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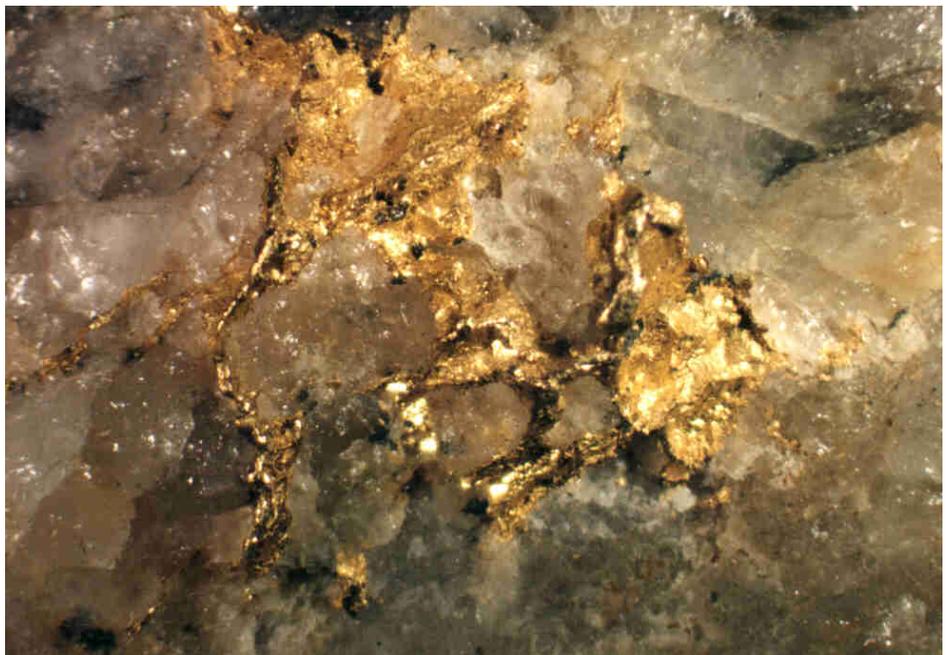
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Geology Matters 2011 to Follow Booming Summer of Exploration

When it comes to mineral exploration in Nova Scotia, this summer is proving to be the busiest since the global economic downturn. Commodity prices are up, field crews are out, and drills are in high demand as companies rebound with cash in the till. Many rural communities are bustling once again as companies explore for the minerals and metals used to produce the manufactured goods we depend on every day. Geology Matters 2011 will showcase the exciting results of this field season and the vital impact that the mineral industry has in growing the economy of Nova Scotia.

Online registration is now open for the Department of Natural Resources (DNR) 35th annual fall conference on October 24 and 25 at the Westin Hotel, Halifax. Geology Matters 2011 will attract a broad audience around the theme "Growing the Economy". There will be posters and presentations with details about initiatives on geosciences and municipal planning, geoheritage and economic growth, geohazards and health and safety, new strategies for managing Nova Scotia's resources, protected areas, current mineral exploration projects, reclamation and much more.



With the price of gold up to approximately \$1600 per ounce, many companies are showing a strong interest in Nova Scotia goldfields. Exploration activity in rural Nova Scotia has a large impact on local economies, and on the province's economic performance. This specimen of Nova Scotia gold was collected at Broad River, Queens County.

Displays will be presented by the Mineral Resources Branch, the Mining Association of Nova Scotia, the Mining Society of Nova Scotia, the Nova Scotia Prospectors Association, universities, and companies engaged in mineral exploration, development, mining and investment.

The program includes presentations from DNR staff and guest speakers, luncheons, and the annual Minister's Reception hosted by the Honourable Charlie Parker, Minister of Natural Resources. Back by popular demand will be the student workshop, where university students will learn about programs carried out by the Mineral Resources Branch, and employment opportunities in the mining industry. The conference traditionally draws representatives from provincial government departments, the Atlantic Canada Opportunities Agency, Regional Development Authorities, the general public, environmental networks and non-government organizations, Aboriginal groups, municipal planners and administrators, university teachers and students, consulting groups, mining companies and many more. Information about the conference and online registration forms can be found on the Mineral Resources Branch website (<http://www.gov.ns.ca/natr/meb/oh/index.asp>). For further information please contact Diane Webber at 902-424-3053 or webberde@gov.ns.ca.

