

Nova Scotia

# Minerals Update

Department of Natural Resources, Minerals and Energy Branch

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## Savage Zinc Buys Gays River Property

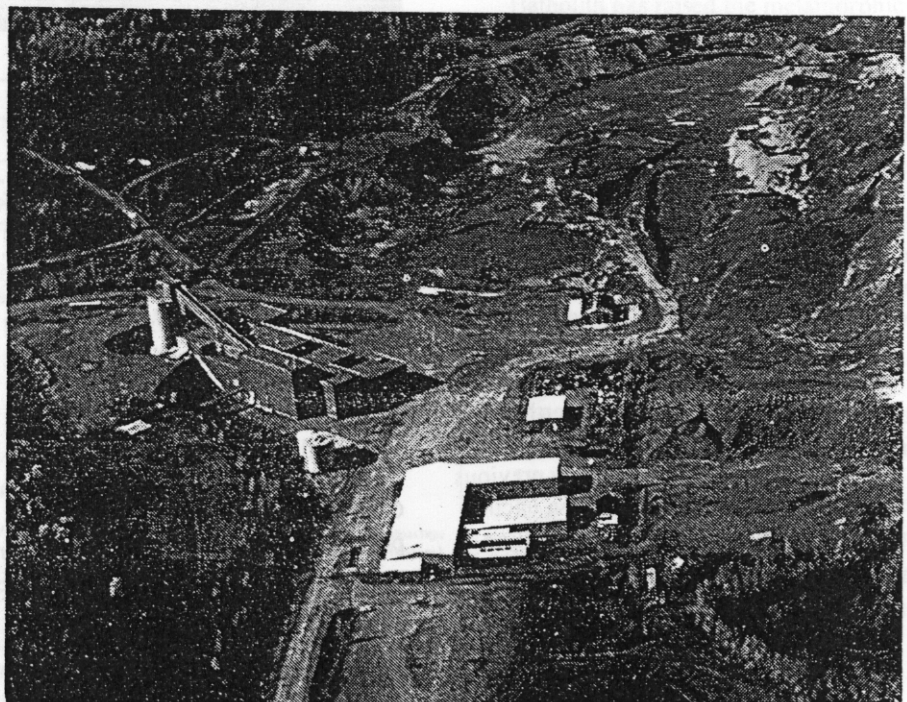
A Canadian subsidiary of Savage Resources Ltd. of Australia purchased the Gays River base metals property in central Nova Scotia on November 8, 1996. The mine is currently on a care and maintenance basis. Savage intends to dewater the mine and re-establish mining operations to produce zinc concentrates, subject to a technical review. Savage has renamed the mine the *Scotia Mine*. The company expects to have permits in place and the mine dewatered by mid-1997. By then, the company also expects to have completed an assessment of the open cut potential of the near-surface ore and of the underground mining methods.

The company plans to increase their production of zinc concentrate during

1998 from a trial stopping phase to a target level of 25,000 tonnes per annum (tpa). Lesser amounts of lead concentrate will also be produced. The destination of the zinc concentrate will be Savage Zinc Inc.'s smelter in Clarksville, Tennessee. This facility currently processes approximately 165,000 tonnes of concentrates per year to produce 105,000 tonnes of zinc metal per year.

The purchase of the Gays River mine and mill represents a significant 'vote-of-confidence' for the deposit and bodes well for the future of exploration and development of carbonate-hosted lead-zinc deposits in the Carboniferous basins of Nova Scotia.

Mike MacDonald



An aerial view of the Gays River processing facility and mine.

## DNR Geologists Visit Kaolin Deposits in Georgia

The discovery of extensive kaolin deposits in central Nova Scotia has led to one of the hottest exploration plays in the province (see *Nova Scotia Minerals Update* vols. 7 and 8). Kaolin is used primarily as a filler and coater in the paper, paint, rubber, plastics and adhesives industries, and as a component in ceramic-refractory applications (for chinaware, sinks, etc.). The kaolin industry in North America is dominated by producers from the State of Georgia, USA. Georgia produces approximately \$1 billion (US) worth of kaolin each year.

