also cautioned that within four years, because of the struggle to find new gas reserves, non-renewable resource revenues in Alberta will be half their current level.

—GARY PARK

## COOK INLET

# GeoPetro to pick up Trust Land leases

GeoPetro Resources Company plans to acquire some Alaska Mental Health Trust leases that Pioneer Oil Co. had applied for near Point MacKenzie, north of Anchorage, David Creel, vice president of exploration for GeoPetro, told Petroleum News.

*Earlier this year California-based GeoPetro exercised an option to purchase all of Illinois-based Pioneer Oil's 116,000 acres of state leases, onshore in the Cook Inlet basin.*

Earlier this year California-based GeoPetro exercised an option to purchase all of Illinois-based Pioneer Oil's 116,000 acres of state leases, onshore in the Cook Inlet basin.

The Mental Health Trust leases amount to about 3,400 acres and consolidate the land position that Pioneer Oil had acquired in the form of state leases in an area from north of Point MacKenzie to southwest of Wasilla.

The Mental Health Trust leases are "scattered parcels of Trust land," Mike Franger, senior resource manager at the Trust Land Office, told Petroleum News.

—ALAN BAILEY

continued from page A5

## SHELL

was "originally regarded as marginal," but innovative technology made it possible. It produces from an unmanned platform through a 65 miles offshore tie-back.

Shell has also gained experience applicable to other projects at Sakhalin 2, the largest oil and gas investment industry has made. Shell has, he said, experience in engineering solutions for remote locations, short operating seasons and extreme climate and ice.

### Arctic gas prone

Gas solutions are also an issue because Arctic basins tend to be gas-prone, Wilhelm said. The "abundance of gas in the Arctic so far from main markets" will require moving gas long distances. Shell was one of the pioneers in developing global liquefied natural gas, he said, and is "the largest private supplier of LNG in the world" and so is well positioned to bring gas to market, "including potentially gas from Alaska."

"We believe this particularly has application in some parts of southern Alaska," but he sa1

id Shell believes the construction of an Alaska North Slope gas pipeline "will be of supreme importance," not only for gas exploration but also for continued oil exploration and the future of the trans-Alaska pipeline. Associated gas, he said, is "the Achilles heel of frontier exploration" around the world.

Shell is in favor of a gas pipeline, he said, and wants fair access for participants.

*Shell believes that technology solutions developed for other areas, "such as the deepwater," will have applications in the offshore Arctic.*
—Chandler Wilhelm, Shell Offshore Inc.

### Cost effective exploration important

There are three "fundamental elements" to successful exploration, he said: "good regional geologic analysis, knowing what neighborhood to be in; the focused application of world-class technology, knowing which door to knock on when you're in that neighborhood; and excellence in operational execution, enabling you to open that door."

The petroleum systems "of the Arctic are truly world class," Wilhelm said, but being in the right place doesn't get you there — state-of-the-art technology is also important.

The short operating season is a challenge and Shell uses a real-time operations center with satellite connection to adjust well execution.

Shell is also working on research and development: extending the season; cost reduction; systems reliability; and subsea systems.

"We have a long history of innovation and our experience in the deepwater we think can serve as a guide for the possible impact of technology in bringing oil and gas from hostile offshore environments to market," he said. ●

*continued from page A1*

## INDEPENDENTS

gas industry? asked committee chair Rep. Vic Kohring, R-Wasilla.

There was considerable discussion about incentives — a current exploration incentive expires in 2007 — and about access to facilities and the lack of infrastructure, but permitting difficulties and the number of permits required are clearly a focus for smaller companies.

### Anadarko: access a big issue

Mark Hanley, Anadarko's public affairs manager in Alaska, told the committee that he thinks in general the system is working, with a lot of new companies in the state in the last five years. Stable taxes, reasonable regulations and access to infrastructure and acreage are all needed, he said, and noted a lot of progress has been made on regulatory issues. He said exploration incentives the Legislature passed have influenced drilling, but the planning cycle is long, from two to five years and the current exploration incentives run out in July 2007.

Access to infrastructure has been an issue for a long time, Hanley said. Anadarko is challenging tariffs on the trans-Alaska pipeline at the Federal Energy Regulatory Commission. For a gas line, Anadarko advocates fair access to the line and Hanley said he thinks a gas line with fair terms will really accelerate exploration in the state.

There are unique circumstances in Alaska, he said, but the "snowball" of activity in the state is "getting bigger and bigger and will be hard to stop."

Asked by Rep. Norm Rokeberg, R-Anchorage, how long it would take Anadarko to evaluate tax changes that are part of a gas pipeline package, Hanley said 60 to 90 days would be the company's preference. He said FERC allowed 90 days for evaluation of an open season.

What would Hanley recommend for a gas pipeline contract? Rokeberg asked. "Fair access at a reasonable price," Hanley said.

Rokeberg asked if FERC wouldn't protect access, and Hanley said not all facilities are regulated by FERC, and noted ongoing issues with access to existing facilities on the North Slope.

### Pioneer: challenges formidable

Ken Sheffield, president of Pioneer Natural Resources Alaska, told the committee that for independents like Pioneer "the challenges to building a business in Alaska can be formidable." Remaining North Slope resources are smaller, lower quality, viscous reserves or are in remote areas like the National Petroleum Reserve-Alaska, the Foothills or offshore, or are gas, which lacks a market. The North Slope has among the highest costs in the world and it takes five to 10 years from acquiring a lease to selling oil.

Uncertainty is the largest challenge independents face on the North Slope: Unknowns include future oil prices, fiscal policy, regulation and access to infrastructure, as well as exploration uncertainty.

Sheffield said the exploration incentives the Legislature approved in 2003 have encouraged Pioneer to invest, and he said Pioneer believes the state should extend the credits beyond the 2007 expiration.

Infrastructure access and commercial terms are unknowns for exploration closer to facilities, Sheffield said, telling the committee that Pioneer is negotiating for access to Kuparuk facilities.

### Ehm: the real independents

Arlen Ehm, who has been a geological consultant for 29 years and involved in Alaska exploration since he sat a well on Cook Inlet's first offshore platform in the 1960s, said he believes the committee needs to look at the needs of small companies: Large independents like Anadarko, Pioneer, Kerr-McGee and Marathon can solve a lot of problems "by throwing money" at them, a luxury small companies do not enjoy, he said.

"Independents, by and large, are the ones that fill in the gaps after the majors have given up on a particular area," Ehm said, and told the committee that if the state wishes to continue to generate revenue from areas the majors have left, "it will be the independents that take up that challenge."

Most Lower 48 independents he talks to about Alaska aren't interested, he said. Their concerns include: high entry costs; high operating costs; high risk; permitting problems; excessive bureaucracy; excessive environmental constraints; long lead time; remote exploration targets; seasonal operational restrictions; lack of infrastructure; and seasonal access.

Many of those issues the state can't address, Ehm said, but it can address permitting problems — and companies looking at Alaska have all heard "horror stories about the permitting process."

The experiences Ehm related to the committee included lack of assistance from the Division of Oil and Gas on surface access issues, overlapping restrictions from multiple agencies and a typo in regulations which kept a rig idle on location for 20 days, a problem the Department of Law acknowledged but refused to address. In another case, where an additional agency had to sign off on a permit already signed off on by other agencies — something which Ehm said could have been accomplished in a matter of hours — he was told by the agency representative, "I have a maximum number of days to issue this and I am going to use them all."

When asked by Rokeberg to bring difficulties with bureaucrats to the Legislature, Ehm said he didn't want to leapfrog regulators by going to the Legislature: It's the regulations that are at fault, he said.

And in a report prepared for the governor, Ehm said "inadequacies, bottlenecks or inefficiencies" pointed out are not intended "to single out individuals. By and large the individuals involved are performing their assigned functions."

### Ehm: panel needed to address problems

Ehm said he has asked for an ad hoc panel of industry, agency and public members to evaluate the consistency of permitting regulations, agencies and personnel. He said he received a round of applause for the proposal at an industry meeting, but the panel has never been assembled.

He described the permit reform that has taken place as "woefully inadequate."

Gov. Murkowski asked Ehm for a report on problems he encountered recently in permitting wells.

In a 10-page report Ehm said he recommended appointment of a group to catalogue regulations, develop a unified integrated information gathering system covering all agencies, create a system in a computer-accessible form for application filing online and create review boards for reviewing and rewriting regulations.

"This has not been done," he said.

The report to the governor identified 15 forms for one onshore gas well in Cook Inlet. No two forms were alike. One could be downloaded but then had to be filled in by hand or typewriter — then, he said, the agency wanted it back in digitized form.

Ehm said that when Ken Boyd was director of the Division of Oil and Gas Boyd recommended templates for permitting in different areas, where only differences from the standard needed to be permitted. Ehm said the only objection he heard came from permitting agencies, and told the committee "the number of such agencies has increased almost exponentially while the number of wells being drilled has stayed the same."

### Aurora: market, royalty issues

Access to existing pipelines and the need for new infrastructure topped the list David Boelens, vice president of Alaska operations for Aurora Gas and Aurora Power Resources, presented to the committee.

On the pipeline issue Boelens said pipeline access is critical to Cook Inlet gas development. While progress has been made on some pipelines, there are still issues to be resolved, he said. The lack of infrastructure is also a problem. There are no bridges to the west side of Cook Inlet, so a lot of equipment has to be barged over.

Aurora also faces a royalty and tax valuation issue which Boelens called the "prevailing value trap." The Legislature fixed this problem for Agrium, he said, but Aurora is required to make royalty payments based on the highest rates paid in Cook Inlet, and those highest rates are contract prices based on Henry Hub, not on what Aurora is paid for its gas.

Rokeberg asked for confirmation on this point: You pay royalties and taxes on a value other than your specific contract?

*see* **INDEPENDENTS** *page A10*

# Companies involved in Alaska and western and northern Canada's oil and gas industry

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Petroleum news

## Business Spotlight

By PAULA EASLEY

FORREST CRANE

**Mike Roddy**, Marketing Manager

### Evergreen Helicopters

Evergreen Helicopters employs topnotch equipment and trained personnel to fulfill the needs of Alaska's oil and gas industry. Its pilots ensure that men and women get to and from job sites without incident, on time, every time. The company just took delivery of two brand-new Bell 412s and AB 139s.

Evergreen's new marketing manager is ex-firefighter Mike Roddy, who understands that teamwork and well-conceived plans are essential to mission completion. Although new to the company, Mike believes these ideals will continue to lead his activities. Alaska's a big state, but Mike loves the fact that it still has a small-town atmosphere. He's learned you can't tell a book by its cover after meeting some prominent Alaskans in Carhartts instead of three-piece suits.

*continued from page A1*

## KERR-MCGEE

duce oil from its first pad in March or April 2006, setting a record for the shortest time between the discovery of a field and when it went into production.

At full capacity Nikaitchuq is expected to produce 60,000 barrels of oil per day and small amounts of natural gas through 2026.

"I can tell you we are still evaluating Alaska, but do not expect a sanctioning decision this year," Kerr-McGee spokesman John Christiansen told Petroleum News Nov. 22.

Christiansen declined to say more but he did provide an information sheet handed out by Kerr-McGee as part of a Nov. 15 Bank of America presentation indicating four issues the company was still trying to resolve in Alaska before deciding to proceed with Nikaitchuq development. Those issues are reservoir stimulation, royalty relief from the state of Alaska, and pipeline and processing agreements with North Slope infrastructure owners.

Permitting was also listed but Petroleum News could not find a permit in public records that had not been issued for the project.

Eni Petroleum is a minority partner in the Nikaitchuq leases.

*Editor's note: See follow-up story in next week's Petroleum News.*



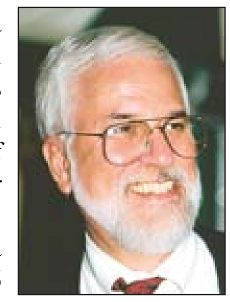
*continued from page A8*

## INDEPENDENTS

Boelens said yes, but noted that the new state lease form says the state "may establish minimum values for the purpose of computing royalties."

Permitting is complex, he said, relating that one-quarter of the cost of a power line Aurora installed was for permitting.

Then there is marketing the gas. Because of long-term utility contracts in Cook Inlet, there isn't a ready market for new gas, Boelens said. Because Aurora markets gas, as well as producing it, it has more ability to deal with this lack of market than other companies.



KEN BOYD

Although Aurora has spent $38.66 million over the 2000-05 period drilling eight new wells (including two dry holes), five sidetracks/workovers and three non-rig interventions, none of its work qualified for incentives.

Asked by Rokeberg what would be of most use, Boelens said rural bridges and roads.

### Myers: Facilities access

Mark Myers, director of the Division of Oil and Gas until his resignation in October, said he thinks the state "has a real opportunity to get a diversified producer base." A level playing field is essential he said, and the state needs to play a role because it is difficult for companies to deal with complex commercial issues because the companies are very competitive and are always involved in negotiations. The government needs to be the "honest cop on the beat," Myers said.

Facility access is an issue it is difficult for the companies to talk about, he said. It has been an issue in both the Gulf of Mexico and the North Sea, and both of those areas have dealt with it. Myers said he thinks facility access "will require action by the Legislature." It's a constant concern with new companies coming in, he said.

Myers also said the state needs to be very careful when it makes fiscal changes because those will affect independents differently than large companies.

There are also state ownership issues: It's a significant issue if the state is a competitor with companies it wants to attract, he said. Infrastructure in remote basins in Alaska is needed, he said: When infrastructure moved west with Alpine, that became the focus for satellite development. Point Thomson would provide infrastructure to the east, he said, but the Department of Natural Resources has "foregone the opportunity" to have a well drilled there this winter by allowing the unit owners to defer their drilling commitment.

Asked by Rokeberg about the Point Thomson work commitment, Myers said that over the past five to seven years the department has required drilling and production commitments as a condition of units — which allow leases to be held beyond their primary term. The Point Thomson requirement for a well has been stayed. A negotiated commitment loses value "if there's a political way to undue it," he said. Myers called for fair, consistent management of commitments. Independents, he said, drill or relinquish and once the state interferes with negotiated commitments, there is no way for the state to enforce them.

*There are five areawide lease sales: North Slope, Beaufort Sea, Foothills, Cook Inlet and the Alaska Peninsula. Best interest findings are done that are good for 10 years, with annual requests for significant changes, which can then be mitigated.*

### Boyd: areawide permitting

Ken Boyd, who preceded Myers as director of the Division of Oil and Gas, noted the success of areawide lease sales in providing access to lands. Ten years ago, he told the committee, access to land was an issue because the leasing program was based on nominations and companies could only acquire prospects in bits and pieces — with no surety of when adjacent pieces would be offered.

Areawide leasing was passed by the Legislature 60 to nothing, Boyd said, and the bill worked.

Permitting, he said, "is where leasing was 10 years ago. Why don't we have areawide permitting?"

There are five areawide lease sales: North Slope, Beaufort Sea, Foothills, Cook Inlet and the Alaska Peninsula. Best interest findings are done that are good for 10 years, with annual requests for significant changes, which can then be mitigated.

"Why can't we do the same with permitting?" he asked, starting with the core idea that we understand and permit by exception. Onshore exploration wells are basically the same, he said: with areawide permitting you would permit or mitigate the differences, not start from scratch with every well. ●

*continued from page A1*

# POINT THOMSON

The companies later determined that economics were not favorable for a gas cycling project — a determination that Myers said was premature because it lacked information that a well drilled this winter would provide.

## Tied into gas line

Based on their determination the companies then proposed to the state to tie Point Thomson development into gas sales, dependent on the existence of a gas pipeline from the North Slope to market, and said a change in the state's tax policies would also be required.

Former DNR Commissioner Tom Irwin was dismissed Oct. 27 and Menge, who had been the governor's senior advisor on energy, mining and the environment, was named as his replacement.


FORREST CRANE
MARK MYERS

The issue of contention was the administration's negotiations with BP, ConocoPhillips and ExxonMobil, the major North Slope natural gas owners, over fiscal terms for a North Slope gas pipeline. In a memo to Attorney General David Márquez prior to his dismissal Irwin listed his concerns and asked for legal advice. One of his concerns was conflicts between the proposed gas line contract and the state's oil and gas leases, including pressure the department was under from the administration "to endorse terms governing Point Thomson development that are inconsistent with and materially weaker than" obligations to develop the field under the unit agreement.

Myers was one of six department officials who resigned in protest of Irwin's dismissal.

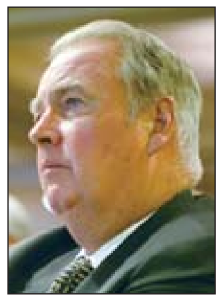
## Not a regulatory dictate

Alaska Gov. Frank Murkowski discussed the situation at the department, and Point Thomson, in remarks in mid-November.

He told the Resource Development Council Nov. 16 it was his job, as governor, to make "some of the tough decisions … when the rubber hits the road. And we've had a little rubber hitting the road on this project," he said, referring to the gas pipeline negotiations.

The governor said "Congress and the state Legislature did not provide the tools for a regulatory dictate, but rather a negotiated business contract. Some lost sight of the objective, which is to obtain a sound contract, but not at any price."

The governor had told members of the press earlier that week that the state lost several good people when Irwin left. Murkowski said DNR does "an awful lot of regulatory reviews," but "we were in negotiations," and had to achieve a contract in the interests of the state.


JUDY PATRICK
GOV. FRANK MURKOWSKI

He also said Point Thomson was probably the most divisive issue among state negotiators. Certain commitments were made by the Point Thomson unit owners, Murkowski said, and those commitments were rolled forward in the context of the contact negotiations.

When asked about Point Thomson issues at recent press conferences the governor has said only that Point Thomson gas would be needed for the gas line. Prudhoe Bay and Point Thomson are the gas accumulations expected to provide the bulk of initial gas for the pipeline.

Myers told a meeting of the House Special Committee on Oil and Gas Nov. 21 that if Point Thomson were developed it would provide an infrastructure base on the eastern North Slope. The department has foregone an opportunity to get a well drilled there this winter, he said, referring to Menge's recent decision. He told the committee that once companies agree to commitments the department must hold them to those commitments or undeveloped leases are simply warehoused. New companies are coming into the state and reoffering the leases would provide an opportunity for them to look at different ways of developing the field, he said.

## Unit declared in default

When the division rejected ExxonMobil's most recent plan of development in September, then Director Myers declared the unit to be in default. The Oct. 27 amended decision said the proposed plan of development was denied because it "makes no commitment to timely develop and produce PTU oil, gas, or gas condensate."

The amended decision, also signed by Myers, triggered a 20-day appeal period to the commissioner, and gave ExxonMobil 90 days (by Dec. 29, 2005) to submit an acceptable plan of development to "cure" the default.

On Nov. 9 ExxonMobil wrote Commissioner Menge and requested an extension of the appeal time, "and of the time to cure set out in that decision, to May 31, 2006." ExxonMobil said that during that time the unit owners "will continue with activities set forth in our plan of development necessary to progress a gas sales development" at Point Thomson. The company also requested a six-month extension of the deadlines in the 2002 unit expansion.

A two-sentence Nov. 10 response from Menge acknowledged receipt of ExxonMobil's letter and said: "After careful consideration of the issues, I have decided to grant ExxonMobil's requests for extensions of time set out in your letter." ●

*continued from page A1*

## RESCUE

short of a green light that Canada will actually take the first step towards developing its vast Arctic gas resources.

### Appears Ottawa will participate

And it comes with a helping hand from the Canadian government.

Contrary to all of the industry's usual instincts about state participation in energy projects, it appears that Ottawa will become a commercial partner in the C$7 billion venture — participation that would apparently be welcomed by the private sector.

As a result of what sources have described as a measured government approach, the Mackenzie plan is more strongly placed than ever to move from dream to reality.

Imperial, its partners and the Northwest Territories government are as bullish as they have ever been that the project is on track.

Following six months of negotiations, the Canadian government put everyone in a positive frame of mind by laying out a set of options that Rolheiser said largely meet Imperial's concerns about the fiscal terms.

It was an unusually bold move by a government that has been characterized as dithering, hesitant and uncertain.

A letter from Deputy Prime Minister Anne McLellan to Imperial Senior Vice President Randy Broiles made a commitment to support the project on terms Ottawa considers "commercially reasonable."

The government, she said, is ready to assume "some of the project downside risks, provided it is able to share in the potential financial rewards."

### Commercial participation, short of an equity position

That was interpreted as an unmixed message that the government was open to negotiating some form of commercial participation, while stopping short of seeking an equity position.

