



# Provincial Overview of Mines and Mineral Exploration, 2014



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Ministry of Energy and Mines  
British Columbia Geological Survey  
Information Circular 2015-01

**Ministry of Energy and Mines  
Mines and Mineral Resources Division  
British Columbia Geological Survey**

**Front cover:** Drilling steeply into Takla Group volcanic rocks and mineralized intrusion at Kemess East (AuRico Gold Inc.), Omineca Region. **Photo by Paul Jago.**

**Back Cover:** Helicopter flying aeromagnetic survey over the Moonlight prospect (foreground), KSP project area (Colorado Resources). Sericite Ridge in background. Northwest Region. **Photo by Jeff Kyba.**

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Victoria  
British Columbia  
Canada

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# Provincial Overview of Mines and Mineral Exploration, 2014

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## Introduction

Reflecting its complex geological history, British Columbia is endowed with diverse minerals and deposit types (see centrefold map). British Columbia is Canada's largest exporter of coal, leading producer of Cu, and only producer of Mo. Also produced are significant amounts of Au, Ag, Pb, and Zn and over 30 industrial minerals including gypsum, magnesite, limestone, and dimension stone. Numerous quarries produce sand and gravel or crushed aggregate.

Flanked by the Pacific Ocean, British Columbia offers easy access to growing global markets. Mine operations benefit from tax incentives and a well-developed physical infrastructure, including low-cost electricity, an integrated road and rail network, and large deep-water ports. The recent completion of the 344 km Northwest Transmission line extends power access in the highly prospective northwestern part of the province. Exploration benefits from an extensive geoscience database, a web-based mineral tenure system, and investment incentives such as the British Columbia Mining Exploration Tax Credit.

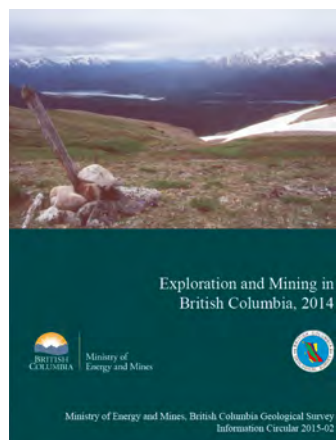
Two companion documents support this overview publication and provide more detail: 'Exploration and Mining in British Columbia, 2014' (Information Circular 2015-2<sup>1</sup>) and 'British Columbia Coal Industry Overview, 2014' (Information Circular 2015-3<sup>2</sup>).

In addition to corporate headquarters in Victoria and the Mineral Development Office in Vancouver, the Ministry of Energy and Mines has five Regional offices located in Vancouver, Smithers, Prince George, Cranbrook and Kamloops. These offices are staffed by Regional Geologists who monitor mineral exploration, development, and mining activities in seven geographic Regions of British Columbia (Fig. 1).

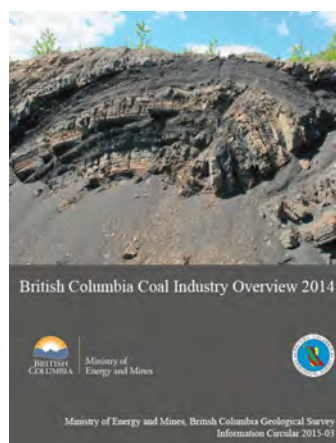
## Mine production, mining highlights, mine development, and proposed mines

### Mine production

The estimated total value of mine production for 2014 was \$7.4 billion (Fig. 2), including coal, Cu, industrial minerals, aggregate, Au, Mo, Ag, Zn, and Pb. Compared to 2013, this number represents an increase of \$317 million (Fig. 3). Throughout 2014, 11 metal mines, 9 coal mines, 29 industrial mineral mines and more than 1000 aggregate mines were in



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operation. By the end of 2014, depressed coal prices resulted in the three Northeast Region coal mines being placed on care and maintenance, and operations at **Mount Polley** (Cu-Au-Ag) and **Endako** (Cu, Mo) were suspended. For 2014, coal remained the highest value mine product from British Columbia, comprising approximately 46% per cent of the total output. Copper was the second highest at approximately 32%.

## Mining Highlights

### Metal Mines

Metal mines accounted for an estimated \$3.14 billion of all mine production in 2014, representing about 43% of all mine

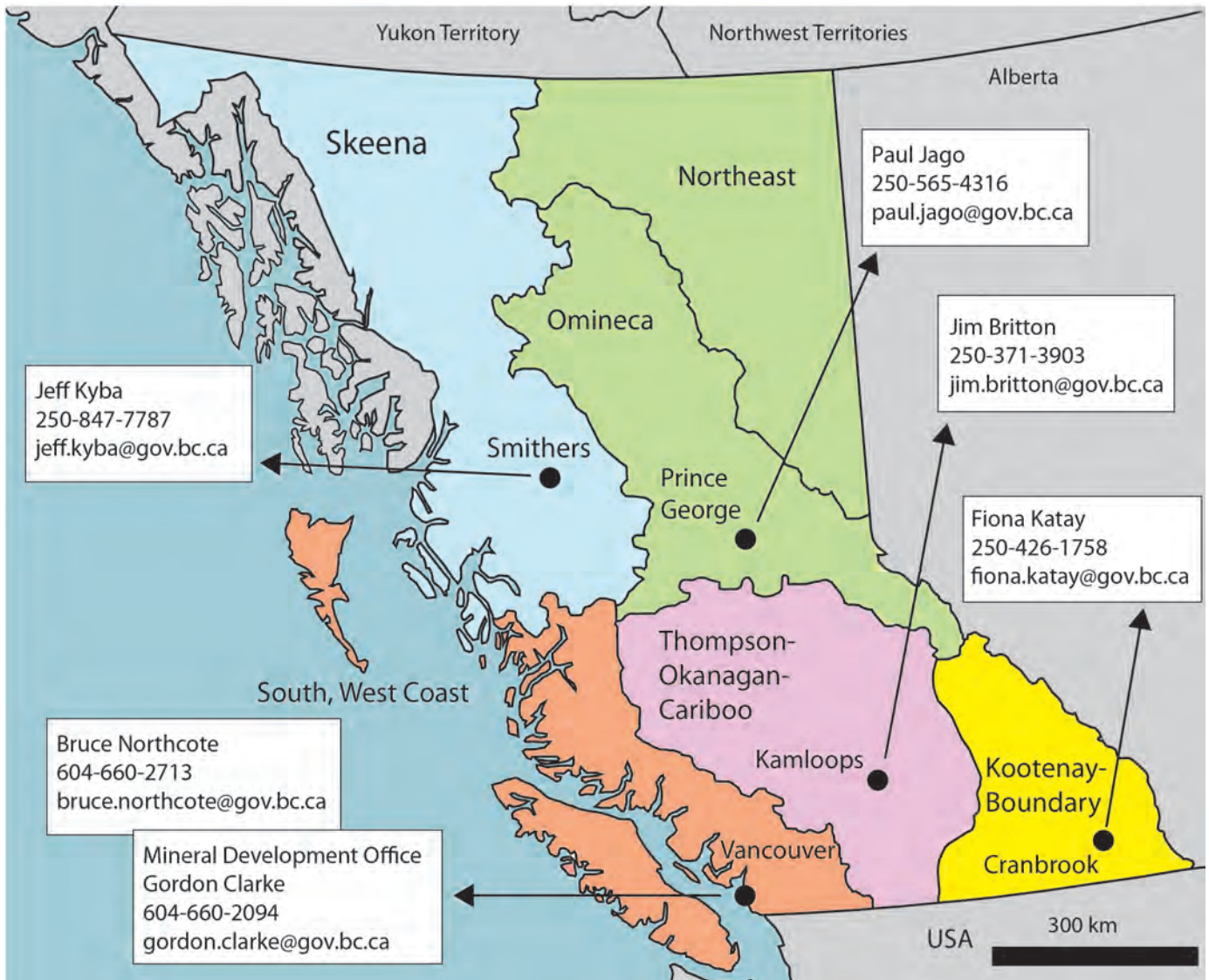


Fig. 1. Location of geographic regions and Regional Geologist office locations.

Total 2014 Forecast Value of BC Mineral Production - 7.3 Billion

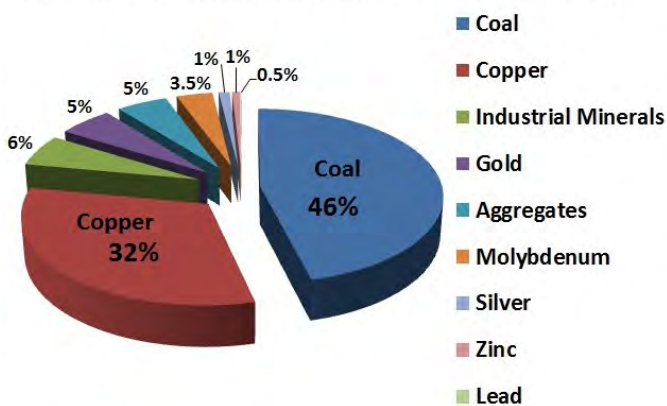


Fig. 2. Forecast value of British Columbia mineral production for 2014.

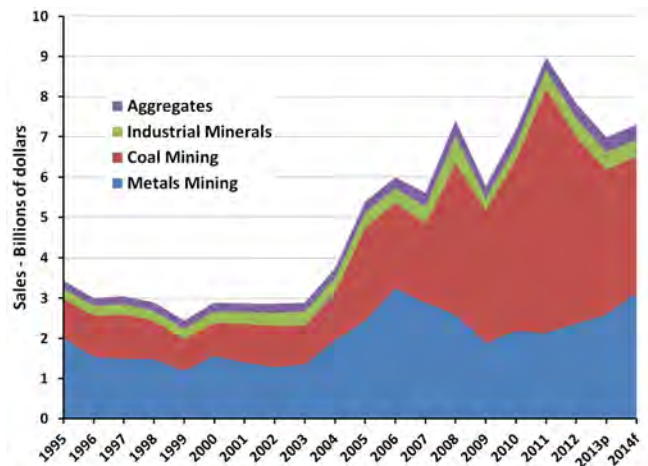


Fig. 3. Value of British Columbia mineral production by year.



production in the province. Metal mines operating in British Columbia, forecast mine production, and reserves information are summarized in Table 1.

At the start of 2014, nine metal mines were in production, but this number increased to eleven by mid-summer with start-ups at Banks Island Gold Ltd.'s **Yellow Giant** Au mine (Fig. 4) and Barkerville Gold Mines Ltd.'s **Bonanza Ledge** operation. By the fall, the total was back to nine with the **Mount Polley** mine suspending operations due to a tailings pond breach, and the **Endako** mine suspending operations due to low Mo prices. During 2014, the price for Mo oxide dropped from a June high of 14.97 USD/lb to a low of 9.12 USD/lb in December.

Higher grades and better recovery at Huckleberry Mines Ltd.'s **Huckleberry** Cu-Au-Ag-Mo mine in the Skeena Region resulted in a 17% increase of metal production. In the Omineca Region, ramp up activities continued at Thompson Creek Metals Company Inc.'s **Mt. Milligan** mine (Fig. 5). Commissioned in October 2013, the mine saw its first full year of operations in 2014; ramp-up mechanical and electrical maintenance and adjustments to mining and milling continued



Fig. 4. Processing plant at Yellow Giant mine.