During the week of Oct. 26 to Nov. 2, DNR geologists Phil Finck and Ralph Stea joined a contingent of interested members of the Nova Scotia mineral industry on a trip to Georgia to meet with representatives of kaolin producers, consulting firms and drilling companies. The Nova Scotians visited operating kaolin quarries, exploration sites and production facilities, as well as reclaimed quarry sites that are now stands of high quality pine complete with ponds stocked with game fish.

For the DNR geologists, the trip was highlighted by the opportunity for three-

dimensional views of kaolin deposits in operating quarries. Drill core and seismic lines give an insight into the subsurface architecture of these deposits, but there is no substitute for examination of a deposit through its depth. Further, these quarries gave Phil and Ralph a look at proven economic deposits. So far, the seismic lines and drill cores from Nova Scotia reveal only small segments of a large, kaolin-rich belt. The eco-

nomically feasible of discrete kaolin deposits within that belt, and in other Cretaceous basins in the province, has yet to be determined.

Ten to fifteen years ago, the world demand for kaolin was supplied by either Cornwall (England) or Georgia. Since then, other deposits around the world have tapped into regional markets, and have succeeded wherever the local producers can achieve a cost advantage by efficient shipping. Kaolin from the Georgia deposits must be transported considerable distances overland before being shipped.

For the industry representatives in Georgia, this trip underlined their impression that we are experiencing a serious exploration play for kaolin in Nova Scotia. This economic potential represents a threat to the Georgia domination of a huge North American market. Nova Scotia's shipping advantage is particularly a threat to markets in eastern Canada and the northeastern USA. As one representative of a major kaolin producer in Georgia stated: "If kaolin development is successful in Nova Scotia, we want to be part of it".

*Doug MacDonald, Phil Finck and Ralph Stea*



*Kaolin is King in many parts of Georgia.*

## Globex Mining Acquires Mooseland

Globex Mining Enterprises Inc., a Canadian exploration company centred in Rouyn-Noranda, Quebec, recently announced that it has entered into an agreement with Acadia Mineral Ventures Ltd. of Toronto to acquire 100% interest in the Mooseland gold deposit northeast of Halifax. In a Nov. 22 press release, Globex noted that according to previous reports the deposit contains "an uncut, drill-indicated reserve of 2.02 million tons grading 0.39 oz./ton Au over an average mining width of 5 ft. to an average depth of 1000 ft.". They also noted that previous work has shown that "all of

the known mineralized zones are open either along strike or to depth or both" and "good potential for the discovery of further mineralization exists in several areas within and immediately adjacent to the drilled area".

Historical gold production at the Mooseland district was 3,865 troy ounces. The Globex announcement is an important, positive development for the deposit and will hopefully lead to significant future gold production at the site.

*Mike MacDonald*

## The Search Continues

The search for mineral wealth continues with 34 students of the Basic Prospecting Course and 9 students of the Advanced Prospecting Course completing their course requirements this Fall. The courses teach students how to identify rocks and minerals, read maps and compasses, deal with regulations, and more.

The Department will offer additional basic and advanced prospecting courses next Spring. Watch for more information later in the Winter as we try to determine the level of interest in specific areas.

*Howard Donohoe*



# From the Mineral Inventory Files

## Silurian Limestones in the Annapolis Valley Deserve a Closer Look

Historically, production of limestone and dolomite in Nova Scotia has come from either the Carboniferous Windsor Group or the Precambrian George River Group. However, in this article I would like to highlight a potential source for limestone in Silurian metasedimentary rocks along the southern margin of the Annapolis Valley. Limestone units in the late Silurian New Canaan Formation have been known for some time but have never been evaluated for their potential as an industrial mineral resource. Like many other geologists, I have known of these calcareous units for some time, but until I actually examined them in the field I did not realize how extensive they are.