There had been a round of rumors earlier in November that Ottawa was on the verge of becoming a part owner, but Rolheiser said those discussions have never taken place and the Mackenzie proponents are not looking for another partner.

*Contrary to all of the industry's usual instincts about state participation in energy projects, it appears that Ottawa will become a commercial partner in the C$7 billion venture — participation that would apparently be welcomed by the private sector.*

McLellan pledged federal support to facilitate the legal, environmental and regulatory approvals, underscoring the government's determination to open up a new energy source.

She said the government hopes to complete an assessment of all the options by mid-2006.

### Aboriginal land access, economic benefits unresolved

That leaves a resolution of aboriginal land access and economic benefits issues as the last major obstacle in the path of public hearings, which could start by late January.

Rolheiser said negotiators for the Mackenzie consortium and the aboriginal regions believe they have reached the "basis for agreements," but until those proposals are ratified by the communities they will lack the needed credibility and integrity.

The Deh Cho First Nations, the most consistent holdout among the four aboriginal regions, is not ready to fall into line, warning that it and the industry are still some distance apart.

McLellan was clear in her expectations, saying that "no party should impede the timely access to land required for the project to proceed."

Northwest Territories Energy Minister Brendan Bell suggested that concluding a "couple" of agreements would be the tipping point.

But if the Canadian government is not going to become an equity partner, what is the likely course it will take?

### Four options on table

The options on the table include:

• Accepting gas in lieu of royalties.

• Guaranteeing gas in excess of the 830 million cubic feet per day of commitments by Imperial, ConocoPhillips Canada, Shell Canada and ExxonMobil Canada, owners of the anchor fields. That would hinge on strong evidence that more gas is to be found in the Northwest Territories, which carries the promise of higher royalty revenues for the government.

• Offering a "profit-sensitive" royalty scheme similar to that used in the Alberta oil sands, where new projects pay a 1 percent royalty until the capital costs are retired.

• Various forms of federal investment in one or more of the Mackenzie's components.

The government is now interviewing Canadian investment banks with the intention of hiring one to become its financial adviser and assemble a structure that meets Ottawa's requirements.

### Some drilling by non-owners

While the key players have reason to be buoyant over what Rolheiser said is "significant progress," E&P companies outside the main gas owners' group may be more willing to move on drilling programs.

High on that list is Devon Canada, which plans to spud the first well in the Beaufort Sea in almost two decades.

That well, costing up to C$60 million, is the only one scheduled for this winter in the Beaufort/Mackenzie Delta area.

On the downside, a partnership of Apache Canada and Paramount Resources shelved winter plans for drilling one to three wells in the Central Mackenzie Valley, blaming delays in the Mackenzie project and "other factors beyond Apache's control."

Apache wants the cloud of uncertainty over the pipeline to be removed, but even then it is concerned that gas will not be delivered until 2011, two years behind the original hopes.

Chevron Canada (with partners BP Canada Energy and Burlington Resources Canada) and EnCana (with partners Anadarko Canada and ConocoPhillips) have stalled their Delta exploration programs while they evaluate earlier drilling successes.

In the Central Mackenzie Valley, Husky Energy intends to drill two wells in the Summit Creek B-44 exploration license this winter.

In the Fort Liard area of the lower Northwest Territories, Anadarko has postponed plans for a C$250 million gas gathering system for another year, although that is not linked to the Mackenzie project. ●

Petroleum news

B SECTION

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## Volcanic power for Unalaska?

COURTESY KEN WILSON

Community in Alaska's Aleutian Islands takes another look at harnessing thermal energy from nearby Makushin Volcano. See story on page B6.

## Deep Panuke future under drill bit

The chances of commercial gas production from EnCana's Deep Panuke discovery offshore Nova Scotia are being put to the test.

EnCana and junior partner Marauder Resources East Coast spudded a new well Nov. 18, using the Rowan Gorilla VI jack-up rig.

The Dominion J-14 well is in the same region as Wolfville N-32, the Deep Panuke discovery, and MarCoh D-41, two wells that have tested in excess of 50 million cubic feet per day.

But EnCana has insisted in recent years that more gas is needed to bolster the economics of Deep Panuke, which has a projected 935 billion cubic feet of recoverable reserves.

It is expected J-14 will cost up to C$50 million and be

see **DEEP PANUKE** page B11

## Flint Hills investing $23 million to supply clean fuels to Alaska

Flint Hills Resources Alaska LLC is investing $23 million to supply Alaskans with low sulfur fuels, the company has just announced. The investment will enable Flint Hills to fulfill its royalty oil contract obligations with the state for providing clean fuels, the company said Nov. 22.

$15 million will go to Tesoro Corp., to partly fund a $45 million construction project for a distillate desulfurization unit at Tesoro's Kenai refinery — in return Tesoro will supply Flint Hills with up to 6,000 barrels of low sulfur gasoline and diesel per day, for Flint Hills to supply to its customers. Flint Hills will use the remaining $8 million to enable its own fuel terminals to

see **FLINT HILLS** page B11

## Pioneer to drill Cronus exploration well this winter

Pioneer Natural Resources filed a plan of operations with the State of Alaska to drill the Cronus No. 1 exploration well this winter in the newly approved 11,343-acre North Slope Cronus unit.

Unit operatorship is being transferred from ConocoPhillips to Pioneer, which is farming into the two-lease unit.

In August when ConocoPhillips filed its Cronus unit application it was the sole owner of the leases, but has subsequently entered into the deal with Pioneer and also assigned 30 percent of its working interest to AVCG.

The leases were originally part of the larger Southeast Delta exploration unit, dissolved in 2003 when ConocoPhillips elected not to drill the Cronus well.

The proposed Cronus target is Albian-aged submarine fan turbidite sands in the Torok formation, correlative to the section in

see **PIONEER** page B11

COOK INLET

# Moving in new direction

*Aurora to drill for oil at Endeavour; signs deal to drill Trading Bay's Hanna prospect*

**By ALAN BAILEY**
*Petroleum News Staff Writer*

In following the company's original strategy of low-risk drilling in known gas reservoirs Aurora Gas has now drilled all of the easy re-entry wells within its Cook Inlet acreage. As a result, the company is moving into a new era in which it will seek partners for drilling more risky exploration plays, Scott Pfoff, president of Aurora Power Resources Inc., told the Resource Development Council's annual conference on Nov. 16.

"Aurora will move further out on the risk spectrum," Pfoff said. "We're going to have to move more to the more traditional exploratory drilling type activities."

### The Hanna prospect

As part of this strategy the company is in the final stages of completing an agreement with Trading Bay Oil and Gas LLC, to drill that company's Hanna gas prospect between Pretty Creek and Lewis River on the west side of the Cook Inlet.

"Aurora will have partners in this well which is a wildcat and hopefully will be drilled in early 2006," Pfoff said.

Paul Craig, owner of Trading Bay Oil and Gas, has confirmed with Petroleum News that the two companies have come

see **AURORA** page B10

JUDY PATRICK

**"Aurora will move further out on the risk spectrum. We're going to have to move more to the more traditional exploratory drilling type activities." —Scott Pfoff, Aurora Gas**

CANADA

# Another spin of the wheel

*Talisman joins EnCana, Canadian Natural in crosshairs of takeover speculation*

**By GARY PARK**
*Petroleum News Canadian Contributing Writer*

The dice are rolling and the only question seems to be whose number will come up.

Talisman Energy, EnCana, Canadian Natural Resources, Nexen?

The more frenzied the speculation becomes the more likely it seems one of Canada's big independents will ultimately fall into the hands of one of many international energy giants currently grasping for reserves.

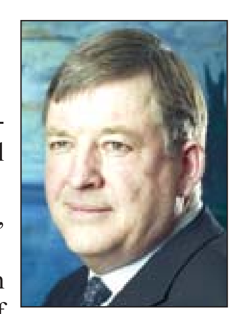
Talisman is the latest to occupy center stage as a takeover target, in a reversal of its own recent deal-making, which included a US$2.15 billion takeover of Paladin Resources, the United Kingdom's fourth-largest E&P company.

Chief Executive Officer Jim Buckee told financial analysts on Nov. 15 that a bid from a "major" oil company was spurned on grounds that it did not offer a "fat premium" to Talisman's current trading levels.

It was the continuation of about six months of rumors that Talisman was in the crosshairs of several global hunters.

In May, Total topped the rumor list, boosting Talisman shares by 10 percent until a company spokesman said the speculation was "unsubstanti-

see **SPIN** page B10



**Talisman CEO Jim Buckee**

NORTH SLOPE

# Conoco's Bowles says gas pipeline drives exploration

**By KRISTEN NELSON**
*Petroleum News Editor-in-Chief*

North Slope oil producers have been saying for some time that a gas pipeline would produce a gas exploration industry in Alaska.

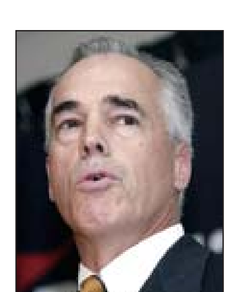
The initial price tag, just to fill in the needed 50 trillion cubic feet for the proposed line, is about $15 billion, Jim Bowles, president of ConocoPhillips Alaska, said Nov. 16.

With 35 tcf known (24 tcf at Prudhoe, 8 tcf at Point Thomson and 3 tcf at known fields yet to be developed) and a proposed 4.5 billion cubic foot a day pipeline that will require 50 tcf over its first 30 years, there is a 15 tcf shortfall, Bowles told the Resource Development Council's annual conference.

It costs about a dollar just to explore for and find a barrel of oil, the equivalent of about 6,000 cubic feet of natural gas, and when you calculate that out for a shortfall of 15 tcf, the cost just to find the additional gas is on the order of $2.5 billion, he said.

But to develop that gas, build facilities and drill all of the wells, "you're probably looking at something more on the order of a billion dollars per tcf," so a 15 tcf shortfall is going to require an investment of some $15 billion to fill the pipe for

see **BOWLES** page B11



AL GRILLO

**Jim Bowles, president, ConocoPhillips Alaska**

● WASHINGTON, D.C.

# What's next for ANWR?

*Drilling provision's fate rests in hands of House-Senate negotiators after Thanksgiving recess, possibly next year*

**By ROSE RAGSDALE**

*Petroleum News Contributing Writer*

With passage of a budget reconciliation bill in the U.S. House of Representatives, a provision allowing oil and gas drilling on 2,000 acres of the coastal plain of the Arctic National Wildlife Refuge has moved one step closer to becoming law.

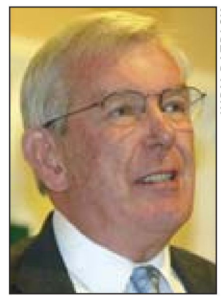
But congressmen, lobbyists and bystanders agree the measure still faces very tough sledding before it lands on President Bush's desk for signature.

The House passed a $50 billion package of spending cuts by two votes early Nov. 18, ending more than a week of heated negotiations among the Republican majority over contents of the controversial bill. The measure passed 217-215 around 1:45 a.m.

With Democrats unified in opposing the measure, Republican conservatives and moderates cobbled together a victorious deficit-cutting package, after more than a week of haggling in which disgruntled moderates convinced House leaders to strip ANWR drilling from the legislation and to restore a small portion of the food stamp cuts. Eleventh-hour negotiations for compromises and concessions continued right up until the final vote.

A reluctant Rep. Joe Barton, R-Texas, cast the final vote. He had previously threatened to vote against the measure when the leadership dumped ANWR. The vote, scheduled for 15 minutes, was kept open for nearly a half-hour. Fourteen GOP moderates voted against the bill.

Pro-drilling lawmakers such as Barton, who chairs the House Energy and Commerce Committee, and Resources Committee Chairman Rep. Richard Pombo, R-Calif., have said they will press for inclusion of ANWR in a final conference report, and it is a paramount reconciliation priority for several Senate lawmakers.



JUDY PATRICK

ROGER HERRERA

REP. DON YOUNG

An exasperated Rep. Don Young, R-Alaska, sent a letter Nov. 18 to his House colleagues in which he said the House apparently needed a refresher course in supply and demand. Young referenced two recent memos from Rep. Charles Bass, R-N.H., who led GOP moderates, mostly from the Northeastern states, in their campaign against ANWR drilling. The first memo urged House members to vote no on ANWR, and the second memo pledged federal funds for the Low Income Home Energy Assistance Program.

"SUPPLY affects DEMAND!" wrote Young. "It is time to open ANWR and help address our nation's energy needs."

## Disarray among House Republicans

Pro-ANWR lobbyist Roger Herrera said Rep. Barney Frank, D-Mass., summed up recent disarray among House Republicans well.

Frank said: "One factor in (ANWR's) defeat was the drop in the president's popularity (Polls show Bush's approval ratings at their lowest levels since he took office) and his inability to maintain unity among the GOP ranks." Frank also noted that the Republican Party misses the vote-gathering powers of Texas Rep. Tom DeLay — nicknamed "The Hammer" — who has stepped aside as House Majority Leader because of legal problems. Rep. Roy Blunt, R-Mo., replaced DeLay.

"Not every blunt instrument is a hammer," Frank quipped.

Though ANWR drilling did not survive in the House, it was part of a $35 billion budget reconciliation bill passed by the Senate Nov. 3. This means the drilling language has a solid chance of being included in compromise legislation that House and Senate leaders are expected to take up when they return to Washington, D.C. after the two-week Thanksgiving recess.

## Threading the needle

House Speaker Dennis Hastert, R-Ill., deflected questions about the issue Nov. 18 after the vote but acknowledged the trickiness of the issue. Asked by a reporter how he could "thread the needle" in conference, Hastert replied, "I wish that needle had a little bigger eye." He added that it is important to listen to all members of the Republican conference to resolve problems, but gave no clear sign about ANWR's future.

"Right now, anything I would say would be speculation," Hastert said when asked directly if he thought ANWR was likely to come back in conference.

Rep. Ed Markey, D-Mass., a leading anti-drilling Democrat, predicted ANWR would be back. "I think there is a high probability we will see it in the conference report," he told E&E Daily after the early morning vote.

But Rep. Sherwood Boehlert, R-N.Y., who opposes drilling and voted for the reconciliation bill, told E&E Daily that he believes enough moderates have drawn a line in the sand to keep ANWR out.

"I feel very confident. We have seen exactly what happened here. The Democrats are holding fast. They are unified against it," Boehlert said. "We know we have enough Republicans in our moderate group to affect the final outcome of any final conference report that is unacceptable to us, and it would be unacceptable if ANWR were in it. We feel very confident we have got the numbers."

Several of the moderates who voted for the budget have said they would not do so if ANWR is added, including Bass, Boehlert, Rep. Wayne Gilchrest, R-Md., and others. Boehlert said there are more than 11 GOP members who would not agree to a conference package with ANWR.

But Westerner Republicans "may take a stronger position" against issues vital to Northeastern moderates if they oppose ANWR drilling, said Cody Stewart, executive director of the Congressional Western Caucus.

Rep. Dennis Rehberg, R-Mont., said opening ANWR to drilling is crucial to his state's energy interests and that if Northeasterners expect Montana taxpayers to pony up for the Low Income Home Energy Assistance Program, they should agree to open up ANWR in return. Northeastern and Midwestern states have been pushing for the additional $1 billion in reconciliation for the low income energy program because of high energy costs.

## Spending cuts an issue

Several GOP lawmakers also chastised fiscally conservative "Blue Dog" Democrats for not voting with them on the spending-cuts package.

Republicans originally planned $35 billion in savings by trimming the growth of Medicaid, food stamps, student loan subsidies and other benefit programs.

But House conservatives, upset with the deficit and a surge in spending for hurricane disaster relief, forced GOP leaders to raise the ante to almost $50 billion in savings. In doing so, they forced a more politically difficult vote because the budget plan in the House took far greater aim at programs for the poor than did the Senate's version.

Other difficult issues facing House-Senate negotiators include cuts to Medicare, Medicaid, student loans and milk-income subsidies.

see ANWR page B4

● NORTH SLOPE

# BP says with gas, production could double

*Company working gas pipeline, heavy oil, reinvesting at Prudhoe for the next 50 years; plans to add 200 to Alaska staff*

**By KRISTEN NELSON**
*Petroleum News Editor-in-Chief*

Over the next 10 years BP will be managing its base business in Alaska and preparing for the future, trying to "get more out of the resources that we have" and getting ready for gas production, Bernard Looney, the new senior vice president of the Alaska Consolidated Team at BP Exploration (Alaska) Inc., told the Resource Development Council's annual conference Nov. 16.


JUDY PATRICK

**Bernard Looney, senior vice president, BP Exploration (Alaska) Inc.**

Prudhoe Bay, he said, is a great example of good management of an existing resource: expected at startup to produce some 10 billion barrels, "today we think we might get 15" billion.

That is the result of both investment and technology, with BP's investment continuing at a level expected to be between $10 billion and $15 billion in Alaska over the next 10 years, he said.

Technology is important because the easy oil has been produced, "and we're actually into smaller targets, tougher targets." Recent examples include multi-lateral wells, with one pentalateral accessing five miles of reservoir from a single well bore, and a proposal to use fresh water in enhanced oil recovery, significantly improving recovery factors. "If we can do that, that's like bringing on a new field except we're doing it with the fields that we have," Looney said.

And extended reach drilling is the current plan to develop the offshore Liberty prospect: It's the equivalent of starting a well at the Port of Anchorage and ending up at Potter's Marsh, he said.

### Shift away from light oil

BP's emphasis in Alaska is shifting away from light oil to focus on heavy oil and gas.

Heavy oil is shallow, cold and thick, and difficult to produce. "We're looking at technologies that are being employed in Canada today," including steam, solvents and carbon dioxide, he said. The trick will be "to combine these technologies with ... drilling technologies and actually unlock" the North Slope's heavy oil.

BP is looking for "clarity and stability" in its gas negotiations with the state, Looney said. "And for us, at BP, such an agreement will give us the confidence that we need to continue to invest what we feel we need to invest in Alaska over the coming years."

The gas business, he noted, will be built on the back of the oil business. "Clarity and stability for oil is every bit as important as it is for gas as the two are inextricably linked."

### Renewal of facilities, people

The facilities at Prudhoe weren't designed for 75 years, he said: "We're changing that and we're investing in it; we're spending money to upgrade the facilities, doing the work that we need to do to prepare for the future."

BP is also adding to its Alaska staff. With all the projects it has, "BP is looking at hiring some 200 people before the end of next year in Alaska."

The company is also planning for the next generation.

The average age of its workforce is 50 years, Looney said. "It's interesting to think that the person who will run this business in 50 years time probably hasn't been born today. So we've got a huge challenge on the people front and how do we actually attract the new generation."

What is the future?

BP produces some 300,000 barrels per day of oil and gas today, he said. "In 10 years time that could be back up to 600,000" bpd of oil and gas equivalent, almost back to the production peaks of the 1980s.

"Incredible to see that growth again ahead of us," Looney said. ●

# COOK INLET

## Forest applies for pipeline at Middle Lake

Forest Oil Corp. has applied to the U.S. Army Corps of Engineers for a permit to upgrade an existing gravel road and construct a six-inch diameter natural gas pipeline for the company's planned re-entry of the Middle Lake Unit No. 1 well. The well, originally drilled by Gulf Oil Corp. in 1969, is in the Susitna Flats State Game Refuge, east of the Little Susitna River, nearly 25 miles northwest of Anchorage.

About a mile of old roadway between the drill site and the maintained road system of the region requires upgrade, according to a Forest analysts' call earlier this year.

On Nov. 16 the Corps of Engineers issued a public notice of the application for permit.

According to the public notice Forest will widen the access road from a width of 10 to 15 feet to an all-season road 50 feet wide "to support drilling and production at the prospect site." A stream crossing will require a bridge or culverts. The pipeline will occupy a four-foot trench and the entire construction footprint would impact about 4.6 acres of wetlands.

As a mitigation measure Forest has agreed to "excavate fill material placed below the ordinary high water line of the unnamed stream during construction of the existing trail." This excavation will restore stream flow to original levels and enhance the aquatic environment at the site, according to the public notice.

The requested permit will require certification, or a waiver of certification, from the Alaska Department of Environmental Conservation under Section 401 of the Clean Water Act. The permit will also require agreement from Alaska's Office of Project Management and Permitting that activity affecting land or water use in the Coastal Zone complies with the Alaska Coastal Management Program.

Written comments on the permit application must be submitted to the Corps of Engineers within 30 days of the date of issuance of the public notice.

