

TRENCHES

MINERAL, MINING & EXPLORATION NEWS

THE ROAD TO PRODUCTION

FROM PROSPECT TO A PRODUCING MINE (PART 1 IN A 3 PART SERIES)

Yukon is experiencing unprecedented activity in mining exploration and development, so much so that it has been dubbed the “new Gold Rush”. As a result, three hard-rock mines are currently operating in the territory, with others on the cusp of production.

Even with the combined benefits of favourable global metal prices and rich mineral resources in Yukon, the construction of a mine is still a momentous decision. So what exactly does it take to get to the stage of developing a mine in Yukon? For the companies involved, it takes many years of exploration and considerable investments of time and money – mines are massive projects to build and they are very expensive. As for the Yukon government, the department of Energy Mines and Resources works closely with companies to ensure they are aware of and can meet regulatory, permitting and environmental/ socio-economic assessment requirements.

This series of articles will outline, at a high level, the stages that most mines progress through on the road to production, as well as how government and industry have worked together to develop cooperative approaches that allow for safe, responsible exploration and development. Yukon Zinc’s Wolverine Mine is one of the three hard-rock mines currently operating in Yukon and serves as a good example of how a property evolves from an un-explored wilderness area to a producing mine.

Located in the Finlayson District in southeast Yukon, the Wolverine mine is about 280 kilometers directly northeast of the capital city of Whitehorse. “The main construction work was completed in 2009 and 2010 and the mill was commissioned late last year,” says Yukon Zinc Vice President of Environment and Community Affairs Pamela

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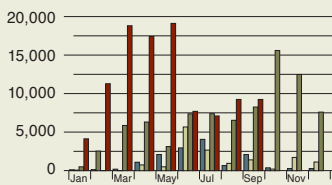
*Yukon Zinc's
Wolverine Mine,
July 2011.*

Mining Statistics

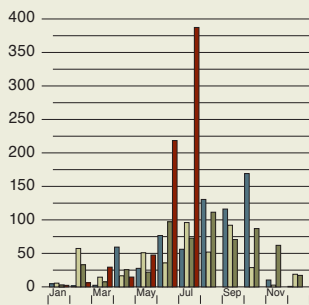
May 2011

- Quartz Claims in Good Standing – 247,918
- Placer Claims in Good Standing – 18,550
- Prospecting Leases in Good Standing – 189

Quartz Staking



Placer Staking



- 2008
- 2009
- 2010
- 2011

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O'Hara. "We are currently ramping up to achieve commercial production in the new year."

Yukon Zinc has been involved in the project since 1999, but the history of the property goes back much further. It was originally staked in 1973, with exploration first conducted in the area in the 70s and 80s by a number of junior exploration companies. It took more than 30 years before the feasibility of building a mine there was fully assessed.

At its most basic level, mineral exploration and development starts with two simple but sometimes elusive ideas. "Optimism and faith are a big part of the mining industry," says Bob Holmes, Director of Mineral Resources at Yukon Energy Mines and Resources. "Ultimately, you're looking for an ore body which is economic to mine. At the beginning, no one knows where that might be."

During the early stages of exploration, prospectors and junior mining companies make great use of regional geological surveys done by the Yukon government. The Yukon Geological Survey collects and provides vast amounts of data on the territory's bedrock, soils, stream sediments, geophysics and so on, all of it open for anyone to utilize.

"Government's role is to provide this kind of basic information and then prospectors and companies do their own follow-up work to determine which areas are most promising," says Holmes.

In the case of the Yukon Zinc property, a number of companies were involved at various times, including Archer, Cathro & Associates, Atna Resources, Westmin, Expatriate Resources and Yukon Zinc. Over the decades, and with several starts and stops, they conducted increasingly extensive and complex

exploration activities. At the same time, the need for reporting, permit applications, monitoring, environmental baseline research, and environmental assessment kicked in at increasingly demanding levels, with the Yukon government involved every step of the way.

"The days are gone when you can just go out and dig in the dirt," says Holmes. "You have to think carefully about how it affects the environment and the people. How you integrate the social dimension into project licensing is a big deal in both the exploration and the mine development stages."

In 2005, Yukon Zinc received its Mining Land Use Permit and a Type B Water Licence and began a nine-month test mining program. "From the start of the test mining program to the completion of the feasibility study, the determination that a mine would be feasible took about a year," says O'Hara. The environmental assessment process also began, with the focus on assessing impacts on a list of key components, including climate, air and water quality, fish, vegetation, wildlife, land use, heritage resources and socio-economic conditions.