### Shortliff Lake, Digby County

In the early 1980s, Shell Canada Resources Limited carried out a twelve hole diamond-drilling program in search of uranium at Shortliff Lake, Digby County (Fig. 1). The drillholes intersected only minor uranium occurrences but nine of the holes defined an interbedded sequence of calcareous metasiltstone, marl and siliceous limestone 300-

400 m thick. In addition, prospecting suggested that a considerable area north of Shortliff Lake is underlain by mafic rocks of volcanic or intrusive origin. Previous workers assumed that the area was underlain by metasediments of the Halifax and White Rock formations but the geology is more characteristic of the New Canaan or Torbrook formations.

When I reviewed the Shell drill core in 1989 two things impressed me, the high calcareous content of some of the limestone units, and the thickness of the interbedded sequence. Assays of two, half-metre long grab samples from the core indicated that the limestones consist of 40-42% CaO and 0.8-1% MgO. Silica concentrations of 12.3-12.7% SiO<sub>2</sub> place the rocks in the siliceous limestone category and may limit their potential to agricultural lime applications. It is also possible that further exploration along strike could define less siliceous beds.

### New Canaan, Kings County

In 1992, DNR geologist Paul Smith carried out a seven hole diamond-drilling

program near New Canaan, Kings County, to study the stratigraphy of the New Canaan Formation (Fig. 1). The drillholes intersected a 250-300 m thick sequence of interstratified volcanic rocks, volcanoclastics and lava flows with fossiliferous siltstone and siliceous limestone (Fig. 1). Four separate limestone units occur throughout the formation, interstratified with the volcanic rocks. Paul analyzed two samples of the limestone and found CaO and SiO<sub>2</sub> concentrations similar to levels found at Shortliff Lake. There is a strong possibility that the rocks at Shortliff Lake and New Canaan are part of the same unit.

### South Alton, Kings County

The New Canaan Formation underlies the area around South Alton, Kings County (Fig. 1), where it occurs as a steeply dipping sequence of interbedded limestone, limy sediments and volcanic rocks. Contact metamorphism resulting from intrusion of the nearby South Mountain Batholith has raised the metamorphic grade of the rocks, producing occurrences of marble and impure marble. Local farmers excavated two small quarries here as a source of agricultural limestone many years ago.

These occurrences indicate a potential limestone resource that warrants a closer look. This is particularly true for agricultural applications given the proximity of these rocks to major farming regions in southwest Nova Scotia. The existing transport subsidy for agricultural lime (currently \$14.15/t in Yarmouth County, \$9.30/t in Annapolis County, \$7.20/t in Kings County) has been reduced this year and may be removed in the future. Obviously, the economic factors relevant to any potential development of this limestone resource are changing.