—ALAN BAILEY

*continued from page B2*

## ANWR

Offshore oil and gas drilling language also failed to make it into the House bill, but a hotly debated provision allowing the sale of public lands to mining companies did survive. The language reinstates rights of the private sector to buy mining claims on public lands, ending a 10-year moratorium. It also updates lease pricing for the first time in over a century. The purchase price of land for mining would be $1,000 per acre or "fair market value," whichever is more, about 200 times more than it was before the moratorium took effect. The move could transfer into private hands up to 20 million acres of public lands on Western ranges, national forests and even national parks.

Moderates in both the House and Senate say the final bill will smooth out many of the House bill's rough edges.

### December or after Jan. 1?

Some expect Congress to focus its efforts on reaching a conference agreement on budget reconciliation in December.

But Frank Maisano, director of strategic communications for the Washington, D.C. law office of Bracewell & Giuliani, says action could be put off until next year.

"In essence, the Congress is out. They will return though for a number of items, including the tax package vote in the House, which is likely on Dec. 6. The House will return for a limited session on the week of Dec. 5, and the Senate is expected to return for a limited session on Dec. 12," Maisano said in his Nov. 21 newsletter.

Either way, pro-drilling advocates in both the House and Senate are expected to insist on restoring the ANWR provision to the legislation during negotiations in December. Otherwise, they have threatened to kill the overall budget proposal.

But predicting an outcome with this Congress is virtually impossible, said Herrera. "The differences between the House and Senate versions of the budget bills are great. Consequently, it is difficult to forecast what might come out of conference," he said. "My guess is that a conference report will be possible, and it will contain ANWR. If that happens, the final bill will be passed in both chambers.

"However, predicting such a straightforward scenario is rather silly considering all the strange things that have surrounded ANWR so far this year — i.e. easy passage in the Senate, no passage in the House, Mr. DeLay's indictment, hurricanes, price of oil, White House problems, etc., etc."

"Most of those issues are still in play, so anything could happen," Herrera added. ●

*—The Associated Press and E&E Daily contributed to this report*

## ALASKA

# Anchorage, Fairbanks ADR workshops set

The Regulatory Commission of Alaska has set dates for two alternative dispute resolution workshops, one in Anchorage and one in Fairbanks. The commission voted Nov. 9 to open a docket, hold public workshops and take comments on whether it should adopt regulations allowing for formal dispute resolution alternatives.

The commission said Nov. 22 that it will have Federal Energy Regulatory Commission representatives available at the workshops, along with commission staff, to assist in analyzing dispute resolution alternatives.

The commission said participants in the workshops should discuss:

• Whether the commission should use alternatives for dispute resolution of regulatory matters;

• If so, what type of alternatives the commission should consider;

• How the alternative dispute resolution mechanisms should be incorporated into the commission's current adjudicatory process; and

• Whether and to what extent the commission should use the approach to alternative dispute resolution followed by FERC as a basis for these regulations.

The Anchorage workshop will begin at 9 a.m. Feb. 15, 2006, in the commission's Anchorage offices and continue if necessary through Feb. 16. A follow-up workshop will be held in Fairbanks May 17 and continue to May 18 if necessary. The commission said it would set the location of the Fairbanks workshop in a future order.

—PETROLEUM NEWS

## NEWFOUNDLAND

# Newfoundland abuzz with discovery rumor

With Newfoundland's White Rose oil field now in commercial production, interest is shifting to unconfirmed reports that the offshore region may have a new discovery of 200 million to 350 million barrels and to the chances of a fourth project.

Unnamed sources, quoted in the National Post, the Hibernia consortium and Newfoundland Natural Resources Minister Ed Byrne have all contributed to speculation that a new reservoir has been found south of the Hibernia field.

Three months ago, Newfoundland Premier Danny Williams was reported in Newfoundland media saying he's heard there was a new pool discovery.

But Hibernia operator ExxonMobil was less than thrilled with this flurry of rumors, expressing dismay that reports were appearing while well data was still being compiled.

Jim Wright, a professor of earth sciences at Newfoundland's Memorial University, said a new reservoir of even 200 million barrels would boost Hibernia's reserves by more than 20 percent and match the White Rose reserves.

If Hibernia — currently producing at more than 200,000 barrels per day — can push its recoverable reserves beyond 1 billion barrels the field would enter the same offshore league as Angola, Brazil and the North Sea, he said.

A Hibernia spokeswoman confirmed there have been "positive drilling results" in the southern reservoir and drilling is under way to get a better fix on "what this means … (but) we've been saying since June that it's too early to speculate."

Confirmation of a find requires the Hibernia consortium — which also includes Chevron, Petro-Canada, Murphy Oil, Norsk Hydro and the Government of Canada — to file a development application with the Canada-Newfoundland Offshore Petroleum Board.

Next in the project line-up is the Hebron Ben Nevis field, with up to 700 million barrels of recoverable reserves (75 percent classified as heavy oil).

Chevron, with ExxonMobil, Petro-Canada and Norsk as partners, reactivated the plans in April after taking a more optimistic view about the long-term future of oil prices and the project costs.

The partnership hopes to start regulatory reviews in 2006, but needs assurances that the Newfoundland government does not intend to raise royalties as part of a new energy policy.

Williams made the industry nervous earlier this year when he said the province's resources were being given away for a "pittance," while oil companies were filling their coffers.

—GARY PARK

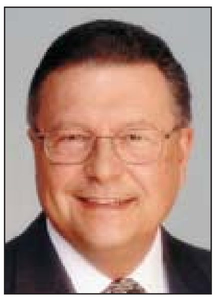
## CANADA

# Trust tax ruling promised for early '06

With Canada's income trusts shedding billions of dollars in market value and starting to trim their cash distributions, Canada's Finance Minister Ralph Goodale has promised to issue a ruling by late January on the future tax treatment of the trusts.

He plans to meet that target even if, as widely expected, Canada is in the thick of a federal election campaign.

The uncertainty is exacting a heavy toll on the trusts and creating deepening anger in the investment community.


Canada's Finance Minister Ralph Goodale

Over the past two months, six trusts from a wide range of sectors have joined the ranks of so-called "fallen angels" by cutting cash payouts, although some are blaming sharp cost increases in their businesses which they can't offset with matching price hikes.

McLean & Partners Wealth Management has listed 83 of Canada's 230 trusts (which have a combined market value of about C$160 billion) that it believes will reduce or suspended distributions.

Ontario Teachers Pension Plan, which manages C$88 billion of investments, has put the pressure on Goodale to ensure his policy changes don't harm pension funds or retirement savings plans.

### Measures could hurt retirement system

Teachers' Senior Vice President James Leech said two measures could hurt what is a successful retirement system — a cap on pension fund holdings in trusts or a tax on income from the sector.

He said taking those steps would deny pension plans the right to invest in the "best possible assets."

Leech argued that trusts have given many small- and mid-sized Canadian companies access to capital that would otherwise have been outside their reach.

Canaccord Capital analysts in a mid-November report said it is "quite clear the uncertainty over potential government changes has negatively impacted income trusts," adding it "doesn't have a clue" what the government will do.

Douglas Porter, deputy chief economist at BMO Nesbitt Burns, offered one theory based on a small reference in a Finance Department document.

He said Ottawa could lower tax rates on corporate dividends to slow the spread of income trusts and turn down the taps on tax losses estimated at C$300 million in 2004.

The government document noted that dividends paid to individuals by large corporations are currently faced with double-taxation — corporate and personal.

Porter conceded the reference is subtle, but is consistent with what his firm suspects is part of Ottawa's solution.

—GARY PARK



Unalaska, the 11th largest city in Alaska with just over 4,400 residents, is in the Aleutian Islands approximately 800 miles southwest of Anchorage.

● ALEUTIAN ISLANDS

# Volcanic power possible for Unalaska?

*Community in Alaska's Aleutian Islands takes another look at harnessing thermal energy from nearby Makushin Volcano*

The city of Unalaska is just 14 miles or so from the active Makushin Volcano

**By ALAN BAILEY**

*Petroleum News Staff Writer*

Living right next door to a volcano may seem an uncomfortable idea but sometimes can prove to be an advantage: the city of Unalaska, in Alaska's Aleutian Islands just 14 miles or so from the active Makushin Volcano, is looking to use that volcano as a prolific source of electrical power and heat.

Iceland America Energy LLC, a subsidiary of Enex Corp., has acquired geothermal rights on the slopes of the volcano in hopes of harnessing a hot water source that the U.S. Department of Energy found back in 1982. Enex is an Icelandic company that specializes in geothermal exploration and production

DOE drilled a 1,900-foot hole in the side of the volcano and found a source of water at a temperature of 390 degrees Fahrenheit, Unalaska City Manager Chris Hladick told Petroleum News. Flow testing by DOE of the geothermal water showed that after about 30 days the temperature only dropped 2 degrees F, Hladick said. Modeling indicated the capability of producing 1.6 million pounds of steam per hour from the geothermal source.

## Visit to Iceland

Early this November six city officials and some Native representatives visited Iceland to see how that island nation harnesses geothermal energy. As well as the availability of geothermal energy Hladick sees some obvious similarities between Iceland and Unalaska: both territories are dependent on fishing, share similar climates and have similar landscapes.

"What they do in Iceland is pretty amazing — what they have been able to accomplish," Hladick said. "90 percent of their homes are heated with this hot water."

But ideas for harnessing the geothermal energy for Unalaska have proved uneconomic in the past. Hladick said that

*see* **UNALASKA** *page B7*

continued from page B6

## UNALASKA

there have been several proposals at different times, with the most recent proposal coming in the early 1990s.

"The project was estimated at about $94 million, $97 million," Hladick said. "It wasn't feasible at that time."

*Peak demand occurs twice a year when fish processing occurs. But geothermal energy works best with steady electrical loads.*

### Enex proposal

In the spring of 2005 Enex proposed to the Unalaska city council an investigation into the potential for using geothermal energy. Enex then investigated the situation and delivered a report to the city.

"That report reconfirmed that there is a resource available," Hladick said. "They have estimated the resource as capable of producing 50 megawatts of electricity."

Enex proposed the construction of a power plant at the volcano, using what is known as a binary organic Rankine cycle, Hladick said. Geothermal fluids from the volcano would enter a heat exchanger, to transfer heat to a form of alcohol called isopene, Hladick said. The alcohol has a lower flash point, or boiling point, than water and can act as a working fluid that drives the power plant turbines at relatively low temperatures.

After leaving the heat exchanger the geothermal fluids would heat fresh water for piping to the town to heat buildings. The thermal output from this type of system normally equates to about four times the electrical output, Hladick said.

"So it would be 200 megawatts of thermal heat possibility," he said.

The hot water system would require 12 to 14 miles of insulated pipeline from the volcano to an insulated storage tank in town. The need for this pipeline to cross four miles of water, up to 260 feet deep, would present a major challenge, Hladick said.

### Four power producers

The fact that there are four different power producers in town also presents a significant complication for the project. Each of the three Unalaska fish processing plants generates its own power and the city also has a power plant. The extent to which the different electricity producers participate in the project will greatly impact the economics of the geothermal energy.

"Our peak right now is about 7 megawatts for the city, and the city owns and operates the utility here," Hladick said. " … The peak (for everyone) is about 21 megawatts."

Peak demand occurs twice a year when fish processing occurs. But geothermal energy works best with steady electrical loads.

"Geothermal would be used to supply a base load of power and then the peaks would be handled by diesel (generators)," Hladick said.

### Feasibility

Enex is about to send cost estimates for the proposed geothermal system to the Unalaska city council. The council will then compare these estimated costs with pricing from other projects and will plug the costs into financial models to assess possible power rates from the system.

"At this point we're in feasibility, analyzing whether or not this would be feasible, what the costs would be, talking to the fish processors about who's going to participate and who doesn't," Hladick said.

If the project turns out to be feasible, Hladick thinks that the geothermal energy might in the future spin off some industrial activity that would stimulate the Unalaska economy. He described how Iceland has attracted an aluminum smelting industry that uses the cheap electrical power from geothermal power plants. Hladick things that hydrogen generation might be a possibility for Unalaska.

"If you have cheap power you can make hydrogen," he said.

Meantime Unalaska needs to determine the economic feasibility of the Enex proposal and settle issues such as who would own the plant and take the business risks.

"If everything looks good … it will be several months, I'm guessing, of discussions with the fish processors and how you would dispatch it, who would run it, leading up to negotiations then with Iceland America Energy for a long term power sales agreement," Hladick said.●

COURTESY KEN WILSON

The Makushin Volcano

## NORTH SLOPE

### Nov. 18 Barrow's last sunset of the year


JUDY PATRICK

The nation's northernmost town saw its last sundown of the year on Friday, Nov. 18.

The sun set in Barrow, Alaska, on the Arctic coast at 1:40 p.m. on Nov. 18 and doesn't rise again until Jan. 23 at 1:01 p.m.

The final sunset south of Barrow at the Prudhoe Bay oil field was five days later on Nov. 23.

Diana Martin, an Inupiat Eskimo and a lifelong Barrow resident, said it's much easier to start the day when Barrow receives round-the-clock daylight in summer. But other than sleeping in a bit longer, Martin said, school and community events go on as usual through the long night.

—THE ASSOCIATED PRESS



● INTERNATIONAL

# Chevron cuts 25-year Gorgon LNG deal

*Agreement with Japanese utility calls for billions of dollars worth of fuel to be shipped*

**By ALLEN BAKER**

*Petroleum News Contributing Writer*

Chevron Corp. has reached a second agreement with a Japanese utility for sale of liquefied natural gas from the huge Gorgon Project off Australia. The Nov. 21 Heads of Agreement with Chubu Electric Co. Inc. mirrors a deal announced in October with Tokyo Gas Co. Ltd., Japan's largest gas utility.

The two transactions are worth well in excess of $10 billion over their lifetimes.

The Japanese pacts, both spanning 25 years, came after an agreement for a huge sale of Gorgon fuel to China National Offshore Oil Corp. fell through.

Chevron executives say the sale of Gorgon LNG to China is still part of the company's plans, and negotiations are continuing. They say there's no bad blood after Chevron's victory in the contest with CNOOC to take over Unocal.

The new deal with Chubu Electric calls for purchase of 1.5 million tonnes annually of Chevron's share of Gorgon LNG. That comes on top of 1.2 million tonnes annually from the Tokyo Gas deal.

Shipments would begin in 2010 in both cases, and the two agreements amount to more than 67 million tonnes in aggregate. That's the equivalent of 130 billion cubic feet of natural gas, or more than 350 million cubic feet a day. By comparison, Marathon Oil Co. currently produces just under 300 million cubic feet daily.

In announcing both sales agreements, Chevron said that the Japanese companies were discussing equity stakes in Gorgon.

CNOOC's tentative Gorgon deal called for purchase of as much as 100 tonnes of LNG over a quarter of a century. The Chinese firm walked away after it was unable to get a price close to the figure it negotiated for its purchase from North West Shelf LNG, also offshore Australia.

In the North West Shelf agreement, CNOOC has agreed to take 3.3 million tonnes of LNG annually. Woodside Petroleum is operator of the North West Shelf operation.

But recent problems with gas supplies in North America in the wake of the Gulf Coast hurricanes have strengthened prices in the LNG market, and the two Japanese deals show customers are willing to lock for the long term to get the supply they need.

Chevron still is looking for buyers for nearly half of its 5-million-tonne share of the $8.5 billion Gorgon project, expected to get the formal go-ahead sometime next year.

Chevron has 50 percent of Gorgon and is the operator. ExxonMobil has 25 percent and Shell 25 percent. Shell has said its Gorgon LNG will go to the Energia Costa Azul terminal being developed by Sempra in Baja California. Shell has half the initial capacity at the Baja site, or the equivalent of 3.7 million tonnes annually.

No sale announcement has come from ExxonMobil, but India has been rumored to be interested in that company's share.●

● ALBERTA

# Alberta rakes in resource revenues

*Awash in petro dollars, province ended second quarter 2005-6 fiscal year on track for surplus of C$5.9 billion*

By GARY PARK

*Petroleum News Canadian Contributing Writer*

The Alberta government has yet to find the money tree and is not known to be in the business of printing the stuff, but it may have come as close as any jurisdiction in the western world.

Awash in petro dollars, it has ended the second quarter of the 2005-6 fiscal year on track for a surplus of C$5.9 billion — C$4.4 billion more than it forecast in the spring budget — and would be aiming for C$8.7 billion if it hadn't pumped an extra C$1.5 billion into its spending programs and decided to dole out C$1.4 billion to Alberta residents in C$400 a head "prosperity" checks that are the closest the province has ever come to Alaska's annual dividends.

### Record resource revenues

Finance Minister Shirley McClellan said the windfall stems mostly from oil and gas prices that have generated C$13.2 billion in resource revenues — the highest on record for Alberta.

Premier Ralph Klein shrugged off assertions from the rest of Canada that the largesse should be more widely distributed outside Alberta, arguing that his government is dependent on volatile commodities.

"It's very hard to predict the price of oil or gas and no-one in their wildest dreams could have predicted that they would reach the heights they have," he said.

Klein said Alberta once "got creamed" when it over-estimated resource revenues and ended up with a C$3 billion deficit.

"Now we're being criticized for having too much money and that's the criticism I sort of like."

### US$1 increase equals C$100 million

However, Alberta Liberal leader Kevin Taft said the Klein government is becoming too reliant on a single income source, when it should be deeply concerned about building a long-term economy.

He said Alberta is directing less than 15 percent of its revenues into endowments that might help ensure income in perpetuity.

New Democratic Pasty leader Brian Mason criticized the government for mailing out glossy brochures announcing the C$400 rebate checks before enabling legislation has been passed by the legislature, suggesting Klein thinks he governs by divine right.

The second half of the financial year is likely to swell the government vault even more.

Oil prices have averaged US$60 a barrel to this point of the fiscal year, 43 percent higher than the budget forecast, while natural gas is now projected to average C$8.50 per gigajoule, 52 percent above the budget target.

Every US$1 increase in a barrel of oil pumps an extra C$100 million into provincial coffers, while a 10 cents rise in gas prices also generate an additional C$100 million. ●

## ALBERTA

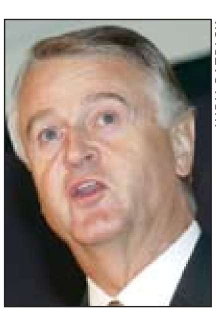
## Enbridge backs new bitumen upgrader

Enbridge has delivered a C$25 million vote of confidence to a new oil sands upgrader project being developed by BA Energy, a division of Value Creation, a privately held technology company.

The investment will give the big pipeline company a stake in the Heartland Upgrader, although it does not intend to become a player in oil sands operations or upgrading technology.

An Enbridge spokesman said his company can play a role in advising an upgrader which blends of crude feedstock are being sought by refineries.

BA Energy has regulatory approval to build Canada's first independent upgrader, which converts bitumen into synthetic crude for sale to refineries, or can sell the bitumen to third-party upgraders.



JUDY PATRICK

Enbridge CEO Pat Daniel

### Start-up in late '07

The company plans a 260,000 barrel per day facility near Edmonton, aiming for start-up by late 2007.

Enbridge had previously announced it would spend C$80 million on new terminal and pipeline facilities for the upgrader.

It will help Value Creation assess and develop downstream markets for upgraded bitumen products and provide logistical solutions for accessing those markets.

Value Chairman Columba Yeung said that for his company to "excel among giants" it needs "creative strategies on our breakthrough technologies."

Enbridge Chief Executive Officer Pat Daniel said his company is demonstrating its "commitment to developing value-added solutions for the Alberta energy industry."

The upgrader is expected to come on stream at 75,000 bpd at a cost of about C$720 million and could spend C$1.8 billion to achieve its ultimate goal.

The Value Creation technology is designed to generate its own gas to fuel the upgrader, while producing light-medium, semi-sour crudes that are low in residues and contaminants, opening a wider refinery market in North America. It has calculated that the technology will cut upgrading costs in half.

—GARY PARK

*continued from page B1*

## AURORA

to an agreement regarding the Hanna prospect, although "the ink has not yet dried on the written contract."

"The intention is for a well to be drilled by the end of March," Craig said.

Craig said that Trading Bay will have a minority working interest in the prospect and will also retain a small overriding royalty; Aurora will be operator.

And Pfoff said that Aurora is also going to explore for oil in the Cook Inlet area in 2006.

"Aurora is going to bring back oil exploration in Cook Inlet," Pfoff said.

