

# Mineral Resources INFORMATION

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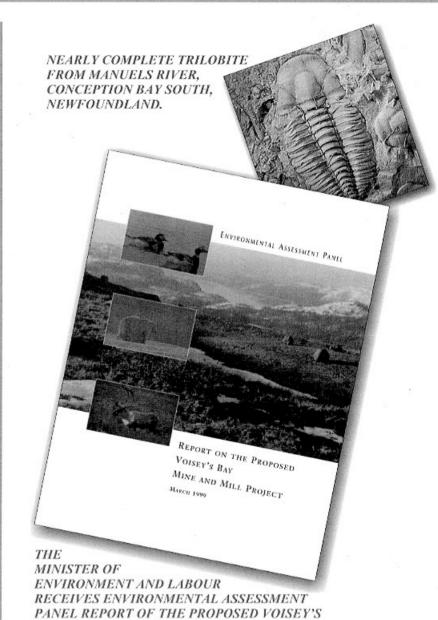






Department of Mines and Energy

Mines Branch





BAY MINE AND MILL PROJECT

## Geological Survey Field Program - 1999

The Geological Survey's geoscience field program for 1999 consists of 14 field projects, an increase of one over 1998.

# Regional Geological Mapping

#### (i) Labrador

- Bruce Ryan will conduct 1:50 000-scale bedrock geological mapping in map areas NTS 14C/5 and 12, based out of Nain. Subdivision of the Nain Plutonic Suite, host to the Voisey's Bay nickel-copper deposit, and its distinction from older suites and country rocks will be the focus of this project.
- Don James will conduct 1:100 000-scale bedrock geological mapping in the central Grenville Province, south of Lake Melville and Goose Bay NTS (13C/1, 2, 7, 8). Mineral evaluation will also be undertaken.
- Charlie Gower will conduct 1:100 000-scale bedrock geological mapping in the Upper St. Paul's River area, southern Labrador. The project aims to define the geological units in the area and its mineral potential.

#### (ii) Newfoundland

- Ian Knight will conduct detailed bedrock geological mapping and stratigraphic studies in the Cambro-Ordovician carbonate rocks on the Port au Port Peninsula. The project will be conducted jointly with the Survey's paleontologist, Doug Boyce. The project is particularly useful to the mineral and petroleum exploration industries and to the dimension-stone and aggregate industries.
- Doug Boyce, in conjunction with Ian Knight, will conduct paleontological and macrobiostratigraphic studies on the Cambro-Ordovician rocks of the Port au Port Peninsula.
- 3) Lawson Dickson will complete 1:50 000-scale bedrock geological mapping and geochemical sampling in the Hodges Hill map area NTS (2E/4), central Newfoundland, and mapping will commence on the eastern portion of NTS (12H/1). The dimension stone and mineral potential of the area will also be evaluated.
- 4) Brian O'Brien will conduct 1:50 000 and more detailed-scale bedrock geological mapping in the coastal region of the Roberts Arm area NTS (2E/5). Emphasis will be put on structural features and on alteration zones.
- 5) Sean O'Brien (in conjunction with Cyril O'Driscoll and Benoit Dube (GSC)) will conduct a four-week study, focused on mapping rock types, structures and gold-bearing hydrothermal alteration in parts of the Ayalon and Burin Peninsulas.

# Mineral Deposits Studies i) Labrador

 Andy Kerr will complete the three-year study of the nickel mineralization environments of northern Labrador, with emphasis this year on the Michikamau intrusion of central Labrador.

#### ii) Newfoundland

 Cyril O'Driscoll will commence a new Avalon Zone metallogeny project. The project will examine the setting of gold mineralization in the geological belt of rocks extending from the Burin Peninsula through the Goobies area. The focus this year will be the mineralization associated with the Powder Horn intrusive, Goobies area.

# Geochemistry, Geophysics and Terrain Science Studies i) Labrador

 John McConnell will conduct in-fill lake sediment and water geochemical surveys in north-central Labrador. The project is designed to assess the base metal and gold potential of the selected areas.

