

Nova Scotia

Minerals Update

Department of Natural Resources, Mineral Resources Branch

Volume 28, no. 2

Spring 2011

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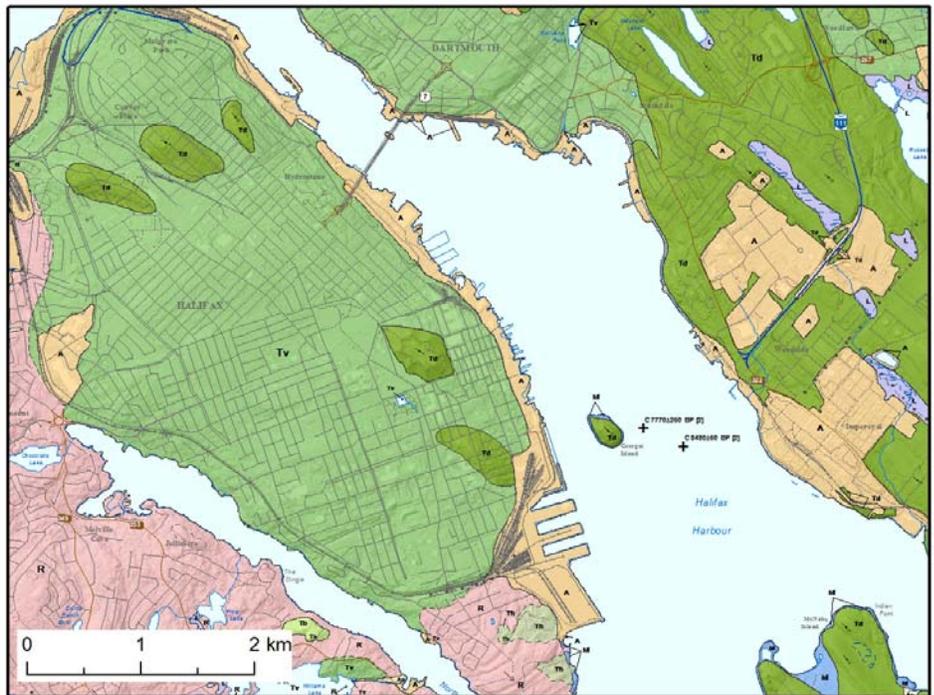


Mineral Resources Branch Releases New Geological Maps

Surficial Geology Maps of the Halifax Metropolitan Area

In 2007, in response to the effects of Hurricane Juan, a LiDAR (Light Detection and Ranging) digital elevation model to predict flood levels was collected for the metropolitan area of Halifax Regional Municipality. One of the most useful geological applications of this type of survey is the production of the 'bare earth' model, which shows the topography of the earth's surface without vegetation. This is perfectly suited for mapping surface features and provides the basis for a new series of detailed (1:25 000 scale) surficial geology maps of the area.

The Mineral Resources Branch is releasing 12 new surficial geology maps by Dan Utting based on interpretation of the LiDAR data. The 11 core maps of this series (Open File Maps ME 2011-002 to 2011-012) are based on mapping at a scale of 1:10 000, and provide the first improvement on surficial geology mapping for the area since the 1:100 000 scale maps released in the early 1980s by DNR geologists Ralph Stea, Phil Finck and John Fowler. An additional map in this series (Open File



A portion of the surficial geology map of the Halifax area. Drumlins (dark green) form Citadel Hill as well as extensive areas in Dartmouth and MacNabbs Island. Thinner till (light green) covers much of this area, pink represents bedrock and light brown represents ground that has been reshaped by human activities.

Nova Scotia's Gold Mining Heritage to be Celebrated

The province's rich gold mining heritage will be brought to the public eye during 2012 by way of an exhibition titled *Gold: a Nova Scotia Treasure*. This initiative was conceived by representatives of the Stellarton Museum of Industry (MOI) and the Art Gallery of Nova Scotia (AGNS) as a way to showcase art works and artifacts from their collections that relate to Nova Scotia's golden past. This led to the formation of a steering committee jointly chaired by AGNS and MOI, and with members from the Nova Scotia Department of Natural Resources, Nova Scotia Museum of Natural History and Nova Scotia Archives and Records Management. The exhibition will incorporate a physical exhibit, a virtual exhibit, short film vignettes, a school program and a study tour. The exhibits will draw heavily from provincial government collections, including period and contemporary art works (see Fig. 1), artifacts of the AGNS and MOI, world-class

gold specimens from the Museum of Natural History and a wealth of historical photographs, maps, film footage, sound recordings and contemporary photos held by DNR and the Archives.