Aurora is not quite ready to make an announcement about establishing a partnership to drill the Endeavour oil prospect on the Kenai Peninsula, near Anchor Point, he said. Endeavour is in the Hemlock and lower Tyonek formations, at depths between 8,000 and 9,000 feet, and resembles the nearby, offshore Cosmopolitan prospect that contains known oil (see "Aurora to drill for oil near Anchor Point" in the Aug. 18, 2005, edition of Petroleum News).

### Five gas fields

Meantime, Aurora continues with its core business of developing and operating gas fields.

"Today Aurora operates 12 wells in five different gas fields on the west side of Cook Inlet," Pfoff said.

Pfoff said that total production from the fields has reached about 20 million cubic feet per day.

"By year end we're anticipating deliverability of about 30 mmcf feet per day," Pfoff said.

The company's Nicolai Creek field is now contributing to production, following a proposed resolution to the long-standing dispute regarding access to the Cook Inlet Gas Gathering System, known as CIGGS. Nicolai Creek connects to CIGGS and had been shut in since the end of 2004 because of a dispute regarding commercial terms for access to the pipeline system.

"As of Nov. 1 this field is back on production and we look forward now to development of this field further," Pfoff said.

### Three Mile Creek

Aurora's new Three Mile Creek field came on stream in 2005 — the discovery well at the field is on production and the company is in the process of completing and testing the Three Mile Creek No. 2 well.

"We will proceed with the tie in of Three Mile Creek No. 2 and have it on production and selling gas within the next few weeks," Pfoff said.

However, the company has decided to postpone drilling Three Mile Creek No. 3 until next year, he said.

The Moquawkie field now contains three productive wells. For two of these wells Aurora reentered old wells drilled by other companies. Aurora drilled the third well this summer, Pfoff said.

### Lone Creek

The Lone Creek field has two producing wells — a third development well at Lone Creek has proved particularly successful, with a flow of about 16 million cubic feet per day from several intervals.

"Lone Creek No. 3, drilled and completed this year, is our best well to date," Pfoff said.

On the other hand, drilling at the Kaloa field this summer illustrated the risks inherent in oil and gas development.

"We had the very unpleasant experience of drilling a development well this summer that was a dry hole," Pfoff said. "It served as a stinging reminder that this truly is a risky business — we're dealing with complex geology."

But Pfoff emphasized his company's determination to continue a strategy of pursuing the discovery and development of natural gas in the Cook Inlet area. For 2006 you can expect a combination of more of the same type of work as in 2005 and some exciting new endeavors, he said.

Pfoff likened pending shortages of natural gas in Southcentral Alaska to hurricane Rita.

"Just like Rita we know she's coming and we know it's going to be a problem, and we just don't know when and how hard a hit it's going to be," Pfoff said. "But the good news is we still have time to prepare."

We need more companies out there looking for gas, he said.

"We will continue to work Beluga sands on the west side of the Cook Inlet," Pfoff said "Our goal and company strategy is to increase natural gas reserves in Cook Inlet." ●

*continued from page B1*

## SPIN

ated."

The biggest flaw in the Total scenario was the French giant's declared ambition to produce 500,000 barrels per day from Alberta's oil sands — the sector where Talisman is the only notable absentee among Canada's major oil producers.

### Spotlight on CNOOC and ConocoPhillips

Now the spotlight is on China National Offshore Oil Corp. — still smarting from its losing fight for Unocal and no less hungry for worldwide reserves — and ConocoPhillips, which has a strong fit with Talisman's interests in Canada, Alaska and Southeast Asia.

There's no shortage of analysts ready to explain why a Talisman takeover makes sense, notably the company's struggle to shake off the hangover of its profitable, but politically costly venture in Sudan.

Philip Skolnick of Genuity Capital Markets said in a research note that it would not be difficult for a bidder to make an "accretive acquisition," although he sidestepped naming any candidates.

Greg Pardy of Scotia Capital said Talisman was not getting proper recognition for its array of exploration prospects in places such as Southeast Asia and the Canadian Foothills.

Buckee is untroubled by the thought of a takeover, though he has cautioned that Talisman, with a market capitalization of close to C$20 billion, represents "quite a big bite."

Although the company told analysts it is open to offers for specific assets, Buckee would sooner keep the company whole.

### EnCana, Canadian Natural rumors

Over the past month both EnCana and Canadian Natural Resources have been caught in a swirl of rumors.

In EnCana's case, the suitor was said to be Royal Dutch Shell, but EnCana scuttled that talk by declaring it was "not aware of any intention by any party to make an offer" and was not involved in discussions to sell the company.

It also made clear that offers would be unwelcome saying "continued independence is the best way to create long-term value."

Canadian Natural was dragged into the mix earlier this month when speculation was fueled by analysts at Merrill Lynch and Canaccord.

Company President John Langille gave a cool response to the rumors, noting that many of the independent's assets were acquired over the past 10 to 15 years from majors.

He said those firms would be unlikely to now pay a premium to buy back the properties.

Langille said merger and acquisition activity in Canada has "advanced quite a ways in the last five to eight years."

He said the Canadian industry is "pretty consolidated compared to U.S. independents. I wouldn't be surprised to see some of the U.S. independents get together and make bigger companies, but I think in Canada we've got a pretty good mix right now." ●

*continued from page B1*

## BOWLES

30 years.

### Broader exploration, 'indifferent' to whether oil or gas found

Where will that gas be found?

Exploration on the North Slope has been focused around existing facilities at Prudhoe Bay and Kuparuk, he said.

Exploration needs to step out, particularly in the National Petroleum Reserve-Alaska, but there will probably be more gas found there, "so that's where the gas pipeline really ends up being a facilitator," Bowles said.

ConocoPhillips Alaska has announced discoveries in the greater Moose's Tooth area in NPR-A, he said, and for the Carbon, Rendezvous and Spark wells there were high gas-oil ratios, with some wells testing at rates of 25 million cubic feet a day.

*"If we have a gas pipeline in place, you've got exploration that can occur that's indifferent as to whether or not it discovers oil or large gas resources."*
**—Jim Bowles, president, ConocoPhillips Alaska**

Once there is a gas pipeline in place, "we can see efforts moving forward as far as development" at greater Moose's Tooth, he said. It's "a known resource base, waiting to be developed based on a market for gas."

ConocoPhillips and its partners Anadarko Petroleum and Pioneer Natural Resources have "a very large acreage position in NPR-A," and expect to find more gas in NPR-A, "and as we see a gas line coming closer we can expect to see more and more exploration activity ... looking for those big gas discoveries."

The Foothills, he said, is also gas-prone, and "could spawn off a lot of activity once that gas pipeline is in place."

The Minerals Management Service believes there is a natural gas resource base of some 32 tcf in the federal waters of the Beaufort Sea.

"Of course there's a lot of oil potential in the Beaufort also," Bowles said, but once there is a gas pipeline, explorers can "go into an area and explore without the risk of finding gas and not having a potential market for it."

Access to the coastal plain of the Arctic National Wildlife Refuge is a question mark, "but one thing's for certain: If we have a gas pipeline in place, you've got exploration that can occur that's indifferent as to whether or not it discovers oil or large gas resources."

### Heavy oil and satellites drive investment

Heavy oil and satellite development are driving North Slope investment right now, Bowles said, and are flattening the production decline from the North Slope. ConocoPhillips started up its 1-J West Sak facility at Kuparuk River in October, he said. West Sak production is currently 17,000 barrels per day, and ConocoPhillips hopes to see it reach 45,000 bpd by 2007. This is part of the heavy oil activity that is flattening the oil decline curve, Bowles said: "Heavy oil's going to be a key part of what takes place on the slope."

So is satellite development. With 10 to 12 satellites developed primarily over the last 10 to 12 years at Prudhoe Bay and Kuparuk.

Nanuq and Fiord are under development at Alpine, with peak production of 35,000 bpd expected in 2008-09.

West Alpine will be the next satellite field there, he said, "and then look out beyond that."●

*continued from page B1*

## DEEP PANUKE

completed by mid-January.

Based on a farmout agreement, Marauder stands to earn 20 percent after drilling and will have net holdings of 6,423 acres in the exploration license.

It also owns a 50 percent working interest in the Balmoral Block that has a potential drilling location along trend with the Deep Panuke find.

**—GARY PARK**

*continued from page B1*

## FLINT HILLS

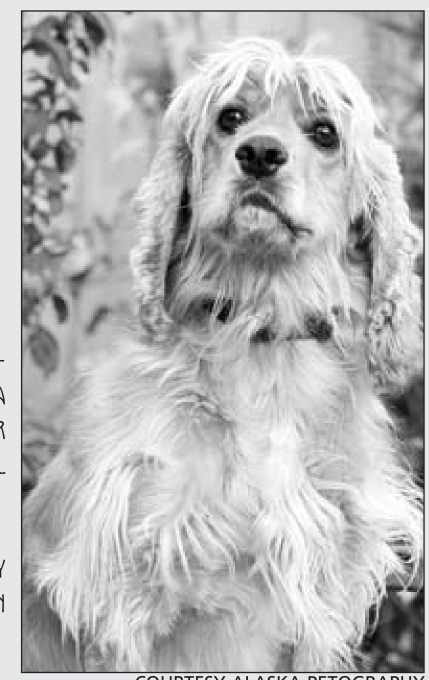
handle the low sulfur fuels.

"With Tesoro we are addressing community needs for a ready supply of low sulfur fuels, in the most economically appropriate manner," said Todd Craig, vice president of Alaska marketing for Flint Hills. "We will be producing low sulfur gasoline at our North Pole refinery and will move additional low sulfur fuels through our facilities in North Pole and Anchorage, including potentially from waterborne sources."

Flint Hill Resources LP, the parent company of Flint Hills Resources Alaska, has also announced an expansion of its Texas fuel storage and transportation capacity. The company will also increase its Minnesota refining capacity by 50,000 barrels per day, its Wisconsin pipeline capacity by 10,000 barrels per day and its Texas pipeline capacity by 30,000 barrels per day.

**—ALAN BAILEY**





COURTESY ALASKA PETOGRAPHY

*continued from page B1*

## PIONEER

the Nanuk No. 1 well 16 miles to the northwest. Cronus No. 1 will be drilled from a 500 foot by 500 foot ice pad on state leases east of the Colville River about 30 miles south of the Beaufort Sea (section 8, township 8N, range 6E, Umiat Meridian).

Access to the ice pad will be via an 8-10 mile ice road that travels west from existing facilities at the ConocoPhillips-operated Kuparuk River production unit, Drill Site 2P (Meltwater).

Pioneer said ice road construction would begin as early as Nov. 1, pending land use and tundra travel permit approvals. The well is expected to be plugged an abandoned by May 1.

Pioneer expects to use its new Arctic Fox No. 1 rig for the project.

**—KAY CASHMAN**






# NORTH OF 60 MINING NEWS




A SHIP PREPARES TO TAKE ON A LOAD OF COAL AT THE DOCK IN SEWARD

PHOTO BY CHRIS AREND/COURTESY USIBELLI COAL MINE


*A special supplement to Petroleum News*

WEEK OF November 27, 2005

Petroleum news

● ILLINOIS CREEK

# State keeps clean sheet at Illinois Creek

*Alaska gold mine has been fully reclaimed at no cost to the public, earning an award after previous owners' bankruptcies*

**By SARAH HURST**
*Mining News Editor*

The story of Illinois Creek gold mine has a moral (or two) and a happy ending. So for Bob Loeffler it was the perfect note on which to end his employment at Alaska's Department of Natural Resources, where he was director of the Division of Mining, Land and Water from 1999 until early November this year. Loeffler resigned with DNR Commissioner Tom Irwin and other officials because of a disagreement over Gov. Frank Murkowski's gas pipeline plans.

Earlier this fall Loeffler visited Illinois Creek mine, on state land 50 miles southwest of Galena, and gave it a stamp of approval: a tangible one, in the form of a reclamation award for the team who took over the project after a lengthy saga. Alaskans Harry Noah and Ken Pohle formed American Reclamation Group with a $26 million investment and worked with the state to complete the project, going above and beyond the initial reclamation plan.

The problems of Illinois Creek landed on Loeffler's desk just at the time when he was promoted to director of the division, so it was somewhat appropriate that they should conclude when he left the job. "There was a bankrupt mining company, an under-bonded mine. Today the mine is fully reclaimed with no public funds," Loeffler told the Alaska Miners Association convention in Anchorage Nov. 3. "There's a monitoring fund large enough to monitor for 30 years with a reserve, in case something unexpected happens."

COURTESY BOB LOEFFLER

COURTESY BOB LOEFFLER

**Above, the heap leach facility at Illinois Creek, with the central pit running like a slit in the upper right and the waste rock dumps on the far side of the central pit. At left, Bob Loeffler on the revegetated waste rock pile at Illinois Creek.**

## Mine originally owned by USMX

The cyanide heap leach mine was originally owned by a Denver-based junior, USMX. It contained 340,000 ounces of gold and was expected to have a six- to eight-year mine life, employing 110 people. "It began innocently enough with fast and efficient permitting," Loeffler said. "It took about one year (and) five months from the first discussion until the time the permits were issued in May of 1996. The mine was owned by USMX, but D.H. Blattner was the contract miner, that is, they owned all the equipment that actually did the mining and their employees did much of the actual dirt-moving work. It was financed by Rothschild and Sons for approximately $10 million."

Construction began in summer 1996, but USMX's cash flow system depended on the first gold being poured in the fall. The initial reclamation bond was $1.6 million, which was to increase as the disturbance increased. "So here we are at the beginning point, June 1996, construction begins and immediately the plot thickens," Loeffler said. "Immediately USMX was behind schedule on their construction. So when we sent inspectors out, they all came back saying, I don't know what's going on, these guys aren't going to make it by fall. By about June 15th or June 20th we were hearing that from the folks at Fish and Game, DNR and DEC (the Department of Environmental Conservation), they were all going, these guys don't have it together with respect to constructing in Alaska."

## Dakota Mining takes over

With no gold to finance their business, USMX started to go bankrupt and was taken over by another junior, Dakota Mining Corp., which owned some producing mines in South Dakota. They finished the heap leach and poured gold by the end of the summer of 1997, and established good relations with DNR. Despite this, they were behind in their payments to Rothschild and declared Chapter 11 bankruptcy in May 1998.

The bankruptcy proceedings gave Dakota Mining four months to reorganize, but now the project was plagued by the plummeting price of gold. When the mine was permitted the gold price was around $380 an ounce; when Dakota Mining went bankrupt it was down to $300, something that no one had foreseen. The money from the gold produced at Illinois Creek began going into an escrow account, and Dakota was only allowed to take what it needed to operate the mine. No more cyanide was added to the heap. Blattner and Rothschild fought over which creditor should get the rest of the money in the escrow.

## Agencies ask for larger bond

"So then the crisis occurred," Loeffler said. "Now, the crisis occurred when the agencies said, look, you can't just let this mine sit here accumulating water — remember, there was no outlet, so if you're not picking up that water with ore, which absorbs water, the water's rising in the heap. The agencies asked for a larger bond… our bond we asked to go to $2.6 million… The cash flow was also beginning to go negative, remember, they hadn't been adding cyanide, and gold was at $285 an ounce."

It was time for a rescue attempt. The state had a series of long negotiations with Rothschild, in which the bank agreed to provide working capital to start the mine up and to increase the bond to $2.7 million. Rothschild persuaded the state that their liability should be capped at that amount. "But Rothschild wanted to buy mining equipment from Blattner and they had another contract miner coming in to do it," Loeffler said. "The contract miner finally said, I can't do it at the price you're quoting, and Blattner said, I'm not selling you equipment for that price. So it failed, and Rothschild walked."

The state was left to deal with an under-bonded mine, an insolvent mining company that didn't own the equipment at the mine, 60 million gallons of water and some diluted cyanide in the heap. The water had to be evaporated, so it wasn't possible just to close the mine down, and there was still some gold coming off. The plan to reclaim the heap

see ILLINOIS CREEK page 3

## Winners of the State of Alaska's 2005 awards for mined land reclamation

**Harry Noah and Ken Pohle of American Reclamation Group and their staff Scott Bennett and Kim Jorgenson at Illinois Creek**

Former DNR Commissioner Tom Irwin wrote: "From eliminating 50 percent of the highwalls in the west pit to the completion of significantly more pit backfilling than was originally planned, you consistently went the extra mile and pushed the extra cubic yard of topsoil to accomplish a mine closure that is a showcase for what can be accomplished when industry and government work cooperatively to accomplish a common goal. To our knowledge, your 'mine-to-reclaim' effort is the only case in North America where a bankrupt mine was cooperatively placed back into production to generate the necessary funds for mine reclamation."

**Forest Hayden and Barbara Maxwell (on behalf of her late husband Les), placer miners**

Hayden and Maxwell cleaned up the abandoned mining camp near the junction of Kalamazoo Creek and Squaw Gulch in the Forty Mile Mining District. Tom Irwin wrote: "The camp you cleaned up included a significant amount of abandoned waste, including old vehicles, equipment, trailer houses, tires, trash, and hazardous waste such as blasting powder, contaminated petroleum products to recycle centers in Anchorage, and, under a solid waste disposal permit issued by DEC, donated your time, equipment and fuel to bury the roughly one half acre of remaining waste."

**Al Hopen, placer miner**

Tom Irwin wrote: "This award recognizes your accomplishments on patented mining claims that you leased and operated. The reclamation work involved approximately 35 acres that were placer mined for gold between 1990 and 2005. Field reports and photo documentation by DNR staff show that your mining and reclamation efforts were done in a conscientious and well-organized manner. Healthy wetland and aquatic habitats have been created which are used by waterfowl, raptors, wolves, moose, beaver and fish.

"Even after the reclamation of previous years had been approved by DNR, you continued to work to satisfy your own high personal standards of returning the land to as close to pre-mining conditions as possible. Your efforts included the overall integration of all previously reclaimed lands into a single reclamation scheme that has promoted rapid re-colonization of local native plants and provided long-term wildlife habitat along Cleary Creek. The overall result is a stable site that blends well with the natural background."

## ALASKA

## State: Mines worth $1.4 billion in 2004

The Alaska Department of Natural Resources Division of Geological and Geophysical Surveys said the industry topped $1 billion in expenditures and earnings for the ninth straight year.

The mining industry paid nearly $27 million to the State of Alaska and municipalities in 2004, an increase of $8 million from the previous year, the report said.

Revenue from mining license taxes more than tripled from 2003, largely due to profitability of zinc extraction at Red Dog Mine near Kotzebue.

The mining industry contributed more than 3,000 jobs in the state, a third more than the previous year. Most of the increase was in exploration, development and industrial minerals production.

"These numbers demonstrate the solid economics underlying Alaska's mining industry," said Commissioner of Natural Resources Mike Menge.

### Production tops '03

The industry produced minerals worth $1.3 billion in 2004, topping the previous year by more than $300 million. Increases in the prices of gold, silver and zinc played a big part in the industry's success, said Natural Resources spokesman Dan Saddler.

The price of gold was $410 an ounce in 2004, a 13 percent increase from 2003. Zinc prices increased by 24 percent to 47 cents a pound.

At the same time, the industry spent $209 million, the third-highest amount since the state began keeping records in 1981, on developing mineral deposits.

Teck-Pogo spent the most with development of the Pogo Gold Mine near Fairbanks. The mine is scheduled to come online in the spring.

Fairbanks had the largest number of claims in the state with Pogo, Tangle Lakes and Pebble prospects. Claims covered 133,480 acres, with placer claims accounting for 25 percent of the acreage in the Fairbanks area.

Exploration for gold and other minerals across the state was worth $71 million, more than double the amount spent in 2003. Exploration occurred across the state, but $38 million was spent in southwest Alaska.

Division efforts since 2003 to streamline the permitting process contributed to the growth of mining development, said Bob Swenson, deputy director of the Division of Geological and Geophysical Surveys.

—THE ASSOCIATED PRESS

*continued from page 2*

## ILLINOIS CREEK

wasn't finalized. Rothschild was owed about $9.2 million and Blattner was owed $1.9 million.

Twelve employees were needed to run the evaporation and keep the mine in compliance with environmental permits. The caterer agreed to take on these employees administratively, and shortly afterwards Loeffler took a phone call from the mine supervisor, asking if he really had to take orders from the cook. Loeffler assured him that was not the case.

### State looks for company

If the state found a company to mine at Illinois Creek and it failed, the reclamation bond would be wasted. Instead the state considered immediately using the bond to reclaim the mine. "This is a problem for the mining community, and the mining community did step up, the AMA helped us with a contractor, and we also had that $2.5 million (in the escrow), which was very alluring at that point," Loeffler said.