#### ii) Newfoundland

- Martin Batterson will conduct 1:50 000-scale surficial geology mapping in the Stephenville-Port au Port Peninsula area. The project will aid in mineral exploration and in land-use planning.
- Dave Taylor will conduct 1:50 000-scale surficial geology mapping in the Notre Dame Bay area. Till geochemical surveys will also be carried out in selected areas. This is an important aid to mineral exploration.
- Jerry Ricketts will conduct aggregate-resource assessments in the Bay Bulls and Ferryland areas to identify new surficial deposits of aggregate, an important requirement of the construction industry.

## **Mineral Statistics**

The value of mineral shipments in Newfoundland and Labrador is expected to decrease from \$1.009 billion in 1998 to \$800 million in 1999. This reduction is due to both a reduction in the volume and price of iron ore.

Shipments of industrial minerals, or non-metals such as dolomite, gypsum and peat, and structural materials such as slate, brick, cement, stone, sand and gravel, accounted for approximately \$46 million of the 1998 total; in 1999 the value is expected to increase to about \$48 million. Metals, including iron ore products and gold, account for the remainder.

In 1999, expenditures for mineral exploration are forecast to be \$38,002,000 down \$11 million from \$51 million in 1998.

Employment in the mining sector is forecast to decrease to about 3,020 people in 1999 from 3,100 in 1998, mainly due to a decrease in exploration activity.

## Paleontology at the Geological Survey of Newfoundland and Labrador

We owe much in our modern world to ancient life. Coal, oil and gas are the end products of the decayed and chemically altered remains of prehistoric plants and animals. **Paleontology** is that branch of geology that deals with the study of ancient life.

The foundation of paleontology is **systematic taxonomy**, *i.e.*, the methodical description and illustration of fossil species. Paleontologists study two types of fossils. **Body fossils** are the partial or complete remains of ancient organisms, most commonly shell or bone material or petrified wood. **Trace fossils** preserve the activities of these organisms and include fossil burrows, tracks and trails; dinosaur footprints are trace fossils. **Pseudofossils** look like fossils, but actually are the result of inorganic processes. Common pseudofossils in eastern Newfoundland include crinkly patterns which resemble plant remains; these patterns are actually growths of the mineral pyrolusite. Fossils that you can see with the naked eye are termed **macrofossils**; those that require using a microscope are called **microfossils**.

Fossils are formed when an organism dies, is buried and remains buried. Over time, the enclosing sediments harden to become rock. Normally, only the hard parts of an organism are preserved. When a plant or animal dies, there is usually some time before it gets buried. During that time, the soft parts either rot or get eaten. Occasionally, as in the Burgess Shale of western Canada, a whole ecosystem gets preserved by quick burial in an oxygen-poor environment, and even the soft bodied biota gets preserved.

Paleoecology deals with the lateral distribution of fossil communities. In western Newfoundland, particular limestones contain distinct trilobite assemblages; these are called biofacies. Using biofacies analysis, it is possible to identify the environments on the ancient continental shelf in which these trilobites lived (i.e., nearshore, lagoon, reef, offshore, etc.).

Labrador holds the distinction of having both the oldest and youngest fossils in the province. The oldest fossils are approximately two billion years old (Palaeoproterozoic) and have been found in several different areas. In western Labrador, microbial mounds (stromatolites) are extensively developed in the Denault Formation at Marion Lake. In northern Labrador, apparent microfossils have been reported from the Mugford Group, in addition to coal(!) of probable

bacterial origin. The youngest fossils are Cretaceous age insect and plant fossils recovered from the Redmond iron ore deposit of the Knob Lake District of western Labrador; unfortunately, no dinosaur remains were found. [During the offshore oil exploration on the Grand Banks (off eastern Newfoundland), however, dinosaur bones were recovered from core samples.]

At the Geological Survey of Newfoundland and Labrador, paleontology is an integral part of systematic bedrock mapping. One of the most important paleontological applications is biostratigraphy (i.e., the relative age dating of rock sequences). Twenty-five years ago, the lithostratigraphy (i.e., the sequence of rock formations) of western Newfoundland was poorly understood. It has since been clarified, and fossils have provided much of the critical biostratigraphic control. Rocks of different ages can strongly resemble each other, particularly when the original sediments were deposited in similar environments. Similarly, the layers (strata) of one rock formation may be repeated by faulting (as on the Port au Port Peninsula, western Newfoundland). Fossils, therefore, provide an elegant way to quickly discriminate between various rock units or different levels within a single unit.