Gold: a Nova Scotia Treasure will draw on the timeless allure of gold by following several themes designed to reveal the impact that gold mining has had on the province. Up front will be the natural history of gold, its facts and figures, as well as where and how it occurs, and where it was mined. The human fascination with gold, starting in ancient times, will be portrayed by showing just what it's used for, how it's worked and the role it has had in many cultures through time. The core of the exhibition will centre on the history of gold mining in the province, discovery of the first deposits, the resulting gold rushes, how it was mined, and the characters and significant firsts from Nova Scotia's gold mining past.

Eighty years of gold mining using primitive methods and no environmental controls have left a legacy of abandoned mine openings and tailings, and the consequences of these will be displayed. In counterpoint, the exhibit will showcase how gold mining can be carried out today under strict environmental regulation and control, with modern mining techniques, and with full site reclamation following mine closeout.

The exhibition will open at the Art Gallery of Nova Scotia in Halifax in the spring of 2012. Afterwards, portions of the exhibit will travel over the summer and fall to museums throughout the province. The exhibition will then be re-assembled to serve as the centerpiece of a National Industrial Heritage Conference scheduled for the Museum of Industry in the fall of 2012. Please watch for more news of this exciting event.

G. A. O'Reilly



Figure 1. Watercolor by Frederick B. Nichols ca. 1870 showing tributers working the Whitehead Northeast Lead at Oldham Gold District (image courtesy of the Art Gallery of Nova Scotia).

From the Mineral Inventory Files

The Long Lake Mo-W-Cu Greisens: a Classic Example of Greisen Development

Greisen is defined as an altered granitic rock consisting of quartz and white mica. Typical greisens have a silver-grey, sparkly appearance. Greisens are common hosts to deposits of granophile elements (Sn, W, Mo, Li, Rb, Be, Cs, F) and base metals, especially in the contact zones and apical portions of peraluminous granites. Southern mainland Nova Scotia is underlain by many such granites with numerous greisen occurrences, most notable being the East Kemptville Sn-Zn-Cu-Ag deposit in Yarmouth County. Despite its smaller size, greisens at the Long Lake Mo-W-Cu Prospect, west of Chester Grant in Lunenburg County (Fig. 1), reveal a much more impressive example of classic greisen development.

The first mention of minerals at Long Lake was noted as Mo-bearing pegmatite float on E. R. Faribault's 1924 geology map. It wasn't until the late 1950s that an F. Matthews first explored the property, and shortly thereafter provincial geologist J. D. Wright noted the presence of scheelite in greisen outcrops nearby. Subsequent trenching unearthed several quartz-pegmatite dykes rich in molybdenite. The property went through two periods of exploration during the 1960s, when trenching and 15 diamond-drill holes indicated the presence of widespread greisenization along the contact with the Goldenville Group metasediments (Fig. 1). Most of the high-grade molybdenite occurs in the pegmatites (up to 3.5% Mo) and the adjacent greisens host most of the wolframite-scheelite (2.5% W), chalcopyrite (1900 ppm Cu) and lesser molybdenite (765 ppm Mo). The low grade of Cu in the greisens and the sporadic Mo and W levels led to the ground being dropped.

I visited the site in 1979 (see DNR Paper ME 1982-002) while most of the trenched areas were still not overgrown and I was impressed by both the degree of greisen development and how well it was exposed, and by the abundance of highly mineralized float that remained strewn about. I was able to collect several spectacularly mineralized samples

