



Natural Resources

### Spring 2009

### The Mineral Incentive Program Encourages Exploration

7 83

Helicopter support, Moly Brook property, Tenajon Resources Corp.



Prospecting for uranium, Central Mineral Belt, Bayswater Uranium Corp.



Diamond drilling, Central Mineral Belt, Crosshair Exploration & Mining Corp.

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- Rehabilitation of Historic Mines
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Underground exploration at the Ming zone, Rambler Metals and Mining

## **MINISTER'S MESSAGE**



Honorable Kathy Dunderdale Minister of Natural Resources

The mineral industry continues to be a significant economic contributor and important bright spot for many communities across Newfoundland and Labrador, despite the recent downturn in global markets. We have gone from record exploration spending and mineral shipments in 2008, to announcements of layoffs, summer shutdowns and cancelled expansion projects.

At the same time, initial site preparation work has begun on Vale Inco's hydromet plant in Long Harbour. This project is expected to partially offset the impact this downturn has had on mining employment, and it will provide a tremendous economic boost for Long Harbour and its surrounding areas.

Despite these challenging times, we still have projects moving forward through the environmental assessment process such as the reactivation of St. Lawrence's fluorspar mine and the directshipping ore project in western Labrador. These projects will increase our industry's competitiveness both locally and globally.

We once again had a successful presence at the annual Prospectors' and Developers' Association of Canada (PDAC) conference in Toronto. The professionalism and dedication of the Mines Branch is always lauded at this gathering.

I am pleased that Budget 2009 provides an additional investment of \$620 000 for the Mines Branch this year to increase exploration attraction and mineral promotion. Even during hard times, we feel it is important to invest in keeping people working and exploring, as well as to promote our mineral potential.

We are also getting ready for the 2009 Energy and Mines Ministers' Conference in September. As hosts, we will have the opportunity to demonstrate the potential of our mineral sector and I look forward to showcasing what our province has to offer.

I want to extend a sincere thank you to the employees of the Mines Branch for all your hard work. Your expertise and commitment has significantly contributed to the growth and development of the industry. As we go forward, we will continue to work with industry to ensure the long-term, successful management and development of our mineral resources. Once the economy turns around, Newfoundland and Labrador will still have a vibrant, competitive mining industry with considerable development potential.

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*Note: Currency in Canadian Dollars unless otherwise noted.* 

### MINING SECTOR UPDATE

The mining sector in Newfoundland and Labrador continues to make significant contributions to our economy and quality of life. Gold, copper, zinc, nickel, cobalt, iron ore, and antimony are among the metal commodities now mined in the province. Nonmetal products such as slate, peat, and labradorite are exported to world markets. Aggregates for road building and construction, from the province's numerous quarries, are supplied primarily to local markets, but there is increasing interest in supplying aggregates for export.

The province produced approximately \$4.65 billion in mineral shipments during 2008. Since 2004, there has been almost a six-fold increase in the value of Newfoundland and Labrador mineral shipments. This can be mostly attributed to an increased value of shipments from Voisey's Bay and a higher price for iron ore from western Labrador. A diversification of the minerals produced in the province due to new mine openings was also a contributing factor.

The forecast Gross Value of Mineral Shipments (GVMS) for 2009 at \$3.0 billion is \$1.65 billion lower than in 2008. This is due to a decrease in shipment forecasts at several mines and a general reduction in projected commodity prices. This has been brought on by the global economic crisis that began late in the summer of 2008 and the current recession. It is important to note that \$3.0 billion would still be the third highest GVMS on record for the province.

Direct employment in the Newfoundland and Labrador mining industry is projected to be 4211 person years in 2009, an increase of 186 over the 2008 estimate. The projected employment increase will result from

increased employment at the Voisey's Bay project, offsetting employment reductions at other mines and in exploration.

A database of mining activities and companies in the province is available on the web at: http://www.geosurv.gov.nl.ca/minesen/mines\_commodities/.





#### **ST. LAWRENCE FLUORSPAR MINE REACTIVATION**

n April 14, 2009, Burin Minerals Ltd., now Canada Fluorspar (NL) Inc., registered the document "Reactivation of the St. Lawrence Fluorspar Mine at St. Lawrence, NL" with the provincial Department of Environment and Conservation, for environmental assessment. The federal government will also be undertaking an environmental assessment of the project. The proposal is to reactivate the underground fluorspar mines located at St. Lawrence on the southern tip of the Burin Peninsula. The project includes:

- The underground development of the previously mined Tarefare and Blue Beach North veins.
- Upgrades to the existing mill.
- Construction of a tailings management facility at Shoal Cove Pond, and
- Construction of a new marine terminal in the outer St. Lawrence harbour for the export of fluorspar concentrate.

It is anticipated that the mine will produce between 120 000 and 180 000 tonnes of acid-grade fluorspar annually. Site preparation and construction is scheduled to begin by the spring of 2010, and full operations are to commence by the fall of 2011. The proposed project would create approximately 300 jobs during peak construction and 178 full-time jobs during operations.

On April 15, 2009, Burin Minerals' parent company, Burin Fluorspar Ltd., merged with Rivera Capital Corp. The name of the parent company was subsequently changed to Canada Fluorspar Inc., a publicly-traded company listed on the TSX Venture Exchange. This resulted in Burin Minerals Ltd. changing its name to Canada Fluorspar (NL) Inc.