Diane Webber

Geology Matters 2011 Conference

October 24th and 25th, Westin Hotel, Halifax, Nova Scotia



**Growing
The
Economy**

Highlights

- Exhibits, Presentations
- Geological Resources and the Economy
- Geoscience and Municipal Planning
- Nova Scotia's Energy Future
- Geohazards: Protecting Health and Safety
- Geoheritage and Economic Growth
- New Strategies for Managing Nova Scotia's Resources
- Student Workshop

For more information contact:
Diane Webber
tel: 902 424-3053
email: webberde@gov.ns.ca

Register online: <http://www.gov.ns.ca/natr/meb/oh/index.asp>

Free Admission to Displays and Technical Talks



The Westin Hotel in Halifax will be the venue for Geology Matters 2011 on October 24 and 25. This photograph shows the poster and commercial exhibit area in the hotel's Commonwealth Ballroom. Photo by Howard Donohoe.

Erdene Receives Independent Technical Report on Donkin Export Coking Coal Project

On June 30, 2011, Dartmouth-based Erdene Resource Development Corp. (“Erdene”) announced receipt of a National Instrument 43-101 compliant Technical Report (“the Report”) for the Donkin Coal Project located in the Sydney Coalfield, Cape Breton Island (Figure 1). Marston & Marston, Inc., of St. Louis, Missouri, prepared the Report on behalf of Erdene and project manager, Xstrata Coal Donkin Management Limited (“Xstrata”). The Donkin Coal Project is a joint venture between Xstrata (75%) and Erdene (25%).

The purpose of the Report was to present the results of the Pre-Feasibility Study (“PFS”) on the Donkin Export Coking Coal Project prepared by Xstrata and the reserves defined by the PFS. The Report assesses the viability of a multiple continuous miner underground operation, producing approximately 3.5 million tonnes per year (“Mtpa”) Run of Mine (“ROM”) coal that would be subsequently washed to provide 2.75 Mtpa of product coal suitable for the international export coking and thermal coal markets, and domestic thermal coal markets. The Report confirms the technical and economic viability of the Donkin Export Coking Project and supports advancing the project to the next phase. The PFS concludes that Donkin has a \$1.06 billion Net Present Value (8% discount rate) based on project development capital of approximately \$500 million and demonstrates the potential for first quartile operating costs. The Report has been filed by Erdene on SEDAR and a copy of the PFS Report is also available on Erdene’s website (www.erdene.com).

Resources and Reserves

The Indicated Resources for the Hub and Harbour seams are 73 million tonnes (“Mt”) and 101 Mt, respectively, for a total Indicated Resource of 174 Mt. Included in these resources are 28 Mt and 30 Mt of Probable Reserves from the Hub and Harbour seams, respectively, for a total of 58 Mt of Probable Reserves.

There are sufficient Reserves at Donkin for the first 20 years of mining.

Project Plans

On June 28, 2011, a draft Project Description document was filed by Xstrata with federal and provincial regulators. Filing this document is the initial step in the Environmental Assessment process, which seeks approval for the 2.75 Mtpa export coking coal project. Federal and provincial regulators will now review and provide comment prior to the final approval and filing as a public document. The final document issued by regulators will guide the comprehensive environmental assessment study as well as the preparation of the feasibility study and the project design.

The feasibility stage will include the initial phase of mining, referred to as the exploration phase. The intent is to deploy one continuous miner section in the Harbour Seam one year after securing an off-take agreement for the ROM coal. The exploration phase will provide the opportunity to collect multiple Harbour Seam bulk samples for testing the coal quality,

geotechnical information on the roof, floor and coal, and data on structures and gas desorption. Underground drilling from the Harbour Seam will also allow for collection of data for all categories within the Hub Seam. The additional geological and geotechnical information, as well as the results of bulk sample testing by potential customers, will provide information necessary to finalize the mine and plant design and the ultimate production, including an evaluation of the viability of a longwall. Included in this study would be continued work on the studies, plans, permits and licenses necessary to start construction and operate the mine. The Feasibility Study is estimated to cost \$94.2 million and is forecast to be conducted over a 24-month period. The estimated cost includes tunnel rehabilitation, exploration mining along with the cost of the mining equipment and the study. The schedule for this initial development is dependent on securing a coal off-take agreement. Full development plans will be based on the outcome of the Feasibility Study.

