Mineral Exploration Monitoring

P. D. McCulloch

Introduction

Monitoring of mineral exploration activity in Nova Scotia is coordinated through the Geoscience Information Services Section of the Mineral and Energy Resources Division by the author, who works out of the regional office in Stellarton, Pictou County. Regional Geologists of the Regional Services branch offices in Coxheath (Don MacNeil), Truro (Melanie Haggart) and Bridgewater (Gordon Adams) assist in the field monitoring of mineral exploration activity in their respective regions.

The monitoring process covers exploration activities throughout the province and consists of visits to company offices and exploration sites, liaison with industry personnel, and the review of current assessment reports and other material submitted by industry. Liaison with industry allows the department to maintain an awareness of current exploration activities. Assistance or advice is provided as necessary, and any drill core generated by mineral exploration activity in the province is recorded as part of the monitoring process. This core may be recovered for archiving in the Drill Core Library in Stellarton when no longer required by the companies.

The Exploration Monitoring geologist is also responsible for auditing confidential assessment reports that are submitted to support the renewal of exploration licences. In 1997, 137 assessment reports were audited for compliance with the Mineral Resources Regulations.

Mineral Exploration Activity in 1997

Mineral exploration in Nova Scotia continued to strengthen during 1997 with a modest increase in the level of activity over 1996. Field expenditures are estimated at $6.7 million compared with $5.7 million in 1996 and $2.8 million in 1995 (Table 1). Exploration was carried out for gold, base metals, industrial minerals and coal in a variety of geological environments throughout the province and was highlighted by the continuation of increased interest in the exploration and development of industrial minerals including limestone, gypsum, kaolin and silica sand. The lower Paleozoic Meguma Group of southern mainland Nova Scotia continued to be a focus for gold exploration and exploration for coal was undertaken in the Carboniferous rocks of northern mainland Nova Scotia.

Preliminary figures for the total number of general claims staked in 1997 show a decrease of 34.4% from the previous year to 21,577 (Table 1, Fig. 1). A total of 22,691 claims for all commodities were in effect at the end of 1997 represented by 890 exploration, coal, tailings and special licences covering an area of 3673 ha or 3673 km², approximately 6.7% of the total area of the province. The amount of exploration drilling increased significantly in 1997 with a preliminary estimate of 21,800 m compared with a total of 15,600 m in 1996.

Approximately 294 companies and individuals held exploration interests (licenses or options) in Nova Scotia in 1997 including 17 major, 43 junior and 49 private companies (Tables 2 and 3). In addition, several mining lease holders carried out exploration on their leases or on unclaimed ground where these commodities did not require licenses (e.g. limestone, gypsum). Organizations actively engaged in exploration during 1997 included 9 major, 15 junior and 16 private companies, as well as a number of individuals (Fig. 2 and Table 4).

Exploration Activities

Gold

Gold exploration demonstrated a marked increase in 1997 with the number of active projects up significantly over 1996. As in previous years, the majority of work took place in the Cambro-Ordovician metasedimentary rocks of the Meguma Group in central mainland Nova Scotia. Gold exploration was carried out by junior mining companies and private interests (Table 4)

Tangier Limited Partnership continued development work on the former Coxheath Gold Holdings property at Tangier to determine the feasibility of re-opening the mine. The company completed underground bulk sampling on the property in late 1996 and proceeded with milling and metallurgical tests during 1997.

Moose River Resources Incorporated completed a diamond-drilling program at Moose River, Halifax County, early in 1997 to evaluate the potential for
Table 1. Details of exploration and development activity in Nova Scotia, 1988-1997.

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<td>11 025 000</td>
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<td>3 300 000</td>
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<td>1 400 000</td>
<td>2 843 000</td>
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<td>17 071</td>
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<td>197 963</td>
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<td>884 760</td>
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<td>424 040</td>
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<td>16 551 636</td>
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* Preliminary figures for 1997
* Parentheses around uranium claims indicates ground alienation due to the uranium moratorium

December 31, 1997
expanding the known reserves of disseminated gold in the Touquoy zone and to evaluate the potential for similar large tonnage, disseminated gold in the immediate vicinity of the Moose River gold district. Eilsim Resources Incorporated ground geophysical surveys and trenching carried out on the Lake Charlotte gold property in Halifax County.

RJZ Mining Incorporated initiated an exploration drilling program for gold in the Beaver Dam and Otter Lake areas, Halifax County, and Gammon Lake Resources continued work on several properties including trenching and diamond-drilling at Mitchell Lake, Guysborough County, diamond-drilling at Cross Lake (Lochaber Lake gold district), Halifax County, and trenching on the Harrigan Cove property, Halifax County. The company also initiated an exploration program for gold in the Northport area, Cumberland County, during the year.