On April 21, 2009, Canada Fluorspar Inc. announced that the Government of Newfoundland and Labrador has reaffirmed its commitment to provide \$10-million in funding to support the company's plans to design and build a deepwater wharf as part of the reactivation of the fluorspar mines and mill at St. Lawrence. The provincial government's commitment is contingent on several conditions, including evidence of a third-party feasibility assessment that is satisfactory to the provincial government, sufficient financing to establish the fluorspar mine, and confirmed long-term sales contracts. The contribution is repayable in future years. The agreement between Canada Fluorspar Inc. and the Province of Newfoundland and Labrador amends a contract signed in 2000. The amending agreement is conditional upon Canada Fluorspar Inc.'s meeting certain timelines, as well as its providing comprehensive regular updates to the provincial government.

On May 13, 2009, Canada Fluorspar Inc. announced a significant increase in its mineral resources as a result of a new 43-101 compliant technical report completed by Scott Wilson Roscoe Postle effective April 30, 2009. Using a cut-off grade of 20% CaF<sub>2</sub> and minimum horizontal thickness of two metres, the mineral resources of the St. Lawrence property totals approximately 9.1 million tonnes of Indicated Mineral Resources, at an average grade of 42.0% CaF<sub>2</sub> and 950 000 tonnes of Inferred Mineral Resources at an average grade of 31.0% CaF<sub>2</sub>. The mineral resource estimate is based on 169 surface drill holes, of which 60 holes were drilled in 2008. By comparison, the July 2008 estimate included Measured and Indicated Mineral Resources of 5.8 million tonnes at 47.6% CaF<sub>2</sub>, and Inferred Mineral Resources of 160 000 tonnes at 36.0% CaF<sub>2</sub>, with cut-off grades ranging from 26.4% to 35.0% CaF<sub>2</sub>.

### **MINERAL EXPLORATION 2008**

The province's mineral industry experienced another busy year in 2008, with a projected \$138 million in expenditures on exploration and deposit appraisal, down only slightly from the record of \$148 million estimated for 2007 (Figure 1). Claim staking dropped significantly, from 79 206 in 2007, to 33 158 in 2008. This may be a reflection of the very high staking levels of recent years, resulting in large areas with perceived high mineral potential already being under licence.

About two thirds of exploration spending was in Labrador and most of this was on uranium projects in the Central Mineral Belt. Large drill programs were conducted by Aurora Energy Resources at Michelin, Crosshair Exploration & Mining in the Moran Lake area, and Bayswater Resources at Anna Lake. Aurora, and Crosshair, both produced updated resource estimates for their respective projects. Mega Uranium and Silver Spruce Resources also actively explored for uranium in eastern Labrador.

Exploration for nickel and copper continued in several areas of northern Labrador. In the Kingurutik Lake area, Celtic Minerals operated a large program including drilling, and the Benton Resources / Teck Limited joint venture was also active. Nortec Ventures, in joint venture with Vulcan Minerals, conducted additional drilling at their TL property west of Voisey's Bay, while Commander Resources and Benton explored their Sarah Lake and Rim properties farther south. No significant new discoveries were reported by either group; however, some encouraging drill results were reported by Nortec.

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#### **VOISEY'S BAY UPDATE**

Ale Inco Newfoundland and Labrador Limited reported that production from Voisey's during 2008 totalled 77 500 tonnes of nickel, 55 400 tonnes of copper and 1700 tonnes of cobalt. These higher quantities were noted as being the result of good asset performance and continuing above plan ore-grades. Employment is anticipated to increase, from 750 person years estimated for 2008 to 1200 person years for 2009, as a result of the initial construction workforce being required for the commercial hydromet nickel processing plant at Long Harbour.

Vale announced that it will shut down the Voisey's Bay operation including the Ovoid mine and processing mill for the entire month of July 2009. This is in response to existing poor economic conditions and conditions in the global nickel market. However, there is no anticipated negative affect on employment due to the scheduling of holidays and the fact that it is a two-week fly-in and fly-out operation.

Vale has formally notified the province that it will construct a commercial hydromet nickel processing plant at Long Harbour. On January 29, 2009, the province and Vale announced that they had reached an improved Development Agreement for the construction of the plant. Due to its larger size and complexity, the company was granted a 14-month extension for the construction period that results in a new completion date of February 2013. Of the total 8.9 million person hours of employment projected to be generated during construction, the company has committed to a target of 77% occurring in Newfoundland and Labrador. Other commitments by the company include an average annual shipping cap of 55 000 tonnes of nickel concentrate for the next four years, still within the 440 000 tonnes export entitlement, and completion of the second stage feasibility study for underground mining at Voisey's Bay. The total cost of construction is estimated at US\$2.17 billion.

The construction phase of the Long Harbour plant began in April 2009 with an early works program of site clearing, portsite demolition and remediation and the completion of a site survey. Service contracts for temporary offices, security, medical services, temporary power and communications have been awarded.

*continued from page* 4.... In western Labrador, two companies that have advanced iron ore projects are aiming for production in 2009 or 2010. Labrador Iron Mines, and New Millennium Capital, each plan to mine direct shipping (DSO) iron ore from deposits explored and previously mined by the Iron Ore Company of Canada. Both projects have been registered for environmental assessment.