*Peter Akerley, CEO
Erdene Resources Development Corp.*

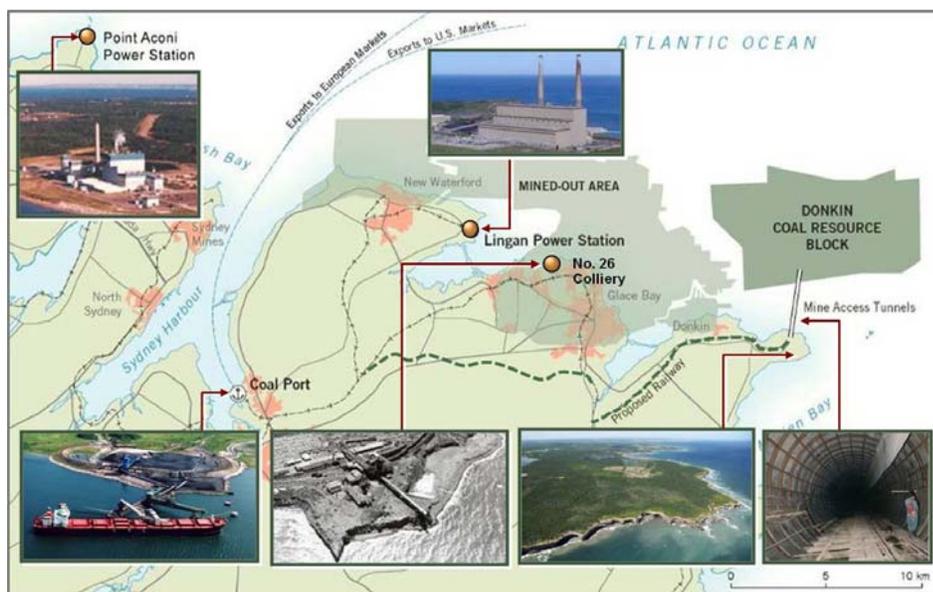


Figure 1. Location of the Donkin Coal Resource Block.

One Student's Perspective on a Summer Job with the Mineral Resources Branch

I have a passion for the creative development of cities and towns, and the maintenance of natural resources. I am a planning student at Dalhousie University, and this summer I am working in the field and in the office for the Mineral Resources Branch of the Nova Scotia Department of Natural Resources (DNR).

Working in the field is great: I witness the scale of the projects I am working on, and learn about the importance of their completion. In the office I am developing my ability to use geographic information systems (GIS) to solve real-world problems. The use of GIS tools takes skill, but the real talent is creative problem solving when a tool does not function the way you anticipated. I am constantly learning, but getting paid to learn for a change. I appreciate the significance of the work I am doing: it goes beyond hypothetical

assignments in labs and project scenarios in class. Working at DNR has given me the opportunity to apply myself on projects with real applications.

This job has connected me to a number of professional geoscientists, from geologists who specialize in geohazard analysis, to fluent GIS specialists. These contacts have furthered my understanding of geological data collection and compilation, and how these data may be distributed to planners and decision makers. They may also prove helpful when undertaking my Honors thesis, which I hope to begin next summer. I will never do another planning project without considering the geology of the site. Working at DNR has been an opportunity to see many perspectives on different career paths in the planning field.

Like most summer jobs, working at DNR requires a lot of learning from the bottom up! My job has involved a variety of interesting experiences: walking and collecting data on the beaches of Lunenburg, using a spectrometer to search for mineral enrichment in the Cobequid Highlands, and georeferencing aerial photos to calculate coastal erosion rates in ArcGIS®. The tedious task of digitizing maps is offset by the opportunity to photograph eroding coastlines (see the photo below) from a helicopter! The skills, knowledge and experience I am taking away from this position are priceless. It makes all that money spent on courses and textbooks worthwhile. I am thankful for the opportunity to work for the Mineral Resources Branch: it's proving to be a great summer job!