Fig. 5. Blast hole drilling at Mt. Milligan phase two pit.

throughout 2014. Commercial production, defined as mill operation at 60% throughput capacity for 30 days, was reached in mid-February. Milling operations were expected to be consistently near 80% of design capacity by the end of 2014. In the Thompson-Okanagan-Cariboo Region, Copper Mountain Mining Corporation installed a new crusher at its **Copper Mountain** mine and Tech Resources Limited commissioned a new mill at the **Highland Valley** mine. New Gold Inc. continued to advance the **New Afton** mill expansion during the third quarter. The expansion remains on schedule and New Gold expects to increase throughput to 14,000 t per day and achieve improved Au and Cu recoveries in mid-2015. On Vancouver Island, Nyrstar N.V. continued to add new reserves to its **Myra Falls** polymetallic mine through continued exploration and definition drilling.

### Coal Mines

Coal mines accounted for an estimated \$3.36 billion of production for 2014, representing about 46% of all mineral production in the province. Coal mines in operation at the start of 2014 in British Columbia, along with forecast mine production and mine reserves are summarized in Table 2.

At the start of 2014, nine coal mines were in production: three in the Northeast Region, one in the West Coast Region, and five in the Kootenay-Boundary Region. During the year, operations at the three mines in the Northeast Region, which produced hard coking coal (HCC) and pulverized coal injection (PCI) coal, were suspended due to dropping coal prices. During 2014, premium (HCC) dropped to \$121 from \$155 in 2013, PCI coal to \$107 from \$125, and thermal coal to \$82 from \$95 (all prices are per t, in \$US, Estimated, West Coast port price). Lower coal prices were also responsible for reduced staffing and lower production at Quinsam Coal Corporation's **Quinsam** mine on Vancouver Island.

In the Kootenay-Boundary Region, coal mining news was more positive. Mining operations, coal production, and expansion plans continued at all five mines in the Elk Valley and Crowsnest coalfields. Their main product is metallurgical coal (85%), with some thermal and PCI coal (15% combined). Total clean coal production from the Elk Valley in 2013 was approximately 25.3 Mt. Based on Teck Coal Limited's Q3 2014 forecasts, volumes for 2014 are expected to increase to almost 27 Mt. Environmental Assessment approval of major mine projects in the Elk Valley coalfield have been conditional on developing a watershed management plan. In November 2014, Teck received approval from the British Columbia Ministry of Environment for the Elk Valley Water Quality Plan, which addresses the management of potentially harmful substances, in particular selenium, released during mining activities. The plan was developed with scientific advice from a committee chaired by the British Columbia Ministry of Environment, and included representatives from Teck, the Ktunaxa Nation, the US Environmental Protection Agency, the State of Montana, Environment Canada, and other agencies. Public consultation was also part of the process.

**Table 1.** Metal mines, forecast mine production and reserves.

Mine	Region	Operator	Commodity; deposit type; MINFILE	Forecast 2014 Production (based on Q1-Q3)	Reserves (Proven + Probable)
<b>Huckleberry</b>	Skeena	Huckleberry Mines Ltd.	Cu, Au, Ag, Mo; 093E 037	16,329.3 t (36 Mlbs) Cu, 90 kg (2900 oz) Au, 5443 kg (175,000 oz) Ag	42.7 Mt at 0.330% Cu and 0.009% Mo (Dec 31, 2013)
<b>Yellow Giant</b>	Skeena	Banks Island Gold Ltd.	Au, Ag 103G 024, 26	77,000 t at 23 g/t Au and 44 g/t Ag (M + I Resource)	n/a
<b>Endako (operations suspended December 2014)</b>	Omineca	Thompson Creek Metals Company Inc. (75% share)	Mo; porphyry; 093K 006	4309 t (9.5 Mlbs) MoO <sub>2</sub>	65.8 Mt at 0.052% Mo; containing 34,382 t (75.8 Mlbs) Mo
<b>Mt. Milligan</b>	Omineca	Thompson Creek Metals Company Inc.	Cu, Au, Ag; porphyry; 093N 194	2895 t (62.6 Mlbs) Cu; 5645 kg (181,500 oz) Au	477.5 Mt at 0.199% Cu and 0.388 g/t Au; containing 951,637 t (2098 Mlbs) Cu and 185,066 kg (5.95 Moz) Au
<b>Bonanza Ledge (operations started March 2014)</b>	Thompson- Okanagan- Cariboo	Barkerville Gold Mines Ltd.	Au; vein; 093H 140	Not available	Reserves (as of 2009-08-17; cut-off 2.8 g/ t Au): Proven: 130,700 t grading 10.2 g/t Au (containing 43,000 oz Au); Probable: 166,800 t grading 8.1 g/t Au (containing 43,500 oz Au)
<b>Copper Mountain</b>	Thompson- Okanagan- Cariboo	Copper Mountain/ Mitsubishi Materials	Cu, Au, Ag; alkalic porphyry; 092HSE001	80.8 Mlbs Cu; 22,100 oz Au; 456,800 oz Ag	Proven and probable reserves (as of 2013-12-31; 0.18% Cu cut-off): 145 Mt grading 0.34% Cu, 0.1 g/t Au and 1.38 g/t Ag; containing 1080 Mlbs Cu; 0.54 Moz Au; 6.4 Moz Ag
<b>Gibraltar</b>	Thompson- Okanagan- Cariboo	Taseko Mines Ltd.	Cu, Mo; calc-alkalic porphyry; 093B 012	144.5 Mlbs Cu; 2516 thousand lbs Mo	Proven and probable reserves (as of 2013-12-31; 0.20% Cu cut-off): 682 Mt grading 0.30% Cu; 0.008% Mo; containing 4.5 billion pounds of Cu; (4.0 billion pounds recoverable). (Mo data not reported)
<b>Mount Polley (operations suspended August 2014)</b>	Thompson- Okanagan- Cariboo	Imperial Metals Corporation	Cu, Au, Ag; alkalic porphyry; 093A 008	Production to August 2014: 24.5 Mlbs Cu; 25,900 oz Au; 74,770 oz Ag	Proven and probable reserves (as of 2014-01-01; cut-off not stated): 86 Mt grading 0.295% Cu; 0.3 g/t Au; 0.6 g/t Ag; containing 559.5 Mlbs Cu; 838,100 oz Au; 1.7 Moz Ag
<b>New Afton</b>	Thompson- Okanagan- Cariboo	New Gold Inc.	Cu, Au; alkalic porphyry; 092INE023	85.4 Mlbs Cu; 102,700 oz Au; 244,200 oz Ag;	Probable reserves (as of 2013-12-31): 48.8 Mt grading 0.56 g/t Au; 2.2 g/t Ag and 0.84% Cu; containing 879,000 oz Au; 3,500,000 oz Ag; 904 Mlbs Cu
<b>Highland Valley</b>	Thompson- Okanagan- Cariboo	Teck Highland Valley Copper Partnership	Cu, Mo; calc-alkalic porphyry; 092ISW012	122,700 t Cu; 5 Mlbs Mo	Proven and probable reserves (as of 2013-12-31; cut-off not stated): 663.4 Mt grading 0.29% Cu; 0.008% Mo. (Recoverable metal: 1,680,000 t Cu; 30,000 t Mo)
<b>Myra Falls</b>	South-West Coast	Nyrstar N.V.	Zn-Cu-Pb- Ag-Au; VMS (092F 071-73, 330)	Approx. 0.5 Mt at head grades of 6.8% Zn, 0.77% Pb, 0.71% Cu, 2.12 g/t Au, 100.42 g/t Ag	(As of Dec 31, 2013) 5.49 Mt of 5.69% Zn, 0.59% Pb, 0.88% Cu, 58.32 g/t Ag, 1.51 g/t Au

**Table 2.** Coal mines, forecast mine production and reserves.

Mine	Operator	Deposit Type/Commodity	Forecast 2014 Production	Reserves as of Dec 31, 2013
<b>Brule</b>	Walter Energy, Inc. (operations suspended)	ULV PCI coal	1.02 Mt	17.5 Mt
<b>Coal Mountain</b>	Teck Coal Limited	PCI and thermal coal	2.54 Mt	9.5 Mt PCI 0.7 Mt thermal
<b>Elkview</b>	Teck Coal Limited	HCC	5.45 Mt	176.3 Mt HCC
<b>Fording River</b>	Teck Coal Limited	HCC and thermal coal	8.97 Mt	628.6 Mt HCC 4.6 Mt thermal
<b>Greenhills</b>	Teck Coal Limited	HCC, PCI and thermal coal	5.15 Mt	53.3 Mt HCC 3.04 Mt PCI 0.96 Mt thermal
<b>Line Creek</b>	Teck Coal Limited	HCC, PCI and thermal coal	3.40 Mt	55.7 Mt HCC 3.4 Mt PCI 8.3 Mt thermal
<b>Quinsam &amp; 7 South</b>	Hillsborough Resources Limited	Thermal coal	220,000 t washed coal	not available
<b>Trend</b>	Anglo American plc (operations suspended)	HCC	1.71 Mt washed coal	12.8 Mt
<b>Wolverine (Perry Creek)</b>	Walter Energy, Inc. (operations suspended)	HCC	564,000 t	9.4 Mt

HCC = hard coking coal; PCI = pulverized coal injection; ULV = ultra low volatile

### Industrial minerals, aggregates and jade

About 23 industrial mineral mines and over 1000 aggregate operations are active in British Columbia. With estimated production figures for industrial minerals of \$428 million (6% of total mineral production) and for aggregates of \$373 million (5% of total mineral production), these operations are important to the economy of the province. British Columbia produces the world's best quality nephrite jade, with demand in the order of a few hundred t per year. Industrial mineral mines, including jade operations, are summarized in Table 3.

In the Northeast Region, Fireside Minerals Ltd. installed new processing and packing equipment at its **Fireside** barite mine and increased production by 30% in 2014. In the Kootenay-Boundary Region, Heemskirk Canada Limited has produced high-quality silica sand for a variety of industrial applications for over 30 years at its **Moberly** mine (Fig. 6). A major redevelopment is now underway to produce frac sand. Once completed, production is planned to be 400,000 t per year, of which 64% will be frac sand. In the South and West Coast regions, a number of operations reported increased operations and capital investments. Garibaldi Pumice Ltd. increased pumice production after testing supported the product's suitability as a lightweight fill and road base. Lafarge North America Inc. continued to make capital improvements to its **Pitt River** quarry, which is one of the region's largest aggregate quarries. Polaris Minerals Corporation's **Orca** quarry (Fig. 7), which produces sand and gravel mainly for export, reported



**Fig. 6.** High quality silica stockpiles at Moberly mine.

production and sales of approximately 2.4 Mt in the first three quarters of 2014. This represents a multi-year increasing trend.

### Mine development

In 2014, three mine development projects were in the Skeena Region (**Yellow Giant**, **Red Chris**, and **Kitsault**) and one was in the Thompson-Okanagan-Cariboo Region (**Bonanza Ledge**).