On the Island of Newfoundland, most exploration in 2008 focused on base metals, gold and specialty metals in central and southern Newfoundland. Rambler Metals and Mining is continuing to develop the former Ming copper-gold mine on the Baie Verte Peninsula and has recently published an updated resource estimate; a pre-feasibility study is in progress. Other major drilling programs on base-metal prospects included Thundermin/ Cornerstone at Little Deer (copper), and Royal Roads at Buchans, Messina Minerals at Tulks South, and Mountain Lake Resources at Bobby's Pond (all zinc-lead). Other metals have also attracted attention. On the south coast, Burin Minerals conducted a large drilling program in preparation for a resource calculation at the former St. Lawrence fluorspar mine. Drilling programs were also undertaken by Tenajon Resources at Grey River (molybdenum), and by Playfair Mining at Granite Lake (molybdenum-tungsten) and Grey River (tungsten). Several gold projects in central Newfoundland saw drilling in 2008 including the Viking property by Northern Abitibi Mining, and the Huxter Pond and Appleton Linear properties by Paragon Minerals.

Record metal prices in the past few years have contributed to unprecedented growth in the province's exploration industry, with a number of projects advancing to the pre-feasibility stage. The recent downturn in equity markets will have a negative impact on program spending in 2009, as companies seek to conserve cash. However, it is believed that the strong pace of exploration will resume as market conditions recover.





Figure 1. Exploration expenditures and claims staked.

## MINERAL RIGHTS ADMINISTRATION SYSTEM (MIRIAD)

n February 28, 2009, the province's mineral rights administration system, MIRIAD, reached its fourth anniversary of operations. Since MIRIAD went into service 214 154 claims have been staked representing 3909 mineral exploration licenses. While MIRIAD has performed near flawlessly since February, 2005, two operational issues, identified by the mineral exploration industry, were brought to the attention of the Mineral Claim Recorder's office over the last year.

These issues are: 1) delays in the refresh of the claim-staking grid on Tuesday morning staking rushes, and 2) intermittent bottlenecks – time outs – for some stakers. Through a major effort by the Office of the Chief Information Officer support team, it was determined that the first issue was a result of the MIRIAD server clocks being out of synchronization, and the second issue a result of networking problems within the Natural Resources Building. Both issues are now resolved.

## MINERAL EXPLORATION APPROVAL MANAGEMENT SYSTEM (MEAMS)

n April 29, 2008, the government announced budget approval of \$500 000, over a two-year period, to develop and launch an on-line mineral exploration approval management system (MEAMS). MEAMS will consist of two main modules: 1) an on-line application module that will allow applications for mineral exploration approval to be completed and submitted on-line (directly or with the use of a template), and 2) an in-house mineral exploration maintenance module.

Work is progressing well on the MEAMS project. A comprehensive document outlining the requirements of industry has been produced as a result of government-industry consultations. Various provincial government permitting forms and the application for mineral exploration on Labrador Inuit Lands have been combined into one all-inclusive application form. Computer programming and other system design functions is about 80 % complete.

System design and development is ongoing and testing is to commence mid 2009. Scheduled to be launched on April 1, 2010, MEAMS will be the one-stop shop for most permits required to complete mineral exploration in the province. As well, applicants will be directed to forward the payment of any permit fees to the Mineral Lands Division. Upon receipt, all payments will be placed in the correct revenue stream by the Accounts Division of the department.

It is anticipated that with the introduction of MEAMS, the turnaround time for the issuance of mineral exploration approvals will improve greatly. Personnel of the Mineral Lands Division are planning presentations and demonstrations of MEAMS this summer.

## **GEOLOGICAL SURVEY DIVISION FIELD PROJECTS**

The addition of \$1 million a year to the Survey budgets for 2008 through 2011, combined with the recruitment of several new project geologists, means that the Geological Survey will be mounting its most extensive field season in at least a decade, with 14 field projects planned, employing over 20 summer students.

#### LABRADOR

*Tim van Nostrand* will be working on the Seal Lake Group rocks again this year, with a 2-month field season planned, and the assistance a 4-person field crew. This is the second year of this 1:50 000 scale bedrock mapping project, in an area of numerous mineral occurrences.

New hire *Peter Valley* will spend 2 months mapping the bedrock in the Knox Lake area, north of the Smallwood Reservoir. The area has been previously mapped only at a reconnaissance scale. It is part of the Churchill Province and has few known mineral showings - the area to the north in Québec is considered prospective for gold and base metals. The project is part of a collaborative effort with the Geological Survey of Canada (GSC), and the Québec geological survey. The GSC has flown a detailed aeromagnetic survey in this area over the winter, and the Québec geological survey will have a mapping crew across the border in Québec.

Geochemist **Steve Amor** will also be working in the Knox Lake area, with the assistance of a helicopter-supported, 4-week detailed lake-sediment sampling project. (Also, see below).

*Greg Sparkes* will continue his work in the Central Mineral Belt, studying uranium mineralization. This will be the final field season of this project, and Greg will be visiting various showings and prospects; this project is based out of Goose Bay. A 2-month field season is planned, with the objective of completing surveying and sampling in the Central Mineral Belt. Areas of interest elsewhere in Labrador, accessible by road, will also be examined briefly (e.g., the Labrador Straits area).

*Charlie Gower* is planning a short field season, taking advantage of road construction in southern Labrador to field check his major compilation map for the eastern Grenville Province.

#### NEWFOUNDLAND

*Ian Knight*, with palaeontological support from *Doug Boyce*, will finish mapping of the Lomond (NTS 12H/05), Pasadena (NTS 12H/04) and adjoining (NTS 12H/03 and 06) map areas. Both geologists will also spend time on the Port-au-Port Peninsula examining stratigraphic problems. These studies of the Cambrian–Ordovician clastic-carbonate terrain of western Newfoundland are important to the emerging onshore and nearshore petroleum exploration efforts, as well as to uranium exploration.