Looking back, O'Hara highlights one of the essential factors that has allowed the project to proceed successfully. "It's critical that companies, government, regulators and First Nations work very closely together to have the main permits and licenses secured to avoid potential delays in financing and construction. Effective communications and ongoing consultation between all parties was key to an efficient environmental assessment and issuance of licenses for the Wolverine project."

In the next issue of *From the Trenches*, we'll continue our look at taking a project through the mine development and construction phase. ■

YUKON MINERALS UPDATE 2011 YUKON'S MODERN RUSH DIGS IN FOR THE LONG TERM

Yukon continues to be in the limelight with the previous years' gold exploration successes leading to definition of gold deposits in 2011. Gold is the leading commodity in terms of exploration but silver, base metals and tungsten are the leading commodities in terms of mine development. A number of regions are continuing to attract high-profile attention with two of Yukon's operating mines expanding their reserves and new discoveries continuing throughout the territory. The year has been very exciting so far.

A new 'stake first, explore later' technique is now in play in Yukon. Where companies used to conduct regional reconnaissance-level prospecting and sampling before staking large properties,

they now stake first, based on public data such as regional stream sediment data sets, and do the reconnaissance work after. Much of this year's exploration consists of reconnaissance exploration.

Another significant change in exploration strategy is the higher speed of information gathering in the field. Utilizing on-site analysis methods such as portable geochemical analyzers and specialized software, companies can create digital 3D geochemical models in real time and use these to guide exploration programs. Drill targets can now be chosen quantitatively before assay data is received; what used to take several years to accomplish is now being done in one season.



Soil samples at Kaminak Gold Resources' camp in the White Gold district.

Exploration

After Kinross Gold Corporation's friendly takeover of Underworld Resources in mid-2010, Kinross defined a NI 43-101 compliant resource of 1.5 million ounces of gold in late-2010. Successful definition of the White Gold deposit two years after the 2009 discovery is a testament to the Kinross team and the potential of the White Gold area.

Kaminak Gold Resources' has followed up last year's discovery on the Coffee property in the White Gold area with continued success, such as 74.9 grams per tonne over 4 metres, and is working towards a NI 43-101 compliant inferred gold resource.



Much to the exploration community's delight, new discoveries in the area continue. For example, Pacific Ridge Exploration Ltd.'s first diamond drill hole on its Mariposa property intersected 2.44 grams per tonne gold over a 38.9 metre interval that includes 6.44 g/t gold over an 11.1 metre interval.

ATAC Resources is also continuing its exploration success on the Rackla Gold Project which encompasses over 1600 square kilometres of quartz claims in central Yukon along the north margin of the Selwyn Basin. Highlights of this project include definition of a NI 43-101 compliant gold resource at the Tiger zone expected in late-2011; extensive diamond drilling of the Osiris zone, 100 km east of the Tiger zone and; regional exploration between Osiris and Tiger zones. Recent results from this summer's drilling have been impressive, among them is 3.15 grams per tonne gold over 115 metres.

Exploration companies that defined drill targets in 2010 are now actively drilling while companies new to properties are undertaking extensive soil sampling programs; over 200,000 soil samples are estimated for the White Gold area this year alone.

Companies such as Radius Gold Incorporated and the Constantine Metal Resources – Carlin Gold Corporation joint venture staked ground along the margin of the Selwyn Basin last winter

Bustling activity at ATAC Resources' Osiris Camp.

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*Victoria
Gold's Eagle
Gold project
may become
Yukon's
next hard
rock mine.*



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and are now conducting reconnaissance-level exploration and are defining drill targets for 2012.

Development

Impressive progress has been made by Alexco Resource Corporation on development of the Bellekeno mine which officially opened in May of this year. The mine is now fully operational and is on track to meet its 2011 silver production target of 2.5 million ounces. Further exploration success by Alexco at the Lucky Queen and Onek deposits has increased the total indicated resource on Alexco's properties in the Keno Hill District by approximately 40%.

Capstone's Minto Mine has been in continuous production since 2007. An amendment to the company's mining license has been approved, which allowed Capstone to increase production to 3600 tonnes of ore per day. Minto is also starting underground development with the aim of bringing underground production online late in 2011 or early in 2012. Thanks to recent exploration successes, the total mineral resource at the Minto Mine now exceeds 1 billion pounds of copper which should extend the life of the mine well past its projected seven year life span.