In April, Banks Island Gold Ltd. started production at its



**Table 3.** Industrial mineral mines, forecast mine production and reserves.

Mine	Region	Operator	Commodity; MINFILE	Forecast 2014 Production (based on Q1-Q3) or as indicated	Reserves-Resources-Expected Mine Life
<b>Cassiar Jade</b>	Skeena	Cassiar Jade Contracting Inc.	Jade; 104P 005	N/A	N/A
<b>Kutcho Jade</b>	Skeena	Continental Jade Ltd.	Jade; 104I 078	N/A	N/A
<b>Ogden Mountain</b>	Omineca	Green Mountain Gemstones Inc.	nephrite jade; jade; 093N 156, 165	less than 5 t raw; 8 t high-grade from stockpiles	N/A
<b>Fireside</b>	Northeast	Fireside Minerals Ltd.	barite; 094M 003	35,000 t	550,000 t (non 43-101 compliant)
<b>Mount Brussilof</b>	Kootenay/ Boundary	Baymag Inc.	Magnesite; 082JNW001	180 Kt (MgO and MgOH)	50 Mt Proven
<b>Moberly Silica</b>	Kootenay/ Boundary	Heemskirk Canada Limited	Silica; industrial use silica and frac sand; 082N 001	N/A	20 to 140 mesh frac sand (dry): Proven 8.9 Mt @ 64% frac sand + Probable 4.6 Mt @ 64% frac sand; OR Silica for industrial (dry): 12.8 Mt Proven + 0.7 Mt Probable (Updated June 2014)
<b>Elkhorn (Elkhorn Quarry West Extension)</b>	Kootenay/ Boundary	CertainTeed Gypsum Canada Inc.	Gypsum; 082JSW021	400,000 t annually	N/A
<b>Kootenay West</b>	Kootenay/ Boundary	CertainTeed Gypsum Canada Inc.	Gypsum; 082JSW020	North and South Quarries: Total 15 Mt (at average quality of 83-85%)	
<b>Winner; Friday Quarry</b>	Kootenay/ Boundary	Roxul Inc.	Gabbro/Basalt (mineral wool); 082ESE265	Quarrying to supply feed stock for mineral wool plant	N/A
<b>4-J</b>	Kootenay/ Boundary	Georgia Pacific Canada Limited	Gypsum; 082JSW009	N/A	N/A
<b>Ashcroft</b>	Thompson-Okanagan-Cariboo	IG Machine and Fiber Ltd (IKO Industries Ltd.)	Basalt (roofing granules); 092INW104	350,000 t	N/A
<b>Bromley Creek (Zeotech)</b>	Thompson-Okanagan-Cariboo	Canadian Mining Company Inc.	Zeolite; 092HSE243	On care and maintenance in 2014	Resources (M+I; 2013-06-30): 550,000 t
<b>Bud</b>	Thompson-Okanagan-Cariboo	Absorbent Products Ltd.	Bentonite; 092HSE162	Not available	N/A
<b>Decor</b>	Thompson-Okanagan-Cariboo	Pacific Bentonite Ltd.	Alumina, landscape rock; 092INW084	100,000 t	N/A
<b>Falkland</b>	Thompson-Okanagan-Cariboo	Lafarge Canada Inc.	Gypsum; 082LNW001	6000 t	N/A
<b>Harper Ranch</b>	Thompson-Okanagan-Cariboo	Lafarge Canada Inc.	Limestone; 092INE001	220,000 t	N/A

Table 3. Continued.

Mine	Region	Operator	Commodity; MINFILE	Forecast 2014 Production (based on Q1-Q3) or as indicated	Reserves-Resources-Expected Mine Life
<b>Kettle Valley quarries</b>	Thompson-Okanagan-Cariboo	Kelowna Sand and Gravel Ltd./Kettle Valley Stone Ltd.	Ashlar, flagstone, thin veneer: 082ENW109, 111, 112	Not available	N/A
<b>Klinker</b>	Thompson-Okanagan-Cariboo	Okanagan Opal	Opal; 082LSW125	Intermittent operation	N/A
<b>Lady King Basalt</b>	Thompson-Okanagan-Cariboo	Spectral Gold Corp.	Basalt columns; N/A	Intermittent operation	N/A
<b>Pavilion</b>	Thompson-Okanagan-Cariboo	Graymont Western Canada Inc.	Limestone; 092INW081	190,000 t	N/A
<b>Red Lake</b>	Thompson-Okanagan-Cariboo	Absorbent Products Ltd.	Diatomaceous earth; 092INE081	Not available	N/A
<b>Apple Bay</b>	Coast	Electra Gold Ltd.	Silica + alumina; hydrothermal clay-silica; 092L 150	70,000 t	N/A
<b>Benson Lake</b>	Coast	Imasco Minerals Inc.	High brightness carbonate; white marble; 092L 295	45,000 t	100 years +
<b>Blubber Bay</b>	Coast	Ashgrove Cement Company	Aggregate, dolomite; Limestone and dolostone; 092F 479	56,000 t (dolomite)	100 years +
<b>Garibaldi Pumice</b>	Coast	Garibaldi Pumice Ltd.	Pumice; 092JW 039	14,000 m <sup>3</sup>	N/A
<b>Imperial Limestone</b>	Coast	Imperial Limestone Co. Ltd. (J.A. Jack & Sons Inc.)	Limestone; 092F 394	272,000 t	50 years +
<b>K2</b>	Coast	K2 Stone Quarries Inc.	Building stone; 092C 159	17,000 t	N/A
<b>Sumas Mountain</b>	Coast	Sumas Shale Ltd. (Clayburn Industries Ltd., Lafarge North America)	Silica-alumina; Shale and sandstone; 092GSE024	500,000 t	60-70 years
<b>Texada Quarry</b>	Coast	Texada Quarrying Ltd. (Lafarge North America)	Limestone, aggregate, high brightness carbonate; 092F 395	3,800,000 t	100 years +





Fig. 7. Orca quarry stockpiles.

**Yellow Giant Au-Ag mine.** Current mill throughput is 200 t per day from underground operations. In its first five months, the operation sold over 220,000 grams of Au and 575,000 grams of Ag. Commercial production was declared effective January 1, 2015. Imperial Metals Corporation (Imperial) is in the final stages of construction at its **Red Chris** Cu-Au project. Mill throughput is planned at 30,000 t per day with an expected mine life of 28 years. In late 2014, ore was being crushed and stockpiled (Fig. 8), but an Environmental Management Act permit to discharge tailings remain outstanding. Issuance of this permit was expected by mid-January of 2015 and commissioning of the mine is expected shortly after. Power for the **Red Chris** mine project is supplied via a 93 km extension of the 334 km Northwest Transmission line. The Northwest Transmission line was completed by the Province of British Columbia in July of 2014. The extension, known as the Iskut extension, was completed by a subsidiary of Imperial in November of 2014. In December of 2014, Imperial announced



Fig. 8. Ore excavation at Red Chris East zone.

the sale of the Iskut extension to BC Hydro for \$52 million. The Northwest Transmission line and the Iskut extension are key components of the electrification of British Columbia's northwest. Alloycorp Mining Inc. (formerly Avanti Mining Inc.) is continuing construction to reopen the past-producing **Kitsault** Mo-Ag mine (Fig. 9). The mine plan outlines a 45,000 t per day mill to be active for at least 14 years. The project received an amendment to an existing Mines Act permit and federal approval of their Environmental Assessment application in June. These approvals allowed the company to begin road and camp construction and infrastructure upgrades. Mining operations are scheduled to begin in 2017. The company has negotiated a Mine Benefits Agreement with the Nisga'a First Nation. The agreement includes a net smelter royalty of up to 2% (based on prevailing Mo prices) and a resolution to all outstanding litigation. A memorandum of understanding with the Wilp Luuxhon First Nation was also signed.

In the Thompson-Okanagan-Cariboo Region, Barkerville Gold Mines Ltd. started trucking ore from its **Bonanza Ledge** Au mine in March. In October, the company reported processing of 27,584 t of ore with an average grade of about 4.33 g/t Au at an average recovery factor of 88.6%.

### Proposed mines

The provincial Environmental Assessment Office reports that 32 mine proposals are in process, with three currently under review and 29 in the pre-application stage. The selected projects (Table 4) discussed below are grouped by Region.

### Skeena Region

The Skeena Region was the most active in the province with a number of high-profile projects. Pretium Resources Inc. continued exploration and development activities at the **Brucejack** (Fig. 10) high-grade Au project. Permitting remained on schedule, and the company's Environmental Assessment application was formally accepted in mid-August. An updated feasibility study released in June adjusted project specifics including Au price, increased reserves, and



Fig. 9. Past-producing Kitsault mine.

**Table 4.** Proposed mine projects.

<b>Project</b>	<b>Region</b>	<b>Operator</b>	<b>Commodity; deposit type; MINFILE</b>	<b>Reserves-Resources</b>	<b>Work Program</b>	<b>Significant Events</b>
<b>Arctos</b>	Skeena	Fortune Minerals Limited	anthracite; metallurgical coal; 104H 022	125 Mt run-of-mine high-rank anthracite coal (Proven + Probable)	Environmental	
<b>Brucejack</b>	Skeena	Pretium Resources Inc.	Au, Ag; porphyry; 104B 193	16.5 Mt at 14.1 g/t Au, 58 g/t Ag; containing 233 t (7.5 Moz) Au, 955 t Ag (30.7 Moz) (Proven + Probable)	Diamond drilling (9325 m, 7 holes, 14 wedges) Geology, Geochemistry, Corporate, Underground development, ENV	Feasibility study released Environmental Assessment application submitted
<b>Dome</b>	Skeena	Metal Mountain Resources/ Gavin Mines Ltd.	Au, Ag; vein/ breccia 093L 022	135 kt at 11.2 g/t Au containing 1513 kg (48,659 oz) Au (Probable)	Corporate	Mines Act permit amendment submitted
<b>Galore Creek</b>	Skeena	Galore Creek Mining Corp.	Cu, Au; porphyry; 104G 090	528 Mt at 0.59% Cu, 0.32 g/t Au, 6.02 g/t Ag; containing 3,084,428 t (6800 Mlbs) Cu, 169 t (5.45 Moz) Au, 3178 t (102.2 Moz) Ag (Proven + Probable)	Corporate, Environmental	-
<b>KSM</b>	Skeena	Seabridge Gold Inc.	Au, Cu, Ag, Mo; porphyry; 104B 103	2,164 Mt at 0.55 g/t Au, 0.21% Cu, 2.74 g/t Ag, 44.7 g/t Mo; containing 1188 t (38.2 Moz) Au, 4,485,121 t (9888 Mlbs) Cu, 5940 t (191 Moz) Ag, 96,615 t (213 Mlbs) Mo (Proven + Probable)	Diamond drilling (29,508 m, 29 holes), Geology, Geochemistry, Geophysics, Corporate	Environmental Assessment approved, phase 1 construction permits issued
<b>Premier</b>	Skeena	Ascot Resources Ltd.	Au; vein/breccia	93.5 Mt at 0.82 g/t Au, 6.9 g/t Ag; containing 74 t (2.4 Moz) Au, 643 t (20.7(Moz) Ag (Indicated Resource)	Diamond drilling (36,672 m, 169 holes), Geology, Geochemistry	-
<b>Red Mountain</b>	Skeena	IDM Mining Ltd.	Au; vein/breccia; 103P 086	1.4 Mt at 8.15 g/t Au, 29.5 g/t Ag; containing 11.8 t (0.38 Moz) Au, 43 t (1.3 Moz) Ag (Measured + Indicated Resources)	Diamond drilling (3630 m, 12 holes), Geology, Geochemistry, Corporate	Project description to initiate Environmental Assessment submitted, Preliminary Economic Assessment
<b>Shaft Creek</b>	Skeena	Teck Resources Ltd.	Au, Cu, Mo, Ag; porphyry; 104G 015	940.8 Mt at 0.27% Cu, 0.018% Mo, 0.191 g/t Au, 1.716 g/t Ag; containing 2,545,106 t (5611 Mlbs) Cu, 180 t (5.8 Moz) Au, 164,564 t (363 Mlbs) Mo, 1608 t (51.7 Moz) Ag	Re-logging 16,687 m drill core, geological mapping	-



Table 4. Continued.