*Alana Hinchey* will be working in the Long Range Mountains in the Silver Mountain area (parts of NTS 12H/11, 14). Recent road construction has greatly improved exposure in the area; therefore, much will be gained by updating the geological mapping and rock sampling of these poorly known rocks. The area also contains an active gold exploration project. This is a 3-month field project, based out of western White Bay.

*Brian O'Brien* will conclude mapping of the Catchers Pond Group and adjacent rocks through a 3-month field season in the Kings Point area. This is an area of considerable structural complexity and high mineral potential. Understanding the structure, chronology, and lithogeochemistry of this area will lead to an improved understanding of the geological history, and will be of benefit to mineral exploration.

*Jennifer Smith* will continue the Red Indian Lake Basin surficial mapping and till geochemistry project. This project began in 2007, as a result of increased mineral exploration activity in the Tulks Volcanic Belt. Mineralized boulders, found in thick glacial drift, have created a demand for a better understanding of the paleo ice-flow history to aid in the exploration, and possible discovery of, new resources. This program will provide support to the current exploration efforts and may also stimulate mineral exploration activity in more inaccessible parts of the area.

*Denise Brushett* will start a new project in the Gander area. This project will provide a Quaternary geology framework for the evaluation of geochemical data collected in the field to support mineral exploration. The study area is prospective for mineral exploration, particularly gold, and could be assisted by detailed surficial mapping. The 2009 field component will focus on sampling and mapping in areas north and east of Gander Lake that have not been surveyed in previous surveys, and will include sampling of tills for geochemistry.

*Hamish Sandeman* will embark on his second field season examining gold metallogeny in central Newfoundland. Information on gold-mineralizing environments in some areas was studied in previous Survey projects, but many other areas remain to be surveyed, and some geological aspects of gold mineralization remain poorly understood. There are presently several areas in which new styles of mineralization may occur, or in which renewed exploration provides important new information for reassessment.

There will be two projects focusing on the Bonavista Peninsula (Leon Normore and John Hinchey) this summer.

*Leon Normore* will be mapping the bedrock of NTS map areas 2C/11 (Bonavista) and 2C/06 (Trinity). This remapping and detailed analysis of the Conception, St. John's and Signal Hill groups, within the previously designated Musgravetown Group areas, will complete the project started by Sean O'Brien. The area has considerable interest for geotourism following the discovery of soft-bodied Ediacaran fossil assemblages, but also has potential for sediment-hosted copper mineralization.

*John Hinchey* will investigate the copper mineralization in the Bonavista area. From the late 1990s to about 2004, there was industry interest in these deposits on the Bonavista Peninsula. Although no economic discoveries were made, it is anticipated that there will someday be renewed interest in this deposit type as an exploration target in Newfoundland. Compilation of previous work, and its augmentation with focused research that will link industry data, will significantly aid such efforts. John will be spending approximately 2 months in the field.

*Jerry Ricketts* will continue evaluating granular aggregate potential in eastern Newfoundland this field season. A 3-month project will concentrate on NTS map areas 1N/12 and 1N/13, between Whitbourne and Clarenville. Data provided from this project will not only be useful for construction projects within the immediate study area, but may also be used in the northeast Avalon Peninsula, Clarenville, and may have potential for use in the next concrete oil production platform, proposed to be built at Bull Arm.

*Steve Amor* will be conducting field work as a contribution towards the North American Soil Geochemical Landscapes Project, a tri-national initiative between the USA, Canada and Mexico. This was established to meet the need for soil geochemical data by providing a consistent national and continental-scale framework and database. Steve will be sampling over a wide area of the province to assist in the compilation of this major geochemical dataset.

## **GEOSCIENCE AND MINERALS OUTREACH**

Bethany Croke, a Grade 4 student at Immaculate Conception, Colliers, won the prestigious Parks Canada Award at the 12<sup>th</sup> Annual Avalon Historica Fair in Bay Robert's on May 2, 2009. Bethany's project was one of 175 entries displayed by students from Grades 4 to 9 on the Avalon Peninsula who attended the two-day event from schools across the Avalon. As part of the judging criteria, communication skills received top scores and Bethany exhibited a high familiarity of her winning project entitled, "Mattie Mitchell: A Newfoundland Legend".

Bethany's winning project highlighted the life of the well-known prospector and his discovery of base-metal mineralization along the bank of the Buchans River in 1905. Her research also emphasized map making, the 'reindeer drive' and other interesting facts about the trapper and guide. As part of her award, Bethany's project will be on display in Brigus this summer for the *Celebrating Bartlett 2009* festivities.



Grade 4 student Bethany Croke with her awardwinning project at the Avalon Historica Fair.



A sample of massive Buchans ore, courtesy of the Geological Survey Division, on display at Bethany's project.

Outreach geologist, **Amanda McCallum** of the Geological Survey Division, provided to Bethany a sample of the Buchans ore: massive galena and sphalerite from the MacLean's extension, which was also displayed with the student's heritage project. Bethany is one of many students, teachers and the general public clients to avail of the services provided by the creation of this new outreach initiative. One of the many outreach goals is to raise public awareness of the geological sciences, Newfoundland and Labrador's geological heritage, as well as to provide geoscience and mining industry information. It is invaluable for the public to be informed about the nature and economic benefits of the province's natural resources, particularly in terms of mining, and Bethany's project is an exemplary illustration of students benefiting from this new service. Although Mattie Mitchell did not live to see the successful development of the world-class Buchans mine, students such as Bethany gain tremendous insights about the rewards of his prospecting discovery.