The state promised not to go after the money in the escrow account if Rothschild agreed not to execute their liens, which they did. The state then demanded the reclamation bond and received the check for $1.6 million three days later, surprisingly easily. Alaska's statutes weren't set up for the state to lease out the mine again, so an emergency regulation had to be put in place. The state advertised an RFP to mine the property if possible, or if not, to reclaim it.

In another failed rescue attempt, the winner of the bid, Canadian junior Viceroy Resources, agreed to operate the mine with the proceeds that were coming out of the heap. Their idea was to spend $250,000 of their own money testing and developing the heap and developing a reclamation plan. But in spring 2000 they withdrew from the project, in accordance with an option in their contract. The smelter where the ore had been sent went bankrupt with $50,000 of the state's and Viceroy's money going with it.

### American Reclamation takes over

This was the point where American Reclamation Group took over. "Gold was at $250 an ounce and people weren't necessarily predicting a rebound," Loeffler said. "They were taking a significant risk. ARG were Alaskans and they could find capital. They worked with Blattner to lower their price, and Blattner did. Local people working with locals were able to put together a mining package. Rothschild had looked at it like a bank, not taking any risks."

American Reclamation began mining that same year, 2000, employing 45 people in mining and 25 in processing. Five years later, the state achieved its primary objective — fully reclaiming the mine — without a dime of public money. There is $638,000 in an interest-bearing trust fund for monitoring Illinois Creek, managed by the Department of Revenue, and American Reclamation must pay another $200,000 into the fund. The fund also includes $100,000 from the sale of equipment to NovaGold Resources, which acquired some claims around Illinois Creek now known as the Khotol project.

"There are a couple of morals," Loeffler said. "One is that the reclamation bond amount matters. The state, we've learned a lot, and we are more careful about how we structure the bonds now. And we should be. The second is that the reclamation bond isn't the only thing… individuals and community matter… But government also must be light on its feet. This didn't fit into a mold."

AMA President Tom Bundtzen echoed Loeffler's sentiments. "I think Alaska can be proud of what it's done with reclamation," he told the convention. "It's one of the few Western states that really hasn't had yet a problem… It's really a tribute to the state government and the private industry working together on this." ●

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● FAIRBANKS, ALASKA

# Mining engineering a hot topic at UAF

*Fairbanks professors reassure commission mining and geological engineering departments have higher profile since merger of colleges*

**By SARAH HURST**
*Mining News Editor*

Mining programs at the University of Alaska Fairbanks stand to benefit from the recent creation of an enlarged College of Engineering and Mines, the Alaska Minerals Commission heard at its meeting in Fairbanks Sept. 28. John Aspnes, dean of the college, and Gang Chen, a professor of mining engineering, explained to the commission how UAF is doing its bit to overcome the mining industry's workforce shortage.

When UAF's various science, engineering and mathematics departments came together to form the College of Engineering and Mines on July 1, 2004, some in the mining community expressed concern that mining and geological engineering would be absorbed and disappear. "The university has done everything it can think of to assure the constituency that it's not going to happen," Aspnes told Mining News. The college now has more financial flexibility and its faculty and students can participate in major interdisciplinary research projects, he added.

At the Institute of Northern Engineering, which is now a research unit in the College of Engineering and Mines, one of the graduate student projects is an attempt to find a way to produce a coarser grind of Alaska's low rank coal to increase efficiency at power plants. As the low rank coal is highly reactive, the hypothesis is that it does not have to be ground as finely as other coals for combustion. Other projects include looking at the possible expansion of the Alaska railroad to Canada and work on recovering minerals from the sea bed.

### Still few mining engineering students

"There is more visibility for the engineering programs — they're not as diluted as they were before," Aspnes said. "The mining side is very much in evidence." However, the number of mining engineering students is still small compared with other majors, he acknowledged. Between 2000 and 2004 there have consistently been 15-22 undergraduate students majoring in mining engineering, while civil engineering majors have increased from 80 to 114 in that period, electrical engineering is up from 54 to 92, and mechanical engineering is up from 61 to 81.

COURTESY PROFESSOR GANG CHEN

**Three mining engineering students working in the College of Engineering and Mines' mine ventilation laboratory at UAF. Left to right: Carolyn Curley, Victor Tenorio (graduate student) and Sheila Dailey.**

Geological engineering has fared even worse than mining engineering, with numbers down to 17 in 2004 from a five-year peak of 29 in 2001. Petroleum engineering enrollment has stayed fairly steady at around 20 students each year. On the graduate side, five students enrolled in master of science degrees in mining engineering in 2004 (up from zero in 2000), but there were none in mineral preparation engineering that year and only three in geological engineering.

"The main things that can be told to students are that there is a very substantial need for people in the field, and the financial rewards are quite excellent," Aspnes said. "Mining today is not like it was 75 years ago. There are a lot of hi-tech components, there is reclamation, there is a whole variety of areas of work."

### Recruiting coordinator planned

The College of Engineering and Mines plans to hire a full-time recruiting coordinator to organize the faculty presence at high schools and college fairs. Aspnes has been going to the West Coast and has found that schools in Washington don't have room for all the prospective students, he said. On the other hand, many high school students in Alaska just want to get out of the state. "The challenge is convincing people that the Fairbanks climate isn't that bad, including people in southern Alaska, who are potentially turning their backs on an incredible educational opportunity. I'd stack up our graduates against any engineering graduates in the country."

Aspnes has been in Fairbanks 27 years and calls it one of his most favourite places on the planet. In the past decade the climate has become less harsh, he said.

UAF has made a concerted effort to retain Alaska Native students. The Alaska Native Science & Engineering Program, which started at the University of Alaska Anchorage, has been active in Fairbanks for four years and the College of Engineering and Mines now has 75 Native students with a 95-percent retention rate, according to Aspnes. The national average retention rate for Native Americans is under 30 percent.

The American Indian Science & Engineering Society chapter at Fairbanks has won national recognition, and between them the programs for Native students provide scholarships, tutoring, study groups, internships and team-building sessions. But the challenge to bring students of all backgrounds into engineering programs begins at home, with parents, Aspnes believes. "Young people zero in on what they want to do earlier than the last two years of high school," he said. "It's my perception that there could be more done to encourage students at high school to excel and take science and math more seriously."

Many of the students and faculty in UAF's engineering departments are from India and China — more from India currently, as it is getting harder to leave China. "On average people in other parts of the world tend to have a little bit more of a work ethic," Aspnes said. "It'd be neat if it were 'cool' in the U.S. to do science and math at college." ●

● NORTHWEST ALASKA

# Red Dog looks to schools for employees

*Alaska lead-zinc mine has employed over 1,000 NANA shareholders; challenge now to bring them into the most highly skilled jobs*

**By SARAH HURST**
*Mining News Editor*

Red Dog mine in Northwest Alaska's Arctic is just over half-way to its target of 100 percent NANA Corp. shareholder hire, and operator Teck Cominco is making every effort to increase that proportion. The world's largest zinc mine is on NANA land and working with the local community is an essential part of the business, General Manager Rob Scott told the Alaska Miners Association convention in Anchorage Nov. 4.

In total Teck Cominco has hired more than 1,000 NANA shareholders at Red Dog since production began in 1989, which doesn't include many more who have worked as contractors at the mine. All of the clerical staff at the mine currently are shareholders, as are 75 percent of the equipment operators and 35 percent of the trades personnel, such as electricians. Only one out of 24 technical employees (mining engineers, geologists and environmental engineers) is a NANA shareholder, however.

"So the areas where they have fallen short are the areas that require additional training," Scott told the convention. "To encourage shareholders to go on to university and to get higher education degrees, we have scholarship programs," he added. This fall semester Teck Cominco is providing scholarships for 19 students entering college. The company also organizes leadership training for children in Kotzebue and the surrounding villages. Local dog-musher and Iditarod competitor John Baker visits the children to provide inspiration.

### Company two educational programs

Teck Cominco runs two educational programs for children to show them what working at Red Dog is all about. The Career Awareness program is for grade 9 and 10 students, who tour the mine and have presentations from different departments. The Job Shadow program for grades 11 and 12 is more intensive: "They'll actually stay with a labor employee for the entire three days that they're on the mine site to see exactly what that person does," Scott said. "They'll shadow an electrician, just shadow an engineer, whatever the skill that they're interested in."

The emphasis on young people is especially important in a region where 41 percent of the population is under the age of 18. According to the 2002 Census, the total population of the region is about 7,300, of whom 82 percent, or around 6,000, are Alaska Natives. With 5 percent over 65, the workforce potential is about 3,300. Some people who work at the mine prefer seasonal employment so that they can do their subsistence activities at other times of the year, Scott said.

Red Dog's payments in lieu of property taxes to the Northwest Arctic Borough have funded the construction of several schools. NANA Corp. receives millions of dollars in royalties from the mine. The average shareholder has 200 shares and the dividends paid to them this year were $3.81 a share.

### Subsistence advisory committee

A subsistence advisory committee composed of eight Native elders participates in discussions on major issues like permit renewals and closure planning, and brings any local concerns to Red Dog's attention. "Examples of the advice that they would give us — the road that concentrate is hauled (on) from the mine to the port, we have a caribou migration there annually both north and south and they communicate advice about how to manage the traffic on that road to be careful of the migration,"

see RED DOG page 5

# Mining and the law: Got gold? If not, get some

*Papers like the New York Times and the Anchorage Daily News shouldn't mislead the public by scaremongering about the use of cyanide in gold mining*

**By J.P. TANGEN**
*Guest Columnist*

I'm certain that I shall go to my grave without ever having unraveled the mystery of why otherwise bright people are so lacking in the most rudimentary vestiges of common sense. An illustration that proves the point is an article which appeared in the New York Times recently, and which was picked up by the Anchorage Daily News, bemoaning the social costs of mining gold.

While the Times may, perhaps, be forgiven for its commitment as the self-styled voice of its political base; certainly the rest of us have a right to expect the News, as the largest newspaper in the second largest gold-producing state in the nation, to be more critical and objective.

J.P. TANGEN

The article suggests, among other things, that the search for gold in today's world "has little to do with girdling empires, economies or currencies. It is almost all about the soaring demand in places like China and India for jewelry." Excuse me? The last time I checked, the reason people exchanged currency for durable goods was because they would rather have the goods than the currency — especially when the currency is fragile. If one gets some pleasure out of owning the durable, and it retains its value, that appears to be a win-win situation.

Why on earth would anyone rather have a gold bauble than an American greenback? That is a question best answered with a question. How long will the American dollar remain strong? Prudence (the older sister of Common Sense) dictates that if you are concerned about the vitality of the only global currency, you hedge your bet with an alternative that has consistently proved itself for millennia on end.

### Industry castigated for use of cyanide

The Times article doesn't just stop there, however. It goes on to castigate the mining industry about its use of cyanide in the recovery of gold. Cyanide, of course, is a dirty word. Everyone knows that it is a poison used to kill people in the gas chambers of San Quentin and Auschwitz. Cyanide is so clearly understood by the general public, apparently, that even the briefest explanation about the substance by these reporters is unwarranted.

Yet, if cyanide is such a chemical boogeyman why on earth is its use endemic? Thirty seconds on Google will reveal that cyanide is all around us. The second entry listed on my search was the online free encyclopedia "Wikipedia", which revealed:

Cyanides can be produced by certain bacteria, fungi and algae, and are found in a number of foods and plants. Cyanide occurs naturally in cassava (aka manioc), which are potato-like tubers of cassava plants grown in tropical countries; these must be processed prior to consumption (usually by extended boiling). Fruits which have a pit, such as cherries or apricots, contain either cyanides or cyanogenic glycosides in the pit. Bitter almonds, from which almond oil and flavoring is made, also contain cyanide.

Cyanide is also found in cabbage, broccoli and vitamin B12 (not to mention cigarette smoke, but who smokes cigarettes these days?) Other than in the movies, the last incident of people being poisoned by cyanide that I recall was in 1982 when someone tampered with a bottle of Extra-Strength Tylenol in a convenience store in Chicago.

Cyanide simply is not the frequent subject of news stories across the nation or around the world. That is not to say that there haven't been accidents or that birds or fish haven't been inadvertently killed, but I wonder how many more birds and fish are killed shortly before being popped into the oven for dinner.

### Cyanide not difficult to handle safely

Cyanide rarely kills people because cyanide simply isn't difficult to handle safely.

Cyanide is a compound of carbon and nitrogen. The same carbon and nitrogen that is found in the air we breathe. Under certain conditions, cyanide can be used to leach gold out of rock, but the compound is not particularly stable or persistent in the environment. It decomposes readily in the presence of sunlight and aeration.

No one is suggesting that people drink cyanide, just as no one is suggesting that people jump off bridges. The point is, however, that banning cyanide is no more rational than banning bridges.

The attack on gold mining is predictably counter-productive to the ostensible objective. No one in their right mind is going to turn to greenbacks if, or should I say when, there is another currency crisis. Gold, however, will hold value through thick and thin. Because leaching gold out of low grade ore with cyanide solutions is simple, cheap and efficient, cyanide is not going away either.

By trading in ignorance and hysteria, the Times and, by extension, the News simply frighten people when the better result would be to educate them. Gold is not evil, nor are the people who mine it. Properly handled, cyanide is not a threat. The hacks at the Times would far better serve their constituencies with objective fact than politically motivated propaganda. It's common sense. ●

*J.P. Tangen has been practicing mining law in Alaska since 1975. He can be reached at jpt@jptangen.com or visit his website at www.jptangen.com. His opinions do not necessarily reflect those of the publishers of Mining News and Petroleum News.*

## BRITISH COLUMBIA

## Galore Creek production plan doubles

The planned throughput for Vancouver-based NovaGold's Galore Creek project in Northwestern British Columbia has doubled to 65,000 tonnes per day, according to a pre-feasibility study published in October. The mine would still have a more than 20-year life. Annual production in the first six years would average over 300,000 ounces of gold, 2.31 million ounces of silver and 370 million pounds of copper.

The study, which was prepared by independent engineering services company Hatch Ltd., estimates that after-tax annual cash flow would total more than $200 million using long-term average metal prices and over $350 million at current metal prices for the first six years. The open pit mine would have the potential to recover a total of at least 5.9 billion pounds of copper, 3.7 million ounces of gold and 40 million ounces of silver.

"We are extremely pleased with the solid economics from the Hatch study based on the comprehensive and rigorous efforts at Galore Creek — we have made tremendous progress in just two years since acquiring the project," said Rick Van Nieuwenhuyse, NovaGold's president and CEO.

NovaGold's timeline for Galore Creek is to submit permit applications in the first quarter of 2006, complete the final feasibility study in the third quarter, obtain key construction permits in early 2007, start construction in mid-2007 and start commercial production in 2010-11.

—SARAH HURST

*continued from page 4*

## RED DOG

Scott said. Vehicles have to stop as soon as the caribou come within 300 meters of the road. The subsistence committee also advises when the whale hunting near the village of Kivalina is over so that the shipping season can start at the port.

Red Dog's proven and probably reserves stand at about 75 million tons in the open pit, which will take the mine through to 2031. The economic possibilities of additional reserves in the area are yet to be determined. "Right now we're producing a little over a million tons of zinc concentrate every year at 56 percent grade, so you can see it contains close to 560,000 tons of contained metal," Scott said. Lead is also produced at Red Dog. "The lead rate comes and goes depending on where you are in the open pit," he added. ●

● ALASKA

# Nixon Fork mine could be small but sweet

*After 2 years of drilling Mystery Creek has defined limited gold reserves but intends to re-establish historic Alaska mine*

**By SARAH HURST**
*Mining News Editor*

The sound of drilling can be heard all over Alaska, on old properties as well as new ones. Nixon Fork, 35 miles northeast of McGrath in the Kuskokwim mineral belt, is one of the old ones. It is showing new potential, according to Bill Burnett and Paul Jones of Mystery Creek Resources, who hope to start mine development and production there in summer 2006. Mystery Creek Resources is a subsidiary of Ontario-based St. Andrew Goldfields.

Much mining has been done at Nixon Fork over the years, since placer gold was first discovered in 1917 and lode gold in 1918. Mystery Creek arrived on the scene in 2003. The following year they drilled 14,600 meters on two ore bodies, 80 percent of which was definition drilling, Burnett told the Alaska Miners Association convention Nov. 4. “We had some oxidized ore and some sulphide ore and that kind of poses some unique milling situations,” Burnett said. “Additionally in 2004 we did some surface work… we did some trenching, we drilled one hole and blended some samples.”

*The current plan is to produce 40,000 to 50,000 ounces of gold a year and 1.2 million pounds of copper.*

This year Mystery Creek has done another 8,600 meters of underground drilling as well as 3,300 meters of surface drilling and the work is ongoing. In February a resource estimate came out at 242,000 tons, containing 161,000 ounces of gold. Some of that is inferred and some is in existing tailings. “Our resources are not as great as we hoped they would be a couple of years ago,” Jones said. “They may grow, as we’re not through with exploration work.” The current plan is to produce 40,000 to 50,000 ounces of gold a year and 1.2 million pounds of copper.

### In final stages of permitting

“We’re in the very final stages, as we hope, of the permitting process,” Jones said. Mystery Creek plans to increase the size of the diesel power plant from what was previously used, so they had to acquire a new air permit, which was received earlier this year. The public review process for the plan of operations, the closure plan and reclamation estimate and the solid waste disposal permits — the key permits for the operation — ended in late November.

“I would hope we’ll have our permits in place by the end of the year,” Jones told the convention. “If that be the case, we would start cleaning up the old mill and renovating the old mill — it’s in pretty sad shape, but it’s repairable. We’d start sometime in January on that. We would begin building the cyanide circuit as soon as the weather allows us to do that, with the idea of trying to get tailings from the existing pond into that plant as early as we can in the summer.”

Mystery Creek plans to try lode gold mining. “It’ll cause dilution, but we think the cost-effectiveness of lode gold mining versus cut and fill will be preferable, and that’s what we’re going to try to start with,” Jones said. Some of the stopes will probably have to be cut and fill mining as they did in the past.” ●

● ALASKA

# Economist: Mining pays its way in Alaska

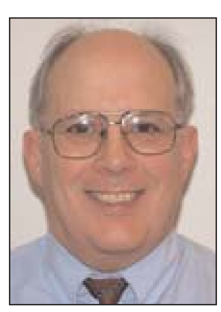
*Gold, other metals produced by Alaska’s hard rock mines translate into high wages, significant taxes and jobs for local people*

**By SARAH HURST**
*Mining News Editor*

Hard rock mining’s contribution to the Alaska economy is larger than it appears at first sight, when the “multiplier effect” is taken into account — the additional spending and services triggered by the mining activities. Anchorage-based consultancy Northern Economics has measured the wealth created by Alaska’s three hard rock mines, Fort Knox, Greens Creek and Red Dog, and come up with some impressive figures.

The consultancy compiled the data for 2004 using information provided by the companies, state agencies, and previous research studies by Northern Economics and others. The total number of employees at the three mines is 1,100.

The average mine employee’s wage amounted to $71,000, which is almost double the $38,615 average wage in Alaska. “That has a significant effect on the local economy due to the spending of these employees,” Northern Economics’ president, Pat Burden, told the Alaska Miners Association convention Nov. 3. The estimated wealth created by these mines per employee was $106,000, compared with around $62,000 per employee generated by the construction sector and $46,000 by the trade sector.



COURTESY NORTHERN ECONOMICS

**Pat Burden, Northern Economics’ president and principal economist**

### For Knox employs 480

Fort Knox is estimated to have employed about 480 local people from the Fairbanks North Star Borough in 2004. Greens Creek employed about 200 people from the City and Borough of Juneau and Red Dog about 150 from the Northwest Arctic Borough. Indirect jobs — employment with other businesses — created locally because of the mines totaled about 700 for Fort Knox, 350 for Greens Creek and 180 for Red Dog. The remaining employees of the three mines come from outside the local regions.

The Northwest Arctic Borough has few of the goods and services needed by Red Dog. As a result, the mine only spends about $1 million or so in the borough. A small local economy also produces a small multiplier effect, with only a few hundred thousand dollars in additional sales. Conversely, Fort Knox spends about $45 million in the Fairbanks North Star Borough, generating an additional $21 million in sales. Greens Creek spends about $23 million in the Juneau economy, generating an additional $8 million in sales.

*The total number of employees at the three mines is 1,100. The average mine employee’s wage amounted to $71,000, which is almost double the $38,615 average wage in Alaska.*

In Alaska as a whole, the three mines spent an estimated $102 million on goods and services or fees and charges paid to state and local governments. The additional expenditures generated by this reached $157 million. The state mining license tax and many other state fees are based on royalties that depend on the price of metals, so higher prices means higher government revenues. These totaled about $16 million in 2004. Local government taxes are more consistent, as they don’t respond to changes in profits.