Laura Trudell



Oblique view of the Northumberland Strait coastline at Mitchells Island, Cumberland County, taken from the seat of a helicopter. View is toward the southeast, with Pugwash Harbour in the distant background.

From the Mineral Inventory Files

Manganese, and Possibly More, at Nicholville

A small prospect of manganese (Mn) occurs east of Palmer Road at Nicholville, Kings County (Fig. 1). The prospect is intriguing, not only as an occurrence of Mn oxides and minor barite, but also for several features that suggest a potential for other economic commodities, such as base and precious metals. Mn oxides were first discovered at the site in 1885 when a vein exposed along Zebe Brook was prospected over a strike length of 123 m. Three barrels of Mn oxide were collected and the site became known as the Nicholville Mn Prospect (sometimes called Aylesford Mn Deposit). In 1918, a 7.5 m deep shaft was sunk on exposed veins of Mn oxide intruding Ordovician slate of the White Rock Formation along the southern contact of a northeast-trending gabbro dyke (Fig. 1). A second shaft or test pit was sunk 18 m to the east, but was abandoned as it encountered only altered and faulted slate. The mineralized zone occurs as veins and lenses of massive Mn oxide, mostly pyrolusite with lesser manganite and psilomelane, mixed with iron (Fe) oxides, barite, calcite and siderite. The veins, largest of which is 1 m wide, appear to intrude fault zones and all workers on the property have noted their likely genetic association with the gabbro intrusion.

In 1972, D. G. Bishop and J. D. Wright of the Nova Scotia Department of Mines carried out a detailed examination of the deposit as part of a province-wide inventory of Mn deposits (Bishop and Wright, 1974; <http://www.gov.ns.ca/natr/meb/pdf/74egs01.asp>). This included drilling eight diamond-drill holes totalling 895 m. Like all the previous explorers of the property, they concluded that the Mn oxide veins are epigenetic and related to the gabbro intrusions intersected by drilling. Their drilling, however, indicated other, possibly more significant findings. Four of the drillholes intersected several zones of massive sulphide in the White Rock Formation slate below the main gabbro