## PROSPECTORS CORNER: CANADA'S YOUNGEST PROSPECTOR

rowing up in a family whose prospecting tradition spans four generations, is there any wonder that Shane Stares took to the outdoors and prospecting with immense excitement and passion? At a very young age, Shane accompanied his father, Sandy Stares, and his grandfather, Bob Stares, and various uncles and cousins on numerous prospecting trips around the province.



Shane Stares, age 13, with his father, Sandy, prospecting at H Pond, west of Gander.

Shane was born in North Bay, Ontario in 1989, but grew up in Benton, near Gander. At just 12 years, Shane started prospecting with his father and second cousin, Rick Crocker. Both relatives prospected for Rubicon Minerals in central Newfoundland from 2002 to 2007. When school ended each summer, Shane worked for Rubicon Minerals and Paragon Minerals. Since graduating from high school in 2007, Shane has prospected full time for Stares Prospecting Ltd. and has also done contract work for Metals Creek Resources, Benton Resources, and Paragon Minerals. His prospecting has taken him all over the island, to an area north of Nain, Labrador, and many parts of Ontario.

Shane's prospecting activities led to the discovery of the first goldbearing quartz boulders at the Pocket Pond prospect, located west of Gander and held by Paragon Minerals. He also successfully prospected on Paragon's H Pond gold project west of Gander. As well, he assisted with sourcing the mineralized boulders leading to

the Lake Douglas base-metal prospect.

In Ontario, Shane was involved in prospecting on the Gem Property north of Thunder Bay and in the Bark Lake area of northern Ontario. The prospecting targets were high-grade nickel, copper and PGEs for Benton Resources, a company headed up by his uncles, Steve and Mick Stares.

In 2008, Shane completed the Prospector Training Course at the College of the North Atlantic in Stephenville. As a graduate, the Newfoundland and Labrador Department of Natural Resources designated him as a Genuine Prospector.

Topping his achievements in such a short time, he was the youngest member of the Keats/Stares/Barrett/Crocker/Smith families to be awarded the PDAC'S Bill Dennis Prospector of the Year Award for 2007, and the CIM Newfoundland Branch Special Achievement Award for 2007.

At only 19 years of age, Shane's ambition, like that of his father, who is the president of Metals Creek Resources, is to find a world-class mineral deposit and to be the president or CEO of his own mineral-exploration company. We wish Shane well in pursuing his dreams. Shane says, " I enjoy every aspect of prospecting - the excitement when you find something and the work involved in finding it. It makes it all worthwhile. I really like working in the bush it; it keeps me in shape. I've also enjoyed working with the guys who have been in this field of work for a very long time. Their knowledge, experience and constant drive to find that great showing just inspires me more. I even enjoy talking to these guys about rocks and have my own private collection." There is little doubt that Shane is truly Canada's youngest prospector.



Shane, age 19, at Mount Misery, Betts Cove.

## REHABILITATION OF HISTORIC MINES IN THE BAIE VERTE AREA

The former Baie Verte Mines asbestos mine and mill operated from 1963 to 1994, and processed over 49 million tonnes of ore to produce 1.6 million tonnes of asbestos, leaving behind 190 million tonnes of waste rock and 47 million tonnes of tailings on site. In November 1996, the site and infrastructure left in place became the property of the Crown, pursuant to Section 36(2) of the Mineral Act, and the responsibility for the management of the site and assets was assigned to the department.

The former Consolidated Rambler property (Rambler), consisting of four mines (Main Mine, East Mine, Big Rambler Pond and Ming Main) and a concentrator, operated from 1964 to 1982 and periodically from 1995 to 1998. Over the mine's life, a total of 4.3 million tonnes of ore was mined and milled, and 3.8 million tonnes of acid-generating sulphide tailings remain at Rambler. The mineral and surface rights have since returned to the Crown.

A \$10.1-million, three-year preliminary rehabilitation work program for both sites was approved by Cabinet and announced in the 2007/08 budget. The program's ultimate goal is to gather sufficient information to make a decision on the feasibility and affordability of full rehabilitation of the sites while addressing immediate safety issues, in part through demolition of infrastructure. The 2009/10 budget includes \$7.8 million to complete the three-year program, of which Jacques Whitford Limited is the Project Manager.

At Rambler, all chemical reagents and PCBs that were on site have been removed and properly disposed. The tailings dams have been inspected, with some follow-up hydrological work to be completed this year. The mine openings were fenced and or capped and all buildings except the maintenance garage and the crusher/mill buildings have been demolished. These last structures will be demolished and removed in fiscal 2009/10.

At Baie Verte Mines, the port warehouse and primary crusher buildings have been demolished. Air quality monitoring at the mine site limits, and within the Town of Baie Verte, is ongoing with all reported results indicating that there are no asbestos-related air quality issues. An assessment of the stability of pit slopes adjacent to the La Scie Highway is ongoing to address concerns of the local residents regarding potential impact to the highway from a pit-slope failure. In this fiscal year, all remaining site infrastructure will be demolished and a barrier/ fence will be constructed around the open pits.

The department has also repaired/replaced the fencing around the open pits at the former Buchans mine, demolished several structures at the former Whalesback mine, and has completed the rehabilitation of the former barite mine at Collier's Point.

