

Mineral Exploration Activity in Nova Scotia, 2015

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Mineral Exploration Monitoring

Monitoring of mineral exploration activity in Nova Scotia is co-ordinated through the Mineral and Petroleum Titles Section of the Minerals Management Division by the author who works out of the regional office in Stellarton, Pictou County. 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 of Natural Resources to maintain an awareness of current exploration activities throughout the province. 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 the auditing of confidential assessment reports that are submitted in the support of the renewal of exploration licences. In 2015, 84 assessment reports were received and audited for compliance with the *Mineral Resources Regulations*. The number of reports represents a decrease of 35% in comparison to the 129 reports submitted for assessment credit in 2014.

Mineral Exploration Activity in 2015

Mineral exploration in Nova Scotia during 2015 showed a moderate decrease in the level of activity from the previous year with field expenditures estimated to be approximately \$5.5 million compared with an estimated \$6.9 million in 2014 and \$8 million in 2013 (Fig. 1; Natural Resources Canada, 2015). Prices for both base metals and gold have dropped since 2014. The price for gold continued to drop from over \$1,800 US in 2011 to less than \$1,100 US in late 2015. The prices per

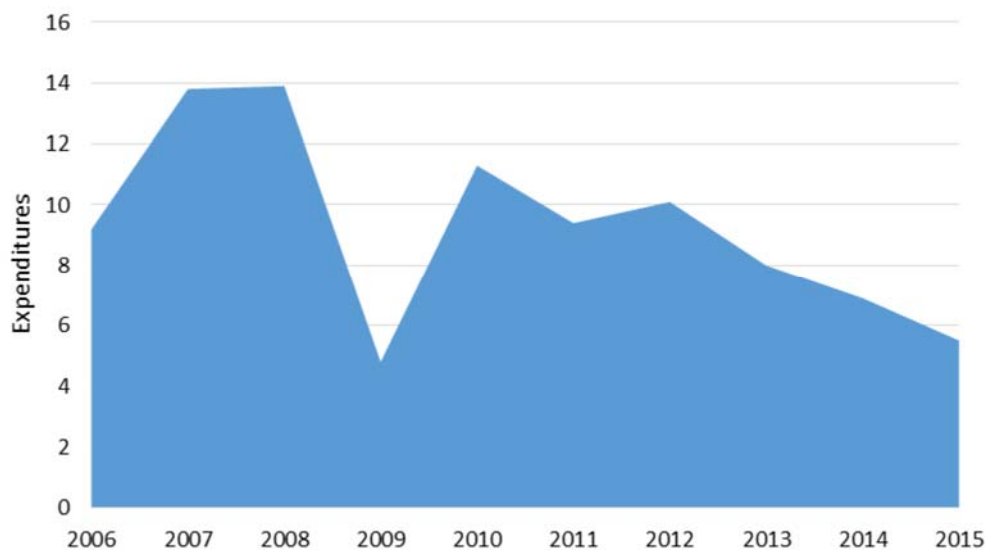


Figure 1. Exploration expenditures in millions of dollars in Nova Scotia, 2005-2014 (Natural Resources Canada, 2015).

pound for copper, lead and zinc declined moderately in 2015 to lows of \$2.05 US for copper, \$0.71 US for lead and \$0.66 US for zinc during the last six months.

In 2015 there was extreme volatility in the prices of both precious metals and metals used in industry. Broadly, metals were characterized by subdued pricing environments, and this was reflected in the stock prices of companies in the metals and mining space.

Preliminary figures for the total number of new claims staked in 2015 show an increase of 199 from 3,290 in 2014 to approximately 3,489 claims

in 2015 (Fig. 2, Table 1). A preliminary total of 9,702 claims in good standing for all commodities were in effect at the end of 2015 and consisted of approximately 567 general and special licences covering an area of 157 075 ha. The amount of exploration drilling was up over the previous year with a preliminary estimate of 5,347 metres drilled in 2015 compared with 3,618 metres in 2014 (Fig. 3).