For further information on Newfoundland and Labrador fossils, please contact:

Doug Boyce

Department of Mines and Energy

Phone:

(709) 729-2163 (709) 729-4270

Fax: Email:

wdb@zeppo.geosurv.gov.nf.ca

New Mineral Exploration Program

A major \$12 million three-year initiative by Government and industry for a new Mineral Exploration Program, announced on March 22, 1999 will increase the level of mineral exploration in the Province and create more opportunities in the development of our natural resources.

The Mineral Exploration Program is a three-year program, with new government funding of \$2 million for 1999/2000. This will be matched by a minimum industry expenditure of \$2 million for a total expenditure of at least \$4 million this year.

The Mineral Exploration Program has four main components: an expanded Prospectors Assistance Program, Junior Company Exploration Assistance Program, Dimension Stone Incentive Program and an enhanced Minerals Promotion Program for investment in mineral exploration.

#### Prospectors Assistance Program

The new expanded program increases the total available funding from \$100,000 to \$250,000 annually. This increase will enable 40 new prospectors to receive grants.

Grants of up to \$4000 are awarded to independent, resident prospectors working in Newfoundland and Labrador. Mineral targets include base metals, gold, industrial minerals and dimension stone; projects are located throughout the province.

#### Junior Company Exploration Assistance Program

This program provides 50/50 cost sharing of approved eligible costs, to a maximum of \$100,000 per project, on advanced mineral exploration projects undertaken by individuals or junior exploration companies registered to do business in the province. Government's annual contribution under this program will be \$1.5 million.

To date, 13 junior companies (listed below) with 17 projects have been approved. They will receive contributions totaling \$1,070,082 for advanced projects costing approximately \$4.2 million.

New Island Resources Inc. Altius Resources Inc. Burin Minerals Ltd. Canadian Magnesium Corp. Cornerstone Resources Inc Donner Minerals Ltd. Great Gull Pond Resources Fort Knox Gold Resources Inc. International Granite Corp. Mountain Lake Resources Inc. Noveder Inc. Thundermin Resources Inc. Major General Resources Ltd.

#### Dimension Stone Incentive Program

This program provides for 50/50 cost-sharing of approved, eligible costs, to a maximum of \$50,000 per project, for quarry, infrastructure, and plant development of dimensionstone projects. Government will provide \$250,000 annually under this program.

Two projects involving access-road construction and trial stone quarries have been supported so far. The Hodges Hill granite and Mount Peyton gabbro (black granite) projects of International Granite Corporation each received funding of \$50,000 toward total cost of \$276,000.

# Enhanced Promotion Program for Investment in Mineral Exploration

The Department of Mines and Energy has a continuing commitment to participate in promotional events at major national and international mining conferences and trade shows.

The Newfoundland and Labrador Chamber of Mineral Resources will partner with government at these events in the future with an enlarged and collaborative program aimed at attracting new mining companies to the province. The local mining sector will spend up to \$250,000 annually on these collaborative efforts.

The Department of Mines and Energy will continue with its ongoing program which costs \$150,000 to \$250,000 annually.

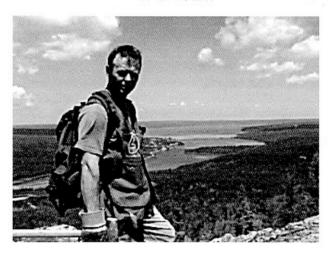
# **Prospectors Training Program Successful**

The 9th annual Prospectors Training Course has been successfully completed. The course is a cooperative effort involving the College of the North Atlantic, the Newfoundland & Labrador Chamber of Mineral Resources and the Department of Mines and Energy's Prospectors Assistance Program. This year, 26 successful candidates were chosen from approximately 40 applicants. The 14-day course took place from May 28th to June 10th, 1999, at the Bay St. George Campus of the College, in Stephenville.

The Prospectors Course provides comprehensive training in basic prospecting skills. The instruction emphasizes the practical aspects of mineral prospecting through geological principles, and combines classroom and laboratory work with prospecting field trips. The tuition-based course is supported by the Department of Mines and Energy.

# Profile of a Prospector

Another of Newfoundland's "NEW GENERATION" of active prospectors is Ken Stead of Little Catalina on the Bonavista Peninsula. Ken was born in 1954 and has lived on the Bonavista Peninsula for most of his life.