## HISTORIC MINE SPOTLIGHT: THE LITTLE BAY MINE

We can well imagine Robert Colbourne's excitement when he discovered copper mineralization at Little Bay, in the spring of 1878. Unfortunately for him, 1878 was near the peak of the great Notre Dame Bay copper boom and much of the land in Notre Dame Bay, including the Little Bay area, was under lease to various mining ventures and speculators. The property owners, Dr. H. Eales of London and A. Guzman of the Betts Cove Mining Company, moved quickly to get the Little Bay Mine up and running. They leased the property to Baron Francis von Ellershausen, part owner and manager of the Betts Cove Mining Company.

With Ellershausen, as manager of the operation, construction of the mine and housing were completed to the point that mining began in the second half of 1878. In January of 1881, Ellershausen sold the Betts Cove Mining Company holdings to the Newfoundland Consolidated Copper Mining Company Limited, and the Little Bay Mine was the centrepiece of the deal. In the summer of 1883, the Company installed crude smelters at the Little Bay Mine to reduce the ore to a regulus of 32% copper. Smelting capabilities were installed in 1887 that further refined the ore into copper ingots. This process proved so lucrative that all production at the mine was handled in this way.



The Little Bay Mine, circa 1890.

Through the 1880s, the world was undergoing a transformation and electricity was one of the leaders of this transformation. Copper, being one of the main ingredients for transmission of electricity, was becoming more valuable. As a result, copper mines began to spring up all over the world to meet the new demand. Eventually, the inevitable happened: production began to outpace demand and in 1889 the copper market collapsed. The effect of the collapse rippled through the copper mining industry. As copper prices remained low, the Little Bay Mine finally closed in 1894, ending the first episode of mining at Little Bay.

By 1897, the price of copper had rebounded to the point where there was renewed interest in the dormant Notre Dame Bay copper mines. Joseph H. Collins incorporated the Newfoundland Copper Company Limited in 1898 and reopened the Little Bay Mine and smelters. The mine operated until a large forest fire in 1904 destroyed much of the town, mine workings and mine records, ending the short second episode of mining at Little Bay.

From 1905 to 1955, several exploration projects were carried out on the Little Bay Mine property. In 1955, Reid Newfoundland Company Limited optioned the property to New Highridge Mining, which subsequently partnered with O'Brien Gold Mines. In less than one year, their drilling produced indicated reserves of 2 368 000 tonnes of 2.1% copper to a depth of 472 m. They exercised their option to purchase the property and then sold it to Atlantic Coast Copper in 1957. Atlantic Coast Copper started exploration development work in 1958, and had gathered enough information to make a positive production decision in 1959. Construction of the mine, mill and dock followed. Production began in 1961 and the mine was worked continuously until 1968. In 1968, extensive drilling was completed without encouraging results. In October of the same year the crown pillar, weakened by mining activity, collapsed. This ended the Little Bay Mine's third and final episode of mining.

Little Bay Mine's first and second episodes of mining, 1878-1894 and 1898-1904, produced up to 545 000 tonnes of better than 2.5% copper. These are estimates because records were lost during the fire of 1904. The third episode of mining, 1961-1969 resulted in production of 2 571 977 tonnes of 0.8 to 2.0% copper and 195 kg of gold.



The Little Bay Mine head frame, circa 1960.





The market for base metals, including copper, has witnessed an appropriate response to changes in market conditions since the economic expansion that began in 2002-2003 came to an abrupt end in 2007-2008.

Mining companies have curtailed copper production and end users of the metal, such as the construction and automobile industries, have reduced copper consumption as consumers demanded fewer homes, cars, and other durable goods. In Canada, Campbell Resources ceased all operations at its Copper Rand mine, located in the Chibougamau

region of Québec on December 31, 2008. The closure has removed between 1 and 2 million pounds of copper metal from quarterly North American production.

Metal consumers have also had their own share of disappointments. General Motors sales fell 49 percent in the first three months of 2009 as overall USA auto sales fell to a 27-year low. Auto manufacturers have responded with production cuts, again reducing demand for many metals.

The National Bureau of Economic Research in the United States has declared that December 2007 marked the beginning of the current recession. That an impact should be felt in the copper market is obvious and price is the ultimate proof. Copper was a bit slow



to respond to the changing economic times with prices defying the markets until about June or July, 2008. By December, copper prices fell to about US\$1.30 /lb. Mine closures, along with China's restocking cycle that sees state authorities buying regularly until May, are factors behind copper's spring 2009 rise to just over US\$2.00 /lb.

## **ENHANCED MINERAL INCENTIVE PROGRAM**

#### GENERAL

The Department of Natural Resources' Mineral Incentive Program (MIP) is a \$3-million financial incentive program that offers non-refundable grants to individuals and companies to explore for minerals in Newfoundland and Labrador. The program has three main components: Prospectors Assistance (PA), Junior Exploration Assistance (JEA) and Natural Stone Assessment (NSA).

The \$400 000 Prospectors Assistance supports resident prospectors through non-refundable grants of up to \$6000, for traditional, grass-roots prospecting on Crown lands or lands staked in the prospector's name.

As well, the department, in conjunction with the Bay St. George Campus of the College of the North Atlantic in Stephenville, conducts a two-week Prospectors Training Course every year. The department is now offering a similar course in Happy Valley–Goose Bay. Instructor Larry Hicks, who in 2009 marked his 19th year teaching the course, considers prospecting to be an integral component in the mineral industry of the province. Hicks put it this way, "Prospectors have proven to be the life-blood of the exploration industry in Newfoundland and Labrador. Prospecting families like the Keats and Stares and individuals such as Paul Crocker, Cyril Reid, George Lannon and others have made significant dis-

coveries that have attracted junior companies and led to exploration plays and in some cases the development of mines."