Approximately 127 companies and individuals held exploration interests (licences or options) in the province in 2015, including 3 major, 10 junior and 47 private companies (Tables 2, 3 and 4). In addition, several mining-lease holders carried out exploration and development work on leases or on

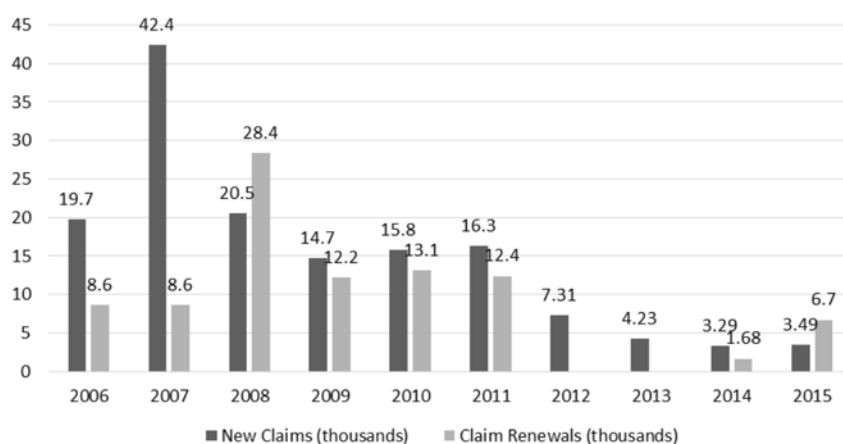


Figure 2. Claim staking in Nova Scotia by thousands of claims, 2005-2014.

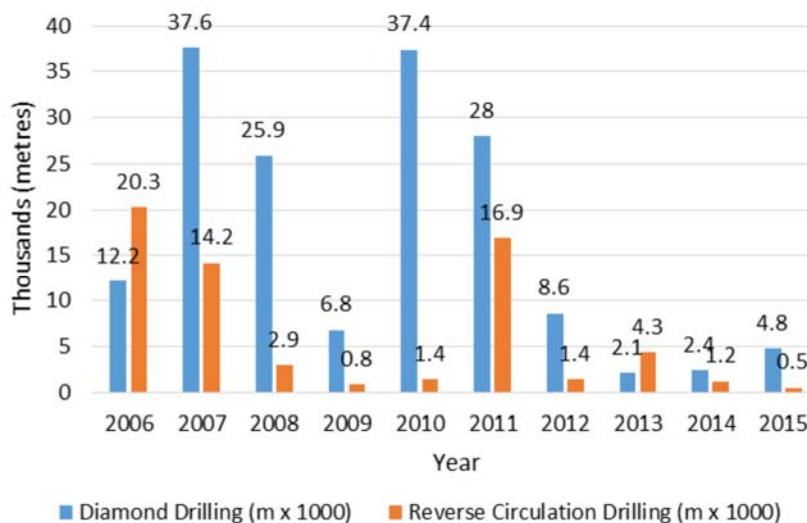


Figure 3. Exploration drilling in Nova Scotia, 2005-2014.

Table 1. Details of exploration and development activity in Nova Scotia, 2006-2015.

	2006	2007	2008	2009	2010	2011	2012 ^p	2013 ^p	2014 ^p	2015 ^p
Total Field Exploration Expenditures (\$) ¹	9 271 631	13 792 090	13 919 603	4 767 840	11 261 367	9 400 000	10 100 000	8 000 000	6 900 000	5 500 000
Total Licences Issued (all categories)	938	1401	1398	1082	1224	1197	850	260	300	243
Claims In Good Standing (new and re-issued)										
General (licences)	25 571	51 215	48 882	26 926	28 967	28 790	14 000		8518	9702
Total (excluding closures)	27 601	52 926	50 365	28 409	29 067	28 890	14 100		8584	11 425
Total Area Held Under Licence										
Hectares	446 804	856 764	815 307	459 884	470 536	467 670	228 250		138 975	157 075
Acres	1 104 040	2 117 040	2 014 600	1 136 360	1 162 680	1 155 600	564 000		343 414	388 140
Number of Assessment Reports Received	162	200	234	118	147	176	196	161	129	84

¹Natural Resources Canada (2015).^pPreliminary figures.**Table 2.** Major companies with exploration interests (licences or options) in Nova Scotia.