“We economists use the term ‘value-added’ when we talk among ourselves … but what we’re really talking about is the amount of wealth that is created,” Burden said. This wealth consists of wages and salaries paid to the mine workers, profits and other income to the self-employed, dividends to shareholders, rents and royalties received by the landowners and interest received by the banks and bondholders. In 2004 the total “value-added” or wealth created by the three mines was about $95 million. With the multiplier effect it came to $150 million. ●

● YUKON

# Copper-gold deposit Yukon's next mine?

*Would-be developer seeks to expedite completion of promising project near Yukon River; permits in hand or due to be extended*

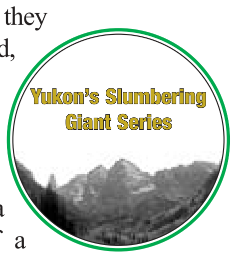
**By ROSE RAGSDALE**

*Mining News Contributing Writer*

What do you get when you mix a known, high-grade copper deposit near the Yukon River plus millions of dollars of mining equipment on site with an aggressive junior mining company bent on making things happen?

Excitement, that's what.

"Minto will be the Yukon's next mine," said Stephen Quin, president and chief executive of Sherwood Copper Corp. "We've got all the permits or they are due to be extended, and we just need to update costs in the feasibility study."




Yukon Premier Dennis Fentie signed a 10-year extension of a Type A water license for the copper-gold project in September. The Type A license allows Sherwood, through its wholly owned subsidiary Minto Explorations, to construct and operate a mine at Minto. The Minto Project already has a Type B water license, which covers, among other things, access to the site.

The water permits will allow Sherwood to resume construction once a production decision is made. That decision is due early next year, and mine startup is projected for 2007. The Vancouver, B.C.-based junior mining company acquired 100 percent ownership of Minto from Falconbridge, Teck Cominco, ASARCO and others for C$8.4 million plus future considerations at a mining industry conference in Toronto this summer, Quin said.

"Sherwood was able to get all of the company representatives in one room, and they hammered out a deal," he told industry analysts in September.

Located roughly halfway between Whitehorse and Dawson, Yukon Territory near the Yukon River, Minto is a copper miner's dream. Unlike typical copper deposits that have about 20 percent of the bright metal in concentrates, Minto tests average grades of 37 percent copper.

"These kinds of concentrates are sold at a premium," Quin said. "We expect it to be quite robust."

Discovered in 1973 by ASARCO, the deposit is rather modest in size by industry standards. An independent estimate of measured and indicated resources as of June 27 was 9.2 million tons, at a grade of 1.8 percent copper, 0.016 ounces per ton gold and 0.2 ounces per ton of silver, and an additional inferred resource of 0.8 million tons grading 1.4 percent copper, 0.013 ounces per ton of gold and 0.2 ounces per ton of silver.

Sherwood believes C$22.2 million in capital will be needed to develop a 1,723 ton-per-day mining operation at Minto, largely because the previous owners sank C$10.1 million into construction before the project stalled on depressed copper prices in 1998.

During the late 1990s, mill foundations were poured, ball and SAG mills purchased and moved to the site and a mine camp constructed. Developers also connected the site to a permitted Yukon River crossing with a 29-kilometer gravel road.

Sherwood hopes to process 591,000 tons of ore per year with an initial life of 11 years. About 38,400 tons of concentrate, which will contain on average 31 million pounds of copper, 13,400 ounces of gold and 200,000 ounces of silver, will be produced per year for the first five years of operation, the company said.

Sherwood is working with the Alaska-Yukon Committee on the possibility of developing a load-out port in Skagway or Haines.

Quin said he is optimistic that a facility can be developed. "It's a question of how to get access to loading facilities within the port. The existing loading facility (at Skagway) has not been used for a number of years," he said.

ROSE RAGSDALE

Above, brought to the Minto deposit in the late 1990s, huge sag and ball mills still wait for development. Sherwood Copper Corp. purchased 100 percent ownership interest in the partially constructed copper-gold project earlier this year.

ROSE RAGSDALE

Stephen Quin, president and CEO of Sherwood Copper Corp., describes the Minto copper-gold deposit in central Yukon Territory, which his company hopes to develop. The junior mining company conducted a 10,000-meter drill program this summer in hopes of expanding the resource to the south and west.

Alaska Gov. Frank Murkowski, who spoke at an economic development conference in Whitehorse Sept. 21, said the ore terminal in Skagway stands ready to serve Yukon's needs. "Our governments can and will work together to examine how we can respond to your needs," he promised attendees.

Sherwood is also eyeing low-cost power produced by Yukon Energy Corp.

"We have significant excess power we want to sell, and Minto is close to the power grid, said Yukon Energy President David Morrison. "The big issue from our point of view is timing. The same is true for Sherwood. By the time Sherwood gets ready to make a decision, Yukon Energy will be ready to make our decision." ●

● YUKON

# Yukon Zinc applies coal-mining technology

*Junior believes dense media separator will boost bottom line of increasingly attractive Wolverine base metals mining project*

**By ROSE RAGSDALE**
*Mining News Contributing Writer*

It isn't every day that a junior mining company takes a project all the way to development. In fact, it "rarely" happens, according to Dr. Harlan Meade, president and CEO of Yukon Zinc Corp., the successor company to Expatriate Resources Ltd.

But the Yukon Zinc-Silver Project in southeastern Yukon Territory is well on its way to becoming such a rarity.

Vancouver, B.C.-based Yukon Zinc filed its environmental assessment report for the Wolverine deposit Nov. 3, setting in motion a permitting and public review process expected to lead to Yukon Zinc being granted a mining license for the development of Wolverine in August 2006, the company said. Construction of the mill and a C$2 million, 38-kilometer permanent road to the Robert Campbell Highway would begin immediately.


"I can't think of the last time a junior mining company developed a base metals mine in this country, certainly not in the last 30 years," Meade said in a September interview. "There are no medium-size metals mining companies in the zinc market."

## Wolverine discovered in 1994

Meade, who served as vice president of exploration for Westmin Resources when that company discovered Wolverine in 1994, said he was lured back by the exceptionally high grades of ore in the deposit.

The environmental assessment provides an overview of Yukon Zinc's development plan for Wolverine, a 6.2 million-tonne resource in the mineral-rich Finlayson Mining District about 237 kilometers northwest of Watson Lake. The company aims to spend C$110 million in capital to develop a 1,500-1,750 tonne-per-day underground mine to produce 1,250 tonnes per day of feed to mill.

The report describes related facilities


ROSE RAGSDALE

**Harlan Meade, president and CEO of Yukon Zinc. Corp., examines ore samples at the Wolverine deposit camp. Meade want his junior mining company to develop the Yukon Territory property, which is believe to contain a 6.2 million-tonne resource rich in zinc, silver,copper, lead, gold and selenium.**

and infrastructure at the deposit and provides an evaluation of environmental and socioeconomic factors. It also reflects many years of baseline data and studies done on the zinc- and silver-rich deposit. A proposed development and environmental management plan is being incorporated into Yukon Zinc's feasibility study for Wolverine due for completion in early 2006.

## Indicated resource of 4.94 million tonnes

Based on a 1998 estimate, the Wolverine deposit has an indicated resource of 4.94 million tonnes, containing a probable reserve of 3.74 million tonnes grading 12.43 percent zinc, 1.44 percent lead, 1.37 percent copper, 336.6 grams per tonne silver and 1.59 grams per tonne gold. A new resource estimate is due out in early 2006. It will incorporate results from more than 50 new drill holes completed by Yukon Zinc in a $17 million exploration program this year.

First conceived as part of a joint mining project with the nearby Logan zinc deposit, Wolverine's prospects soared when selenium prices roared to life in 2004 and zinc concentrate supplies tightened with skyrocketing demand from China and other Asian countries.

"China is using zinc to build its infrastructure, with 28 percent growth in demand in 2004," Meade told participants at the Opportunities North 2005 Conference in Whitehorse earlier this fall. "That's 10 Red Dogs."

Depletion of zinc mine reserves is becoming a serious problem, and Meade predicts that 40 percent, or 3.2 million tonnes, will be gone by the end of 2008.

"Yesterday, zinc prices hit 63.8 cents a pound," he said Sept. 21. "A year from now, the world will have no zinc inventories left. My guess is we're on our way to $1.20 zinc in the next two years." (Zinc traded at about 77 cents a pound Nov. 17.)

Yukon Zinc expects zinc to produce 54 percent of the net revenues from Wolverine, but byproduct revenues from silver (26 percent), copper (12 percent), gold (5 percent), lead (3 percent) and perhaps selenium, are projected to reduce the cash cost of producing zinc to less than 25 cents per pound. This would make the project one of the lowest cost zinc producers in the world, the company said.

Though high commodity prices are big drivers of development for the Wolverine deposit, Meade believes the mine project should hold its own throughout its projected 10-year-plus lifespan, even if metals and minerals prices take a sudden nosedive.

## Dense media separator to process

That's why Yukon Zinc, with the help of an economic development grant from the Yukon government, tested the use of a dense media separator in processing ore from Wolverine. The dense media separator process, traditionally used in coal mining, has been employed successfully in several underground base metal mines, the company said.

In developing a mining plan, Yukon Zinc sent 1,758 meters of large diameter drill core taken from nine holes in the Wolverine deposit August-September 2004 to SGS Lakefield Research Ltd. for metallurgical testing and heavy media separation studies.

Completed last year, the dense media separator study evaluated the use of gravity as a means of separating ore at Wolverine from waste rock. The test results showed the simple technology could provide a very effective pre-concentration step that would produce an ore product containing about 98 percent base metals and 95 percent precious metals.

Meade believes the test results can be replicated in actual operations at Wolverine, thereby dramatically reducing mill processing costs and providing a means of removing waste material from ores prior to processing.

"A little cleanup on the front end will put just ore through the mill," he said. Processing ore with the dense media separator costs $1.25 a tonne, a fraction of the $38 a tonne needed if ore is sent straight to

see YUKON ZINC page 9

● YUKON

# Near Whitehorse, it's all 'Skukum'

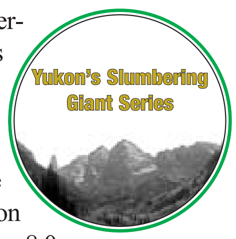
*Junior company wants to demonstrate low-cost, gold-silver mining operation in historic district southwest of Yukon's capital*

**By ROSE RAGSDALE**

*Mining News Contributing Writer*

For geologist T. Greg Hawkins, the question at Mount Skukum/Skukum Creek isn't where to find the gold and silver that nature sequestered in this steep-sided valley. Rather, it's how to attract investment capital to extract the soft yellow and bright gray metals from deposits he knows span the Wheaton River on the valley floor.

"The secret of these types of operations is to get into production as soon as possible," said Hawkins, who is chairman of Tagish Lake Gold Corp., owner of 987 full or fractional quartz claims covering more than 178 square kilometers near Skukum Creek.




After completing $5 million of exploration work, Tagish Lake has conservatively estimated that three zones contain a total of 1.2 million tonnes of ore, grading on average 8.0 grams per tonne of gold and 153 grams per tonne of silver, according to Hawkins. He says the grade achieved in underground drilling was about 10 percent higher than expected, and one of the deposits, Goddell, could yield 1 million ounces of gold on its own.

"My favorite exploration target is called Charleston," Hawkins said. The 1902 mining lease on it expired in 2002 for nonpayment of taxes, and it contains an estimated 205 grams per tonne of gold and 6,000 grams per tonne of silver, he added.

How did Tagish Lake, a modest-sized junior, come to possess such a promising mine project?

ROSE RAGSDALE

**After completing $5 million of exploration work, Tagish Lake has conservatively estimated that three zones contain a total of 1.2 million tonnes of ore, grading on average 8.0 grams per tonne of gold and 153 grams per tonne of silver**

Hawkins views it as the best kind of serendipity. Formerly owned by two companies in a joint venture, Skukum Project came to a standstill in the 1990s when the two partners stopped talking to each other, Hawkins said.

"We took over one company and brought the other one to the table," he explained, during a tour of the mine operation Sept. 22. "Last year, we bought all the other interests."

Tagish Lake has a database on the Skukum deposits collected in $16 million of exploration by a previous owner, AGIP. In addition, previous owners spent C$6 million to C$7 million on underground development at the Rainbow deposit and another C$7 million at Goddell, plus at least C$1 million to build haul roads to all of the deposits, Hawkins said.

Prospectors actually discovered gold-bearing quartz stibnite veins in the Wheaton River areas in the early 1890s and since have uncovered numerous deposits in the area. In 1981, exploration activity peaked in the Wheaton River District, and then owner AGIP succeeded in mining 2.4 million grams of gold between 1986 and 1988.

The area is only 80 kilometers southwest of Whitehorse and 47 kilometers from Yukon's power grid. Year-round access is available today by all-weather road, and the project has C$8 million worth of existing assets, including a 300 tonne-per-day mill, ancillary buildings and underground development.

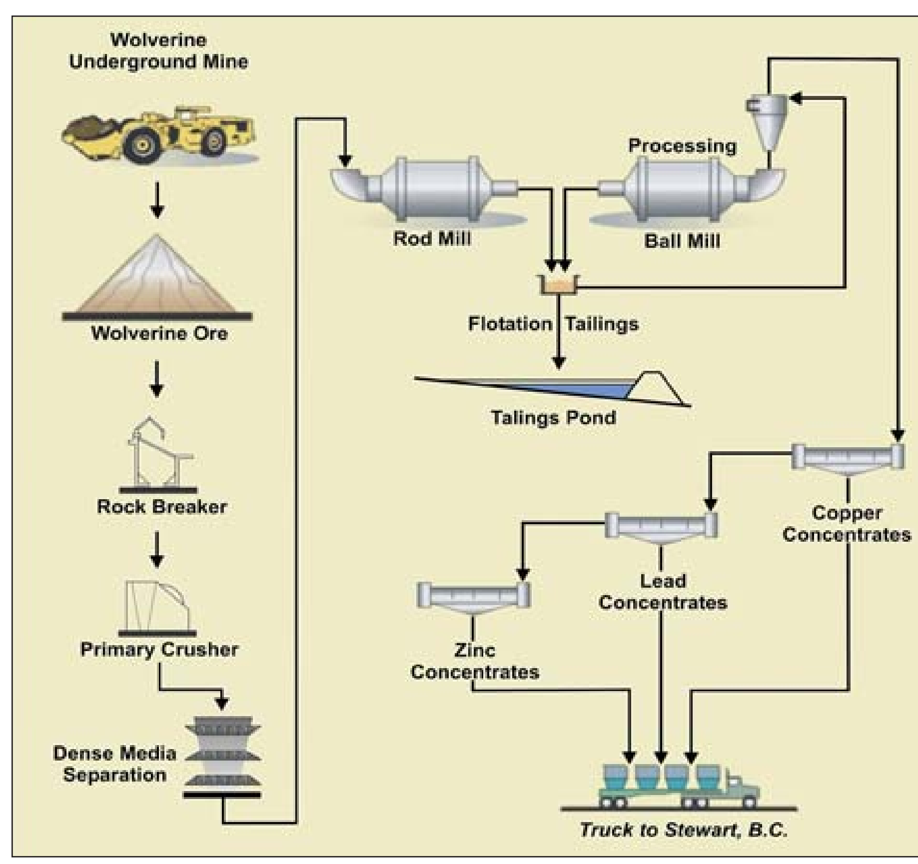
Tagish Lake, which has completed much of the work required for a feasibility study in the past four years, would like to conduct a five-year demonstration project showing how the area's deposits can be mined profitably at relatively low cost of about C$64 a tonne in a narrow-vein, underground mining operation.

Hawkins estimates his company is 30 months and about C$30 million from production. It will take C$3.5 million to reach a production decision, another C$25 million to develop the mine and C$5 million in working capital, he says.

"These kinds of deposits can be mined for 100 years. We're here for the long haul," he explained. "Everybody wants to hear about millions of ounces of reserves. But it's too expensive to develop reserves in advance. I don't doubt they are here, but I can't say where. That's what interests us as geologists." ●

ROSE RAGSDALE

**The Wolverine base metals deposit in southeast Yukon Territory is being considered for development from this site. Water for use in the mine and mill will be recycled in a self-contained system of settling ponds to avoid potentially contaminated runoff.**




COURTESY YUKON ZINC

*continued from page 8*

## YUKON ZINC

the mill, he estimated.

Applying dense media separation to the mining of thinner ore zones also could convert more resource into reserves and extend mine life, the company said.

Market research, including talks with smelters in Japan and Korea, indicated that Yukon Zinc will be able to sell its ore for attractive prices, Meade said. Ore concentrates would be trucked to a non-union port at Stewart, B.C., and from there shipped to Asia.

Meade said he chose to bypass potential berthing conflicts with cruise ships at the unionized port in Skagway, Alaska.●

● ALASKA

# AngloGold happy with Alaska results

*Two promising prospects reward South African company's 2005 exploration effort; will drill both Lost Mine South Terra in 2006*

By STEVE SUTHERLIN

*Mining News Associate Editor*

South Africa-based AngloGold Ashanti is happy with its exploration results in Alaska so far, and it will be back for more in 2006, says Jeff Pontius, the company's exploration manager.

"It's paid out pretty well for us, we have a lot of gold discoveries or occurrences that we've worked up and tested and are in various stages of what we call an evaluation," Pontius told the Alaska Miners Association annual convention at the Anchorage Sheraton Nov. 2.

"There are a lot of new things going on (in Alaska), and AngloGold is trying to be a part of that," Pontius said.

Anglo spent $4 million in Alaska this year to explore about 24,000 square kilometers, increases from 2004, the year the program began, he said.

"It's a big area of new generative geochem and geology evaluation, looking for new discoveries," Pontius said. "Combined with what we did last year there are over 40,000 kilometers of Alaska in strategic locations that we're evaluated now with our boot leather-type exploration."

The company drilled about 4,700 meters in 2005 on three different projects, finding two exciting prospects, he said.

## Lost Mine South

The first is Lost Mine South, known by the initials LMS, located just north of the town of Delta Junction.

A second prospect, Terra, is in the Alaska Range between the Denali National Park and Preserve and Lake Clark National Park and Preserve, 200 kilometers from Anchorage.

LMS lies on a hill near the Goodpastor River in an area slated for a new state forest service road, with a current winter trail into the Goodpastor and Pogo area, Pontius said.

Gold bearing mineralization on a road cut alerted the company to the prospect, Pontius said. The company began geochemistry, soils analysis and basic prospecting in 2004, and it drilled 17 holes in 2005.

LMS is on Alaska state claims about 10 kilometers from the paved Alaska Highway.

"Our target concept out here is about five million tons of high grade vein material," Pontius said. "We're starting to see economic numbers over mining widths, so we're excited about this, and we'll be following this project up next year."

## Terra prospect

AngloGold drilled three different areas at the Terra prospect.

"We've found about four contiguous veins so far although we have a large number of intercepts we haven't been able to correlate together because we've only drilled 12 holes in this thing so far," Pontius said. "Our target concept out here is about 3 million tons of bonanza grade type mineralization and in our mind, north of 20 grams a ton.

"We're happy with how our grass roots campaign is going here in Alaska; we're seeing promise in seeing new virgin gold discoveries," Pontius said, adding that Alaska projects must compete for money against other projects throughout the company.