There are many graduates of the Prospector Training Course that are still active in the industry today. Who knows if the next big discovery will be made by a veteran prospector or a recent graduate of the course? Prospectors receive mentoring and guidance from the Matty Mitchell geologist, Pat O'Neill, and from geologists of the Geological Survey and other divisions of the department's Mines Branch.

The Junior Exploration Assistance budget is \$2 300 000. This funding is to defray 50% of approved eligible costs, to a maximum of \$100 000 on the island and \$150 000 in Labrador, on exploration projects conducted by individuals or junior mineral-exploration/mining companies registered to do business in the province.



Former Minister Jerry Dinn presents first Prospector's Grant to Albert Chislett, December 9, 1988.

The Government of Newfoundland and Labrador is encouraging the development of dimension stone, building stone and industrial minerals through the Natural Stone Assessment program. \$25,000 is allocated toward providing non-repayable grants to cover 75 % of the cost of exploration and resource assessment on stone prospects, up to a maximum of \$50,000 per project.

#### HIGHLIGHTS

Under PAP, a total of \$161 000 was granted to 53 prospectors in 2008; seven of these projects were conducted in Labrador.

A total of 20 grants were awarded under JEA. The total expenditures through grant allocations and industry contribution were close to \$10 million. This component was fully subscribed in 2008 and there were more applications submitted than there are available funds.

#### ENHANCED PROGRAM

On March 3, 2009, it was announced that funding for the Mineral Incentive Program would be increased by \$500 000 to a record \$3 million for the current year. Given the downturn in the exploration industry, it was recognized by government that extra funding was necessary to help sustain exploration projects. Each dollar in funding distributed by MIP leverages

approximately \$3 from private industry, keeping exploration workers in the province, providing employment in rural areas and advancing projects that have the potential to become the province's next mine.

Gerry O'Connell, Executive Director of the Newfoundland & Labrador Chamber of Mineral Resources says that the industry recognizes the importance of the MIP to the province: "The province's Mineral Incentive Program is the best direct incentive program in Canada. It provides our prospectors and junior exploration companies with a powerful tool to attract partners to their projects and it will help to keep locally-based junior companies exploring through the current global recession".

The increased funding will be split between the PA and JEA. PA will receive an additional \$100 000, increasing its budget to \$400 000 and the total JEA budget to \$2.3 million. The additional funding for prospectors assistance has resulted in the maximum grant increasing by 50% to \$6000. It is hoped that the increased funding will encourage new and experienced prospectors alike to conduct more exploration. 2009 will also see the reintroduction of advanced prospector grants of up to \$12 000. These grants are intended for experienced prospectors who wish to perform detailed work to make a property more attractive to potential joint-venture partners.

#### HISTORY

The origin of the current Mineral Incentive Program can be traced to 1988 when the Mineral Industry Assistance Program (MIAP) was established as part of the federally-funded Newfoundland Mineral Development Agreement, and subsequently the Canada-Newfoundland Cooperation Agreement on Mineral Development. The program focused principally on grants and training for prospectors and funding for infrastructure and feasibility studies. In 1992, a component known as Newfoundland Exploration Assistance Program (NEXAP) was added to counter a marked decline in exploration activity being carried out in the province. NEXAP provided grants of up to \$80 000 to companies engaged in exploration, on a 50/50 cost-shared basis.

After a three-year hiatus, a new Mineral Incentive Program was announced in 1999. It had a total annual budget of just over \$2 million for three components: the Prospectors Assistance Program (PAP), Junior Company Exploration Assistance Program (JCEAP) and Dimension Stone Assistance Program (DSIP). Aside from name changes to the components, the Mineral Incentive Program continues today. Over \$18 million in funding has been allocated to prospectors and junior companies since 1999.

### **APPOINTMENTS**

**ROBERT THOMPSON** is the new Deputy Minister of Natural Resources, effective December 24, 2008. Previous to this position, he served as Secretary to Cabinet (Health Issues), Clerk of the Executive Council, Deputy Minister of the Department of Health and Community Services, and Deputy Minister of Tourism, Culture and Recreation. He replaces Chris Kieley, who joined Nalcor Energy, the province's energy corporation, as Vice President, Strategic Planning and Business Development.

**VANESSA NEWHOOK** is the new Assistant Deputy Minister, Royalties and Benefits, effective April 2009. Prior to joining the department, she was Executive Director of Planning and Co-ordination with Executive Council. She replaces Julia Mullaley, who was appointed Assistant Deputy Minister, Business Investment, with the Department of Business.

**TINA WILLIAMS** is the department's new Communications Specialist for the mines and energy branches, hired in December 2008. She holds a Bachelor of Arts in English from Memorial University and a Bachelor of Public Relations (Co-operative) from Mount Saint Vincent University.

**MARTIN BATTERSON** was appointed Senior Geologist in the Geochemistry, Geophysics, and Terrain Sciences Section in the summer of 2008. Martin has Masters and Doctorate degrees from Memorial University and has worked with the provincial government since 1983. He has extensive experience with surficial mapping, Quaternary geology and till geochemistry in Labrador and Newfoundland.

The Geochemistry, Geophysics, and Terrain Sciences section has been strengthened with two new project geologists, **STEVE AMOR** and **DENISE BRUSHETT**. Steve joined the Survey in January 2009, after many years of experience as an exploration geochemist in Canada and internationally. He has an undergraduate degree from Imperial College, London and a Doctoral degree from Queen's University, Ontario. Denise joined the Survey in February 2009. She graduated from Memorial University with a Masters degree in 2007 and has been working in industry. Denise has a strong background in surficial and Quaternary geology, and will be starting a project in the area north and east of Gander.