	2013	2014	2015
Georgia-Pacific Canada Incorporated	-	-	-
The Shaw Group Limited	-	x	-
IAMGOLD Corporation	-	x	-

x indicates work performed.

- company inactive.

unclaimed ground where these commodities did not require licences (e.g. limestone, gypsum).

Organizations actively engaged in exploration during 2015 included 4 junior and 13 private companies (Fig. 4, Tables 2, 3, 4 and 5), as well as a number of individuals.

Overview of Exploration Activities

Gold

Exploration for gold continued to be the primary focus for mineral exploration in the province during 2015. The lower Paleozoic Meguma Group of southern mainland Nova Scotia continued to be the principal focus for gold exploration with the majority of the exploration work concentrated on the historical gold districts in Halifax, Hants and Guysborough counties (Table 5).

Annapolis Properties Corporation continued an evaluation of the potential for Meguma-hosted gold deposits on two gold properties throughout Halifax County during 2015, including Beaver Dam and Oldham. Work on the properties consisted of prospecting, sampling and assaying.

Flex Exploration and Mining Limited sampled, mapped and drilled on properties in Tangier and Forest Hill. Christopher Findley was prospecting in South Rawdon. CMHE Services Center Incorporated did prospecting, mapping, sampling and assaying in Whycocomagh Mountain. Henry Schenkels carried out drilling and sampling at North Ogden. John O'Sullivan continued his geological mapping at Cranberry Head. Ken Hiltz continued working in the Brookfield and North Brookfield areas. Nycon Resources did a geochemical survey at Muskrat Lake. Scott Grant

Table 3. Junior companies with exploration interests (licences or options) in Nova Scotia.

	2013	2014	2015
Acadian Mining Corporation (formerly Acadian Gold Corporation)	-	x	-
Annapolis Properties Corporation	x	x	x
Atlantic Gold NL (formerly Diamond Ventures NL)			x
Avalon Rare Metals Incorporated (formerly Avalon Ventures Limited)	-	x	x
Black Bull Resources Incorporated	-	-	
Canuc Resources Corporation		x	-
Chrysos Capital Corporation			
Cornerstone Resources Incorporated			
Exploration Orex Incorporated	-	x	x
Globex Mining Enterprises Incorporated	x	x	-
Gold World Resources Incorporated			
Golden Caribou Resources Limited	-	-	
Landis Mining Corporation			
Maritime Titanium Limited	..	-	
Merrex Gold Incorporated	-	-	-
Minotaur Atlantic Exploration Limited	-	-	-
Osisko Mining Corporation			
Ressources Appalaches Incorporated	x	x	-
Scorpio Gold Corporation			
ScoZinc Limited	x	x	x
Silvore Fox Minerals Corporation	-	-	-
Strikepoint Gold Incorporated			
Tripple Uranium Resources Incorporated			
Vostok Minerals Incorporated (formerly RJZ Mining Corporation)			

x indicates known work performed.

- no known work.

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

had mapping, sampling and an EM/VLF survey done at Mount Uniacke.

Several other individuals and private interests also carried out exploration for gold on a number of properties throughout southern mainland Nova Scotia and Cape Breton Island during the year (Table 5).

Base Metals

The activity for base metals was focussed primarily on the Lower Carboniferous Windsor Group sediments in northern mainland Nova Scotia and southeastern Cape Breton Island; iron-oxide copper gold (IOCG) deposits and associated polymetallic

mineralization (Pb, Zn, Ag, Sn, W, Mo) and rare-earth elements (REE) along the Cobequid–Chedabucto Fault Zone throughout central mainland Nova Scotia; and polymetallic mineralization occurring in Precambrian volcanic and sedimentary rocks in the Stirling area in southeastern Cape Breton Island.

Cogonov Incorporated continued exploration at Copper Lake, Londonderry, Parrsboro and Farmington. Geological mapping, geophysical and geochemical surveys were carried out in these regions.

Scozinc Limited completed additional soil sampling in 2015 for evaluation of the base metal

Table 4. Private exploration companies in Nova Scotia.