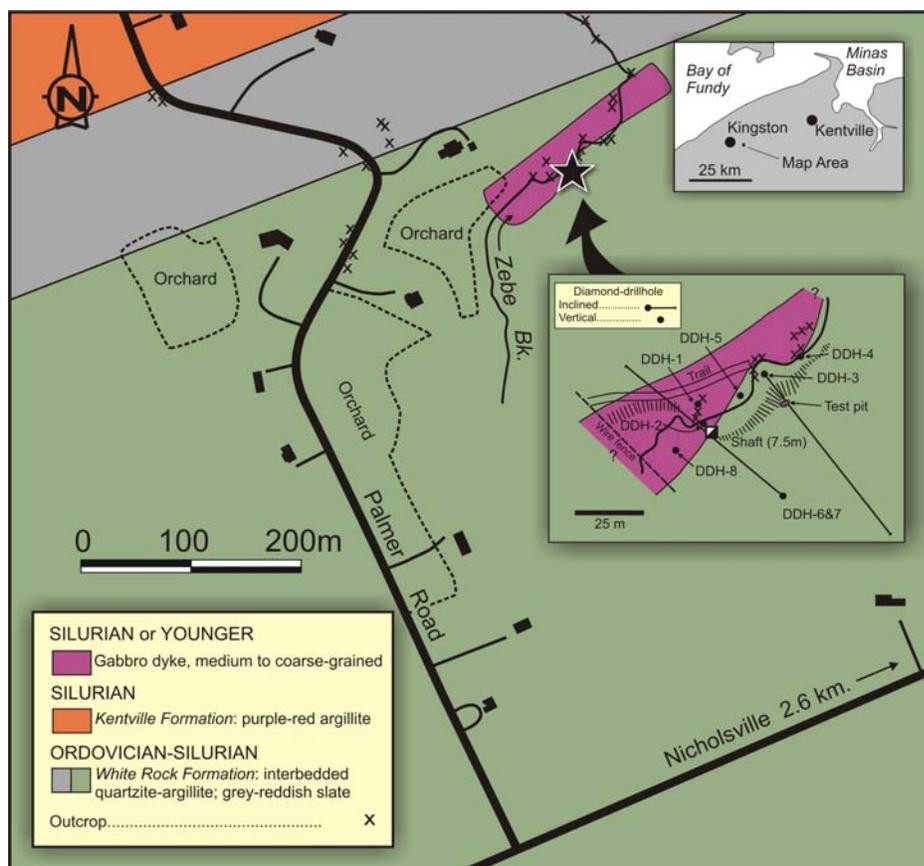


Figure 1. Geology of the Nicholville Mn Prospect, Kings County, modified after Bishop and Wright, 1974.

intrusion. Although these sulphide-rich zones are essentially pyrite, several intervals returned minor levels of Cu, Pb and Ag. Also noteworthy is the fact that several gabbro dykes were intersected, some of which display a high degree of carbonate alteration and deformation due to faulting. There are also a few intersections of a very peculiar, highly altered, felsic intrusive rock with an unknown relationship to the gabbro and to the manganese mineralization.

There appear to be a lot of questions to be answered at Nicholville; clearly, this isn't a simple vein deposit of Mn oxide. I will even go so far as to draw a possible relationship of the mineralization at

Nicholville with deposits of an elemental association of Ni-Co-Bi-Sb-Pb-Ag-Au that are found in the western Annapolis Valley and as far south as Cape St. Mary, Digby County (<http://www.gov.ns.ca/natr/meb/data/pubs/ftmif/mif06.pdf>). Occurrences such as the native gold-bearing, cobaltite-arsenopyrite veins at Nictaux Falls Dam, Annapolis County, the gold-bearing jamesonite-sphalerite-arsenopyrite veins at Lansdowne, Digby County, and richly argentiferous galena, stibnite, Co-pyrite quartz-siderite veins at Cape St. Mary, Digby County, like Nicholville, all share a genetic association with small intrusions and dykes of gabbro.

G. A. O'Reilly

Mineral Resources Branch to Exhibit at 2011 Gem and Mineral Show

Is there a better way to spend a weekend in August than by driving along the beautiful coast of the Bay of Fundy? This coast is the home of some of the most breathtaking views in the province, the highest tides in the world, the most complete fossil record in the world, the Fundy Geological Museum, and the annual Gem and Mineral Show and Sale. The weekend of August 19, 20 and 21 marks the 46th annual Gem Show (formerly known as the Rockhound Roundup) at the Lions Recreation Centre in Parrsboro.

Visitors from across Canada and the United States come to enjoy fine mineral specimens, jewellery, fossils and geological field trips to learn about Earth history from the rock record (see photo of Old Wife Point at Five Islands Provincial Park, below and to the right). The Gem Show includes interpretive walks, demonstrations of gem cutting, jewellery making, gold panning and more. More than thirty exhibitors will showcase a broad mix of fine mineral specimens, jewellery and jeweller supplies, precious stones and gem-cutting tools, beads and fossils. The Metal Arts Guild will showcase the work of Nova Scotia silversmiths and goldsmiths. Representatives from DNR's Mineral Resources Branch will present a display of rocks and minerals native to Nova Scotia and staff will be on hand to identify the mineral treasures collected by visitors.

Admission to the show is \$3.00 per person (children under 12 free). Show hours are 10 am – 7 pm Friday and Saturday, August 19 and 20, and 10 am – 5 pm on Sunday, August 21. For more information please call the Fundy Geological Museum at 902-254-3814 or visit the web site: <http://museum.gov.ns.ca/fgm>.