George O'Reilly

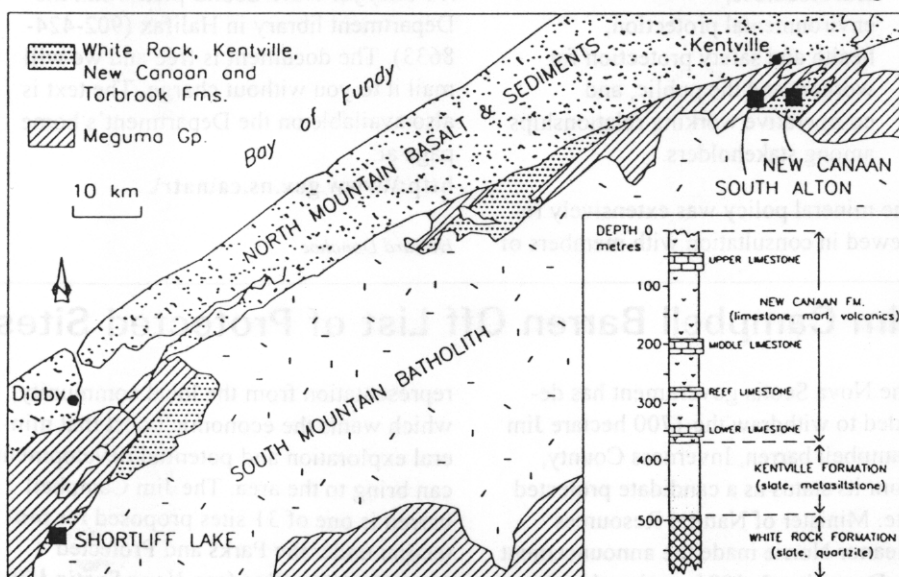


Figure 1. General geology of the Annapolis Valley region. The inset is a stratigraphic column derived from NSDNR diamond-drilling.

## Update on Tusket Mining Inc.'s Murchyville Gypsum Project

Since the Fall 1996 edition of the *Nova Scotia Minerals Update*, Tusket Mining Inc. has made considerable progress toward the development of a gypsum mine at Murchyville, Halifax County. Tusket has completed 30 additional diamond-drill holes and several kilometres of electromagnetic surveys. As a result of this work, mineable reserves are now estimated to be approximately 300 million tonnes.

These positive results have led Tusket Mining to develop plans for a mine with the capacity to produce between 300,000 and 2,000,000 tonnes of gypsum per year, depending on markets. The workforce required to produce this tonnage would be between 40 and 120 persons. The payroll could be in excess of \$1,000,000 per year.

On 27 September 1996, Tusket registered the Murchyville Gypsum Project as a Class 1 undertaking with the environmental assessment process of the Nova Scotia Department of Environment (NSDOE). In its submission to NSDOE Tusket outlined the mine development and transportation options to a load-out facility at Sheet Harbour. Tusket also included baseline environmental surveys in the area of the proposed mine and the results of community consultations in Middle Musquodoboit and Sheet Harbour. On 22 October 1996, Tusket received notice from NSDOE that the project had received conditional approval of its environmental assessment.

In early November, Tusket applied to the Nova Scotia Department of Environment for an Industrial Approval Permit and to the Nova Scotia Department of Natural Resources for a Mining Permit. These permits are the final provincial regulatory steps needed by Tusket to proceed with mine development at the Murchyville site. Tusket had also agreed to terms with the 21 landowners of the proposed mine site.

Beyond the regulatory requirements, Tusket needs to develop a market for its product. Some consider this to be the most difficult aspect of the project because Tusket Mining is not affiliated with one of the major gypsum corporations. However, most producers of finished gypsum products are more con-

cerned about the cost of their raw material supply than its source.

To date, Tusket has demonstrated the ability and commitment to succeed at Murchyville.

*Bill O'Halloran and Gordon Adams*

## Minister Releases New Mineral Policy

On November 6, 1996, the Honourable Eleanor Norrie announced the completion of the long-awaited mineral policy, *MINERALS—A Policy for Nova Scotia*, at the annual Review of Activities luncheon. The policy presents seven major objectives to provide strategic direction for government and industry. These objectives were designed to foster the conditions necessary for development and growth in the mineral industry. They include:

- ◆ knowledge of the province's geology and mineral resources,
- ◆ a competitive business climate,
- ◆ public knowledge of the province's mineral potential,
- ◆ integrated land planning with greater certainty of access to mineral resources,
- ◆ environmental protection,
- ◆ health and safety protection for workers and the public, and
- ◆ co-operative working relationships among stakeholders.

The mineral policy was extensively reviewed in consultation with members of

the mineral industry, other resource interests, environmentalists, community representatives, citizens, and three levels of government. Encouraging partnerships among these groups is one of the key objectives of the policy.

The policy is designed to allow government to adapt to changing circumstances and emerging concerns. It promotes integrated resource management as an important means of decision-making. Further, the policy opens channels of communication, allowing greater access to geoscience information and streamlining government's interaction with the mineral industry.