	2013	2014	2015
2134889 Ontario Incorporated			
2403406 Nova Scotia Limited			
2403469 Nova Scotia Limited	-		
3061381 Nova Scotia Limited			-
3228463 Nova Scotia Limited	-	-	-
3234885 Nova Scotia Limited		-	
3261909 Nova Scotia Limited	-	-	
6179053 Canada Incorporated	-	-	-
6531954 Canada Incorporated			
8344094 Canada Corporation	x	-	
Allgreen Minerals Incorporated	-		
AlNova Mining Incorporated	x	x	-
Alpha Uranium Resources Incorporated			
Atlantic Canada Antimony Incorporated	x	-	
Atlantic Industrial Minerals Incorporated	-	-	
Ayarco Gold Corporation Limited	x	x	-
Alva Construction Limited	-	-	-
Beatrix Ventures Incorporated			
Beaufield Resources Incorporated	-		-
Blackfly Exploration & Mining		x	x
Brogan Mining Company Limited	-		-
Burnt Point Resources Incorporated			
Celtic Tiger Minerals Exploration Incorporated	-	-	-
Champlain Mineral Ventures Limited (formerly Champlain Resources Incorporated)	-	-	-
Chebucto Resources	-		
Chrysos Capital Corporation			
Clear Lake Resources Incorporated	x	-	-
CMHE Service Centre Incorporated	-	x	
Cobequid Gold Corporation	-		
Cogonov Incorporated	x	x	x
Conrad Brothers Limited	-		
Coxheath Resources Limited			
Craig Nichols Farms Limited			
DDV Gold Limited	x	x	x
Derek E. Thomas Incorporated	x		
Donkin Tenements Incorporated			-
Dufferin Resources Incorporated	-	x	-
Ecum Secum Enterprises Limited	-	-	-
Elk Exploration Limited	x	x	x
Flex Exploration and Mining Limited	x	x	x
Frontline Gold Corporation	-	-	
Gallant Aggregates Limited			
Gifthorse Resources Incorporated	-	-	-
Glencoe Resources Incorporated	x	x	-
Golden Kamala Resources Incorporated	-	x	x

Table 4 continues next page.

Table 4. (continued).

	2013	2014	2015
Gray Jay Holdings			
Great Atlantic Resources Corporation (formerly Greenlight Resources Incorporated)	x		
Greyhawk Ridge Minerals Incorporated	-	-	
Guyco Consulting Services Incorporated	x	-	
Halle Geological Services Limited	-	x	
Hudgtec Consulting Limited	x	x	x
Imperial Investments Limited	-	-	
John Logan Enterprises Limited	x	x	-
Kaoclay Resources Incorporated			
Kelly Rock Limited			
Leadbetter & Associates Management Consultants			
Lodestone Limited	-		
MacLeod Resources Limited	-	-	-
Magnum Resources Incorporated	x	-	-
Mercator Geological Services Limited		x	
Meguma Resource Enterprises Incorporated	-	x	
Millen Mountain Exploration Incorporated	-		
Moose River Resources Limited	-		
Mosher Limestone Company Limited	x	x	-
Mountain Lake Minerals Incorporated	-	-	
Mt. Cameron Minerals Incorporated	-	-	-
Municipal Enterprises Limited	-	-	
New Road Resources Limited			
Northern Innovations Holdings Limited			
Nova Scotia Power Incorporated	-		x
NSGold Corporation/Corporation NSGold	x	-	-
Nycon Resources Incorporated	x	x	x
O'Brien Exploration and Driver Training	x	-	
Preston Mineral Resources Limited	-		
Rainbow Resources Limited	x	x	x
Rare Earth Mineral Sands Incorporated (formerly Maritime Titanium Incorporated)	x	x	-
Rheingold Exploration Corporation	x	-	-
S. Farrell & Associates Limited	x	-	-
Sibley Road Mining Inc.	-	x	x
Scratch Exploration and Mining Company Limited	-	-	-
Slam Exploration Limited			
South Shore Ready Mix Limited	-	x	-
Stay Gold Incorporated	x	x	
Stocks N Rocks Incorporated			
Sugarloaf Resources Incorporated	x	-	-
The Goldfields Group			
Thundermin Resources Incorporated	x	x	x
True Metallic Exploration Incorporated	-	-	-
Unamaki Resource Exploration and Investment			

Table 4 continues next page.