Diane Webber

April - June 2011 Open Assessment Reports

Report Number	NTS	Licensee
AR ME 2009-037	11F/04C, D	Schenkels, H F
AR ME 2009-038	21A/02D	Hiltz, K R
AR ME 2009-039	11E/02D	Acadian Mining Corporation
AR ME 2009-040	11D/15B	Hilchey, A F
AR ME 2009-041	11F/05B	Acadian Mining Corporation
AR ME 2009-043	21H/08D	Hudgins, A D
AR ME 2009-044	21A/06A	Banks, D V
AR ME 2009-045	11E/09A, B	Cobequid Gold Corporation Limited
AR ME 2009-046	11D/14C	Acadian Mining Corporation
AR ME 2009-047	21A/07C	Hiltz, K R
AR ME 2009-048	21A/07C	Hiltz, K R
AR ME 2009-049	11D/15C	Hilchey, A F
AR ME 2009-050	11E/03A	Hilchey, A F
AR ME 2009-051	11K/08B	Coastal Construction and Excavating Limited
AR ME 2009-052	11E/03D	Elk Exploration Limited
AR ME 2009-053	11F/04D	Exploration Orex Incorporated
AR ME 2009-054	11E/07A	Acadian Mining Corporation
AR ME 2009-055	11E/08D	Mazerolle, G J
AR ME 2009-056	21A/16D	Jensen, L R
AR ME 2009-057	11F/04D	Acadian Mining Corporation
AR ME 2009-058	11E/03A, B	Acadian Mining Corporation
AR ME 2009-059	11E/05D; 11E/06C	Allen, L J; Elk Exploration Limited; Ecum Secum Enterprises Limited
AR ME 2009-060	11D/16C, D	Bezanson, P T
AR ME 2009-061	11E/03A	Elk Exploration Limited
AR ME 2010-078	11E/08A, D; 11F/05B, C	Stewart, R D

Susan Saunders and Norman Lyttle



Visitors enjoy a field trip to Five Islands Provincial Park, near Parrsboro.

Geoscience Information Manager Norman Lyttle Retires

Norman Lyttle has been the driving force behind our approach to organizing and disseminating geoscience information for three decades. Norman's influence on the productivity and output of our geoscience unit has been pervasive, whether we constituted a department (Mines, then Mines and Energy) or a branch of the Department of Natural Resources.

Norman was raised in Edinburgh, Scotland, and earned a B.Sc. in Geology from the University of Edinburgh in 1969. He emigrated to Canada that same year and enrolled as a graduate student at Dalhousie University in Halifax. He married his wife Jean in 1970. In 1972 Dalhousie presented Norm with two degrees: M.Sc. in Geology and B.Ed. Norman then taught at St. Patrick's High School and Dalhousie University until he began his career with the Nova Scotia Department of Mines in 1979.

Norman started by taking over the Mineral Inventory and GEOSCAN programs. These programs sought to organize and disseminate all the department's information on mineral occurrences and to index all its geoscience documents and make them publicly accessible. Assessment Reports submitted by industry to describe work carried out on mineral claims were a big part of this work, and Norman enforced a more rigorous review of Assessment Reports, backed by better standards he helped to write into the province's *Mineral Resources Regulations*. From 1982 to 1995 Norman was Supervisor of the Mineral Inventory/Public Information group. This group comprised the Library, Mineral Inventory Program, the GEOSCAN (later to become NovaScan) Database, the Drillholes Database, Assessment Reports, and the department's first Geographic Information System (GIS) unit. From 1995 until July 2011 Norman was Manager of the Geoscience Information Services Section, which has included the following programs: NovaScan, GIS, Land-use Planning, Public Education and Awareness, Publications and Editing, Exploration Monitoring, regulation of



Norman Lyttle (R) and John McMullin (L) enjoying a day in the field, October 2010.

Assessment Reports and the Drill Core Library in Stellarton.

Norman has always been an innovative thinker, but in terms of transforming thoughts into results he has simply not been equaled. Norman created the Drillholes Database, and its first electronic version (1982). He created the first electronic version of the Mineral Occurrence Database (1983). He introduced a Land-use Planning program to the department in 1984. Norman introduced GIS technology to the Mineral Resources Branch in 1994 and built its staff based on the necessity of hiring qualified Geologists with additional GIS training. He initiated development of the branch web site and Internet delivery of geoscience information, data and digital products, insisting that all digital information be made available for free. He initiated development of the public search interface to the NovaScan Database in 2003 and to the Abandoned Mine Openings Database and Mineral Occurrences Database in 2006. In 2007 he started a program to scan all the

Assessment Reports, departmental publications and maps so that .pdf versions of all these documents could be made available for free through the branch web site.