Project	Region	Operator	Commodity; deposit type; MINFILE	Reserves-Resources	Work Program	Significant Events
<b>Silvertip</b>	Skeena	JDS Silver Inc.	Ag, Pb, Zn, Au; sedimentary replacement; 104O 038	2.45 Mt at 315 g/t Ag, 5.88% Pb, 6.26% Zn, 0.4 g/t Au; containing 771 t Ag, 144,060 t Pb, 153,370 t Zn, 980 kg Au (Measured + Indicated Resource)	Access road repair, corporate	Mines Act Permit review initiated
<b>Snowfield</b>	Skeena	Pretium Resources Inc.	Au, Cu, Mo; porphyry; 104B 179	1370 Mt at 0.59 g/t Au, 1.72 g/t Ag, 0.10% Cu, 85.5 g/t Mo, 0.51 g/t Re; containing 805 t (25.9 Moz) Au, 2354 t (75.7 Moz) Ag, 1,351,705 t (2980 Mlbs) Cu, 117,026 t (258 Mlbs) Mo, 699.8 t (22.5 Moz) Re (Measured + Indicated Resource)	Corporate	-
<b>Tulsequah Chief</b>	Skeena	Chieftain Metals Inc.	Cu, Zn, Ag, Au; massive sulphide; 104K 002	4.4 Mt at 2.85 g/t Au, 104 g/t Ag, 1.46% Cu, 1.29% Pb, 6.95% Zn; containing 12.5 t (0.4 Moz) Au, 457 t (14.7 Moz) Ag, 64,240 t (141 Mlbs) Cu, 56,760 t (125 Mlbs) Pb, 305,800 t (674 Mlbs) Zn (Proven + Probable)	Corporate	Feasibility study released
<b>Kemess Underground (KUG)</b>	Omineca	AuRico Gold Inc.	Cu, Au, Ag; porphyry; 094E 021	100.4 Mt at 0.28% Cu, 0.56 g/t Au, 2.0 g/t Ag; containing 280,842 t (619.2 Mlbs) Cu, 56,142 kg (1.8 Moz) Au, 205,532 kg (6.6 Moz) Ag	Environmental Assessment, care and maintenance (Kemess South)	Project description to initiate Environmental Assessment submitted
<b>Groundhog</b>	Omineca	Atrum Coal	anthracite; metallurgical coal; 104A 078	176 Mt run-of-mine high-rank anthracite coal (JORC Resource)	Diamond drilling, (10,084 m, 51 holes), Geophysics (seismic)	-
<b>Blackwater</b>	Omineca	New Gold Inc.	Au, Ag; epithermal (intermediate sulfidation); 093F 037	344.4 Mt at 0.74 g/t Au, 5.5 g/t Ag; containing 254,115 kg (8.17 Moz) Au, 1891 t (60.8 Moz) Ag	Engineering studies for Environmental Assessment	Feasibility study released. Environmental Assessment application submitted
<b>Aley</b>	Omineca	Taseko Mines Limited	Nb; carbonatite-hosted; 094B 027	83.8 Mt at 0.50% Nb <sub>2</sub> O <sub>5</sub> ; containing 292.9 Mkg Nb	Pre-feasibility study, metallurgical testing, mineralogical, engineering and baseline studies	Achieved +50% recovery of Nb in test processing. Pre-feasibility study released

Table 4. Continued.

Project	Region	Operator	Commodity; deposit type; MINFILE	Reserves-Resources	Work Program	Significant Events
<b>Giscome</b>	Omineca	Graymont Western Canada Inc.	limestone; 093J 041	+100 Mt of limestone (>95% calcium carbonate, <5% magnesium carbonate)	infill drilling (1854 m), oriented core drilling, auger drilling, test pitting, Environmental Assessment	-
<b>Roman Mountain</b>	Northeast	Anglo American plc (Peace River Coal Inc.)	metallurgical coal; 093I 030	35.5 Mt run-of-mine coal	percussion drilling (7735 m)	-
<b>Quintette (Babcock)</b>	Northeast	Teck Coal Limited	metallurgical coal; 093I 011	41.1 Mt clean coal	detailed engineering, 50,000 t saleable coal test sample	-
<b>Murray River</b>	Northeast	HD Mining International Ltd.	metallurgical coal; 093I 010	N/A	Decline construction, drilling (330 m), engineering and environmental studies.	Decline to 742 m in October. Environmental Assessment application submitted (under review)
<b>EB (Mt. Spieker)</b>	Northeast	Walter Energy, Inc. (Western Coal Corp.)	metallurgical coal; 093P 015	15.6 Mt clean coal	core drilling (860 m), auger drilling (180 m); test pitting	-
<b>Hermann</b>	Northeast	Walter Energy, Inc. (Western Coal Corp.)	metallurgical coal; 093I 031	9.1 Mt clean coal	infill core drilling	-
<b>Sukunka</b>	Northeast	Glencore plc (75% interest)	metallurgical coal; 093P 012	N/A	drilling (exploration, geotechnical, hydro- geological), 10 t bulk sample, trenching, coal quality testing, feasibility studies	-
<b>Wapiti East</b>	Northeast	Fertoz International Inc.	phosphate; 093I 008	N/A	trenching, bulk sample (1250 t of 20 Kt permitted)	-
<b>Ajax</b>	Thompson- Okanagan- Cariboo	KGHM Ajax Mining Inc.	Cu, Au; alkalic porphyry; 092INE012, 13	Resources (M+I): 512 Mt grading 0.31% Cu; 0.19 g/t Au	Baseline and engineering studies; exploration and condemnation drilling	Revised mine layout; draft AIR and EIS reports.



Table 4. Continued.

Project	Region	Operator	Commodity; deposit type; MINFILE	Reserves-Resources	Work Program	Significant Events
<b>Harper Creek</b>	Thompson-Okanagan-Cariboo	Yellowhead Mining Inc.	Cu, Au, Ag; Stratiform, volcanic-hosted; 082M 008, 9	Reserves (P+P; cut-off 0.14% Cu): 716 Mt grading 0.26% Cu; 0.029 g/t Au; 1.18 g/t Ag	Baseline and engineering studies	Revised resource estimate.
<b>New Prosperity</b>	Thompson-Okanagan-Cariboo	Taseko Mines Ltd.	Cu, Au; Calc-alkalic porphyry; 092O 041	Reserves (P+P; cut-off not stated): 831 Mt grading 0.23% Cu and 0.41 g/t Au; containing (recoverable) 3.6 billion lbs Cu; 7.7 Moz Au	Legal review of federal EA decision	Pending.
<b>Ruddock Creek</b>	Thompson-Okanagan-Cariboo	Ruddock Creek Mining Corporation	Pb, Zn, Ag; Monashee-type sediment-hosted massive sulphide; 082M 082	Resources (M+I; cut-off 4.0% Pb+Zn): 6.2 Mt grading 6.50% Zn, 1.33% Pb	Baseline and engineering studies; design of review process	Government support for streamlined review process.
<b>Spanish Mountain</b>	Thompson-Okanagan-Cariboo	Spanish Mountain Gold Ltd.	Au, Ag; Sediment-hosted Au; 093A 043	Resources (M+I; cut-off 0.20 g/T Au): 237.8 Mt grading 0.46 g/t Au; 0.69 g/t Ag; containing 3.5 Moz Au; 5.28 Moz Ag	Reverse circulation drilling; baseline and engineering studies	Improved data for resource evaluation.
<b>Bralorne</b>		Avino Silver and Gold Mines Ltd.	Au; vein; 093JNE001	Reserve data not available. Resources (M+I as of 2012-08-31): 154,750 t grading 9.11 g/t Au.	Avino is processing ore on a small scale but classifies their operation as advanced exploration	-
<b>Crown Mountain (open pit)</b>	Kootenay-Boundary	NWP Coal Canada Limited (Jameson Resources Limited)	Coal (HCC and PCI); 082GNE006	HCC: 42.60 Mt Proven + 4.91 Mt Probable; PCI: 7.13 Mt Proven + 1.19 Mt Probable (2014)	Prefeasibility study; environmental and baseline work; mine design; permitting	Pre-application of EA (2014); 16-year mine life; 1.7 Mt/yr
<b>Coal Mountain Phase II (Marten Wheeler)</b>	Kootenay-Boundary	Teck Coal Limited.	Coal (PCI and Thermal); 082GNE006	N/A	Environmental and baseline work; mine design; permitting	Pre-application of EA (2014); total of 76.5 Mt; 34-year mine life; 2.25 Mt/yr
<b>Coal Creek (underground)</b>	Kootenay-Boundary	Crows Nest Pass Coal Mining Limited	Coal (HCC and PCI); 082GSE035	N/A	Prefeasibility Study (PFS); geological modeling; resource evaluation; baseline studies	Optimization of the PFS; geological modeling

Table 4. Continued.

Project	Region	Operator	Commodity; deposit type; MINFILE	Reserves-Resources	Work Program	Significant Events
<b>Michel Creek (open pit)</b>	Kootenay- Boundary	CanAus Coal Limited	Coal (HCC and PCI); 082GSE050	N/A	Drilling (RC: 18,892 m; 17 LD: 1404 m; 12 DDH: 2537 m; 2 LDRF: 237 m) at Loop Ridge, Loop Ridge Phase 2, and Michel Head; sampling; coal quality	Coal quality results; updated geological model; drilling has identified 20 coal seams with cumulative thickness of 70 m (14% of a 504 m section in Mist Mountain Fm)
<b>Bingay Main (open pit and underground)</b>	Kootenay- Boundary	Centremount Coal Limited	Coal (HCC); 082JSE011	N/A	On hold	Pre-application of EA (2012); 20-year mine life; 2 Mt/yr; total of 39 Mt HCC
<b>Raven Underground Coal</b>	West Coast	Comox Joint Venture (Compliance Energy 75%, LG International Investments (Canada) Ltd.	Metallurgical coal	29.9 Mt (Run of mine, Proven and Probable)		Environmental assessment application
<b>BURNCO Aggregate</b>	South	BURNCO Rock Products Ltd.	Aggregate	>24 Mt	Engineering	Environmental assessment application



Fig. 10. Underground diamond drilling at Brucejack project.

higher Au grades. Results remained positive for the proposed 2,700 t per day milling operation forecasted to operate for 18 years and produce 226 t (7.27 Moz) of Au. In November it was announced that AMEC Americas Limited had been contracted to provide engineering, procurement, and construction

management services for the **Brucejack** project. In December it was announced that Zijin Mining Group Co., Ltd. made an \$81 million dollar investment in the project.

Seabridge Gold Inc. received provincial approval of an Environmental Assessment application in late July and federal approval in mid-December for its **KSM** (Kerr-Sulphurets-Mitchell) project (Fig. 11). Significant pre-construction permits were also granted in September, allowing building of roads, construction camps, and rights-of-way and site preparations at the mine site and tailing management facility. **KSM** consists of four deposits (Kerr, Sulphurets, Mitchell, and Iron Cap) which, with Proven plus Probable reserves totaling over 2.1 billion t averaging 0.55 g/t Au and 0.21% Cu, constitute one of the largest undeveloped Au-Cu porphyry resources in North America. The **KSM** project is planned to operate over a 55 year mine life with an estimated capital cost of \$5.3 billion.

In 2014, exploration at the **Deep Kerr** deposit and the **Iron Cap Lower Zone** expanded known dimensions. Although the **Deep Kerr** deposit was discovered as recently as 2013, by early 2014 an initial estimate was released with an Inferred resource of 515 Mt grading 0.53% Cu and 0.36 g/t Au (6.1 billion pounds of Cu and 5.9 Moz of Au). The deposit is well-suited for underground mining, and the size and grade compare



Fig. 11. Diamond drilling at KSM project.

favourably with the world's best producing Cu-Au mines. In the first quarter of 2015, results from 2014 exploration programs are expected to lead to an expanded resource estimate for **Deep Kerr** and an initial resource estimate for the **Iron Cap Lower Zone**.

