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Natural Resources

Geology Matters 2010: Growing the Economy

On October 25 and 26, 2010, the Mineral Resources Branch of the Department of Natural Resources (DNR), in partnership with the Mining Association of Nova Scotia, the Mining Society of Nova Scotia and the Prospectors Association of Nova Scotia, hosted its 34th annual fall conference. The conference was titled Geology Matters 2010 and attracted a broad audience, including representatives from many government departments, Nova Scotia Business Inc., Atlantic Canada Opportunities Agency, Regional Development Authorities, Ecology Action Centre, Canadian Parks and Wilderness Society, the general public, Environmental Network, Aboriginal groups, municipal planners and administrators, students and teachers, consulting groups, mining companies and many more. Under the theme Growing the Economy, Geology Matters 2010 presented the details of work on geoscience and municipal planning, geohazards and health and safety, geoheritage and economic growth, new strategies for managing Nova Scotia's resources, reclamation and much more.

The first day of the conference featured presentations under the themes Natural Capital, Applied Geoscience for Communities, and Exploration and Mining. DNR staff gave presentations on under-explored mineral potential in Nova Scotia, rare earth elements and metals in the province, the importance of building community support and the contribution of mineral development to those communities. Speakers discussed the economic impacts of geoheritage, water resources, and coastal flooding and erosion. Mineral exploration companies outlined their activities in Nova Scotia and internationally.

Lunch on the first day of the conference featured speaker Kim MacNeil, Acting Deputy Minister of Nova Scotia Environment. Mr. MacNeil gave a report on how



These specimens of Nova Scotia gold were borrowed from the provincial Museum for display at the Student Workshop (L specimen: 3.31 oz. Au, R specimen: 1.7 oz. Au).

(Continued from page 1)

government is aligned with the Environmental Goals and Sustainable Prosperity Act. A workshop was held in the afternoon to explain many aspects of the geoscience profession to local university students. The Minister's Reception and Awards Ceremony ended the first day of the conference. The Honourable John MacDonell delivered a firm message that the NDP government "understands the importance of the mining industry to our economy and way of life, especially in rural parts of the province," and that his government "wants to see new mineral development in Nova Scotia." Minister MacDonell assisted in the presentation of the Terrance Coughlan Memorial Award to John Wightman for his contribution to the development of industrial minerals in Nova Scotia, and the Prospector of the Year award to Don Black.

The second day of the conference, organized around the themes Exploration and Mining, Energy Resources and Mine Reclamation, included the Mining Association of Nova Scotia's viewpoint of the importance of the provincial mining industry, the prospectors' report on exploration activities in the province, and presentations on the future of coal, onshore petroleum exploration, mining reclamation and tidal power development.

John Woods, Vice President of Energy Development, Minas Basin Pulp and Power, addressed delegates at the luncheon on October 26. Mr. Woods delivered a detailed presentation highlighting the many successes of the Fundy Tidal Energy project, while emphasizing the important role that geology is playing in the Fundy Basin, where the tidal waters are known to present the most demanding conditions in the world.

Geology Matters 2010 was well attended and successful in building awareness and emphasizing the importance of geoscience for health, economic growth, and for science-based consultation in land-use planning initiatives. This year's conference will be held on October 24 and 25, 2011, at the Westin Hotel, Halifax. For further information contact Diane Webber at webberde@gov.ns.ca or 902-424-3053.