After working for six different Directors and at least twice as many Ministers, Norman decided to retire in July. His absence is being keenly felt by staff of his former section and in the department's Library, on which Norman always kept a watchful eye, even after it became a departmental resource and was no longer under his supervision. Being an organized man, Norman left everything arranged so that the logistics of his work could be carried on for some time without his presence. But there is no substitute for that presence. Norman and I usually arrived at work at about the same time and over the years we had hundreds of wonderful, concise conversations, full of Scottish euphemisms, about every imaginable topic. I doubt that I will enjoy the company of a smarter or funnier colleague than Norman has been.

Doug MacDonald

Mining Society Holds 124th Annual General Meeting

The Mining Society of Nova Scotia (MSNS) held its 124th Annual General Meeting at Keltic Lodge Resort & Spa from June 8-10, 2011. The meeting focused on the theme 'Moving Forward – Meeting Modern Mining Challenges'. The event played host to great technical talks, great food and great friends.

Moving forward, MSNS continues to support industry professionals through education and networking. Our continued support of educational programs and the funding of a pilot Earth Science education project with the Straight Regional School Board will continue to support the mining industry throughout the province and foster interest in our youth.

Looking ahead to 2012, the Mining Society of Nova Scotia would like to invite all to our historic **125th Annual General Meeting** to be held at **Keltic Lodge Resort & Spa** from **June 6-8, 2012**. In partnership with the Canadian Institute of Mining and Metallurgy, MSNS is looking to make next year's meeting a premiere national event. Rick Mercer will be in attendance as Keynote Speaker on June 7th and the planned technical session will touch on provincial, national and international mining topics. Registration and a full schedule of technical talks will be available in September. Please check our website for updates www.miningsocietyns.ca.

The Mining Society of Nova Scotia would like to thank the participants and sponsors of this year's general meeting for their continued support of the society and its activities.

*Matt Ferguson, P. Geo.
President, Mining Society of Nova Scotia*

Protecting 12% of Nova Scotia's Landmass

The *Environmental Goals and Sustainable Prosperity Act* (2007) sets out the ambitious goal of protecting 12% of Nova Scotia's landmass by 2015. In June 2011 the province identified nearly 220 000 hectares of study areas, of which approximately 70% will be placed under protection in order to reach the 12% goal. Much of the land was identified by the 2009 Colin Stewart Forest Forum, non-government organizations and forestry industry representatives that made recommendations to government based on nearly five years of scientific research.

The government of Nova Scotia has put in place interdepartmental Technical and Steering committees with representatives from the departments of Natural Resources, Environment and Energy. These committees have been busy compiling the various land values for the study areas, including mineral resource potential. In addition to the input by staff, the government is looking for public comments that will be incorporated into a draft plan, which will be released for province-wide consultation next year before any final decisions are made on which lands will be protected.

Study area locations can be accessed through DNR's Internet Map Server (<http://gov.ns.ca/natr/meb/pubs/pubs3.asp>) or through the Department of Environment's web site (<http://www.gov.ns.ca/nse/12percent/>) where a detailed explanation of the process is presented. It is important that government receives the input of the mineral industry on these study areas so that industry concerns can be addressed as part of the consultation and evaluation process. Written comments will be accepted until Dec. 1, 2011, at Department of Environment, Protected Areas Branch, Box 442, Halifax, NS, B3J 2P8. Bob Ryan represents the Geological Services Division on the 12% Technical Committee and has already met with members of the Mining Association of Nova Scotia Land Access Committee. Now is the time to get involved and help ensure that informed land-use decisions are made.

Bob Ryan

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

August 19-21, 2011

Nova Scotia Gem and Mineral Show, Lions Recreation Centre, Western Ave., Parrsboro, NS. For more information please see the article on p. 6 and 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.

January 23-26, 2012

Association of Mineral Exploration BC Mineral Exploration Roundup 2012, Celebrating Our First Century of Global Discovery, Westin Bayshore, Vancouver, BC. For more information call the Roundup Hotline at 604-630-3930 or 1-877-689-5554, or e-mail roundup@amebc.ca.