If you would like a copy of *MINERALS—A Policy for Nova Scotia* please call the Department library in Halifax (902-424-8633). The document is free and we will mail it to you without charge. The text is also available on the Department's home page at:

<http://www.gov.ns.ca/natr/>

*Howard Donohoe*

## Jim Campbell Barren Off List of Protected Sites

The Nova Scotia government has decided to withdraw the 1700 hectare Jim Campbell barren, Inverness County, from its status as a candidate protected site. Minister of Natural Resources Eleanor Norrie made the announcement on December 3, 1996, noting that the decision was made in response to strong

representation from the local community, which wants the economic boost that mineral exploration and potential development can bring to the area. The Jim Campbell barren is one of 31 sites proposed for protection under the Parks and Protected Areas Systems Plan (see *Nova Scotia Minerals Update* vol. 8).



## DNR Promotes

For the past three years the Minerals and Energy Branch has undertaken a systematic effort to promote the mineral potential of Nova Scotia. The winter and spring of 1997 will be no exception with Branch staff hitting the road to attend trade shows and conventions. Their first stop will be the Geological Survey of Canada Forum '97 in Ottawa, January 20-22, followed by the Cordilleran Roundup in Vancouver, January 28-31, the Prospectors and Developers Association of Canada (PDAC) Annual Meeting in Toronto, March 9 to 12, the Investing in the Americas Conference in Miami, April 7 to 10, and the Annual Forum on the Geology of Industrial Minerals in Quebec City, May 25-28.

Promotional information circulars that highlight the mineral potential of several geological environments were published in April 1996. These full-colour publications will be distributed to explorationists wherever we go. In addition, the annual publication *Properties Available for Option in Nova Scotia* will be released in time for distribution at the Cordilleran Roundup in Vancouver. We will also publish the Branch *Report of Activities* in the Spring in order to make the results of our work accessible before the next field season.

Things are definitely picking up in the Nova Scotia mineral industry! Approximately 1.2 million acres are currently under mineral licence, the highest level since the end of the 'flow-through' exploration boom in 1989. Exploration is currently focusing on several commodities, including gold in rocks of the Meguma Group, kaolin in Cretaceous sediments, carbonate-hosted lead-zinc in Carboniferous basins, and base metals, precious metals and industrial minerals in numerous other geological settings. Continued promotional activities will help to sustain, and hopefully enhance, these current exploration levels.

Mike MacDonald

## October-December Open Assessment Reports

Report No.	Claim Ref. Map	Licensee
88-421	011K/03A 011K/03D	Conwest Exploration Company Limited
94-059	011F/14A	Poirier, R M
94-060	021A/08C	Poirier, R M
94-061	011D/11B	Poirier, R M
94-062	021A/07C	Baker, R
94-063	011E/01A	Grant, S
94-064	021A/10D	D and D Metal Detectors Limited
94-065	021A/10D	D and D Metal Detectors Limited
94-066	021A/10A	D and D Metal Detectors Limited
94-067	011E/02D	Hudgins, A D
94-068	011E/02A	Smith, R F
94-069	011E/02A	Smith, R F
94-071	021A/16B	Cardinal, B
94-073	011E/04B	Hickey, D
94-074	021H/09A 021H/09D	Springhill Coal Mines Limited
94-075	011F/10A 011F/10D	Phelps Dodge Corporation of Canada Ltd.
94-076	021A/08B	Anthony, R
94-078	011E/01A 011E/01D 011E/04C 011F/04B	Coughlan, T F
94-079	011F/04D	MacMillan, J H
94-080	021A/06A	Smith, S
94-081	011F/14D	Doucette, P A
94-082	011D/14C	DeBay, A
95-027	011F/15A	Metall Mining Corporation
95-061	0200/16D	O'Sullivan, J R
95-063	021A/09B	Reeves, M
95-064	021A/09B	Reeves, M
95-065	021B/01D	Boudreau, R
95-069	011F/04D	McAllister, K
95-070	011F/04D	McAllister, K
95-071	011E/11B	Hudgins, A D
95-072	020P/12B	Muise, P
95-080	011D/10C	Eisan, B D
95-081	021B/01A	Boudreau, R
95-082	011E/02B	Grant, S
95-091	011D/16C	Mitchell, B
95-108	011F/04D	Tri-Explorations Limited