In early 2014, Ascot Resources Ltd. announced an updated mineral resource estimate for its **Premier-Dilworth** Au-Ag project. Using optimized pit shells at a cut-off grade of 0.3 g/t Au equivalent (AuEq), Ascot reported 2.830 Moz AuEq at a grade of 0.94 g/t AuEq in the Indicated category and 1.804 Moz AuEq at a grade of 0.71 g/t AuEq in the Inferred category. Drilling identified new areas of Au and Ag mineralization in the project area.

In April, the **Red Mountain** Au project was optioned from Seabridge Gold Inc. by Revolution Resources Corp. who changed their name to IDM Mining Ltd. (IDM). An updated resource estimate and Preliminary Economic Assessment completed in July indicated favorable economics to pursue a 1,000 t per day seasonal underground mine. A Project Description was submitted to the British Columbia Environment Assessment office for review. In the fall, IDM completed a 12 hole drilling program (3,630 m) testing mineralization beyond known resources. In December it was announced that the drilling had discovered two new high-grade Au zones.

Teck Resources Limited re-logged core at the **Schaft**

**Creek** Cu-Au-Ag-Mo deposit and continued metallurgical, geotechnical, and environmental studies to enhance a 2013 feasibility report. Teck is the project operator with joint venture partner Copper Fox Metals Inc. (25%).

In 2014, JDS Silver Inc. (JDS) carried out work on their **Silvertip** mine project. JDS has repaired the 26 km access road to the Silvertip high-grade Ag manto deposit. A concentrator has been purchased and is currently being stored in Watson Lake. The mine is proposed to be a 74,000 t per year underground operation. Limited mine site preparation work was completed in 2014 and a Mines Act permit review began in November.

Fortune Minerals Limited completed minimal groundwork on the **Arctos** anthracite project jointly owned with POSCAN. Plans to conduct baseline work were put on hold because the issuing of new permits in the Klappan Strategic Initiative Area was deferred.

### Omineca Region

In February, AuRico Gold Inc. (Aurico) submitted a Project Description for their **Kemess Underground Au-Cu (KUG)** project to the British Columbia Environmental Assessment Office on behalf of both the Province of British Columbia and the Canadian Environmental Assessment Agency. This review is currently in the pre-Application stage of the environmental assessment process and AuRico anticipates receiving the Application Information Requirements in early January 2015. Aurico plans to submit an Environmental Application in the first half of 2015.

An underground block cave operation is proposed at **KUG**, which would use infrastructure at the former **Kemess South** mine location. Annual production would be approximately 3266 kg (105,000 oz) of Au and 19,958 t (44 Mlbs) of Cu. The operation would run for 12 years with mining from a single extraction level.

In December, Aurico announced discovering a new Au-Cu porphyry mineralized system at **Kemess East**, one kilometre east of its **KUG** deposit. An initial resource estimate for **Kemess East** is anticipated in early 2015. Preliminary mineralogical assessment indicates that **Kemess East** has similar characteristics to the **KUG** deposit, and metallurgical testing is currently underway. In 2015 an expanded drilling program will focus on additional delineation of the **Kemess East** mineralization.

In January 2014, New Gold Inc. released a NI 43-101 technical report for its **Blackwater** Au-Ag project. It proposes an open-pit mining operation with a 60,000 t per day processing plant and a mine life of 17 years. Life-of-mine average annual production would be 12,846 kg (413,000 oz) of Au and 54,182 kg (1.74 Moz) of Ag. Total metal production would be 217,724 kg (7.0 Moz) of Au and 920,663 kg (29.6 Moz) of Ag. New Gold worked to advance the project through permitting, which required additional engineering studies on a transmission line, tailings storage facility, and water management. In early October, the final application for an Environmental Assessment certificate was submitted. The proposed mine would provide



1200-1500 jobs during construction, and a permanent workforce of over 500 employees.

In May, New Gold also released a NI 43-101 technical report on its Au-Ag **Capoose** project. The mineralized zone (above 0.4 g/t AuEq.) is irregularly shaped and extends 825 x 715 m along a north-south trend, with a vertical extent of over 500 m.

In the first half of 2014, Taseko Mines Limited continued metallurgical test work on its **Aley**, Nb project. Engineering and environmental studies also continued, as did upgrading a March 2012 resource estimate. In September, the company released the results of a pre-feasibility study and submitted a Project Description to initiate a formal environmental assessment. The company proposes an open-pit mine with a strip ratio of 0.5:1 and a 10,000 t per day processing plant. Average annual production over the 24-27 year mine life would be about 9000 t (9 Mkg) of ferroniobium. The proposed mine would provide approximately 700 jobs during construction and 350 direct jobs at full operation. In November, it was announced that the project had been federally approved for a harmonized Environmental Assessment to be conducted by the province.

During 2014, Atrium Coal NL (Atrium) continued advancing the **Groundhog** (Fig. 12) ultra-high rank anthracite coal project towards an underground bulk sampling program. Drilling in 2014 included 41 exploration holes and ten hydrological monitoring holes totalling 10,084 m. Trenching, environmental baseline monitoring, and site planning have positioned the project to excavate a bulk sample in early 2015. A supplementary Pre-Feasibility Study details a 5.4 Mt per year run-of-mine underground operation for 38 years for the **Groundhog** deposit, which contains an estimated 609 Mt. The feasibility also proposes a multi-mine plan once the initial **Groundhog** mine is operational. Atrium has reported a project-wide JORC compliant resource of 1.57 billion t (16 Mt Measured, 553 Mt Indicated, 998 Mt Inferred).



**Fig. 12.** Anthracite coal at the Groundhog coalfield in northwest British Columbia.

## Northeast Region

Work in the Northeast Region, home to the Peace River coalfield, was carried out on seven coal projects including the **Quintette**, **Roman Mountain**, **Murray River**, **EB**, **Hermann**, **Sukunka** and on two industrial mineral projects, **Giscome** (limestone) and **Wapiti East** (phosphate). Teck Coal Limited carried out detailed engineering work, and completed the extraction of a saleable coal test sample for its **Quintette** (Babcock) mine. The final two permit requirements were received in late summer, but in April it had been announced the project was being deferred until market conditions improved. The **Roman Mountain** expansion project of Peace River Coal Inc.-Anglo American plc was issued a mining permit in 2014. Infill drilling was carried out to better define fold-fault structures, and infrastructure construction continued, although the planned opening of the new mine was postponed. In January of 2014 a decline was started to obtain an underground bulk coal sample at HD Mining International Ltd.'s **Murray River** project. Contingent on coal quality results, the proposed mine would have a production rate of 4.8 Mt per year of saleable coal over a 25 year mine life at an estimated capital cost of \$668 million. The company's Environmental Assessment certificate application was accepted in mid-September, and the project is under review. Commissioning and first production is anticipated before 2018, subject to permitting approval. Walter Energy Inc. continued preparatory work at its **EB** and **Hermann** coal projects. Both projects have been issued provincial Environmental Assessment certificates. Glencore plc. carried out drilling, trenching, hydrogeology studies, coal quality evaluation, and feasibility work on its **Sukunka** project. The project has been federally approved for a harmonized Environmental Assessment to be conducted by the province and is in the pre-application stage.

Western Canada Inc., a subsidiary of Graymont Limited, carried out work on its **Giscome** lime project. Work included infill drilling (1854 m), oriented core drilling, auger drilling, and test pitting. When completed, the project will include a limestone quarry, a lime processing facility, and a haul road. In September, Graymont announced that an agreement with the Lheidli T'enneh had been signed. The project still requires approvals under the British Columbia Environmental Assessment Act and from the Regional District. Assuming that all regulatory approvals will be received, construction of the plant is scheduled to start in late 2015 and operations are scheduled to commence in 2017. The estimated rate of limestone extraction will initially be up to 550,000 t per year with a future potential limestone extraction rate of as much as 1.7 Mt per year.

At the **Wapiti East** phosphate project, Fertoz International Inc. carried out trenching and bulk sampling (1250 t). In November, the company submitted a Small Mine Application to the British Columbia Ministry of Energy and Mines. Assuming approval of the application, Fertoz expects to mine up to 75,000 t per year of rock phosphate for sale to local farmers.





## Thompson-Okanagan-Cariboo Region

KGHM International Ltd. continued engineering and baseline studies to advance its **Ajax** porphyry Cu-Au project. The project is currently in the pre-submission phase of a joint provincial and federal environmental assessment process. If approved, the proposed **Ajax** Mine and processing facilities will employ state-of-the-art mining and environmental protection monitoring technologies. Planned annual production is 109 Mlbs of Cu and 99,000 ounces of Au from a 60,000 t per day processing capacity. The mine would have a life of approximately 20 years with 500 full-time positions.

In August, Yellowhead Mining Inc. released an updated feasibility study for its **Harper Creek** Cu deposit. Proven and Probable mineral reserves now stand at 716 Mt grading 0.26% Cu; 0.029 g/t Au, and 1.2 g/t Ag. Initial capital costs would exceed \$1 billion. The mine would provide up to 660 jobs during construction and up to 450 permanent jobs during operations. It would be an open-pit operation with a 70,000 t per day throughput and a 28 year mine life. In November, Yellowhead announced submitting its application for an environmental assessment certificate to the British Columbia Environmental Assessment Office in accordance with the provisions of the British Columbia Environmental Assessment Act. The application was also submitted to the Canadian Environmental Assessment Agency because the application constitutes an Environmental Impact Assessment under the Canadian Environmental Assessment Act.

In February, Taseko Mines Limited's **New Prosperity** Cu-Au mine project was rejected a second time by a federal review panel.

## Kootenay-Boundary Region

In the Kootenay-Boundary Region, work on proposed mines was primarily for coal projects including the **Crown Mountain, Coal Mountain Phase II** (Marten Wheeler) and **Bingay Main** projects. Work was also carried out on the proposed **Kootenay West** gypsum mine.

The **Crown Mountain** project of NWP Coal Canada Ltd., advanced to pre-application stages of Environmental Assessment. The project is for an open-pit mine with an estimated production capacity of 1.7 Mt per year of clean coal and a 16-year mine life, with proposed construction beginning in 2016. NWP completed a prefeasibility study with updated coal resource estimates of 74.9 Mt (Measured + Indicated). Teck Coal's **Coal Mountain Phase II** (Marten Wheeler) project entered pre-application stages of Environmental Assessment in September, 2014. The mine will use infrastructure at the current Coal Mountain mine operations, and produce 76.5 Mt of clean coal over an estimated 34-year mine life, at a production rate of approximately 2.25 Mt per year. In 2014, work focused on environmental baseline, geotechnical, and mine design work. Centermount Coal Ltd.'s **Bingay Main** proposed open-pit and underground coal mine on the **Bingay Creek** property entered pre-application of Environmental Assessment in early 2013, but the project was suspended on account of low coal prices,

and remained on hold in 2014. The mine would produce 2 Mt of coal annually, and have a mine life of approximately 20 years, with a total resource of approximately 39 Mt of clean coal.

CertainTeed Gypsum Canada Inc. continues to advance the proposed **Kootenay West** gypsum mine, which entered the pre-application stages of Environmental Assessment in 2014. The mine would have an average production rate of 400,000 t per year, over a 38-year mine life. The total mineral reserve is estimated at 15 Mt with an average quality of 83-85% gypsum.

## South and West Coast Regions

The **Raven Underground Coal** project is a proposed semi soft coking coal (with a thermal byproduct) mine. Forecast production is approximately 830,000 t of clean coal per year, over 16 years. Compliance Energy Corporation (Compliance) is the majority partner in a joint venture with LG International Corp. An application for an Environmental Assessment Certificate was submitted in 2013, but the Environmental Assessment Office determined that the application did not contain all required information. Compliance worked on a revised application in 2014.