Open pit mining of Victoria Gold Corporation's Eagle Gold deposit and underground mining of North American Tungsten's Mactung deposit are both under assessment by the Yukon Environmental and Socioeconomic Assessment Board which is part of the regulatory and permitting process for Yukon

mines. Western Copper Corporation spent 2011 preparing for the assessment and permitting process for the Casino property in the southern Dawson Range. Selwyn-Chihong Mining Limited spent 2011 preparing for the assessment and permitting process for development of the XY and Don deposits in the Howard's Pass District. Selwyn-Chihong also started an advanced underground exploration program this year with the aim of getting a 30 tonne bulk sample for metallurgical testing.

Yukon's Commitment

The Government of Yukon is committed to continually improving the investment climate by providing regulatory certainty. Supporting the exploration and mining industry continues to be a priority for the Yukon Geological Survey and they have initiated or continued geological studies, such as bedrock mapping, in the Rackla area.

The place to be

Success has been pervasive in every aspect of Yukon's growing mineral industry, including expanding resources at the operating Minto and Bellekeno mines, exploration in the White Gold area, the Rackla Gold Project and a host of other Yukon projects. Two mines are in the assessment process and several other Yukon projects are continuing their economic and environmental studies adding to the number of potential near term mines. 2011 has been an exciting one with mining and exploration clearly establishing itself as one of Yukon's main industries for the foreseeable future.

EMPLOYEE PROFILE:

CAROLYN RELF, DIRECTOR, YUKON GEOLOGICAL SURVEY

Carolyn Relf was first attracted to geology in grade 12 when she took a high school geology course. Her reasons for signing up for the course weren't entirely laudable: the curriculum included a four-day camping trip to Bancroft, Ontario to look at rocks, collect minerals, and, well... to party! In spite of this academically dubious incentive, her teacher was one of those energetic and creative educators who inspired her (among other students) to enrol in a geology program at university. Twelve years and three degrees later, she moved to Yellowknife to work for the Governments of NWT and Canada, where, prior to her move to Whitehorse, she was Director of the Mineral and Petroleum Resources for Indian and Northern Affairs Canada. In this job, she oversaw four



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Government of Yukon

*Logo for
Geoscience
forum:*

*Dawson Rocks
2011 was a
great success.*

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divisions collectively responsible for the issuance of subsurface rights for mineral and petroleum exploration, regulatory advice to industry, and delivery of NWT's geoscience program and services.

The type of work she did in the NWT was very similar to the work carried out by the Yukon Geological Survey (YGS): mapping, geologic studies, training of students, and liaising with industry and communities. In some ways, her career paralleled that of the geologists who are now her colleagues at YGS, except she was working in the shield rather than the Cordillera.

In 2008, Carolyn and her family moved to Whitehorse following the retirement of chief

geologist Grant Abbott. The first things that struck her when she started working at YGS were the professionalism and collegiality of the staff and the strong support within EMR for the survey. After four years on the job, she is still humbled by how much she's got to learn: about Yukon's geology, its industry clients, community interests, and Yukon government processes.

Outside of work Carolyn's favourite pastimes include biking on local trails, playing hockey, cooking, and most recently, dabbling in roller derby. Since moving to Yukon, she and her family have enjoyed exploring the area, with their most frequent destinations being Lake Laberge, the White Pass and the brew pub in Skagway. ■

39TH ANNUAL YUKON GEOSCIENCE FORUM & TRADE SHOW

The Yukon Chamber of Mines is proud to present the Geoscience Forum and celebrate this peak time in the territory's mining, exploration and service and supply industry with you.

November 19 – 23, 2011

2011 marks an exciting time for the Yukon Chamber of Mines and this legendary event, which brings together hundreds of industry delegates to the Forum and thousands of attendees to the Trade Show.



New this year includes a vibrant public participation session to celebrate the modern face of mining. Also at the Forum is a core shack, social events and breakfast with the Yukon's newly-elected Premier. Technical talk sessions will focus on working with First Nations and communities as well as Corporate Social Responsibility.

For more information go to www.yukonminers.ca ■

YUKON ROCKS AT DAWSON ROCKS

Yukon's new rush is generating a lot of excitement through the media, but nothing compares to the energy of gathering a room full of geologists who are actually working in the now fabled Yukon landscape. The Yukon Geological Survey hosted Dawson Rocks on August 10th in Dawson City. It was an exciting open forum aimed at the mineral

explorers and miners working in Yukon. This one day event was very well attended and gave everyone the opportunity to exchange information, view drill core and rocks and discuss exploration and development highlights with their colleagues. Watch for this annual event next August! ■