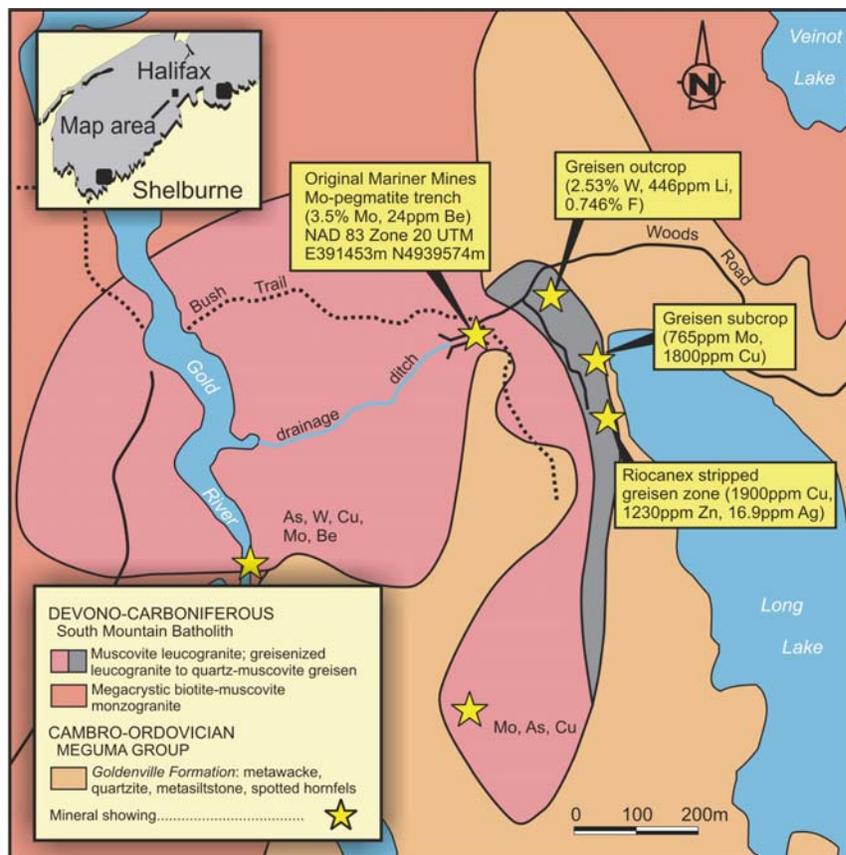


Figure 1. Geology of the Long Lake Mo-W-Cu-bearing greisens and pegmatites, Chester Grant, Lunenburg County.

including a cigar-shaped pod of massive wolframite-scheelite 20 cm long by 6-8 cm in diameter and a single, euhedral, molybdenite crystal almost 2 cm across and 3 cm long. Because the greisen zone was so well exposed and the transition from unaltered to altered rock is so striking, I mapped the property in detail (Fig. 1). The main granitic host rock, medium-grained, orange to cream coloured leucogranite, consists of quartz, orthoclase (microcline), albite and muscovite. Toward the granite-metasediment contact, the orange colour fades (with a decrease of orthoclase content) and the rock grades into a greisenized leucogranite (quartz, albite and muscovite). Increased greisenization resulted in replacement of the albite by quartz and muscovite to produce a zone of classic quartz-muscovite

greisen. Within this greisen zone are veins, pods and lenses of very well developed, muscovite-rich greisen and within these are found the wolframite, scheelite, chalcopyrite and molybdenite.

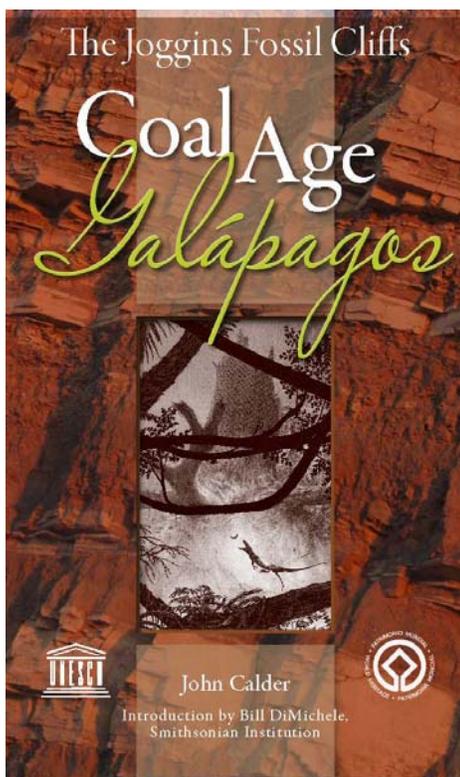
The greisens at Long Lake constitute the second largest, and best developed greisen body known in the province, next to those at the East Kemptville Sn-Zn-Cu-Ag deposit. The greisen zones at Long Lake, however, have experienced only a fraction of the exploration undertaken at East Kemptville. Further, the exploration at Long Lake was done prior to the recognition of southwest Nova Scotia as a *bona fide* tin metallogenic domain. Perhaps if Long Lake were re-evaluated using modern exploration models something more could be found.