Table 4. (concluded).

	2013	2014	2015
Votix Corporation Limited	-		
W&S Shaw Enterprises Incorporated	-	-	-
Wayne Carlon Consulting Incorporated			-
Web Exploration Services	-		
Witch's Glen Gold Incorporated	-	-	-
Yava Technologies Incorporated	x	x	-

x indicates known work performed.

- no known work.

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

potential of the Lower Carboniferous Windsor Group in the Musquodoboit Valley areas in Halifax and Colchester counties; in Pembroke, Colchester county; Eastville, in Colchester and Pictou counties and in Grand River, Richmond county. Work on the properties included soil sampling and assays. Hudgtec Consulting Limited continued work at Stirling, Richmond County, which consisted of prospecting, geological mapping, geophysical surveying and compilation. John Wightman had a survey completed at Dominique, Yarmouth County.

Industrial Minerals

Work in 2015 was focussed on a variety of industrial mineral commodities including quartz, limestone, calcitic marble and coal.

Nova Scotia Power Incorporated was prospecting and sampling limestone in the Glen Morrison area, Cape Breton County. Compilation of previous work was also completed for the area. Mark Fortier was prospecting and sampling quartz near

Flintstone Rock in Yarmouth County. Perry MacKinnon worked in the Glendale area sampling the calcitic marble. Springhill Coal Mines Ltd. commenced bulk sampling of their Springhill site.

References

Fisher, B. E. and Poole, J. C. 2006: DP ME 43, version 2, 2006, digital version of Nova Scotia Department of Natural Resources Map ME 2001-1, geological map of the province of Nova Scotia, scale 1:500 00, compiled by J. D. Keppie; Nova Scotia Department of Natural Resources, Digital Product ME 043; <http://novascotia.ca/natr/meb/download/dp043.asp>.

Natural Resources Canada 2016: Exploration and Deposit Appraisal Expenditures Separately, 2011-2014 Annual, 2015 Preliminary Estimates and 2016 Spending Intentions; <http://sead.nrcan.gc.ca/expl-expl/ExploTable.aspx?FileT=33&Lang=en>; accessed January 2016.