Wabana Explorations Incorporated completed additional diamond-drilling on the Lake Peter property in Lunenburg County and Altai Atlantic Mining Incorporated conducted ground geophysical surveys at Gold River, Lunenburg County. True Metallic Explorations also continued a detailed geological evaluation of the potential for gold in the Castle Frederick area, Hants County, and Little Lake Gold Mines Limited completed additional trenching at Sandy Lake, Halifax County. Burnt Point Resources Incorporated initiated an exploration program for gold in the Whycocomagh Mountain area in Inverness County. In addition, several prospectors carried out exploration programs to evaluate the gold potential of various properties throughout the Meguma Group.

**Base Metals**

Base metal exploration demonstrated a modest increase for the second year in row. Work primarily focused on mineral occurrences in the Carboniferous rocks of northern mainland Nova Scotia. Other work was undertaken in Precambrian environments in northern and southern Cape Breton Island and Devonian intrusives in southwestern Nova Scotia.

Savage Resources Canada Limited continued to evaluate the feasibility of re-opening the former Gays River Zn-Pb mine in central mainland Nova Scotia during 1997. The company completed additional diamond-drilling on the property early in the year and proceeded with plans to de-water the mine and rehabilitate the underground workings. The deposit is hosted by rocks of the Lower Carboniferous Windsor Group, with *in situ* reserves of 2.4 Mt grading 8.6% Zn and 6.3% Pb. The company also carried out exploration drilling for base metals in the immediate vicinity of the Jubilee Pb-Zn deposit in the Little Narrows area, Victoria County. Cannova Goldfields Incorporated conducted an exploration drilling program for base metals in the Far Brook area immediately south of the Gays River Zn-Pb property.
### Table 2: Major companies involved in mineral exploration in Nova Scotia, 1995-1997.

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<td>W. M. C. International Limited</td>
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- company inactive

blanks indicate that the company did not hold an exploration licence in that particular year

**Phelps Dodge Corporation of Canada Limited** continued an exploration program for volcanogenic massive sulphides in the Stirling area along the southwest extension of the Late Precambrian Fourchu Group (Stirling Belt). The company conducted exploration drilling on the former Stirling mine property and on the McKindless Pond property approximately 5 km southwest of the Stirling property.

**Regal Goldfields Limited** initiated an exploration program for Cu-Ni-Co associated with mafic and ultramafic rocks in the Trout Lakes area east of Cheticamp, Inverness County, in 1996. The company continued a detailed evaluation of the property during 1997 with plans to begin an exploration drilling program pending a decision regarding the status of mineral exploration on the Jim Campbells Barren candidate protected area.

**Goliath Copper Fields Limited** initiated a detailed exploration program on the West Lochaber copper prospect in 1997, consisting of ground geophysics, trenching and diamond-drilling. The property is host to a low grade, disseminated copper deposit that occurs in a thick impure limestone unit of Devonian-Carboniferous age along the southwest margin of Lochaber Lake, Antigonish County.

**Mispec Resources Incorporated** continued an exploration drilling program for carbonate-hosted Pb-Zn in the Early Carboniferous Windsor Group in the Springville and Iron Rock areas, Pictou County. The company also completed diamond-drilling in the Meadowville area, Pictou County, to evaluate the base metal potential of Upper Carboniferous sediments of the Riversdale Group along the northeastern margin of the Cobequid Uplands.
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<td>Wabana Explorations Incorporated</td>
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Note: 
- indicates work performed
- inactive
 blanks indicate that the company did not hold an exploration licence in that particular year

Votix Corporation carried out trenching and diamond-drilling on the Dominque tin prospect near Plymouth, Yarmouth County, during 1997. Base metals, along with tin, occur in cross-cutting shear zones in altered greywackes of the Cambro-Ordovician Meguma Group. Gold 'n' Crystal Minerals completed additional work, including ground geophysical surveys and geochemical sampling, to evaluate the gold and base metal potential at Cap d'Or, Cumberland County, and Geosearch continued an evaluation of the base metal potential of Carboniferous sediments in the Cheverie area, Hants County.

### Industrial Minerals

Exploration for industrial minerals during 1997 continued to focus on recent discoveries of high quality kaolin and silica sand of Cretaceous age in the Shubenacadie and Musquodoboit valleys. Work was also carried out to continue exploration and development activities for new gypsum reserves in mainland Nova Scotia and Cape Breton Island.
Figure 2. Mineral exploration programs in Nova Scotia, 1997.