G. A. O'Reilly

Coal Age Galápagos

A richly illustrated book on the Joggins Fossil Cliffs World Heritage Site will be published this year by the Department of Natural Resources. The book is authored by John Calder, a Senior Geologist with the department who documented the significance of the site for its nomination to UNESCO (see *Nova Scotia Minerals Update* v. 25, no. 3). *Coal Age Galápagos* tells why this site became so famous, stories of the eminent geologists who put Joggins on the world map, and how it helped to shape this former coal mining village. The striking visual design of the book (see cover below) is the work of graphic designer Kathy Kaulbach. The book will help support the Joggins Fossil Centre, a continuing commitment by the Department of Natural Resources to documenting and celebrating the geoheritage of Nova Scotia. Look for the launch of *Coal Age Galápagos* this September.

John Calder



January - March 2011 Open Assessment Reports

Report Number	NTS	Licensee
AR ME 2009-001	11E/02B	Acadian Mining Corporation
AR ME 2009-002	11D/15C	DDV Gold Limited
AR ME 2009-003	11F/05A, D	Schenkels, H F
AR ME 2009-004	11D/16D	Bezanson, P T
AR ME 2009-005	11D/16D	Bezanson, P T
AR ME 2009-006	11D/15A	Acadian Mining Corporation; Annapolis Properties Corporation
AR ME 2009-007	11F/14C	Richman, J; Barrett, A M
AR ME 2009-008	21A/05B, C	Acadian Mining Corporation
AR ME 2009-009	21A/02D	Alpha Uranium Resources Incorporated
AR ME 2009-010	11E/08C, D 11E/09A, B 11F/05A, C, D 21H/07B, C	Minotaur Atlantic Exploration Limited
AR ME 2009-011	11D/16C	Oicle, G
AR ME 2009-012	11D/15C	Blackfly Exploration and Mining
AR ME 2009-013	11D/16C	Acadian Mining Corporation; Annapolis Properties Corporation
AR ME 2009-014	11D/16C	Hilchey, A F
AR ME 2009-016	11D/15C	Scratch Exploration and Mining Corporation Limited
AR ME 2009-017	11E/02C; 11E/07B	Merrex Gold Incorporated
AR ME 2009-018	11E/01B	Scratch Exploration and Mining Corporation Limited
AR ME 2009-019	11F/16D	Campbell, L
AR ME 2009-020	21A/04A, B, D	Avalon Ventures Limited
AR ME 2009-022	21A/16B, C, D	Tripple Uranium Resources Incorporated
AR ME 2009-023	11E/07D; 11E/08C	Ecum Secum Enterprises Limited
AR ME 2009-024	21A/01C	Hiltz, K R
AR ME 2009-025	11E/02C; 11E/07B	Elk Exploration Limited
AR ME 2009-026	11K/03A, D	Acadian Mining Corporation
AR ME 2009-027	21A/02D	Hiltz, K R
AR ME 2009-028	11D/11D	Annapolis Properties Corporation
AR ME 2009-029	11E/08B	Shadbolt, D
AR ME 2009-030	11F/14B	Alva Construction Limited
AR ME 2009-031	11F/14B	Alva Construction Limited
AR ME 2009-032	11E/02A	DDV Gold Limited
AR ME 2009-033	21A/15B, C, D	Tripple Uranium Resources Incorporated
AR ME 2009-034	11E/11B	Tripple Uranium Resources Incorporated
AR ME 2009-035	11F/16B, C, D	Thomson, A C