Susan Saunders and Norman Lyttle

## End of an Era for DNR Drilling Section

October 17, 1996, was the final day of diamond-drilling after 96 years of service by the DNR Drilling Section. The Minerals and Energy Branch would like to acknowledge the valuable contribution that the drillers have made to the Department and the Province. Thanks guys.

Garth Prime



Drillers George MacLeod (L) and Vernon Talbot (R) at the final drill site.

## 20th Annual Review of Activities

The Twentieth Annual Minerals and Energy Branch Review of Activities was held on November 5 and 6, 1996, at the World Trade and Convention Centre in Halifax. A total of 320 delegates, including 160 mineral industry representatives, came from as far away as Calgary to attend the show.

Forty-one posters were on display in the Mariner Suites during the two day event. This year the posters were provided by departmental staff, geoscientists from the Geological Survey of Canada and local universities, the Chamber of Mineral Resources of Nova Scotia, the Prospectors Association of Nova Scotia, local prospectors, junior mining companies and service companies.

George O'Reilly and staff of the Mineral Inventory Program took advantage of this year's event to unveil the new Mineral Occurrence Database. This database is now available on diskette with a 'run-time' module that allows users to search and query the database without purchasing additional software. Another computer display highlighted a pre-release version of the Minerals and Energy Branch 'public access' GIS. This will provide effective access to province-wide digital data layers, including surficial and bedrock geology, mineral occurrences, land-use data, geochemistry, geophysics, satellite imagery, and much more. The digital age is definitely upon us!

Two hundred grade 4 and 5 students from two schools in the metro area had the opportunity to tour the displays on Tuesday, November 5. The students learned about the importance of mining to the economy of Nova Scotia, and how we use minerals in our lives.

The Review of Activities culminated with a luncheon on November 6 which was attended by 139 people. The Honourable Eleanor Norrie was the guest speaker for the luncheon and took the opportunity to unveil the Department's new Mineral Policy.

*Mike MacDonald*



*The 20th Annual Review of Activities had it all: drill core, posters, new maps and publications, computers, rock samples, pottery demonstrations, magic shows, outstanding presentations, and even geologists in ties!*

## Special Note

### Professional Registration of Geoscientists

Professional registration of geologists and geophysicists is proceeding as part of the revision to the Engineering Act. The new Act (Bill 20) passed first reading in the Legislature on May 3, 1996. However, the second reading of the Bill has been delayed pending resolution of issues mainly regarding the relationship between Engineers and Architects. For more information please call Patrick Ryall at 902-494-3465.

## Dates to Remember

### Jan. 20 to 22, 1997

Geological Survey of Canada Forum 1997, Ottawa Congress Centre, Ottawa, Ontario. For more information call FORUM Secretariat 613-995-4482 (Fax 613-996-8059).

### Jan. 28 to 31, 1997

Cordilleran Roundup, Hotel Vancouver, Vancouver, B.C. For more information call the B.C. & Yukon Chamber of Mines 604-681-5328 (Fax 604-681-2363).

### Feb. 7 to 8, 1997

25th Anniversary of the Atlantic Geoscience Society Colloquium, Wandlyn Inn, Amherst, Nova Scotia. For more information call Susan Johnson 506-432-2010 (Fax 506-432-2036).

### March 9 to 12, 1997

Annual Meeting of the Prospectors and Developers Association of Canada, Royal York Hotel and Metro Toronto Convention Centre, Toronto, Ontario. For more information call the PDAC, 416-362-1969.

### April 7 to 10, 1997

Investing in the Americas Conference, Miami, Florida. For more information call 1-800-282-7469 (Fax: 305-669-7350).