BURNCO Rock Products Ltd.'s (BURNCO) **Aggregate** project is also in the pre-application stage of Environmental Assessment with both provincial and federal agencies. Draft Application Information Requirements were submitted in September 2013. The proposed mine would ramp up to a 1.5 Mt per year operation, initially barging product to BURNCO's ready-mix concrete plants in South Burnaby and Port Kells. BURNCO submitted revisions to the project in 2014, changing production rate, relocating some facilities, and specifying a mine life of 16 years. The project now has approved Application Information Requirements and may proceed to an application for environmental certification.

## Exploration expenditures, land tenure, and exploration highlights

### Exploration expenditures

Total metal, aggregate, industrial mineral and coal exploration expenditures are estimated at \$338 million for 2014, down \$138 million from 2013's total of \$476 million. Of this, \$105 million was contributed by coal projects and \$233 by metal, aggregate, and industrial mineral projects (Fig. 13). For many companies, lower commodity prices and a depressed equity market led to reduced exploration. Exploration expenditures can be further divided into five categories: grassroots, early stage, advanced stage, mine evaluation and mine lease (Fig. 14). Along with reduced total expenditures, difficulty in raising venture capital for new projects resulted in grassroots and early stage exploration representing only 14% of total expenditures.

### Land tenure

In 2014, the acquisition of new mineral claims rebounded slightly from a ten year low of 246,156 hectares in 2013 (Fig. 15). The total for 2014 was 942,181 hectares. New coal license



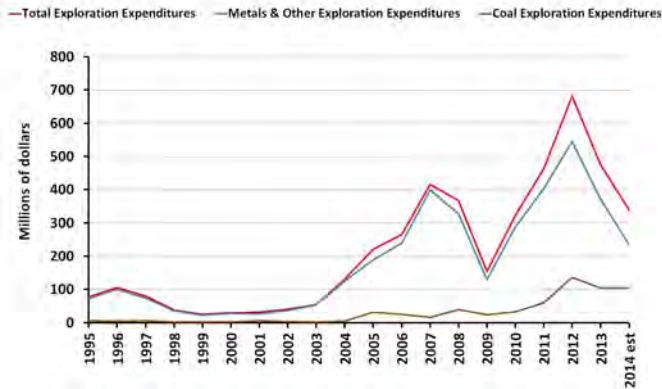


Fig. 13. Total exploration expenditures, metals plus other expenditures and coal expenditures by year.

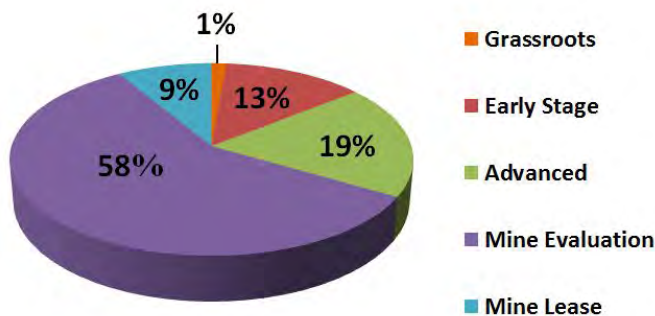


Fig. 14. Exploration expenditures for 2014 by exploration stage.

applications in 2014 totalled 75,972 hectares. This was down significantly from 2013 when applications totalled 197,681 hectares, and far short of the 2012 record of 710,368 hectares (Fig. 16).

### Exploration highlights

Although exploration slowed in 2014, explorationists continued to discover, define, and expand porphyry and porphyry-related Cu-Au and Cu-Mo deposits, Au deposits of various types, Ni deposits, and stratiform base-metal, specialty metals, industrial minerals, and coal deposits. Below, selected exploration projects are grouped by project type and region. A more comprehensive list of selected exploration projects active in 2014 is appended (Table 5).

### Porphyry Projects

**Skeena Region.** Colorado Resources Ltd.'s (Colorado) **North ROK** Cu-Au project follows up on mapping by the British Columbia Geological Survey, who reported analytical results from a chip sample in 1994. In March, Colorado reported a resource estimate of 142.3 Mt averaging 0.22% Cu and 0.26 g/t Au containing 690.30 Mlbs of Cu and 1.19 Moz of Au. Results from additional drilling in 2014 included 199 m of 0.210% Cu and 0.416 g/t Au, including 100.4 m of 0.314% Cu and 0.736 g/t Au at about 250 m below previously known mineralization.

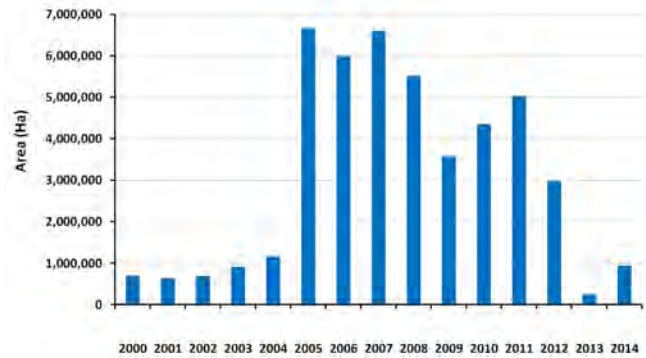


Fig. 15. Tenure, new mineral claims (area Ha) by year.

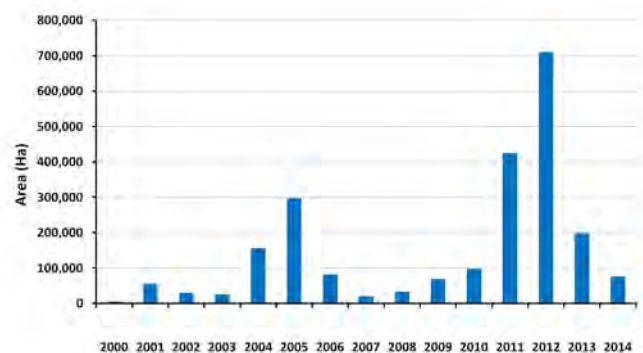


Fig. 16. Tenure, new coal license applications (area Ha) by year.

Aureach Resources Ltd. continued drilling (9,795 m) at their **Ootsa** porphyry Cu-Au-Ag-Mo project, which consists of the East Seel, West Seel and Ox porphyry systems. Highlights from drilling included 668 m of mineralization grading 0.28% Cu, 0.17 g/t Au, 3.34 g/t Ag, and 0.033% Mo (0.56% Cu equivalent) on the West Seel deposit. Kaizen Discovery Inc. (formerly West Cirque Resources) carried out a 1,386 m diamond drill program on their **Tanzilla** project. Drilling was reported to have intersected strong pervasive, silica and advanced argillic altered hydrothermal breccias (Fig. 17) containing disseminated and vein covellite, chalcopyrite, enargite and molybdenite. Assay results are pending. Prosper Gold Corp. completed a 6,222 m drilling program at their **Star (Sheslay)** Cu-Au project, optioned from Firesteel Resources Inc. Results including 324 m of 0.44% Cu and 0.22 g/t Au including 180 m of 0.54% Cu and 0.29 g/t Au were reported. Doubleview Capital Corp. planned to continue winter exploration work into 2015 at its **Hat** Au-Cu porphyry project. Over 7,000 m of drilling in 22 holes was completed in 2013-2014. Reported results included 404 m grading 0.25% Cu and 0.25 g/t Au. Skeena Resources Ltd. conducted a late-season drill program at its **Spectrum** Au project. Nine drill holes totalling 1,950 m were completed and Skeena reported assays including 10.63 g/t Au over 27.0 m. Carmax Mining Corp. resumed exploration at its **Eaglehead** Cu-Mo-Au-Ag porphyry. Reported highlights for a late fall 2,264 m diamond drilling included 0.23% Cu, 0.013% Mo,

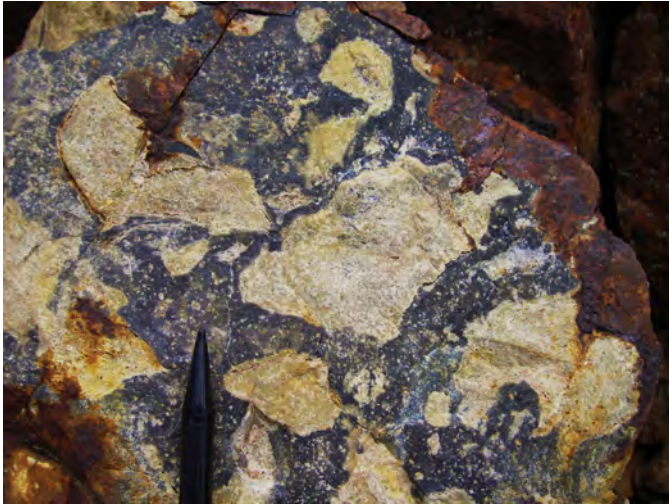


Fig. 17. Hydrothermal breccia, Tanzilla project.

0.06 g/t Au and 0.91 g/t Ag (0.37% Cu equivalent) over a core interval of 521.2 m and 0.38% Cu, 0.003% Mo, 0.01 g/t Au and 0.88 g/t Ag (0.41% Cu equivalent) over an interval of 78 m. Teuton Resources Corp. completed five drill holes at their **Del Norte** project. Results indicate porphyry Cu-Au mineralization. Teuton also completed sixteen drill holes at their **High** project, immediately south of Pretium's **Brucejack** project. Results confirmed Au-Ag mineralization over intervals up to 15 m.

**Omineca Region.** Manado Gold Corp. announced results in January from a late 2013 five-hole diamond drilling program on its **Takla-Rainbow** project. Highlights included 24.52 m of 2 g/t Au and 2 g/t Ag. During the 2014 field season, geologic mapping and sampling covered four target areas and historic drill collars were resurveyed. Serengeti Resources Inc. conducted grassroots exploration at its **Croy-Bloom**, **Rottaker**, and **Kwanika East-Smoke** projects. Kiska Metal Corporation undertook grassroots and early-stage work including ground geophysics and soil sampling at the **Redton** and **Chuchi** projects. In November 2014, Pacific Empire Minerals Corp. carried out a ground IP survey to further delineate mineralized zones and refine drill targets for its **Col-Later** project. Cu North Mining Corp. carried out a ground IP survey to better define targets for drill testing for its **Thor** Cu-Au-Ag project. The project is under option from Electrum Resources Corp.

**Thompson-Okanagan-Cariboo Region.** In 2014, Fjordland Exploration Inc. and Sumac Mines Ltd. expanded their drill program on the **Dillard** porphyry Cu-Au project. Sunrise Resources Ltd. announced plans to drill the **Man-Prime** Cu-Au project. Early in the year, Copper Mountain Mining Corporation optioned the **Axe** porphyry Cu-Au property from Westar Resources Corporation. A 1500 m diamond drilling program was to start in mid-October. In March, Constantia Resources Ltd. (Constantia) completed the first phase of drilling at the **Maggie** porphyry Cu-Mo project. The company donated \$30,000 in scholarship funds to help six students become drill core technicians. In December, Constantia

announced signing a cooperation and benefits agreement with the High Bar First Nation. In October, NMC Resource Corporation completed an 11 hole 3,075 m diamond drilling program at its **Boss Mountain Mine** project, a past-producing Mo mine. Reported assay highlights include 0.08% Mo over 295.10 m, 0.14% Mo over 181.50 m and up to 3.66 g/t Re over 0.75 m. Amarc Resources Ltd. carried out a nine hole, 1,200 m diamond drilling program on its **IKE** project (Fig. 18) looking for porphyry Cu-Mo-Ag mineralization in extensively altered plutonic rocks. In November, Amarc announced a new Cu-Mo-Ag discovery. Highlights from the drill program included, 247 m of 0.28% Cu, 0.030% Mo, 2.0 g/t Ag and 308 m of 0.26% Cu, 0.032% Mo, 1.8 g/t Ag. Intersected mineralization defines an area measuring 1,200 m east-west by 600 m north-south and to a depth of approximately 500 m. In 2014 Kaizen Discovery Inc. announced a \$4 million financing agreement with partner ITOCHU Corporation of Japan to explore the Par prospect of the **Aspen Grove** porphyry Cu project. Exploration work included an induced polarization survey and a four hole, 2,012 m diamond drilling program. Drilling highlights include a nine-metre interval assaying 0.241% Cu, 0.79% Zn and 6.4 g/t Ag; and a 16-m interval assaying 0.313% Cu. Additional drilling is planned for 2015.