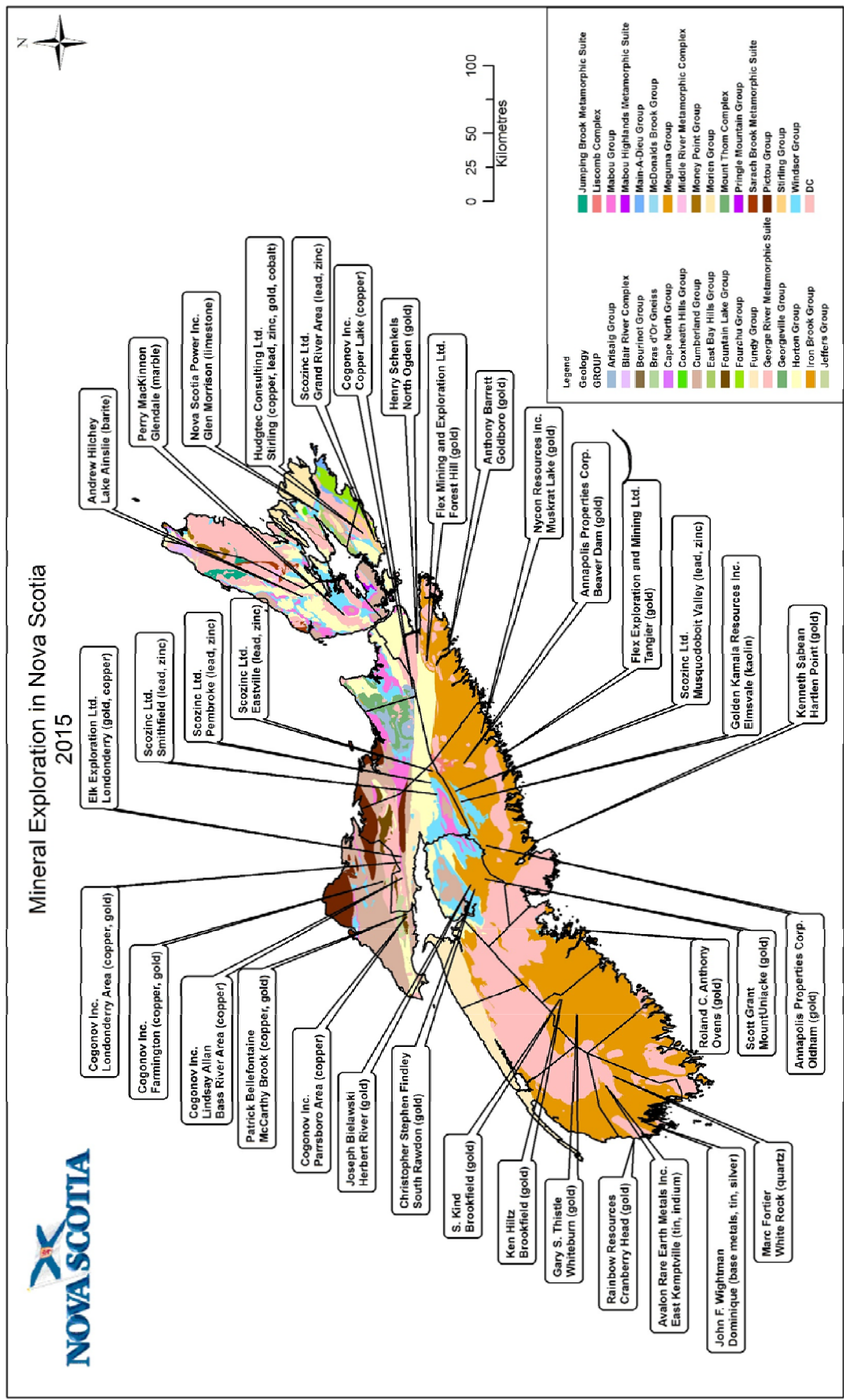


Figure 4. Mineral exploration programs in Nova Scotia, 2014 (geology from Fisher and Poole, 2006).

Table 5. Mineral exploration programs in Nova Scotia, 2014.

Licensee	Location	County	Exploration Work	Commodity
Annapolis Properties Corp.	Lake Ainslie	Inverness	Compilation, digital drillhole database development	Barite
Annapolis Properties Corp.	Oldham	Halifax	Prospecting, sampling, assaying	Gold
Annapolis Properties Corp.	Beaver Dam	Halifax	Prospecting, sampling, assaying	Gold
Anthony M. Barrett	Goldboro	Guysborough	Geological mapping	Gold
Avalon Rare Earth Metals Inc.	East Kemptville	Yarmouth	Conceptual re-development study, diamond drilling, sampling, assaying	Tin, indium
Christopher Stephen Findley	South Rawdon	Hants	Prospecting, panning, sampling	Gold
Cogonov Inc.	Farmington	Cumberland, Colchester	Prospecting, geophysical survey	Gold, copper
Cogonov Inc.	Parrsboro	Cumberland	Prospecting, sampling	Copper, gold
Cogonov Inc.	Copper Lake	Antigonish, Guysborough	Geochemical survey	Copper, gold
Cogonov Inc.	Londonderry	Colchester	Geological mapping, prospecting, sampling	Copper, gold
Cogonov Inc.	Farmington	Cumberland, Colchester	Prospecting, soil sampling, assaying	Copper, gold
Cogonov Inc. & Elk Exploration Ltd.	Londonderry	Colchester	Airborne geophysical survey, VTEM and horizontal magnetic gradiometer	Gold, copper
Elk Exploration Ltd.	Londonderry	Colchester	Prospecting, sediments sampling, assaying	Gold, copper
Elk Exploration Ltd.	Gold River	Lunenburg	Trenching, sampling, assaying	Gold
Flex Mining and Exploration Ltd.	Tangier	Halifax	Trenching, sampling, assaying	Gold
Flex Mining and Exploration Ltd.	Tangier	Halifax	Diamond drilling, sampling, assaying, logging	Gold
Flex Mining and Exploration Ltd.	Forest Hill	Guysborough	Prospecting, geochemical survey, sampling, core sampling, diamond drilling, logging, gold grain analysis	Gold
Gary S. Thistle	Whiteburn	Queens	Prospecting, tailings survey and sampling, assaying, reconnaissance, road clearing	Gold
Henry F. Schenkels	North Ogden	Guysborough	Diamond drilling, sampling, assaying, logging, prospecting	Gold
Hudgtec Consulting Ltd.	Stirling	Richmond	Prospecting, geological mapping, geophysical survey, assaying, sampling, compilation.	Copper, lead, zinc, gold, cobalt
Hudgtec Consulting Ltd.	Stirling	Richmond	Prospecting, geological mapping, line cutting, geophysical surveys, sampling, assaying, compilation, interpretation	Copper, zinc
John F. Wightman	Dominique	Yarmouth	IP-resistivity survey	Base metals, tin, silver