"We want to get more and more projects like LMS and Terra where we've got defined mineral systems that we can try to make into ore bodies," Pontius said. "We try to focus our assets on our most promising projects and leverage the other things we have." ●

● COOK INLET

# Burning ambition could ignite coal project

*Nobody doubts that there is a vast coal resource in Southcentral Alaska, but the Beluga-Chuitna deposit has never been developed*

By SARAH HURST

*Mining News Editor*

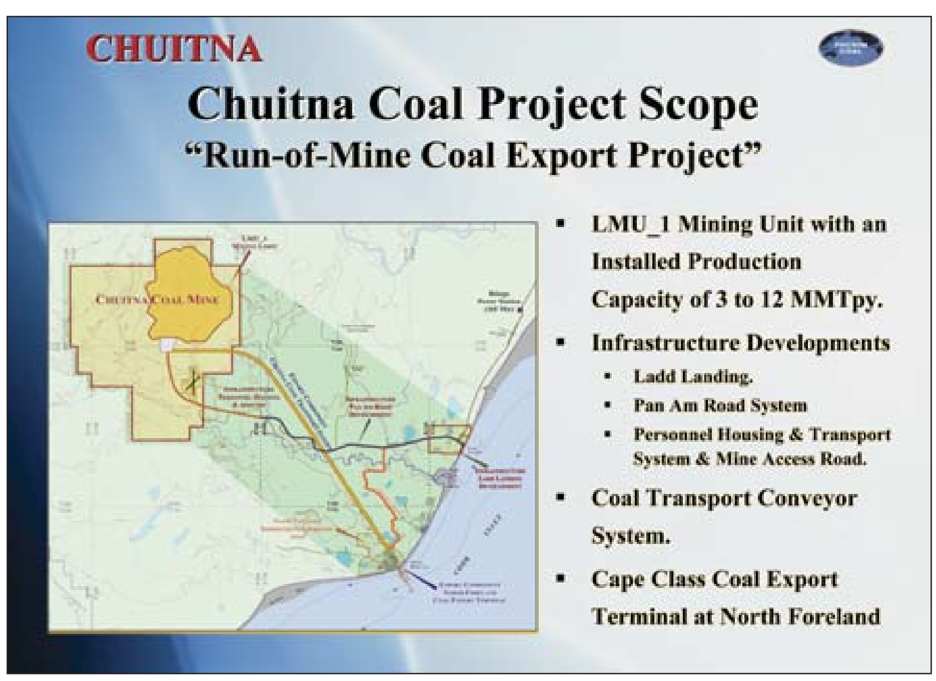
The stars may be in alignment at long last for a huge coal project that has been languishing for decades just 50 miles from Anchorage. Developer Bob Stiles has renewed confidence that a mine will be built to exploit the Beluga-Chuitna coal fields, as he said in a presentation to the Alaska Miners Association convention in Anchorage Nov. 4. (See related story on cover of Nov. 20 Petroleum News.)

The deposit on the west side of Cook Inlet, 10 miles from the Native village of Tyonek, contains an estimated 1 billion tons of sub-bituminous coal reserves, 700 million tons of which is proven. The owners of the property, Texas businessmen Richard Bass and Herbert Hunt, established a company called PacRim Coal earlier this year to develop the mine, contracting with Stiles to manage the project, including the marketing effort.

Stiles recently signed a Memorandum of Understanding with Alaska's Department of Natural Resources for the large mine project team to coordinate all the state permits. The permitting process has been made more complicated by the outcome of a 1987 suit brought by Anchorage law firm Trustees for Alaska against DNR, which was resolved in 1992. "As a result of the Trustees' suit and the Supreme Court ruling, we have to permit all of the parts of the project, not only under all of the typical sorts of permits that you have to get, plus we have the permitting under ASCMCRA (the Alaska Surface Coal Mining Control and Reclamation Act)," Stiles told the convention. "We're working closely with DNR to figure out what that means."

## Road, port, other facilities must be included

The Alaska Supreme Court upheld the argument of Trustees for Alaska that DNR's permit for surface mining and reclamation, originally issued to Diamond Shamrock-Chuitna Coal joint venture, should have encompassed off-site facilities: namely the planned 11-mile access road and adjacent conveyor from the mine site to a port, port facilities, a solid waste disposal facility, gravel pits and a housing facility with an air strip and access road.




"Coal development's unique among the resource development in Alaska, in that in addition to all of the typical NPDES permits, Corps permits, coastal reviews, on and on and on, we also have a regulatory machine just for us … That's unique to coal development anywhere, by the way," Stiles said. "The other thing that is unique in coal development as compared to other resources is that it's market-driven. Coal's not a pure commodity. You can't pick up the Wall Street Journal every morning and see what your product's worth and say, oh, OK, well, we've got an economically viable deal."

## Construction could begin in 2007

Nevertheless, Stiles believes the permitting and economics are doable and that a mine will be developed within the next few years. "All things going well, as they rarely do, we anticipate starting construction in the second to third quarter of 2007 and the first coal goes in the boat fourth quarter of 2009 to first quarter of 2010," he said. "We're talking about maybe 300 to 350 jobs and 150 to 175 people on site at any given time." The mine would operate 24 hours a day, with two 12-hour shifts.

The first person to obtain prospecting permits for the property in the late 1960s was another Texan, Starkey Wilson, who went into partnership with Bass and Hunt. "It's a wonderful resource to develop with beneficial uses," Wilson told Mining News. "It would be a tragedy if it's not developed. I believe very much in it."

In 1990 more litigation came, this time from the Mental Health Trust, a case that dragged on until 1995. This shut down the marketing effort, Stiles told the convention. "It put a cloud on what your future royalties might be, and the last thing you want to be doing is sitting in front of a potential customer in a foreign country and saying, well, we've got this little problem that we've got to work with here, and then you try and explain what the damn problem is, and meantime there's the guys from Australia, Indonesia, South Africa … and the guy sitting across the table from you says, well, you better solve that problem, because I've got other guys waiting, they want to sell me coal today," Stiles said.

## Some 500 holes drilled

Over the years about 500 holes had been drilled in the 20,000-acre area. By 1995 the technology for analyzing the deposit and planning a mine had improved, and a detailed geologic model of Chuitna was developed for the first time. The current plan is to produce 10-12 million tons of coal per year, and possibly up to 15 million tons, according to Stiles. "We'll have storage for about a million tons and hope to God we've never got a million tons in the yard," he added.

Last year the property became embroiled in yet another controversy, this time over Gov. Frank Murkowski's efforts to market the coal to Taiwan, using the unproven KFx technology to remove moisture from it. Alaska's then attorney general, Gregg Renkes, resigned after it was discovered that he owned shares in Denver-based KFx.

"We do not believe that upgrading of the coal is an essential or necessarily a desirable element of the initial development of the Chuitna Coal Project," Stiles told Mining News. "We are aware of the ongoing discussions between the state and Taiwan as they are related to coal … Should a viable project employing coal as a fuel or feedstock result from the discussions between the state and Taiwan, we would be more than pleased to sell them coal."

There is no difference between the quality of the Chuitna coal and the quality of the coal produced by Usibelli, Alaska's only coal mine, Stiles said. "Theirs is high-moisture, ours has been described as wet," he told the convention, provoking much laughter. "Well, that's an incorrect description, wet. As for marketing, we go into business, we knock Usibelli out? Wrong. Us going into business is good for Usibelli as well as us. Alaska is not looked at as a coal-producing region. What those customers in the export markets are looking for are coal-producing regions. So by us going into production and shipping coal, it actually helps Usibelli." ●

● COLUMN

# Mining news update from Curt Freeman: More discoveries on horizon

*Recent Alaska Miners Association conference was one of the most exciting and upbeat in a decade*

Over the course of the last several months, a series of new gold and base metal discoveries have been made. Several of these new discoveries were reported in the last month and highlights of these and other activities were presented at the annual Alaska Miners Association convention in Anchorage in early November. The convention was one of the most exciting and up-beat events in nearly a decade.

The new discoveries are a trend that, while long in coming, are an inevitable result of the increased levels of exploration taking place in Alaska in the last 12 to 18 months.

Earlier this year, a number of companies looking for opportunities in Alaska verbalized a sentiment echoed all over North America — "Where are all the new discoveries?"

The lack of new discoveries was seemingly at odds with the significant increase in exploration that obviously was occurring.

The answer is simple: after 5 years of virtually no new exploration, it takes time for new targeting, funding and exploration activities to generate new discoveries. The recent spate of announcements detailing new discoveries tells me that more discoveries are on the way.

### The author

CURT FREEMAN

The author Curt Freeman, CPG #6901, is a well-known geologist who lives in Fairbanks. He prepared this column Nov. 18. Freeman can be reached by mail at P.O. Box 80268, Fairbanks, AK 99708. His work phone number at Avalon Development is (907) 457-5159 and his fax is (907) 455-8069. His email is avalon@alaska.net and his web site is www.avalonalaska.com.

## Western Alaska

**TECK COMINCO** announced third quarter profits of $106 million at its Red Dog mine. For the quarter, the mine generated 155,600 tonnes of zinc in concentrate and 28,800 tonnes of lead in concentrate. The mine also sold 197,400 tonnes of zinc in concentrate and 56,000 tonnes of lead in concentrate. The increased net revenue was due largely to higher zinc and lead prices which averaged 61 cents and 40 cents per pound respectively versus 45 cents and 43 cents per pound in the third quarter of 2004. The company indicated that shipping of concentrates this season closed on October 21 and totaled 1,000,000 tonnes of zinc concentrate and 56,000 tonnes of lead concentrate. Mill throughput was up 7 percent for the quarter but average grades mined (20.8 percent zinc and 5.7 percent lead) were down slightly over last year.

**NOVAGOLD RESOURCES** and joint venture partner Placer Dome announced drilling results from its Donlin Creek project. Results were derived from 27,000 meters of core and reverse circulation drilling designed to upgrade inferred gold resources to measured and indicated gold resources and to complete geotechnical and condemnation drilling for mine planning. Significant results include DC05-1033 with 4 mineralized intervals totaling 90 meters grading 6.4 grams of gold per tonne including 70 meters grading 7.4 grams of gold per tonne. DC05-1063 returned 7 mineralized intervals totaling 103.4 meters grading 6.7 grams of gold per tonne including intervals of 12 meters grading 16.3 grams of gold per tonne and 20.7 meters of 7.9 grams of gold per tonne. DC05-1065 returned 9 mineralized intervals totaling 258.2 meters grading 5 grams of gold per tonne including intervals of 25 meters grading 10.2 grams of gold per tonne, 29.7 meters of 7.1 grams of gold per tonne, and 65.9 meters of 5.8 grams of gold per tonne. DC05-1018 intercepted 8 mineralized intervals totaling 277.5 meters grading 3.59 grams of gold per tonne including intervals of 64.7 meters grading 5.4 grams of gold per tonne and 28.3 meters of 5.9 grams of gold per tonne. High-grade mineralization remains open at depth within the Acma and Lewis deposits. Data from drilling and geotechnical studies will be incorporated into continuing feasibility study efforts due for completion in 2006.

**NORTHERN DYNASTY MINERALS LTD**. announced additional high-grade intercepts in the newly defined East zone at its Pebble deposit near Iliamna. Hole 5330 entered the mineralized system at a vertical depth of 1620 feet below surface. This hole intersected 2342 feet grading 1.36 percent copper equivalent comprising 0.99 percent copper, 0.26 grams gold per tonne and 0.036 percent molybdenum. The bottom 100 feet of the hole grades 1.67 percent copper equivalent including 1.18 percent copper, 0.26 grams gold per tonne and 0.057 percent molybdenum. Hole 5332 intersected 2367 feet grading 1.41 percent copper equivalent comprising 0.89 percent copper, 0.33 grams gold per tonne and 0.055 percent molybdenum. Included in this intersection is an 817 foot interval grading 1.74 percent copper equivalent comprised of 1.28 percent copper, 0.28 grams gold per tonne and 0.050 percent molybdenum.

**LIBERTY STAR GOLD CORP**. announced completion of field work at its Big Chunk copper-gold prospect near Iliamna. For the season the company completed 99 line miles of induced polarization geophysical surveys and collected 1,702 vegetation samples on 600-foot intervals over 147 miles of grid. The company has completed 10,948 feet of diamond core drilling in 27 holes on the project. Results have not been released.

Liberty Star Gold Corp. also announced acquisition of 23.5 square miles of new mining claims on the Bonanza Hills project. This area consists of a granitic stock intrusive into Cretaceous age sediments. Preliminary samples from this new discovery show strongly anomalous gold with values up to 3.11 ounces of gold per ton. Gold is associated with quartz veins. Previous placer workings are found in one area. Strong alteration is present over a large area and additional stream sediment sampling has been done in order to identify source areas of gold mineralization. Results are pending.

*Hard as it may be to believe, Kinross Gold finally announced preliminary corporate results for 2004 (yes 2004) that included results from its Fort Knox operations in Fairbanks.*

**TNR GOLD CORP**. ("TNR") announced discovery of a new zone of gold mineralization at its Shotgun project in southwest Alaska. Results from six drill holes (1754.3 meters) in the Winchester zone spread more than 1000 meters apart returned anomalous gold values including hole DDH05-32 which was collared in medium grained felsic intrusive that averaged 1.60 grams of gold per tonne over 14.3 meters (including 3.93 grams of gold per tonne over 2.13 meters) from surface to the contact with Kuskokwim group sediments. DDH05-31 intercepted felsic intrusive containing 1.03 grams of gold per tonne over 2.3 meters. Gold anomalies in these holes were associated with anomalous arsenic, bismuth, copper and tungsten. Follow-up drilling is planned for 2006.

**FULL METAL MINERALS** and **FURY EXPLORATIONS LTD.** announced discovery of gold mineralization at their Ganes Creek project in southwest Alaska. Seven holes were completed totaling 1,248 meters. Four different zones were targeted, spanning 2,800 meter of strike length proximal to the Yankee-Ganes fault zone. Significant gold mineralization was encountered at the Katz Zone in hole GC05-54 which intersected 15.2 meters averaging 2.5 grams of gold per tonne, including 7.6 meters averaging 4.5 grams of gold per tonne. Mineralization encountered at the Katz Zone is typified by felsic and mafic dikes intruding hornfelsed sediments. Variable quartz stockwork and sulfide mineralization occurs throughout hole GC05-54, suggesting a strong hydrothermal system in this area. Additional drilling in 2006 will step-out from this intercept and will be focused on locating the source of the high-grade gold-quartz cobbles common in placer gold operations on the project.

**LINUX GOLD CORP.** announced results from geologic mapping and geochemical sampling on the Kiwalik and Peace claim blocks on its Granite Mountain project on the Seward Peninsula. Geochemical sampling included 153 soil samples, 93 rock samples, 45 stream sediment samples, and 31 pan concentrate samples. Results from the Kiwalik claims indicate a north-trending mineralized trend over an 11 kilometer strike that is spatially associated with the eastern contact of the Quartz Creek quartz monzonite pluton and andesitic flows and volcaniclastic country rock. At Kiwalik highlights include 52.3 grams of silver per tonne, over 10,000 parts per million lead, over 10,000 parts per million zinc, 1,256 parts per million copper, 704 parts per million antimony and 83 parts per billion gold. Precious metal zones were sampled with a soil grid placed on veined, brecciated, and oxidized volcanic rock, as well as with grab samples of veined and intensely altered intrusive rock, resulting in concentrations of up to 0.26 grams of gold per tonne, 29.2 grams of silver per tonne, over 10,000 parts per million arsenic and elevated levels of lead, copper, and antimony. A similar linear trend was detected on the Peace claims, where mineralization was found within plutonic (syenite) bedrock over a strike length of 1.7 kilometers. Results include 4.3 grams of gold per tonne, 0.15 percent tungsten, and 230 parts per million uranium in pan samples and concentrations of up to 0.20 grams of gold per tonne, 83.5 grams of silver per tonne, 0.12 percent molybdenum, 6,327 parts per million copper, 1,232 parts per million antimony and elevated lead, bismuth and tungsten in rock grab samples. Additional work is planned for 2006.

**TONOGOLD RESOURCES INC.** released final 2005 results from its Nyac gold project in southwest Alaska. Sampling included over 3,000 soil and 200 rock samples within approximately six square miles. The assay results revealed six gold prospects with disseminated gold potential. Five of these prospects; Bonanza Ridge, Rocky Ridge, Shamrock, Pipe and Wallace are located within a contiguous area of five square

*see* **FREEMAN** *page 13*

● ALASKA

# Division ex-director made lasting reforms

*Bob Loeffler first came to DNR in 1978 and since then has made life easier for miners while protecting public interests*

**By SARAH HURST**

*Mining News Editor*

Alaska's Department of Natural Resources may not have seen the last of Bob Loeffler. When he resigned as director of the Division of Mining, Land and Water in November, it was the third time he had quit the department that he first joined in 1978. He kept returning because he likes the work, Loeffler told Mining News. This loyalty is much like his loyalty to Alaska: He came to the state in 1977 with the U.S. Geological Survey for one year and never left.

The position of director has now been filled by the former deputy director of the division, Dick Mylius, and the ever-humorous Loeffler styles himself "director, emeritus". Loeffler holds a master's degree in civil engineering from Stanford University and a master's in regional planning from Harvard. In his previous hiatus from DNR, in the early 1990s, he worked as planning director for the Exxon Valdez Trustee Council — the federal-state group that disperses funds from the settlement of the Exxon Valdez oil spill.

SARAH HURST

BOB LOEFFLER

Looking back on his accomplishments since he became director of the Division of Mining, Land and Water in 1999, Loeffler told Mining News it would be hubris to claim that he alone was responsible for everything. "I was involved with all of them," he said. "Some I directed much more than others. Most of them I accomplished by trusting a lot of excellent staff with details. And most of them involved the cooperation of the Alaska Miners Association."

The largest mining projects that Loeffler worked on during his tenure as director included Illinois Creek gold mine, Two Bull Ridge coal mine, True North gold mine, Pogo gold mine, Greens Creek tailings expansion and Kensington gold mine.

The following overview of other recent achievements was provided by Loeffler:

### Modernizing mineral location laws and procedures

• Allowing 160-acre claims to be staked by GPS on the township-range grid.

In 2000, the Legislature passed SB 175. This changed the law to allow companies to stake up to 160-acre claims using GPS on township range lines. This is much more convenient for companies staking large claim blocks. Because it fits into township-range lines, it allowed DNR to computerize its record-keeping. This, in turn, decreased state costs and, more importantly, enabled DNR to make accurate claim information available to companies within two to three weeks of claim staking. It reformed the claim-staking system to bring it into the computerized 21st century, while still allowing the traditionally staked claims for those miners who wish to use it. This is a major change in the way mining claims were staked for over 100 years.

• A cure for abandonment.

The 2003 Legislature passed a new law that allows miners who inadvertently err on some of the mining law procedures to pay a penalty and retain their claims rather than losing them. Previously, procedural or late-payment errors in the way that miners recorded a certificate of location or a statement of annual labor, or paid their rent or royalty, resulted in the miners losing their claims.

• Accepting claim payments in the Recorder's Office.

The regulations were changed, allowing miners to pay for claims in the Recorder's Office. Previously miners would have to record claims in the Recorder's Office, but pay claim fees at DNR Financial Services.

### Modernizing reclamation law to accommodate the large mine industry

Alaska's original reclamation law, which took effect in 1991, was designed for placer mines — which were the industry at the time. In 2004, the Alaska Legislature passed SB 283, which changed Alaska's reclamation law to accommodate the needs of large mines. The law:

• Eliminated the upper limit to a reclamation bond of $750 an acre for lode mines (Alaska's large mines). The upper limit still applies to placer mines. Large mines are bonded for their reasonable and probable costs of reclamation, which is routinely more than $750 an acre.

• Provided that interest on the placer mine bond pool be placed back into the bond pool.

• Increased the bonding instruments that companies could use to satisfy Alaska's bonding requirement. As one of the changes, corporate guarantees can now be used as long as the corporation passes tests established in regulation.

• Allowed DNR and the Department of Revenue to establish a reclamation trust fund for individual large mines. This is a mine-specific, interest-bearing account, managed by the state and typically funded by the mining company, to assure reclamation at a specific mine. The first one has been established in the amount of $838,000 for the Illinois Creek gold mine.

### Permitting reform

• Institutionalizing the large mine permit process.

While the process was established for permitting of the Fort Knox mine (before I joined the division), DNR institutionalized the large mine team. It became the accepted method of evaluating, permitting and assuring compliance at the large mines. Alaska now has a well-trained, expert team to work on mining that is as good as or better than any in the nation. It provides service to the industry and assures environmental protection for public resources. State experts include those at DNR, the Department of Fish and Game, the Department of Environmental Conservation and the Department of Law.

* Reforming the cumbersome, inefficient coal regulatory program.

When I became director, the coal program was unable to provide an adequate level of service. It was so slow and inefficient that mining companies feared that a new mine could never get through the process. After reform, which included many staff changes, Alaska now has a program that can provide efficient realistic service to the industry and still protect public values. The first example of this change was the Two Bull Ridge mine — a new coal mine at the Usibelli complex that was permitted within one year. Nationally, one year is an efficient process and resulted in an excellent permit for Usibelli Coal Mine and the public.

* Protecting the placer mine bond pool for federal miners.

Federal bonding regulations threatened to eliminate the ability of small miners to operate on federal land by requiring reclamation bonds that were simply unavailable to most small miners. DNR and the Bureau of Land Management worked together to allow the state's placer mining bond pool to substitute for the required federal reclamation assurance. ●

## JUNEAU

# Kensington Mine cited for creek erosion

Alaska environmental regulators have cited the Kensington Mine for alleged water-quality violations caused by erosion and runoff at its construction site.