Ken's interest in prospecting has only been developed in recent years, although he has worked in the mineral industry in the past. In the early 1970's, he worked with the Iron Ore Company of Canada in Labrador City. He also worked with Nanisivik Mines located on the northern tip of Baffin Island during the 1980's and also has experience in the oil patch of Alberta.

In 1995, while on leave because of a disability, he developed an interest in prospecting. Since he had a great love for the outdoors and a passion for adventure, he began prospecting in 1996 on the Bonavista Peninsula. Ken made several visits to the Newfoundland Department of Mines and Energy office in St. John's, gathering geological reports and maps and meeting with several of the Department's project geologists. His prospecting activities has taken him to every corner of the Bonavista Peninsula with his only companion being "Princess", his pet dog.

In the early summer of 1996, Ken began prospecting between Musgravetown and Bunyan's Cove on the Bonavista Peninsula. He noted extensive malachite staining in volcanic rocks along an old woods road leading from the Bunyan's Cove Road towards Clode Sound, Bonavista Bay. These were his first early indications of copper mineralization on what came to be known as the "Princess Property". Excited by his prospecting discovery of malachite and later chalcocite mineralization, he approached Mount Pearl businessman, Glen McKay, and St. John's lawyer, John Clarke, and together the three of them formed Cornerstone Resources Inc., a private exploration company.

Together, these three individuals attracted a number of other local investors and Cornerstone Resources Inc. staked additional claims in the area. Ken assumed the role of Vice President of Exploration with Cornerstone Resources Inc.

In March of 1999, Cornerstone Resources Inc. successfully negotiated a significant exploration agreement on it's "Princess Property" with one of the world's largest copper producers – Phelps Dodge Corporation, which is actively exploring the property at this time. The type of mineral deposit that is being explored for is a volcanic red-bed copper deposit.

Ken, who describes himself as "an individual who wants to excel at what he does", has been very active with his prospecting crews discovering more, significant copper mineralization in an area near Port Blandford. To further his prospecting knowledge, Ken enrolled in the government-sponsored Prospector Training Course in June of 1998 in Stephenville, Newfoundland.

# New! - Mineral Occurrence Data System Now On-Line

The MODS database of provincial mineral occurrences can now be searched via the Geological Survey web site at: http://gis.geosurv.gov.nf.ca/modsasp/NTS.idc.

The database currently includes only summary data but is being progressively expanded to include more detailed descriptions.

# Staking Procedures Changed

New regulations proclaimed on April 9, 1999 eliminate the need to line up at the Mineral Claims Recorder's office in St. John's for areas coming available for staking following a notice in the Newfoundland Gazette. The new regulations take effect for all notices published on or after April 9. Individuals or companies interested in staking these areas can either mail or deliver their application(s) for Map Staked Licence to the Mineral Claims Recorder during the period between publication of the notice and the date the area is available for staking. When more than one application is received, the priority of applications will be determined by a draw.

The new regulations and procedures allow individuals or companies anywhere in the province to participate in staking rushes in these situations, on a fair and equal basis.

The decision to adopt this change in policy and the detailed procedures to be followed were made following extensive consultation with individuals in the mineral exploration industry and mineral exploration industry associations.

The changes are intended to improve service delivery to the client group involved in this activity and provide fair and equal access to individuals and companies located anywhere in the province.

Detailed procedures can be viewed on our internet homepage at:

#### www.gov.nf.ca/mines&en/

or will be mailed upon request. If you have any questions or if you want to request a copy of the procedures, please call either Jim Hinchey, Mineral Claims Recorder, or Ken Andrews, Director of Mineral Lands, at 729-2773.

# **Environmental Impact Statement Received**

The Minister of Environment and Labour received the environmental assessment panel report of the proposed Voisey's Bay mine and mill project on April 1, 1999.

The four parties to the Memorandum of Understanding (MOU) are the Government of Canada, the Government of Newfoundland and Labrador, the Labrador Inuit Association and the Innu Nation. The panel delivered its report to the parties on March 31, 1999 under the terms of the MOU.

The MOU was signed by representatives of the parties on January 31, 1997. At that time, a five-person panel was appointed to consider the environmental effects of the project and to report back to the four parties.

The panel's review included public hearings in 10 Labrador communities and in St. John's, Newfoundland in September, October and November, 1998. The panel received over 450 written and oral submissions from groups, individuals and government departments.