Table 5 continues next page.

Table 5. (concluded).

Licensee	Location	County	Exploration Work	Commodity
John O'Sullivan	Cranberry Head	Yarmouth	Geological mapping	Gold
John Shurko	Big Tancook Island	Lunenburg	Prospecting, sampling, assaying	Gold
Joseph Bielawski	Herbert River	Hants	Prospecting, panning	Gold
Ken R. Hiltz	Molega	Queens	Geological mapping, Fraser Filter Contouring, research, compilation	Gold
Ken R. Hiltz	North Brookfield	Queens	GPS mapping, compilation	Gold
Ken R. Hiltz	Brookfield	Queens	Prospecting, assaying, sampling	Gold
Kenneth Sabean	Hartlen Point	Halifax	Prospecting, sampling, assaying	Gold
Marc Fortier	Flintstone Rock	Yarmouth	VLF-EM survey, sampling, assaying	Quartz
Nova Scotia Power Inc.	Glen Morrison	Cape Breton	Geological mapping, chip samples, compilation, assaying	Limestone
Nycon Resources Inc.	Muskrat Lake	Halifax	Prospecting, geological mapping, soil sampling, assaying	Gold
Patrick Bellefontaine	MacCarthy Brook	Cumberland	Drilling, sampling, assaying, logging	Copper, lead, gold
Perry R. MacKinnon	Glendale	Inverness	Prospecting, sampling	Limestone
Roland C. Anthony	Ovens	Lunenburg	Prospecting, panning	Gold
S. Kind	Brookfield	Queens	Prospecting, panning	
Scott Grant	Mt. Uniacke	Hants	Geological mapping, sampling, assaying, EM-VLF survey	Gold
Scozinc Ltd.	Musquodoboit Valley	Halifax	Geochemical survey, soil sampling, assaying, tukey boxplots	Lead, zinc
Scozinc Ltd.	Upper Stewiacke	Colchester	Geochemical survey, soil sampling, assaying, tukey boxplots	Lead, zinc
Scozinc Ltd.	Loch Lomond	Cape Breton, Richmond	Geochemical survey, soil samples, assays, tukey boxplot	Lead, zinc
Scozinc Ltd.	Lime Hill	Inverness	Geochemical survey, soil sampling, assaying, tukey boxplot	Lead, zinc
Scozinc Ltd.	Grand River	Richmond	Geochemical survey, soil sampling, assaying, tukey boxplot	Lead, zinc
Scozinc Ltd.	Eastville	Colchester, Pictou	Geochemical survey, soil sampling, assaying, tukey boxplots	Lead, zinc
Scozinc Ltd.	Smithfield	Colchester	Geochemical survey, soil sampling, assaying, tukey boxplots, data review	Lead, zinc
Scozinc Ltd.	Pembroke	Colchester	Soil sampling, assaying, tukey boxplot	Lead, zinc
Scozinc Ltd.	Gays River	Halifax	Soil sampling, assaying, mass spectrometer analysis, tukey boxplot	Lead, zinc