**HAMISH SANDEMAN**, who hails from St. John's, returned to Newfoundland last summer from the Northwest Territories. Hamish has a Masters degree from Memorial and a Doctorate from Queen's. He has extensive experience in mapping complex bedrock terrain, having worked for the Nunavut Geoscience Office and the Northwest Territories Survey. Hamish has joined the Mineral Deposits Section and initially will be working on gold metallogeny.

**LEON NORMORE** joins the Regional Mapping section and will be working on the Bonavista Peninsula. Leon has a strong background in clastic sedimentology, completing a Masters degree at Memorial University, and also has been working as an exploration geologist prior to joining the Survey.

**PETER VALLEY** is in the final stages of completing a doctorate at Memorial University. Peter has a diverse geological background, with considerable expertise in structural geology and isotope geochemistry. He joins the Regional Mapping Section, and will be working in western Labrador this summer.

**AMANDA MCCALLUM** has been appointed to a new position within the Geoscience Publications and Information Section, dealing with geoscience and mineral outreach. Amanda has a degree in earth sciences from Memorial University and also has an education degree. She joined us from the Johnson GeoCentre, where she was chief interpreter.

**PAULINE HONARVAR** re-joins the Survey after an extended period working in the private sector. Pauline has a Masters degree from Memorial University and will bring her considerable experience in GIS and data management to the Geoscience Data Management Section.

**GILLIAN SIMMS** is providing additional GIS support to the Survey. She has a Bachelor's degree from Memorial University and a GIS diploma from COGS in Nova Scotia. She previously worked for the Survey as a summer student. The MODS group has been strengthened by the addition of two geologists, **DOROTHEA HANCHAR** and **HEATHER RAFUSE**. Dorothea has a Masters degree from Vanderbilt University (Tennessee), and has previously worked with the US Geological Survey. Heather has an earth sciences degree from Memorial University, and also worked with the Survey as a summer student.

Geological support for the Regional Geology Section is provided by **LORI COOK**. Lori has a Masters degree in geology from Acadia University (Nova Scotia), and was previously working in offshore geophysics before joining the Survey.

**ANDREA MILLS** joined the Mineral Lands Division in September 2008. Andrea is responsible for reviewing assessment reports and brings with her a wealth of knowledge from her former position with the Northwest Territories Geoscience office.

**SHARON TRACEY**, on February 17, 2009, was appointed to the permanent position of Clerk – Typist III in the Mineral Development Division, reporting to the Director. Sharon has had many years of experience working in the Department of Education.

**JOHN E. CLARKE** has recently re-joined the Mineral Development Division, upon completing a-leave-ofabsence, working in the uranium exploration industry. Effective April 7, 2009 until March 31, 2010, John takes on the temporary appointment to the permanent position of Geologist III, reporting to Alex Smith, Manager of Engineering Analysis.

**VALERIE FELTMATE** joined the Mineral Development Division on December 29, 2008 in the temporary position of Clerk – Typist III, reporting to Len Mandeville, Manager of the Mineral Incentive Program.

**AMANDA KING** joined the Mineral Development Division on April 1, 2009 in the temporary position of Clerk – Typist III, reporting to Tony Burgess, Manager of Industry Analysis.

#### PHOTO CREDITS

*Cover*; Bayswater Uranium Corporation; Crosshair Exploration & Mining Corp.; Department of Natural Resources.

*Inside*; Report 95-2, Geological Survey: Little Bay Mine photo courtesy of Provincial Archives; Shane Stares; Wanda Croke; Department of Natural Resources.

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Information and statistics quoted are from data provided by government and /or industry publications: for details, readers should direct their enquiries to the Mineral Development Division of the Department of Natural Resources.

### **UPCOMING EVENTS**

# COM 2009: Conference of Metallurgists held in conjunction with Nickel & Cobalt 2009

August 23-26, 2009 Sudbury, ON Contact: Brigitte Farah Tel: (514) 939-2710, ext. 1329 Fax: (514) 939-9160 Email: bfarah@cim.org Web: www.metsoc.org/com2009/index.asp

**Resource Investors Forum 2009** 

September 29-30, 2009 St. John's, NL Contact: Newfoundland and Labrador Chamber of Mineral Resources Tel: (709) 722-9542 Email: director@nlcmr.ca Web: www.investorsforum.ca/

Energy and Mines Ministers' Conference St. John's, NL August 30-September 2, 2009 Sheraton Hotel Newfoundland Web: www.emmc2009.ca/

Mining Newfoundland and Labrador 2009 (Provincial Mining Week) November 1-7, 2009 Contact: Sean O'Brien Tel: (709) 729-2775 Email: seanobrien@gov.nl.ca

Mineral Resources Review 2009 November 5-7, 2009 Delta St. John's Hotel and Conference Centre Contact: Len Mandville, Tel: (709) 729-6439 Email: lenmandville@gov.nl.ca Norm Mercer, Tel: (709) 729-6193 Email: normmercer@gov.nl.ca

Mineral Exploration Roundup 2010 January 18-21, 2010 Vancouver, BC Contact: Association for Mineral Exploration British Columbia Tel: (604) 689-4800 Fax: (604) 682-5733 Email: roundup@amebc.ca Web: www.amebc.ca/roundupoverview.htm