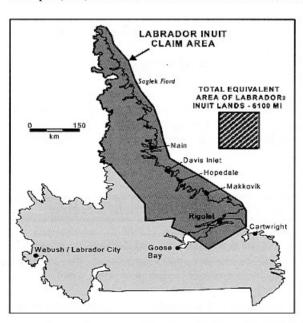
The proposal for the mine and mill development followed the discovery of a significant nickel-copper-cobalt deposit at Voisey's Bay, on the coast of Labrador between the communities of Nain and Davis inlet. This area is subject to overlapping land claims of the Labrador Inuit Association and the Innu Nation. The proponent is Voisey's Bay Nickel Company, a subsidiary of Inco Limited.

The provincial and federal governments are reviewing the panel's recommendations and response is expected this summer.

The full report is available on the Canadian Environmental Agencies website: <a href="www.ceaa.gc.ca">www.ceaa.gc.ca</a>

# The Labrador Inuit Agreement-in-Principle signed

On May 10, 1999 the Province, the federal Government and the Labrador Inuit Association signed an Agreement-in-Principle (AIP) for a land claims settlement in Labrador.



The land claims settlement area consists of 28,000 square miles of land and 17,000 square miles of ocean referred to as the Labrador Inuit Settlement Area. Within that area there will be 6,100 square miles referred to as Labrador Inuit Lands. These lands will be selected from the claim area (see map) in the fall of 1999, after the Labrador Inuit Association has ratified the Agreement in Principle. Inuit will have the most substantial rights and benefits in Labrador Inuit Lands but will also have certain rights and benefits in the Settlement Area.

The AIP, which is not legally binding, forms the basis for negotiating a Final Agreement which will likely be achieved before the end of 2000. The Inuit may also have to negotiate separate agreements with other aboriginal groups with overlapping claims within the Settlement Area.

The AIP document may be viewed on the Government of Newfoundland and Labrador web site (www.gov.nf.ca/laas), or a copy may be obtained from the Labrador and Aboriginal Affairs Secretariat, Government of Newfoundland and Labrador, P. O. Box 8700, St. John's, NF, A1B 4J6. (Telephone: 709-729-0164; Fax 709-729-4900).

# Workshop on Mineral Exploration and Dimension Stone

On June 4, 1999, the Exploits Valley Economic Development Corporation, a regional zone board, hosted a successful full-day workshop on mineral exploration and dimension stone at the Mount Peyton Hotel in Grand Falls-Windsor. Representatives of four regional zone boards, the mineral exploration sector, local businesses, the Chamber of Mineral Resources, and the federal and provincial governments participated. A total of 60 people, including four MHA's, attended. The Hon. Roger Grimes, Minister of Mines and Energy, was the guest luncheon speaker.

For more information on this workshop, please contact:

Michael Regular

Mining & Dimension Stone Officer

Exploits Valley Economic Development Corp.

Tel: (709) 489-8700 Fax: (709) 489-8711

e-mail: exploits@nf.sympatico.ca

## Fall Field Trips

There will be two pre-North Atlantic Minerals Symposium field trips held in Newfoundland, subject to a sufficient number of registrants. Although preference will be given to Symposium registrants, both field trips are OPEN TO GENERAL REGISTRANTS.

Field Trip 1: Geology and Mineral Deposits of the Northern Dunnage Zone, Newfoundland.

**Participants:** Maximum – 15; Minimum – 12. Cost: CAN\$800.

**Trip Begins:** Deer Lake, Saturday, September 11<sup>th</sup>, 1999, Transportation will be provided to Baie Verte where the trip begins Sunday morning.

Trip Ends: St. John's, Friday, September 17th, 1999.

Description: This six-day excursion provides an introduction to the geology, tectonic setting, and mineral deposits of the Newfoundland Dunnage Zone. The trip will focus mainly on two deposit types: early Palaeozoic volcanogenic massive sulphide deposits hosted by various ophiolitic and island-arc volcanic sequences, and epigenetic structurally controlled gold mineralization. Potential stops include the Betts Cove Complex, the former Tilt Cove and Rambler copper mines, the Nugget Pond gold mine (one of the lowest cost underground gold producers in Canada), the former Pilleys Island pyrite mine, the former Buchans Mine (one of the richest polymetallic volcanogenic massive sulphide deposits in the world), and various base metal and vein-hosted occurrences in the scenic Moreton's Harbour - Twillingate area.