Mine developer Coeur Alaska has until Nov. 25 to come into compliance with the law, according to the citation issued Nov. 10.

Failing to comply could lead to civil penalties, or if the mine is found to be criminally negligent, as much as $200,000 in fines, state officials said Nov. 10.

The violation notice stems from a Nov. 3 inspection that was prompted by complaints from the public and a state Department of Natural Resources employee who noticed sediment in a creek that runs next to the mine's construction area.

"We inspected a number of sites, and it was apparent that there were problems at two sites where sediment from construction activity was reaching nearby Johnson Creek," said Lynn Kent, the Alaska Department of Environmental Conservation's director of water, in a written statement Nov. 10.

### Violations stop activities

The company's permit dictates that the company must stop any activities causing water-quality violations.

"We are committed to compliance," said Luke Russell, vice president for environmental services for Idaho-based Coeur d'Alene Mine Corp., which owns the mine.

Russell said the problems have occurred during "very wet periods."

The activity of heavy trucks at the mine construction site is churning gravel into a muddy cocktail of fine particles — basically glacial flour — that is resisting the usual erosion control methods, state regulators said this week.

The problems are most apparent at the mine's access road, which crosses Johnson Creek a couple of times, and at the construction site for the Kensington Mine's ore processing mill, situated just above the creek, state regulators with the state Department of Natural Resources said.

According to the violation notice, test results from water samples taken by the DEC on Nov. 3 showed turbidity results that in two spots were respectively 720 and 1,600 times higher than the water-quality standard for turbidity, or stirred up sediment.

Coeur Alaska will pursue more "robust" methods to keep the material from escaping into waterways, Russell said.

Critics of the mine said the violations are evidence that Coeur Alaska is not living up to its environmental commitments.

"What happens on the ground is never as good as what's on paper. ... It really shows the need for substantial state oversight," said Kat Hall, mining coordinator for the Southeast Alaska Conservation Council.

—THE ASSOCIATED PRESS

*continued from page 11*

## FREEMAN

miles in the central part of the project. The sixth prospect, Saddle Mountain, covers an area of about one square mile to the northeast. All six prospects identified in 2005 had numerous assays over 0.5 grams gold per tonne and multiple returns over 1 grams gold per tonne. Highest soil assay reported was 4.21 grams gold per tonne. Highest rock value is 15.1 grams gold per tonne. Diamond drilling is planned for 2006.

### Eastern Interior

Hard as it may be to believe, **KINROSS GOLD** finally announced preliminary corporate results for 2004 (yes 2004) that included results from its Fort Knox operations in Fairbanks. Gold equivalent ounces produced in 2004 declined by 14 percent to 338,334 ounces as a result of the decision to defer production from the higher grade True North deposit for the first half of 2004. The decrease in ore milled in 2004 was also the result of harder ore from the Fort Knox pit being processed through the mill for the first six months, compared with the blended ore from True North and Fort Knox for the full year in 2003. A slight decrease in total cash costs to $254 per ounce reflects the suspension of mining at True North for the latter half of 2004. The decrease in costs was offset by higher reagent costs and higher labor costs, as increased manpower was required to operate a larger fleet, which included the addition of larger capacity mining equipment. Production in 2005 is forecast to be slightly lower compared to 2004 as a result of lower grades, partially offset by improved recovery rates. Exploration in and around the current pit at Fort Knox included 10,375 meters of new drilling that indicates mineralization remains open to the south and northeast. Additional drilling was conducted in 2005 to resolve this.

**TERYL RESOURCES** and partner Kinross Gold announced drilling results from the Sourdough Ridge zone on its Gil joint venture claims in Fairbanks. The program consisted of 1,560 feet of reverse circulation drilling in 9 holes. Significant results include hole GRV05-490 which intercepted 30 feet grading 2.56 grams of gold per tonne, hole GRV05-491 which intercepted 30 feet grading 4.32 grams of gold per tonne, GRV05-493 which intercepted 10 feet grading 5.12 grams of gold per tonne. Additional drilling is planned once winter conditions set in.

**FREEGOLD VENTURES** announced completion of a trenching program on its Golden Summit project in the Fairbanks District. A series of six trenches (1,270 feet total) were excavated and sampled over an area approximately 400 to 1,400 feet to the south of the Cleary Hill Mine. A total of 248 rock chip samples were collected on 1.5-foot sample intervals along the trench floor. Sampling along the strike of the exposed Wackwitz vein generated 9 chip samples using 5 foot spacing. An additional 31 grab samples were also taken from selected veins. The trenching program extended the known strike length of the high-grade Wackwitz vein (an 18 inch quartz vein with grab samples of 2.9, 3.2 and 12.5 ounces of gold per ton) that was encountered at surface to the west in the 2002 trenching program. The trenching extended the strike extension of the Wackwitz vein an additional 230 feet to the east. Assay results are pending.

**TECK COMINCO** and partner **SUMITOMO METAL MINES** announced that construction at the Pogo mine is 85 percent complete at the end of September and is on schedule for a first quarter 2006 start-up.

Commissioning of some of the process systems has begun and ore is being placed on stockpile for the start-up. Estimated final cost for the project has increased to $347 million due to increased construction and labor costs and unanticipated geotechnical conditions both on surface and underground. Underground development is behind schedule due to poor ground conditions in some areas that have caused a change of location of the underground ore bin and reduced the overall rate of advance. This will affect only the start-up of the underground conveyor system, not the overall mine startup, as trucking of ore to the mill will be used until the conveyor system is completed in the first quarter of 2006.

**ANGLOGOLD ASHANTI** announced a new discovery at its LMS project 15 kilometers northeast of Delta Junction. Phase I drilling has intersected a shallow, west dipping, high grade vein system hosted in metamorphic rocks. The mineralization has textural and geochemical similarities to the Pogo deposit 40 kilometers to the north. Results to date show a broad lower grade system at surface, grading into a high-grade vein at depth with deeper intercepts ranging in grade from 15 to 20 grams of gold per tonne over ~3 meters. The best drill intercept to date was 3.4 meters grading 21.5 grams of gold per tonne. Further exploration on the project will focus on the down dip extension of the system and assessment of a possible second zone at depth (1.5 meters grading 35.4 grams of gold per tonne).

**SELECT RESOURCES CORP.** announced discovery of two new gold-bearing zones at its Richardson gold property near Delta Junction. A total of 556 auger soil samples were collected from an irregularly shaped zone about 8 kilometers long and approximately 0.5 to 1.5 kilometers wide. The soil survey identified at least two new prospects along the trend where anomalous gold is associated with silver, bismuth, and arsenic. Additional soil surveys and drilling are planned for 2006.

### Alaska Range

**NEVADA STAR RESOURCE CORP.** announced results from copper-gold exploration at its MAN Alaska project in the central Alaska Range. The maximum assays for samples collected in 2005 were 2.06 percent copper at the Gezzi prospect, 7.22 grams of gold per tonne at the Broxson Ridge prospect and 42.1 grams of silver per tonne at the Broxson Ridge prospect. Gold at Broxson Ridge is hosted in altered clastic sedimentary rock near a feldspar-phyric granitoid dike. Nearby samples from along a strike length of approximately 1000 meters through the Broxson Ridge prospect contain up to 1.78 percent copper and 4.95 grams of gold per tonne. The other samples were from strongly altered and brecciated picrite 4 kilometers to the east at the Specimen prospect and altered gabbro 6 kilometers east at the Gezzi prospect. The company also obtained core drilling data from a previous explorer, which includes assay results for the five drill holes at the Gezzi prospect completed in 1974. Highlights of this data set include intercepts of 1.31 percent copper over 9 meters and 0.71 percent copper over 21 meters in two separate holes collared in a mineralized trench on the west side of the prospect, and 0.7 percent copper over 8 meters in a third hole collared in a second mineralized trench 300 meters to the east. Gold and silver assays were not conducted on the 1974 drill hole samples. Follow-up work is planned for 2006.

**PIPER CAPITAL INC.** announced final drilling results from the Golden Zone gold project in the Alaska Range. A total of 3,180 meters of drilling was completed in 19 core holes and one reverse circulation drill hole in 2005. Significant results include intercepts grading 2.02 grams of gold per tonne over 41.3 meters and 1.08 grams of gold per tonne over 33.5 meters in Hole 50.5E-1 at respective depths of 99 and 190.5 meters within the GZ Breccia Pipe. Hole 61E-1, located within the Mayflower Zone 300 meters northeast of the GZ Breccia Pipe, intercepted 1 gram of gold per tonne over 4.5 meters at a depth of 27 meters and Hole 43.3E-1, located in the BLT Zone 100 meters to the southwest of the GZ Breccia Pipe, intercepted 1.09 grams of gold per tonne over 7.5 meters at a depth of 67 meters. Following receipt of these results 4 additional holes were drilled in the GS Breccia Pipe and returned significant mineralized intervals in all four holes, with the largest intercepts in hole 47.3E-2. This hole encountered a 124.4 meter intercept grading 4.5 grams of gold per tonne including a 5.1 meter intercept grading 19.74 grams of gold per tonne, 87 grams of silver per tonne, and 0.22 percent copper. Upgraded resources calculations will be done for the project.

**ANGLOGOLD ASHANTI** announced results from exploration on its Terra project in the western Alaska Range. The project contains a number of high-grade gold bearing veins within a structural system that is over 5 kilometers in length. Phase I drilling intersected numerous veins having widths of 0.3 to 5.2 meters with grades ranging from 9 to 140 grams of gold per tonne. The best intercept was 1.1 meters grading 140.4 grams of gold per tonne with 268 grams of silver per tonne. The Terra veins are characterized as banded, epithermal type with an associated arsenic–bismuth-tellurium signature and coarse visible gold. Additional work is planned.

**MAX RESOURCE CORP.** announced that it has completed additional geochemical sampling and data compilation on its Gold Hill project in the Valdez Creek district. Previous work included efforts by Dome Mines Ltd., Cities Services Minerals, GCO Minerals of Houston, Texas, Amax Exploration Inc. and Hemlo Gold Mines (USA). At least 2,550 soil samples, 239 rock samples and 1,905 drill samples have been collected and an unknown number of channel samples taken from 2,900 feet of trenches. The best drill results to date came from hole DDH 77-2 which intersected quartz-molybdenum plus or minus pyrite from surface to 536 feet which graded 0.048 percent molybdenum sulfide with a higher grade interval from 350-500 of 0.094 percent molybdenum sulfide. This area has never been followed up with modern exploration and contains a significant magnetic anomaly that coincides with the mineralization. This area will be explored in 2006.

**GRAYD RESOURCE CORP.** announced sampling across a zone of precious-metal enriched mineralization at its wholly-owned Delta volcanogenic massive sulfide property in the east-central Alaska Range. Two channel samples across a zone of mineralized chlorite schist

*see* **FREEMAN** *page 15*

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● ALASKA PENINSULA

# Metallica chooses 2006 drilling targets

*Toronto junior looking at lightly explored Aleutian, Alaska Peninsula prospects; liking what it sees*

By STEVE SUTHERLIN

*Mining News Associate Editor*

Toronto-based Metallica Resources Inc. has identified targets for its 2006 exploratory drilling program on the Alaska Peninsula, according to Mark Petersen, Metallica geologist and exploration manager. Petersen said Metallica is moving forward under a joint venture agreement with Full Metal Minerals Ltd. regarding Aleutian Islands and Alaska Peninsula properties covering a 150 mile section of the Alaskan Peninsula, which are held by Full Metal under an exclusive option agreement with Bristol Bay Native Corp. and Aleut Corp.

For now, Metallica is focusing on numerous lightly explored porphyry copper-gold-molybdenum and epithermal gold-silver prospects known to be on the 2000 square mile land package.

"Our focus is on known occurrences in the coming years on the front end, but as we move forward on this in the coming years we will be getting out and trying to identify new areas," Petersen said in remarks to the Alaska Miners Association 2005 convention in Anchorage.

Metallica's 2005 Alaska Peninsula exploration program consisted of reconnaissance level geologic mapping, geochemical and geophysical surveys, and mechanical trenching. The primary targets were the Unga/Popof epithermal system in the Shumagin Islands; the Pyramid porphyry — last explored by Quintana Minerals Corp. and Duvall Corp. in 1975 and 1976; Deep Creek — last explored by Bear Creek Mining Corp. in the mid to late 1970s; Kawisgag; and two very large porphyry-related alteration zone anomalies at San Diego Bay and Mallard Duck Bay.

*"The Shumagin vein has resource calculated on it of about a quarter million tons at a pretty healthy grade — around 17 grams gold. The Apollo Sitka mine yielded about the same tonnage at a slightly lower grade."*

**—Mark Petersen**

### Indications promising

The 2005 work has led Metallica to zero in on a handful of targets for drilling that would begin in 2006, including the Shumagin trend and the Apollo header trend, along strike from Apollo-Sitka mines on Unga Island, Petersen said.

"The Shumagin vein has resource calculated on it of about a quarter million tons at a pretty healthy grade — around 17 grams gold," Petersen said. "The Apollo Sitka mine yielded about the same tonnage at a slightly lower grade."

All indications point to a high grade vein potential in the system, Petersen said, adding that Shumagin and Apollo are held by a third party and are not part of the Native land package, but they do demonstrate what might be out there to be discovered.

The Pyramid prospect is a six million year old quartz diorite stock with a 2 square mile phyllic halo and a half square mile potassic core. Drilling in the mid-1970s found gold in the system but it hasn't been thoroughly assessed, Petersen said, adding that while prior drilling focused around the phyllic edges, Metallica's experience at its Chile properties leads it to think most of the gold values will be located in Pyramid's potassic core.

Kawisgag is a seven million-year-old quartz diorite porphyry in a five square mile quartz sulfate stock work system, appearing as a large iron oxide color anomaly, Petersen said. The prospect has never been drilled, he said, adding that the last group in there was Teck Cominco Ltd.

### Notable gold, copper signatures at Kawisgag

This season's reconnaissance sampling at Kawisgag showed a notable copper signature with a strong gold signature in the northern area of the system, he said.

Deep Creek will also get a new look by Metallica. Deep Creek is a quartz diorite stock that was drilled by Bear Creek in its 1970s work. Metallica plans to drill Kawisgag soon, Petersen said.

The gold geochemistry essentially clusters on the porphyry at Deep Creek, however gold values from surface sampling are not as high as those seen at Pyramid, Petersen said.

The first of the giants is the Mallard Duck Porphyry cluster, a very large five square mile alteration color anomaly that is also very old, with roof rocks in 20 million to 27 million year-old range, Petersen said.

Likewise, San Diego Bay, north of Sand Point, is a large alteration iron oxide anomaly, he said. Miocene volcanics there are intruded by quartz diorite dikes and plugs.

"Only two drill holes put into it," Petersen said. "It's a very large area that deserves a lot more follow-up."

### Alaska attractive

Alaska is a mining friendly state, one of the best in the nation to operate in, Petersen said.

Metallica is finding reason to put some of its ample cash to work in Alaska, although at this time much of the company's spare cash is committed to the Cerro San Pedro gold and silver project located in the State of San Luis Potosi, Mexico, he said.

"The state shows a keen interest and concerted organization to develop the business, and Native owners are motivated to develop their lands," Petersen said.

Metallica is just beginning to grasp the enormity of the Alaska Peninsula property, which Petersen said contains even more prospects, beyond those the company is exploring now.

"There is certainly a lot more regional work — regional geology — to go into pulling this picture together," Petersen said. "It's a very large under-explored part of the Pacific Rim." ●

## SOUTHWEST ALASKA

# Pebble projection: More gold, faster

Vancouver, British Columbia-based Northern Dynasty Minerals Ltd. is looking to speed up the rate of mining, and to improve gold recovery at its proposed Pebble porphyry copper-gold project near Illiamna in Southwest Alaska.

Because of the enormous resource, the mine can run at a higher rate, using bigger equipment, said Stephen Hodgson, Northern Dynasty engineer.

As Northern Dynasty revises its resource estimates upward, the estimated mine life increases even as the speed of mining increases, Hodgson said Nov. 4 in remarks to the Alaska Miners Association 2005 convention in Anchorage.

"When you add the extension, the potential extension of the inferred resource, we're approaching 40 years — from 27 years, and of course that's before the extensions of the resource that have just been announced," Hodgson said.

Metallurgical test work this season included four stages of grinding test work and four stages of flotation work, two of which are still in progress, he said.

### Low to medium hardness

"The grinding work is telling us that the deposit is low to medium hardness," Hodgson said. "We're projecting grinding power consumption in the area of about 12.5 kilowatt hours per ton.

"The flotation work is confirming the results that we projected late last year," he said. "We're showing 26 to 28 percent copper concentrate grades, so what this has allowed us to do is to go with very large equipment to achieve the scale of throughput."

Northern Dynasty engineers are also looking at opportunities to improve gold recovery.

"On the gold side we're achieving good gold recoveries but the test work has shown that we can enhance this by installing a secondary gold recovery circuit, Hodgson said, adding that a number of options are being considered.

"We'll be reviewing the gold recovery circuit and assessing it against economic, environmental and socio-economic factors," Hodgson said.

Superlative size is the rule for the processing components.

"The current design is the ore trucks deliver to two large primary crushers, then two primary grinding circuits and each grinding circuit has a 45,000 horsepower SAG mill, the largest ever made," he said. "From the SAG mill (ore) would discharge directly into two 30-foot diameter, 32,000 horsepower ball mills — again the largest ever made — and from this circuit the ore will flow to the flotation circuit at about 140 microns."

After flotation, rougher concentrate would be reground to about 45 microns, cleaned in three stages, and then routed to a molybdenum separation circuit to separate the copper and molybdenum concentrates.

"We're big and getting bigger," Hodgson said. "More importantly is that the higher grade that we're finding is opening up opportunities and options for us that we didn't have even at the end of last year, and those opportunities are something that we're going to be spending some time evaluating."

— STEVE SUTHERLIN

*continued from page 13*

## FREEMAN

recently exposed by a receding glacier averaged 3 meters grading 6.1 grams of gold per tonne, 374.8 grams of silver per tonne, 0.4 percent copper and 14.8 percent lead and 0.6 meters grading 4.7 grams of gold per tonne, 547.3 grams of silver per tonne, 0.4 percent copper and 22.6 percent lead. The nine 0.2 to 0.5 meter long channel samples collected returned assays from 2.85 grams of gold per tonne to 7.53 grams of gold per tonne and 317 grams of silver per tonne to 619 grams of silver per tonne. Mineralization is open laterally beyond the areas sampled. The thickness of mineralization is unknown. It is believed that the zone represents the footwall of a zone drilled in the 1990's known as the LP VMS Zone, which crops out 200 meters to the west of the new samples. The company is seeking joint venture partners to assist in exploring the project.

### Southeastern Alaska

**KENNECOTT** (70.3 percent) and Hecla (29.7 percent) announced third quarter 2005 production from the Greens Creek mine on Admiralty Island. The total cash cost per ounce of silver at Greens Creek for the quarter was $3.05, a significant increase over third quarter of 2004 costs of $1.55 per ounce. The increase in cost is due to rising energy, fuel, supplies and labor costs, as well as ground support rehabilitation efforts in the main haulage ways during the third quarter. The average grade of ore mined during the quarter was 15.37 ounces of silver per ton. During the third quarter the mine produced 1,869,179 ounces of silver, 14,951 ounces of gold, 4,554 tons of lead and 14,113 tons of zinc. Total production costs for the quarter were $5.87 per ounce of silver produced versus $3.58 per ounce for the third quarter of 2004. Underground definition, pre-production, in-stope, mine-operation and exploration drilling at Greens Creek for the year has totaled more than 78,000 feet, with nearly 30,000 feet of that solely dedicated to new exploration. The majority of this drilling was conducted in the recently discovered West Gallagher zone.

**QUATERRA RESOURCES** announced results from a 7 hole, 4,505 foot drilling program at its Duke Island copper – nickel – platinum group element project near Ketchikan. Hole DK0506 at the previously undrilled Raven zone contains the thickest interval of continuous copper mineralization drilled on the property to date, with the interval from 8 to 395 feet averaging 2,035 ppm copper, 56 parts per billion platinum and 59 parts per billion palladium. The 42-foot interval from 33 to 75 feet averages 0.38 percent copper and 644 parts per billion platinum plus palladium. Structural and/or stratigraphic controls for mineralization are poorly understood due to limited bedrock exposures and limited drilling on the property to date (total of 11 holes, 5,972 feet). Additional work is planned for 2006. ●