Diane Webber

October - December 2010 Open Assessment Reports

Report Number	NTS	Licensee
AR ME 2008-167	20O/16D	O'Sullivan, J R
AR ME 2008-168	11D/15C	MacDonald, R H
AR ME 2008-169	11F/05A	Schenkels, H F
AR ME 2008-170	11E/07D	Elk Exploration Limited
AR ME 2008-171	11E/07D	Elk Exploration Limited
AR ME 2008-172	11E/07D	Elk Exploration Limited
AR ME 2008-173	11F/05C	Blackfly Exploration and Mining
AR ME 2008-174	11E/05C	Allen, L J
AR ME 2008-175	11E/03D; 11E/06A	Ecum Secum Enterprises Limited; Elk Exploration Limited
AR ME 2008-176	21A/07C	Hiltz, K R
AR ME 2008-177	11D/12D	Hilchey, A F
AR ME 2008-178	11D/16C	Hilchey, A F
AR ME 2008-180	11F/14B	MacKinnon, R P
AR ME 2008-181	11E/05C, D; 11E/06C, D; 11E/08D; 11E/10B; 11E/11A, B; 11E/12A, B; 11F/05C; 21H/07C, D; 21H/08C, D; 21H/09A	Minotaur Atlantic Exploration Limited
AR ME 2008-182	11K/02B, C;	Merrex Gold Incorporated
AR ME 2008-183	11K/02C	Merrex Gold Incorporated
AR ME 2008-184	11D/12B	Young, T A
AR ME 2008-185	11E/01C; 11E/08B	Grant, S
AR ME 2008-186	11F/16C; 11K/01B	Kelly Rock Limited
AR ME 2008-187	11E/07B	Elk Exploration Limited
AR ME 2008-188	11E/02C	Elk Exploration Limited
AR ME 2008-189	11E/07B	Elk Exploration Limited
AR ME 2008-190	11E/07D; 11E/08C	Elk Exploration Limited
AR ME 2008-191	11E/07D	Ecum Secum Enterprises Limited
AR ME 2008-192	11D/15C	DDV Gold Limited
AR ME 2008-193	11D/15C	Acadian Mining Corporation
AR ME 2008-194	11F/04D	DeBay, A
AR ME 2008-195	11E/04B, C; 21H/01D	United Reef Limited
AR ME 2008-196	11E/03B	Acadian Mining Corporation; Scozinc Limited
AR ME 2008-197	11D/12D	Conrad Brothers Limited
AR ME 2008-198	11E/03B	Findley, C
AR ME 2008-199	21A/07B	Hooper, J
AR ME 2008-200	21A/16C	McPherson, B

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October - December 2010 Open Assessment Reports (continued)

Report Number	NTS	Licensee
AR ME 2008-202	21A/07C	Acadian Mining Corporation
AR ME 2008-203	21A/07C	Hiltz, K R
AR ME 2008-204	11F/16C, D;	Thomson, A C
AR ME 2008-205	21A/01C, D;	Hiltz, K R
AR ME 2008-206	21A/02D	Hiltz, K R
AR ME 2008-207	21A/02D	Hiltz, K R
AR ME 2008-208	11E/02B; 11E/03A	Annapolis Properties Corporation
AR ME 2008-209	11D/15C	Acadian Mining Corporation
AR ME 2008-210	11D/13D	DDV Gold Limited
AR ME 2008-211	11D/15A	Acadian Mining Corporation
AR ME 2008-212	11E/01D; 11E/08A; 11F/05B	Scorpio Mining Corporation
AR ME 2008-213	11D/15C	DDV Gold Limited
AR ME 2008-214	11F/05B	DDV Gold Limited
AR ME 2008-215	11F/04C; 11F/05B	DDV Gold Limited
AR ME 2008-216	11E/02A	Annapolis Properties Corporation
AR ME 2008-217	21A/04A	Avalon Ventures Limited
AR ME 2008-218	11E/02D	Shadbolt, D
AR ME 2008-219	11E/11B	Alpha Uranium Resources Incorporated
AR ME 2008-220	11E/11B	Alpha Uranium Resources Incorporated
AR ME 2008-221	11F/04D	Annapolis Properties Corporation
AR ME 2008-222	11F/04D	Annapolis Properties Corporation
AR ME 2008-223	11F/16A, B, D;	Thomson, A C
AR ME 2008-224	11E/02D	Grant, S
AR ME 2008-225	11E/02D	Grant, S
AR ME 2008-226	11E/02D	Grant, S
AR ME 2008-227	11F/14C, D;	Glencoe Resources Incorporated
AR ME 2008-228	11E/03A	Hilchey, A F
AR ME 2008-229	11E/03A	Hilchey, A F
AR ME 2008-230	11D/14D	Hilchey, A F
AR ME 2008-231	11E/07D; 11E/08C	Elk Exploration Limited
AR ME 2008-232	11D/13D; 11D/14C	Annapolis Properties Corporation
AR ME 2008-233	11E/03A	Hilchey, A F
AR ME 2008-234	11K/10B; 11K/10C	MacKinnon, R P
AR ME 2009-021	21A/02D	Oickle, R T
AR ME 2009-062	21H/08D	Elk Exploration Limited
AR ME 2009-063	21H/08D	Elk Exploration Limited

Susan Saunders and Norman Lyttle

DNR Library Introduces Wireless Internet Access

Many of you will have noticed that there are more and more places where you can access the Internet: airports, hotels, conference centres, cafes and even the Halifax Waterfront! Public and University libraries have been offering wireless Internet access for several years. Now the DNR Library is a wireless zone too.