Participants on the tour will gain an insight into current thinking on Newfoundland base metal and gold metallogeny and have an opportunity to discuss recent developments with site geologists and personnel.

# Field Trip 2: Trans-Newfoundland Industrial Minerals Field Trip.

**Participants:** Maximum – 15; Minimum – 12. Cost: CAN\$525.

Trip Begins: Stephenville, Monday, September 13th, 1999.

Trip Ends: St. John's, Friday, September 17th, 1999.

Description: Newfoundland's diverse geological environments are host to a wide variety of industrial minerals. The four-day trip will provide participants the opportunity to examine various industrial mineral deposits, operations, and shipping and other facilities. Industrial minerals deposits/ facilities to be visited on the west coast include the Lower Cove limestone-dolomite operation, which exports high-purity carbonates for use in the iron and steel industries; the Fischells Brook gypsum operation for the Corner Brook cement plant, and the aggregate shipping facility at Turf Point. In central and eastern Newfoundland, the trip will visit the Beaver Brook antimony mine, the Collier Point barite mine, and the Manuels pyrophyllite mine. For those participants interested in dimension stone, the trip will also examine an operation that produces black granite, and a roofing slate facility.

Participants will gain an appreciation for the diverse range of commodities being produced and for the issues facing industrial mineral producers in areas removed from major markets.

For further information contact:

Mr. David Evans P.O. Box 562 Grand Falls, NF A2A 2J9 Tel: 709-292-4503

Fax: 709-292-4504

E-mail: dwe@zeppo.geosurv.gov.nf.ca

To register contact:

Geological Survey, St. John's

Tel: 709-729-5946

Fax 709-729-4491

http://www.gov.nf.ca/nams/

# **Upcoming Events**

## New Brunswick Department of Natural Resources and Energy, Annual Review of Activities

November 1-3, 1999

Sheraton Inn

For more information please contact:

Carol McNeill-Dobbelstyn or Don Carol

Tel: (506) 453-2206

### Mining Matters for Nova Scotia '99

November 8 and 9, 1999

World Trade and Convention Centre, Halifax The conference will build on last year's successful format and will include groups involved with economic development

through Nova Scotia. For more information please contact:

Mike MacDonald

Tel: (902) 424-2523

Fax: (902) 424-7735

## Mines Branch 23rd Annual Review of Activities

November 4, 1999

St. John's, Newfoundland

Annual Review of the Mines Branch activities and Open House will be held in conjunction with the CIM/APEGN Conference. For more information, please contact:

Norm Mercer

Tel: (709) 729-6193

Fax: (709) 729-4491

#### CIM/APEGN 1999 Joint Conference

November 4-6, 1999

St. John's, Newfoundland

The Newfoundland Branch of the Canadian Institute of Mining, Metallurgy and Petroleum, the Association of Professional Engineers and Geologists of Newfoundland and Labrador, and the Newfoundland Department of Mines and Energy hosts the 46<sup>th</sup> Annual Conference. The theme for this year's conference is "Reflections and Directions". For more information please contact:

Tony Burgess

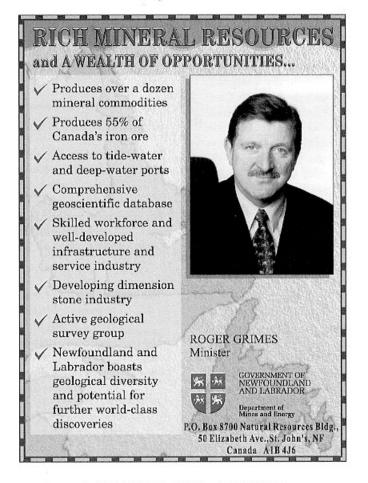
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Mineral Lands (Fax 709-729-6782)
Mineral Development (Fax 709-729-3493)
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General Inquires(709) 729-6849
Mineral Rights(709) 729-6437
Quarry Rights(709) 729-4044
Exploration Monitoring(709) 729-6418
Core Storage, St. John's(709) 729-5833
Core Storage, Pasadena(709) 686-2054
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Mining Project Analysis(709) 729-3197
Mineral Industry Assistance(709) 729-2358
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Mineral Deposits(709) 729-2107
Mineral Occurrence Data System(709) 729-6071
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