**South and West Coast regions.** Northisle Copper and Gold Inc. carried out a four-hole drill program designed to test an IP target on its **North Island** Cu-Mo project in 2014. The new drilling confirmed Cu-Mo (+Re) mineralization.

### Polymetallic, base, and precious metals

**Skeena Region.** Pacific Bay Minerals Ltd. completed a 409 m diamond drilling program at its **Haskins-Reed** polymetallic skarn project and reported intersecting 48.60 m of 2.31% Zn, including 7.20% Zn over 9.7 m. Dolly Varden Silver Corporation completed a 5,280 m diamond drilling program on its **Dolly Varden** Ag project and reported a highlight intersection of 25.95 m averaging 712.19 g/t Ag. A direct correlation between Ag mineralization and a 7.2 km long potassium anomaly



Fig. 18. View of IKE porphyry Cu-Mo-Ag property, looking northwest. Photo courtesy of Amarc Resources Ltd.



was identified and will be used to guide 2015 exploration. Homestake Resource Corporation reacquired 100% ownership of the **Homestake Ridge** Ag-Au project after Agnico Eagle Mines Limited decided to let their option lapse. A 2,972 m diamond drilling program had been carried out, which reported highlights including 4.5 m grading 144g/t Ag and 0.20g/t Au.

Brixton Metals Corporation (Brixton) continued exploration at its **Thorn** project, which contains multiple targets including high-grade Ag-Au-Pb-Zn diatreme breccias, high-grade veins, porphyry Cu-Au, and intrusion-related sediment-hosted Au. In early 2014, reported drill intersections at the Glenfiddich zone included 2.2 m grading 583 g/t Ag, 10.6% Cu and 2.5 g/t Au, and for the Oban zone, 7.79 m of 130.30 g/t Ag, 1.37 g/t Au 1.37% Zn and 0.67% Pb. In July, a new sediment-hosted Au zone was reported, which returned 59.65 m of 1.15 g/t Au and 5.64 g/t Ag. In October, Brixton announced a maiden resource estimate for in pit and underground Inferred resources of 7.4 Mt grading 35.54 g/t Ag, 0.51 g/t Au, 0.13 % Cu, 0.32 % Pb and 0.59% Zn. Decade Resources Ltd. completed drill testing at the **Bow** Au project adjacent to the past-producing Scottie Au mine. Early season grab sampling returned Au values up to 3,418 g/t Au and led to drilling. Drilling results included 39.43 g/t Au over 12.66 m. Finlay Minerals Ltd. completed about 1,000 m of drilling in three holes at their **Silver Hope** project near the past-producing Equity Silver Mine. Results are pending.

**Omineca Region.** In 2014, New Gold Inc. carried out regional exploration work related to its **Blackwater** Au project including drilling, mapping, sampling, and ground geophysics on the Blackwater South, Key, Van Tine/Fan and Buck targets. Through September 30, 2014, 17 holes totaling 7,663 m were completed with an additional 2,600 m planned for the fourth quarter.

**Thompson-Okanagan-Cariboo Region.** In December 2013, Ximen Mining Corp. acquired **Brett**, an epithermal Au project that has seen intermittent exploration since its discovery in 1985. Following compilation and review of historical data, new mapping, and ground geophysical surveys, targets were identified for a fall drilling program. Late 2014 drilling results included 30.10 m of 1.82 g/t Au, 33.00 m of 0.82 g/t Au, and 16.55 m of 1.88 g/t Au. Westhaven Ventures Inc. drilled the Tower zone on its **Shovelnose** Au-Ag project. Six holes encountered anomalous Au and extended the area of known mineralization. Drill intersection result highlights included 6 m grading 0.83 g/t Au and 5.2 g/t Ag, 5 m grading 0.76 g/t Au and 11.8 g/t Ag and 19 m grading 0.28 g/t Au and 1.46 g/t Ag. At Gold Mountain Mining Corporation's **Elk** Au project, work continued on an open-pit bulk sample. In July, the company reported an average grade for a 3,000 t sample as 19.1 g/t Au. In November, an expected average grade for a composite 6,668 t sample of 17.3 g/t Au was reported.

**Kootenay-Boundary Region.** Huakan International Mining Inc. continued pre-feasibility level metallurgical test work

(flotation, bio-oxidation, and pressure oxidation tests), baseline work, and mine design for their **J&L** Au-Ag-Zn-Pb project. The **Willa** Au-Cu-Ag project of Discovery Ventures Inc. has been on care and maintenance since 2005. In 2014, the company continued mapping, sampling, metallurgical test work, and environmental baseline work. They also acquired an interest in the **MAX** Mo mine and mill, which has been on care and maintenance since 2011, and began repairs, maintenance, and modifications. Discovery is proposing to re-open underground workings on the property, and produce ore for processing at the **MAX** mill, 135 km west of the property near Trout Lake. Silver Mountain Mines Inc. carried out drilling on its **Ptarmigan** Ag-Au project. In 2014, drilling focused on the historic Ptarmigan mine area, and extended zones of known mineralization.

The **Kenville** Au project was sold by Anglo Swiss Resources Inc. to a private company (0995237 B.C. Ltd.) in 2014. The past-producing **Kenville** mine, also known as the Granite-Poorman, was the first underground lode Au mine in British Columbia. The company received permits for underground exploration work and drilling. Future work plans include bulk sampling.

**South and West Coast regions.** In 2014, Ashlu Mines Inc., a private company that has assembled a land position around the former Ashlu Au mine near Squamish, reported continuing geophysics and geochemistry surveys at its **Ashlu** project. A five-year rock, soil, and silt sampling program has relocated showings around the former mine. The Ashlu Mine is a past producer that exploited a narrow (<1 to 4.6 m) Au-bearing quartz vein over a strike length of 90 m and extending 85 m down dip. In 1981 reserves were just under 90,000 t of 8.57 g/t Au and 12.31 g/t Ag. In 2012, Lu'an Canada Capital and Energy Investment Inc. purchased the **Mineral Creek** property near Port Alberni and, in 2103, optioned it to Sona Resources Corporation. Sona carried out verification sampling on the Ember and Linda veins late in 2013 and reported results in 2014. Surface grab samples returned up to 397 g/t Au, consistent with 2006 and 2009 drill results.

## SEDEX and massive sulphide projects

**Omineca Region.** Canada Zinc Metals Corp. (Canada Zinc) carried out an eight hole, 2,855 m diamond drilling program on its **Akie** project (Fig. 19), which is host to the Cardiac Creek deposit. Highlights of 2014 drilling results included 10.18% combined Zn+Pb and 10.54 g/t Ag over 9.44 m. In November, Canada Zinc started an airborne gravity survey on their **Akie** and **Kechika** regional projects. The gravity survey is to compliment an airborne VTEM survey that was completed in 2012. The **Cirque** project is a joint venture between Teck Resources Limited and Korea Zinc Company, Ltd. that includes the Cirque, Elf, Fluke, Pie, Cirque East, and Yuen properties. As part of a multi-year exploration program searching for SEDEX mineralization, the 2014 program included drilling, airborne VTEM and gravity surveys, re-logging and sampling of historic drill core, mapping, and prospecting.





Fig. 19. Diamond drilling at Akie project.

**Thompson-Okanagan-Cariboo Region.** At the **Ruddock Creek** massive sulphide project, Imperial Metals Corporation focused on metallurgical testing of a new sample from the Upper E zone, and collected environmental baseline data for future permitting. Prospectors Robert Thompson, Renee Hetherington, and Colin Dunn used biogeochemical and geophysical methods to find new massive sulphide showings in densely forested areas on the **TL** and **CD** properties.

**Kootenay-Boundary Region.** Taranis Resources Inc. carried out surface sampling and packsack drilling on its **Thor** Ag-Au-Pb-Zn-Cu project. Taranis reported panel sample results of 30.59 g/t Au over 17.55 m and up to 9.65 g/t Au over 3.41 m. The company intends to continue exploration in 2015 with further drilling and gravity and magnetic surveys. PJX Resources Inc. continued work at its **Vine** massive sulphide project, drilling one diamond drill hole, carrying out a ground gravity survey, and updating their geological-geophysical model. Modelling of gravity survey data has produced two target areas that the company proposes to drill in 2015.

**South-West Coast Region.** Red Hut Metals Inc. reported a soil sampling program at its **Conuma** project in April targeting polymetallic volcanogenic massive sulphide mineralization.

## Ultramafic-hosted nickel

**Thompson-Okanagan-Cariboo Region.** In 2014, Westhaven Ventures Inc. carried out a high-resolution aeromagnetic survey and additional drilling on its **Ben** project, where Ni-Co mineralization is in ultramafic rocks. Highlights from 2014 drilling include 70.6 m of 0.31% Ni and 0.012% Co and 153.7 m of 0.18% Ni and 0.010% Co starting from bedrock surface.

**Omineca Region.** At Cliffs Natural Resources Exploration Canada Inc.'s **Decar** nickel project, work in 2014 included First Nations engagement and baseline environmental studies. In April, First Point Minerals Corp. reported completing an initial market test for concentrate produced from the **Decar** project. The bench-scale tests indicate that **Decar** concentrate can be blended with laterite nickel as feedstock in ferronickel production, and as direct feed in stainless steel circuits.

## Skarn, and iron projects

**Kootenay-Boundary Region.** At the **Jersey-Emerald** W-Au project, Margaux Resources Ltd. released an NI 43-101 report and conducted a drill program. The property contains the historic **Emerald** tungsten mine, which operated from 1942 to 1943, then operated intermittently until 1973.

**South and West Coast regions.** In addition to recent rock geochemistry, Canadian Dehua International Mines Group Inc. reported results of a ground magnetic survey at its **Iron Ross** project. **Iron Ross** is one of four magnetite skarn properties Dehua is exploring on Vancouver Island. Near Campbell River, Dehua was active at its **Argonaut** project, a past-producing magnetite skarn. The 2014 program consisted of a ground magnetic survey, geological mapping, and rock sampling. Dehua carried exploration work on its **Head Bay** project, which included a ground magnetometer survey, geological mapping, and stream, moss, soil, and rock sampling. Iron and Au skarn and vein mineralization are exploration targets. The **Pacific Iron** project (formerly the Pearson project) was the largest of Dehua's iron skarn projects in 2014, in terms of area under tenure and amount of fieldwork completed. Work consisted of ground magnetic surveys, geological mapping, and geochemical sampling. The previous operator outlined an inferred resource at the Bugaboo deposit area; the new work identified additional targets. The Huu-ay-aht First Nation conducted a 7-hole core drilling program at the **Huu-ay-aht Sarita** project, largely on treaty land. Skarn showings in the area have been explored for iron, Cu, Pb, Zn, Ag and Au since 1895. In what may be a first, the Huu-ay-aht First Nation is investigating on its own treaty lands and on adjacent mineral tenures it owns.