When you come to the DNR Library you will be able to bring your laptop to access the Internet. Simply ask a member of the Library staff for a password or key to access the Internet. Connecting is straightforward. How will this be useful to you? It is our hope that having wireless Internet access will give patrons the opportunity to conduct research in the Library more efficiently.

The Mineral Resources Branch has many applications on its website that require Internet access. Downloading maps, reports and digital products, searching NovaScan, the Mineral Occurrence or Abandoned Mine Openings databases, and using the Internet Map Server Service all require an Internet connection. The Mineral Resources Branch is developing more online applications and digital products all the time.

Although patrons are welcome to use the two public access computers in the Library, these computers have limitations. Possible security threats to the DNR network in Founders' Square require us to block all access to the network from these computers. Now patrons can connect to the Internet and download maps and documents directly to their own laptops in the Library. You will be able to use your own software and files, and work without restrictions. You will not have to wait for a public access computer to become available.

Next time you visit the Library, why not bring along your laptop and give DNR's wireless network a try? Find a quiet spot at one of our tables, pour yourself a cup of coffee and settle in to work.

Tracy Lenfesty, DNR Librarian

From the Mineral Inventory Files

The Northeast Extension Deserves a Look

In 2003 I wrote one of these articles (Minerals Update, v. 23, Summer 2003) about the potential for gold in a shear-related style of mineralization associated with the Kemptville Shear Zone in Yarmouth County (Fig. 1). This style is atypical of the commonly proposed, bedding-parallel, auriferous quartz vein genetic model for the Meguma Zone's numerous gold deposits.

The Kemptville Shear Zone is an impressive, 35 km (minimum) long metallotect of very well developed deformation with attendant silica and sericite alteration that originates within the South Mountain Batholith and traverses southwest through the Meguma Group metasediments to Carleton, where it swings into parallel with the equally regional scale Deerfield Shear Zone (Fig. 1). The portion of the shear zone between Kemptville and Carleton boasts several occurrences of precious and base metals, most notable being the past-producing Kemptville and Carleton gold mines. Currently, Greenlight Resources Incorporated has optioned the Kemptville property and is undertaking a major exploration project there.

It is my feeling that the northeast extension of the shear zone, between the village of Kemptville and the South Mountain Batholith, also has excellent gold potential. This is demonstrated by a very interesting, but little known and almost forgotten, gold occurrence in the area of Schoolhouse Brook (Fig. 1). In 1990, currently reigning Nova Scotia Prospector of the Year Don Black gave me a sample of silicified and sericitized argillite, which had been turned up by equally renowned prospector Mert Stewart when they were undertaking a reconnaissance exploration program in that area (see NSDNR Assessment Report ME-89-273). The sample (Fig. 2) contains several thin, limonite-stained, quartz-sericite stringers, some of which feed small vugs. In this sample, some of these vugs contain visible gold (inset in Fig. 2). Their exploration effort did not turn up other samples with visible gold