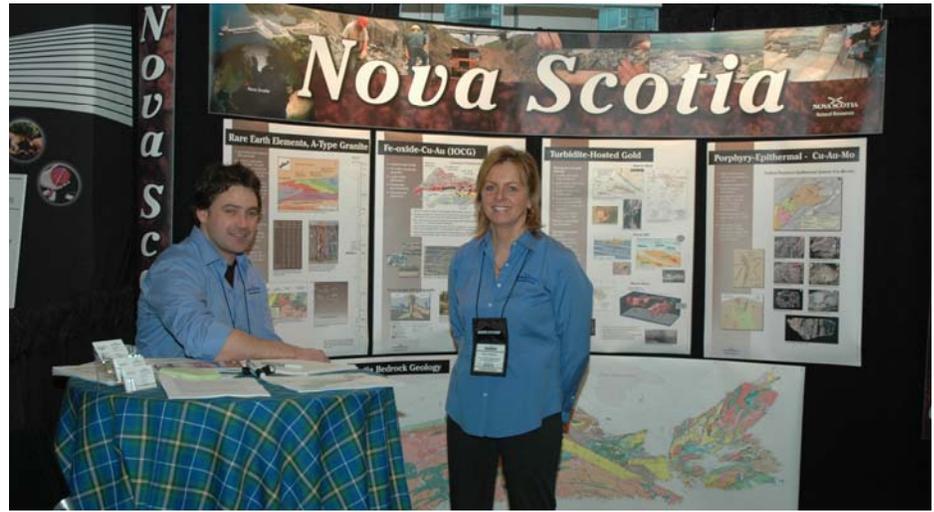
Susan Saunders and Norman Lyttle

Promoting the Mineral Resources of Nova Scotia

Annual mining conferences provide a perfect opportunity for the department to inform exploration companies about mineral resources and investment opportunities in Nova Scotia. Many rank the two best events in North America as the Mineral Exploration Roundup in Vancouver and the Prospectors and Developers Association of Canada (PDAC) conference in Toronto.

The Mineral Exploration Roundup, held January 24 to 27 at the Westin Bayshore in Vancouver, welcomed over 7,000 participants from all parts of the world. This event, hosted by the Association for Mineral Exploration British Columbia, is the world's largest conference dedicated entirely to mineral exploration. DNR Geologists Diane Webber and Trevor MacHattie used the opportunity to discuss active exploration programs and opportunities in Nova Scotia. The program included innovative short courses, technical sessions, a Trade Show, Core Shack, Prospector's Tent, Map Tent and much more.

2011 proved to be another record-breaking year for attendance at the PDAC International Convention, Trade Show and Investors Exchange. From March 6-9 nearly 28,000 people attended the annual gathering, where more than 1200 exhibits filled the South building of the Metro Toronto Convention Centre. The Nova Scotia contingent was one of 64 governments (provincial, federal, international) to exhibit at this year's event. The Mineral Resources Branch was represented by Executive Director Mike MacDonald, Director of the Geological Services Division Rob Naylor, Registrar of Mineral and Petroleum Titles John MacNeil, GIS Supervisor Brian Fisher, Liaison Geologist Diane Webber, and Mineral Deposits Geologist Trevor MacHattie. DNR had excellent visibility both in the booth and in the Atlantic Rock Room where Nova Scotia, New Brunswick and Newfoundland partnered in the Atlantic Canada pavilion under the theme *Explore the Potential*. Thousands in attendance at the Trade Show passed through both the DNR booth space and the pavilion, gathering information and inquiring about Nova Scotia. Major and



Trevor MacHattie (L) and Diane Webber (R) show the tartan at Roundup 2011.

junior explorers are seeking an array of commodities and deposit types. With current prices and market trends for gold, rare earths and other metals, there is heightened interest in several of the province's past-producing gold districts, as well as the rare earth element and iron oxide-copper-gold potential in the Cobequid Highlands.

The Mineral Resources Branch recognizes that prospecting plays a key role in the discovery and future development of mineral resources, and the prosperity of the Nova Scotia mineral sector. To that end, DNR provided travel assistance for eleven Nova Scotia prospectors to attend the PDAC conference this year and rented booth space for the prospectors to display their materials. DNR Geologist Ron Mills, who works closely with prospectors, helped the group to prepare professional displays. Properties that were presented at the PDAC and available for option in Nova Scotia included the Fanning Lake and Carleton gold districts (Scott Grant), New Chester, Sheet Harbour and Mitchell Bay gold targets (Perry Bezanon), Long Lake polymetallic target (Ted MacNaughton), Mooseland-Ferry Lake and Twin Lakes gold properties, (Scratch Exploration), Dominique polymetallic prospect (John Wightman), Creampot gold mine (John O'Sullivan), Clam Harbour gold property (Dominic Shadbolt), Meander gold

target (Roland Anthony), Cobequid Highlands REE property (Lindsay Allen), Inco Highlands gold target (Joe Richman) and the Highfield Macumber polymetallic target (Chris Butt, Larry Riteman). The prospectors experienced a lot of interest from both major and junior explorers at the conference and subsequently are negotiating or have already closed deals for future exploration on their properties.