KaoClay Incorporated carried out additional diamond-drilling and bulk sampling for kaolin and silica sand on several properties in central mainland Nova Scotia during the year. Development work also continued on a large gypsum deposit in the Murchyville-Elderbank area of Halifax County by Tusket Mining Limited. The company was issued a mining permit in early 1997 and began preliminary mining operations late in the year.
Table 4. Exploration programs in Nova Scotia, 1997.

<table>
<thead>
<tr>
<th>COMPANY/LOCATION</th>
<th>COMMODITY</th>
<th>PROGRAM</th>
<th>CURRENT STATUS (DEC/97)</th>
</tr>
</thead>
</table>
| Altai Atlantic Mining Corporation  
  Gold River, Lunenburg County | Gold                | Ground geophysics               | na                      |
| Aurora Gold Corporation  
  Muskrat Brook, Victoria County | Base metals         | Ground geophysics               | Ongoing                 |
| Berican Resources Limited  
  Cottam Settlement, Colchester County | Coal               | Diamond-drilling, trenching     | Ongoing                 |
| Burnt Point Resources Incorporated  
  Whyeconamagh Mountain, Inverness County | Gold, copper       | Prospecting, geochemical sampling | Ongoing                 |
| CAG Enterprises Limited  
  Flintstone Rock, Yarmouth County | Clay, silica sand   | Diamond-drilling                | na                      |
| Carnova Goldfields Incorporated  
  Far Brook, Halifax County | Base metals        | Diamond-drilling                | Ongoing                 |
| Delta Coal Incorporated  
  Chignecto, Cumberland County | Coal               | Diamond-drilling, trenching     | Ongoing                 |
| Ellisin Resources Incorporated  
  Lake Charlotte | Gold               | Ground geophysics, trenching    | Ongoing                 |
| Gammon Lake Resources Incorporated  
  Cross Lake, Halifax County | Gold               | Geological mapping, diamond-drilling | Ongoing                 |
| Harrigan Cove, Halifax County  
  Lawrencetown, Halifax County | Gold               | Trenching                       | Ongoing                 |
| Mitchell Lake, Guysborough County  
  Northport, Cumberland County | Gold               | Trenching, diamond-drilling     | na                      |
| Geosearch  
  Cheverie, Hants County | Base metals, gold  | Prospecting, geochemical sampling | Ongoing                 |
| Georgia Pacific Corporation  
  Melford, Inverness County | Gypsum             | Diamond-drilling                | Ongoing                 |
| Gold 'n Crystal  
  Cap d'Or | Copper, gold       | Prospecting, rock sampling      | Ongoing                 |
| Goliath Copper Fields Limited  
  West Loehaber, Antigonish County | Copper             | Trenching, diamond-drilling     | Ongoing                 |
| KaoClay Resources Limited  
  Middle Musquodoboit, Halifax County | Clay, silica sand  | Diamond-drilling, bulk sampling | Ongoing                 |
| Little Lake Gold Mines Limited  
  Sandy Lake, Halifax County | Gold               | Trenching                       | na                      |
<table>
<thead>
<tr>
<th>COMPANY/LOCATION</th>
<th>COMMODITY</th>
<th>PROGRAM</th>
<th>CURRENT STATUS (DEC/97)</th>
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<td>Ongoing</td>
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<td>Meadowville, Pictou County</td>
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<td>Ongoing</td>
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<td>Stirling, Richmond County</td>
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<td>Savage Resources Canada Limited</td>
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<td>Ongoing</td>
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<td>Castle Frederick, Hants County</td>
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<tr>
<td>Stroanch Mountain, Annapolis County</td>
<td>Zeolites</td>
<td>Geochanical sampling, diamond-drilling</td>
<td>Ongoing</td>
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na = not available

Georgia Pacific Corporation carried out a detailed drilling program near Melford, Inverness County, as part of an ongoing program to develop additional gypsum resources in the Early Carboniferous Windsor Group.

Coal

Exploration for coal resources focused on Upper Carboniferous sediments of the Pictou and Cumberland groups in northern mainland Nova Scotia. Berichan Resources Limited initiated an exploration drilling program to evaluate known coal resources in the Cottam Settlement area east of Debert, Colchester County, in 1995. The company completed additional work on the property in 1997, consisting of trenching and diamond-drilling.

Delta Coal Incorporated began work in 1997 to evaluate coal resources in the Chignecto area, Cumberland County. The company completed trenching, diamond-drilling and bulk sampling on the property.