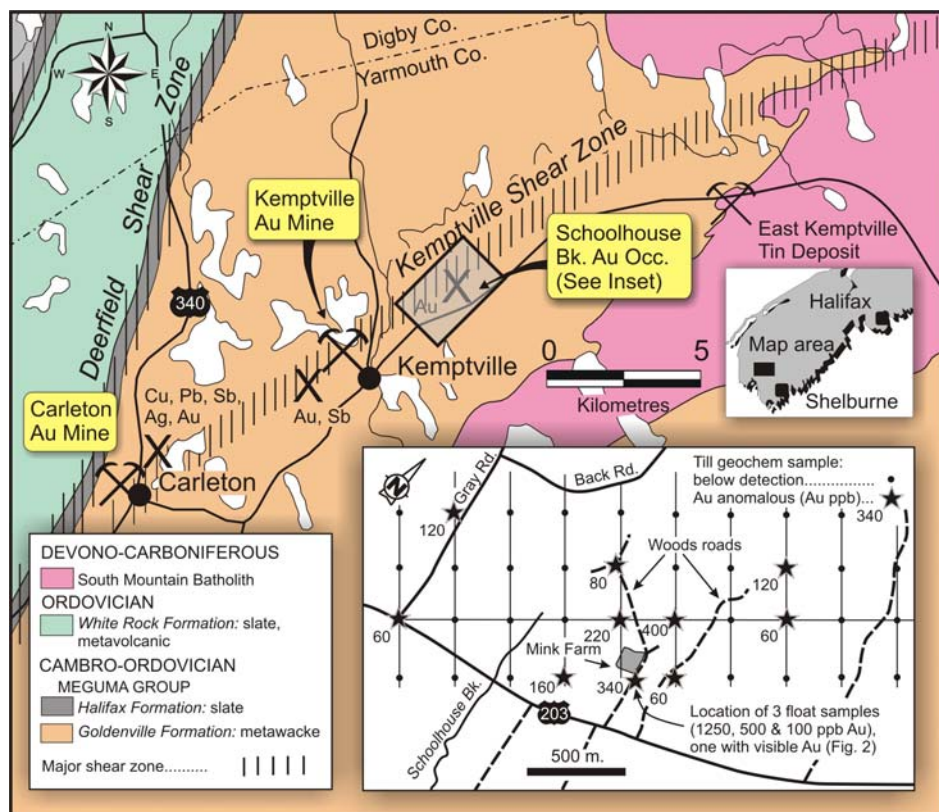


Figure 1. Geology of the Kemptville Shear Zone showing the location of some of the more significant precious- and base-metal occurrences. The area of the Schoolhouse Brook gold occurrence is provided as an inset.

but did return float samples with gold concentrations up to 1250 ppm, in an area where till samples were found to contain up to 400 ppb gold (inset on Fig. 1).

I consider this to be a significant find for a couple of reasons. The auriferous sample, and ones similar to it that abound in this area, reflect the deformation and silica and sericite alteration that is typical of the shear zone, but there is a marked absence of quartz veins in the metasediments. This suggests to me that the gold here, which is clearly of a disseminated style, may be potentially widespread and represent a large, low grade target. Equally important is the fact the occurrence opens up the entire northeast extension of the Kemptville Shear Zone metallotect, indicating that

it, too, has great exploration potential and clearly warrants a much more concerted look.

G. A. O'Reilly



Figure 2. Sample of silicified and sericitized argillite from the Schoolhouse Brook Au occurrence with veinlets and vugs of quartz-sericite containing visible gold (see inset photo).

Nova Scotia Prospectors Association Field Trip

The first weekend of October 2010 found members of the Nova Scotia Prospectors Association geared up and headed to the Cobequid Highlands for their annual fall field trip. Led by the usual stalwarts (geologists) George O'Reilly and Ron Mills, the pair were joined this year by colleague Dr. Trevor MacHattie, as association members were treated to an education in the intricacies of exploring for rare earth elements in the peralkaline granitic rocks common to northern Nova Scotia.

The opening stop at a quarry near Annandale provided geological context to the grievous tectonic history of the highlands and the bimodal environment that helped form it. The next site gave more background to the development of the Late Devonian to Early Carboniferous Byers Brook Formation volcanic suite. An agglomerate site close to the base of the formation provided the perfect setting for a description of the cataclysmic birth of the exposed outcrop, one analogous to the explosion that rocked Mount St. Helens, Washington, over two decades ago.

The next two stops were extremely interesting sites, consisting of veins of Devonian granite intruding granite of the Byers Lake/Hart Lake Pluton, which is essentially the same age as the Byers Brook Formation. The leucocratic veinlets, looking more like pink rhyolite, commonly display an elevated concentration of thorium related to magmatism and are enriched in REEs. Many questions remain as to the mode of emplacement and source, and these were all discussed on site. After a brief trek northward the group found itself in a new quarry, with newly discovered silica, carbonate and epidote alteration overprinting rhyolite and mafic flows and attended by sulphide mineralization with no analyses yet returned. Unstaked, mineralized, virgin ground: a prospector's dream!

To round out the day, the group finished by visiting Annandale Falls, where Swan Brook takes a breathtaking plunge at one of the topographic breaks along the north scarp of the highlands.