It was a pleasure to have newly appointed Minister of Natural Resources the Hon. Charlie Parker and Deputy Minister Duff Montgomerie attend their first PDAC. "By attending the world's largest mining conference, it was an opportunity for me, as Minister, to learn about exploration and development activity both nationally and internationally. Along with departmental officials, we learned more about the latest technology, trends and trade occurring in the mining world today" stated Minister Parker. During the conference the Minister hosted the Nova Scotia Breakfast for industry and discussed the several advanced projects in Nova Scotia and their potential to increase the value of mineral production and provide jobs in rural communities.

These conventions continue to grow in size and provide high visibility for Nova Scotia's mineral resources to both national and international audiences.

Diane Webber

Mining Association of Nova Scotia Holds Annual General Meeting

The annual general meeting of the Mining Association of Nova Scotia (MANS) was held on April 13, 2011, at the Halifax Citadel Hotel. More than 50 delegates enjoyed a variety of sessions focusing on the theme "How can mining support jobs here: the plan to grow the economy." The Honourable Charlie Parker, Minister of Natural Resources, addressed attendees gathered at the breakfast and spoke about the importance of mineral exploration and mining to the economy of Nova Scotia. Minister Parker also spoke about two important government initiatives: the Natural Resources Strategy and protecting 12% of the province's landmass by 2015.

New business for MANS included the election of a new President and Board of Directors. Pat Mills will serve as President and his team comprises Paul Smith (Past President), John Amirault and Scarth MacDonnell (Vice Presidents), Laurie Vaughan (Treasurer), Paul White, John Wightman, Steve Weeks, Gavin Isenor, Ian Palmeter, Rick Ratcliffe, Jeff Newton, Gordon Dickie, Keith Phinney, Fred Bonner, Lauchie MacLean, Jeff Sullivan, Grant Ewing and John O'Sullivan.

Diane Webber

Library Manager Valerie Brisco Retires

Valerie Brisco began working for the provincial government in 1975 with the former Nova Scotia Department of Mines. Under her supervision, the Library grew from just a couple of bookcases to a full-service, publicly accessible Library with two staff and about 20,000 items, plus many thousands of maps and reports. After creation of the Department of Natural Resources in 1991, Valerie became the department's Manager of Information Management, which included duties as DNR's Freedom of Information and Protection of Privacy Administrator. Valerie has worked with many people in the department over the years and probably with even more of the department's clients, who are regular visitors to the Library.

Valerie's last day of work was April 29th, and by late afternoon the Library had become the location for a large gathering of Val's friends, family and colleagues (see photo below). Best wishes from the Mineral Resources Branch, Val; we'll miss you.



From left to right: Joan Kaizer, Danielle Nicholson, Barbara Hawkins and Valerie Brisco, with the biggest smile.

Special Note

E-mail Notification

If you would like to receive an e-mail notice (with hot links) when new maps, digital products and publications are released, or when a new issue of the *Nova Scotia Minerals Update* is released, please send your e-mail address to minerals@gov.ns.ca.

Dates to Remember

May 25-27, 2011

Geological Association of Canada - Mineralogical Association of Canada - Society of Economic Geologists - Society for Geology Applied to Mineral Deposits Joint Annual Meeting, *Navigating Past and Future Change*, University of Ottawa, Ottawa, ON. For more information please visit the web site: <http://www.gacmacottawa2011.ca/welcome.php>.

August 19-21, 2011

Nova Scotia Gem and Mineral Show, Lions Recreation Centre, Western Ave., Parrsboro, NS. For more information please visit the web site: <http://museum.gov.ns.ca/fgm/en/home/whattoseedo/gemmineralshow/default.aspx>.

October 24 and 25, 2011

Geology Matters 2011, Westin Nova Scotian Hotel, Halifax, NS. For more information please visit the web site: <http://www.gov.ns.ca/natr/meb>.

November 3-5, 2011

Mineral Resources Review 2011, Delta Hotel and Conference Centre, St. John's, NL. For more information please visit the web site: <http://www.nr.gov.nl.ca/nr/mines/mineral.html>.

November 6-9, 2011

Exploration, Mining and Petroleum New Brunswick 2011 conference, Delta Hotel, Fredericton, NB. For more information please visit the web site: www.gnb.ca/0078/minerals.