DNR geologist Trevor MacHattie points out granites enriched in rare earth elements in the Cobequid Highlands.

Day two began at the Folly Lake quarry, atop the terminal moraine that forms a dam at the north end of Folly Lake. Evidence of the Younger Dryas interval may be present in an exposure in this quarry. After donning safety gear, the group was treated to a discussion of the Younger Dryas interstadial and interglacial periods, when Nova Scotia's climate changed from that of a glacial period to a climate as warm as Virginia in a 300-400 year span, then back to a glacial climate for 1300 years before the ice receded entirely. All this drastic climate change happened 11,000 years before fossil fuel use! Near the eastern extremity of the quarry, a different environment is revealed in a spectacular exposed face that shows the "roots" of the bimodal plumbing system seen earlier.

Next at spectacular Arrowhead Falls, the group experienced an exposed radial spherulitic rhyolite near the top of the Diamond Brook Formation. At the next stop on Warwick

Mountain, an apparent oil shale unit sandwiched between two basalt flows has generated some excitement at DNR with the suggestion that this could be a possible Horton facies equivalent (hydrocarbon source rock trapped between effective cap rocks).

The former Oxford Tripoli Diatomite Mine in East New Annan was the next location of note. Here, diatomite was formerly mined for use as a filter, and in the manufacture of cement and absorbents, uses it still has today. There followed a discussion regarding future development opportunities of this resource. The East Mountain Gabbro quarry northeast of Truro was the last stop. Here a spectacular ropey, volcanic texture was seen as well as intrusive textures. This gabbro also exhibited metasomatic minerals such as tremolite and jasper. At that point the rock collection genes took over as the group finished tired, but satisfied and looking forward to next field season.

Ron Mills

Geological Royalty Visits Nova Scotia

This past September I had the honour of meeting Fiona Brown, great granddaughter of eminent 19th Century Geological Survey of Canada geologist Hugh Fletcher. Fiona, who hails from the Isle of Mull, Scotland, was passing through Nova Scotia on a tour of eastern Canada with a childhood friend of hers, Gretchen Brewin of British Columbia.

I first became aware of Fiona's existence in 2008 when I was researching Hugh Fletcher for an article I was preparing for this newsletter (<http://www.gov.ns.ca/natr/meb/data/pubs/ftmif/mif26n1.pdf>). She graciously provided me with a wealth of information on the man's life and times. I was at least able to reciprocate her generosity of information by being able to tell her a few things about Fletcher that she wasn't aware of, most notably some particulars of his last field season in 1909 when his GSC field party was occupying the Lower Cove, Cumberland County, bunkhouse of the Atlantic Grindstone Company quarry operation. It was during that year that Fletcher contracted pneumonia while mapping the section between Springhill and River Hebert and was bedridden for several days in the bunkhouse before he succumbed to the illness and passed away on September 23rd. Fiona was interested to learn these details of his final days and especially that the bunkhouse where he died still stands as a private residence.

Last summer Fiona informed me of her impending visit to Canada and expressed an interest in visiting Lower Cove to see Fletcher's last stomping grounds, and also to tour the fossil cliffs at Joggins. I was able to organize an impromptu tour starting in Lower Cove, where local geologist and paleontologist Brian Hebert recounted for us the history of the old Atlantic Grindstone Company and its connection to Fletcher. Brian then took us to the old bunkhouse where Fiona could see first hand where Fletcher spent his last days. Following that we visited the Joggins Fossil Centre where a tour of the centre and cliffs was provided by Melissa Grey, Curator of

Paleontology. I then led Fiona and Gretchen to Parrsboro, where they stayed for the night and the following day met with Ken Adams of the Fundy Geological Museum. Ken showed them some of the key geological sections along the Parrsboro shore that Fletcher had a hand in mapping (see photos). Following that they continued on their way to Newfoundland.

It was a great personal honour to have met Fiona and served as her

guide. She is truly pleasant and personable and it was a joy to spend a day with her and Gretchen. I don't know if it's in her genes or not, but I don't think it's a coincidence that, even though she's not a geologist, I noticed she was constantly filling her pockets with rocks. I would say that, at least in part, she was being guided by the hands of her great grandfather.

G. A. O'Reilly



Top photo: Hugh Fletcher's great granddaughter Fiona Brown and Ken Adams, Director of the Fundy Geological Museum, viewing the rocks at West Bay near Partridge Island. **Bottom photo:** Officers of the Geological Survey of Canada viewing this same West Bay geological section in 1891, from left, G. F. Matthew, Hugh Fletcher, W. F. Ferrier, A. P. Low and G. A. Young. Photo taken by J. B. Tyrell (GSC Photo 1611) and reproduced with the permission of Natural Resources Canada 2011.

Promoting the Mineral Resources of Nova Scotia

The Mineral Resources Branch of the Nova Scotia Department of Natural Resources (DNR) plays an important role in informing both junior and major exploration and mining companies of the mineral resources and investment opportunities in Nova Scotia.

Quebec Exploration 2011

Liaison Geologist Diane Webber of the Geological Services Division recently traveled to Quebec City to promote Nova Scotia mineral opportunities at the 8th annual Quebec Exploration 2011 conference. More than 2200 people attended the event and learned about the latest discoveries and promising mining projects, and met with specialists in all fields related to exploration. Diane spoke about current exploration projects and presented Nova Scotia mineral opportunities in one of 160 booths at the event.

Mineral Exploration Roundup

The 28th AMEBC Roundup conference, held in Vancouver in January 2011, is regarded as the world's largest technical mineral exploration conference. Over 4500 registrants from more than 40 countries attended the show, which featured nine short courses, seven technical sessions, two field trips, a prospector's tent, core shack, map tent and hundreds of poster displays. Executive Director of the Mineral Resources Branch Mike MacDonald, Director of the Geological Services Division Rob Naylor, Liaison Geologist Diane Webber and Geologist Trevor MacHattie attended the conference and promoted Nova Scotia's mineral resources in the DNR booth. The DNR booth presented a geological overview of the province focusing on gold and rare metals.

Prospectors and Developers Association of Canada (PDAC)

Staff of the Minerals Resources Branch are busy with preparations for attendance at the upcoming PDAC 2011 International Convention, Trade Show and Investors Exchange, to be held March 6-9 at the Metro Toronto Convention Centre. This year's delegation will consist of the recently appointed Minister of Natural Resources the Hon. Charlie Parker and Deputy Minister Duff Montgomerie, as well as Mineral Resources Branch Executive Director Mike MacDonald, Director of the Geological Services Division Rob Naylor, Registrar of Mineral and Petroleum Titles John MacNeil, Liaison Geologist Diane Webber, Mineral Deposits Geologist Trevor MacHattie and Digital Information Services Supervisor Brian Fisher. DNR will have an opportunity to promote the mineral resources of the province with excellent visibility in the Atlantic Rock Room. Officials are estimating a record breaking attendance to beat last year's high of 23,000 people, many of whom will visit the Nova Scotia DNR booth to gather technical information and inquire about opportunities in the mining sector in the province.

Minister Parker will host a breakfast for industry representatives at the conference and discuss the mining industry and its impact on the sustainable growth of Nova Scotia's economy, while adhering to its 'best practice' obligations. In recognition of the importance of prospectors to the prosperity of the Nova Scotia mineral sector, DNR is providing financial assistance for approximately fifteen prospectors to attend the conference and providing space for the prospectors to promote their properties. This conference is one of the most productive venues there is for prospectors to find project partners or to develop option agreements with other companies.

Diane Webber

Special Notes

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.

Smartphone App Developed for Fundy Mineral Collecting

Local smartphone developer and zeolite prospector Ian Booth has converted his guidebook *Fundy Mineral Collecting* (Outside Publication ME 2003-1, available at the DNR Library) into an Android smartphone app, available for download from Google's Android Market. The app runs on newer Android 2.2 smartphones with large touch screens. The app shows locations in real time on a satellite-view map for dozens of prime collecting sites, with specimen photos and text information from the guide. It also allows users to geo-tag and record field observations, which are automatically converted to text and sent to a preset home e-mail.

Dates to Remember

March 6-9, 2011

Prospectors and Developers Association of Canada 2011 International Convention, Trade Show & Investors Exchange - Mining Investment Show, Metro Toronto Convention Centre - South Building, Toronto, ON. For more information please visit the web site <http://www.pdac.ca/pdac/conv/index.aspx>

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>.