## Coal Projects

**Northeast Region.** Canadian Dehua International Mines Group Inc. focused on permitting, making arrangements for rail and power infrastructure, and continuing environmental

baseline studies for their **Wapiti River** project. The Trend mine expansion projects **Roman Northwest** and **Waterfall** of Peace River Coal Inc.-Anglo American plc completed winter drilling and trenching programs between January and early April. Additional drilling at **Waterfall** was to start in December and continue into 2015. At the **Huguenot** project, Colonial Coal International Corp. undertook carbonization testing and coal washing optimization studies and continued environmental baseline work. At the **Dunlevy** project of Jameson Resources Limited, a 13-hole drilling program was completed. The work confirmed coal seams previously located by hand trenching, and found clean coal intersections up to 1.5 m thick. Unoxidized samples taken from several seams demonstrate that the property hosts high-volatile A bituminous coal. The company is targeting a single seam 1.5-2.5 m thick for potential underground extraction by longwall mining, and speculates that 100-150 Mt of metallurgical coal may be recoverable.

### Industrial Minerals

**Kootenay-Boundary Region.** In 2014, Ferto Ltd. conducted a drilling and trenching program at their **Marten** phosphate project and extracted a bulk sample to test for agricultural use. Lithium Corporation explored at the **Mt Heimdal** flake graphite property. Work consisted of mapping and sampling, focusing on flake graphite mineralization discovered in 2013, which assayed up to 3.7% flake graphite and prospecting in other areas. In 2014, Noram Ventures Inc. released results from their 2013 drill program at their **Jumbo** flake graphite project. Graphite mineralization was intersected in six of eight holes; the most significant intersection was 1.81% graphitic carbon (C) over 86.7 m (true width) including 3.11% C over 16.3 m. At its **Driftwood** magnesite property (Fig. 20), MGX Minerals Inc. carried out a diamond drilling program. The property contains two known high-grade zones (Eastern and Western) with a combined non-NI 43-101 compliant historic inferred resource estimate of 22.5 Mt of magnesite at a specific gravity of 2.5. In December, MGX reported intersecting 53.8 m of 43.1% magnesium oxide from drilling on the Eastern zone.



Fig. 20. Sparry magnesite at Driftwood project.

The company is currently working on completing a NI 43-101 compliant resource.

### The British Columbia Geological Survey

Founded in 1895, the British Columbia Geological Survey (BCGS) is the oldest government science organization in the province. Headquartered in Victoria, with a satellite office in Vancouver, the Survey is responsible for documenting, assessing and archiving British Columbia's geology and related mineral and coal resources. Since its inception, BCGS scientists have provided pre-competitive raw data, historical records, and new concepts to help industry, government, academia, and the general public make informed decisions. This information resides in free web-based databases that are integrated with MapPlace, the Survey's online service that allows clients to browse, visualize, and analyze multidisciplinary geoscience data and create custom maps. The Cordilleran Geoscience Section of the Survey generates new data and refines exploration models, largely through field-based studies by staff geoscientists, with analytical support provided by the Survey's geochemical laboratories. The Resource Information Section updates and develops geoscience databases, and disseminates these data online. The Mineral Development Office in Vancouver is the section of the Survey that links government to the exploration and mining community. The Office also markets and promotes the province's mineral and coal resource opportunity to global investors. The activities and products of the Survey are profiled annually at the Mineral Exploration Roundup in Vancouver, the BCGS Open House, the Prospectors and Developers Association of Canada Convention, and several other geoscience conferences.

The strong commitment of the Survey to the minerals industry is reflected in the types of projects that it undertakes. In 2014, the Survey had field projects targeting the province's prolific porphyry belts, with multi-year studies in the Quesnel terrane of the Interior Plateau and in the Stikine terrane of northwestern BC. Other projects were done in partnership with the Geological Survey of Canada through the Targeted Geoscience Initiatives (TGI-4) and Geo-mapping for Energy and Minerals (GEM-2) programs. These joint projects included investigations of specialty metals, orogenic Ni-Cu-PGE deposits, and porphyry indicator minerals in till from the Highland Valley, Mount Polley and Gibraltar mines, and from the Woodjam project area. The Survey is also developing new mineral exploration methods including the use of: 1) Pb isotopes as an inexpensive technique for targeting volcanogenic massive sulphide deposits in till-covered regions; 2) trace element characteristics of apatite to fingerprint the major mineral deposit types (in partnership with the University of Victoria); 3) proprietary government digital aerial photograph stereo models to produce new till-potential maps that allow industry to reduce unnecessary till sampling by up to 75%; and 4) portable X-ray fluorescence (XRF) instruments to measure rare earth element abundances in field samples. The preliminary results of these and other Survey projects are published annually in the BCGS



publication *Geological Fieldwork*<sup>1</sup>, and in publications by partners including Summary of Field Activities (Geoscience BC) and Current Research (GSC).



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As part of ongoing updates, 2014 saw increases in the number of documents available online from the Survey's databases, which now include 34,000 assessment reports from ARIS (Assessment Reports Indexing System), 900 reports in COALFILE, and 14,000 records in the MINFILE mineral occurrence inventory (with 1,700 new occurrences and 4,200 revised entries). Property File, a collection of documents donated to the Survey over the last 150 years and hitherto available only in hard copy, now has over 54,000 items. The Survey updated the Regional Geochemical Survey (RGS) database and is currently modernizing the provincial lithogeochemical database. The BC Digital Geology compilation map received several updates, including five maps from northern Vancouver Island. Development continues on the next generation of MapPlace.

## The Geological Survey of Canada

The BCGS and the Geological Survey of Canada (GSC) continue to collaborate closely on large- and small geoscience projects. In the Kootenays, the Geological Survey of Canada is conducting a multi-year project for SEDEX-style and related base metal mineralization, the Targeted Geoscience Initiative (TGI-4). The focus of the project is to generate a regional 3D geoscience model of the Purcell Anticlinorium and the Belt-Purcell Supergroup, which hosts the historic Sullivan Mine. Geological, geophysical, and geochemical data are being compiled to generate new perspectives and understanding on ore controls for SEDEX targeting.

In 2013, the second phase of the Geo-mapping for Energy and Minerals (GEM) program that started in 2008 was announced. The program will run until 2020 and the BCGS is participating in the Cordilleran Regional project that is a collaborative effort between the geological surveys of Yukon, Alaska, BC and the Canadian government. Multidisciplinary field-based studies in poorly understood areas will focus on bedrock geology, crustal architecture, Cordilleran tectonics, and metallogeny to help

drive the discovery of new mineral deposits and increase known resources. In addition, surficial geology and glacial history studies will provide vital knowledge for mineral exploration in covered regions.

## Geoscience BC

Geoscience BC is a not-for profit, non-governmental, geoscience organization established in 2005 with grants from the provincial government. Geoscience BC is industry-focused, with a board of directors and technical advisors largely drawn from industry. It is mandated to promote mineral, oil and gas, and geothermal exploration in British Columbia by generating and distributing geoscience data. Open and targeted requests for proposals generate many of the large geoscience projects and work is done by contractors, consultants, and other providers of public geoscience. Reports released in 2014 that supported mineral exploration included aeromagnetic, surficial geology, and geochemical data from the TREK project, which targeted an area of more than 20,000 km<sup>2</sup> in the northern Interior Plateau. Another major release included combined regional geophysical and geochemical survey data from the Northern Vancouver Island Project.

## Foreign Investment Initiatives

Opportunities exist for companies to attract foreign interest or investment using government services and staff. The province participates in international investment missions showcasing mineral and coal opportunities. If you are interested in profiling your projects or investment opportunities in upcoming events, connect with the BC Mineral Development Office in Vancouver for more information.

## Concluding remarks

Although exploration expenditures were down compared to 2013, explorationists continued to discover, define, and expand porphyry and porphyry-related Cu-Au and Cu-Mo deposits, Au deposits of various types, nickel deposits, and stratiform base-metal, specialty metals, industrial minerals, and coal deposits.

Metal mine development projects continued including Yellow Giant, Red Chris, Kitsault and Bonanza Ledge. Yellow Giant and Bonanza Ledge are small-scale Au mines that began production in 2014. Red Chris is a large-scale mining project, with construction costs of \$643 million, that is expected to begin official production in early 2015. Kitsault is another large-scale project, and is currently in an initial construction stage.

Numerous high-profile proposed metal mine projects continued significant exploration and development activities. An updated feasibility study was released for the Brucejack project, and permitting remained on schedule with the formal acceptance of an Environmental Assessment application. The KSM project received both provincial and federal approval for its Environmental Assessment application and announced that 2014 drilling would result in an expanded resource.

At the start of 2014, a number of coal projects in the



northeastern part of the province were moving forward but, by the end of the year, these projects were either significantly scaled back or put on hold. By the end of 2014, operations at all three coal mines in the Northeast Region were suspended. In southwestern British Columbia, mining operations, coal production, and expansion plans continued at all five mines in the Elk Valley and Crowsnest coalfields. It is expected that exploration and expansion plans in the southwest will continue in 2015.

During 2014 two significant events affected the mining industry: the Mt. Polley tailings pond breach and the Supreme Court of Canada's judgment on the appeal brought by Roger William on behalf of the Tsilhqot'in Nation. The full ramifications of these events are not yet known.

### **Acknowledgments**

We thank Deanna Miller (British Columbia Geological Survey) for producing multiple iterations of the centrefold map, and George Owsiacki (Total Earth Science Services) for desktop publication services.

Table 5. Selected active exploration projects 2014.

Property	Region	Operator	MINFILE	Commodity	Deposit Type	Work Program	Significant Results
<b>3Ts</b>	Omineca	Independence Gold Corp.	093F 055, 68	Au, Ag	Epithermal	drilling (2683 m)	-
<b>Akie</b>	Omineca	Canada Zinc Metals Corp.	094F 031	Zn, Pb, Ag	Sedimentary exhalative	drilling (2855 m), geophysics (airborne gravity)	9.44 m of 8.93% Zn, 1.25% Pb, 10.54 g/t Ag (A-14-111); 7.87 m of 5.97% Zn, 0.94% Pb, 8.02 g/t Ag (A-14-12); 8.42 m of 7.43% Zn, 1.19% Pb, 10.72 g/t Ag (A-14-115); 5.72 m of 5.45% Zn, 0.94% Pb, 8.49 g/t Ag (A-14-117)
<b>Aspen Grove (Par)</b>	Thompson-Okanagan-Cariboo	Kaizen Discovery Inc.	092HNE169	Cu, Zn, Mo, Ag, Au	Mixed (porphyry/VMS)	Drilling	Mineralized zone extended; improved geological model. Drilling highlights include a nine-m interval assaying 0.241% Cu, 0.79% Zn and 6.4 g/t Ag; and a 16-m interval assaying 0.313% Cu
<b>Ben</b>	Thompson-Okanagan-Cariboo	Westhaven Ventures Inc.		Au, Co, Ni	Uncertain	Geophysics; drilling	New targets. 70.6 m of 0.31% Ni and 0.012% Co and 153.7 m of 0.18% Ni and 0.010% Co starting from bedrock surface
<b>Bethlehem</b>	Thompson-Okanagan-Cariboo	Teck Highland Valley Copper Partnership	092ISE001	Cu, Mo	Porphyry	Drilling; engineering studies	Resource definition
<b>Blackwater Regional (Van Tine, Van Tine South, Fawn, Blackwater South, Key)</b>	Omineca	New Gold Inc.	093F 037, 43, 45, 50, 52, 53, 56, 69	Au, Ag, Zn, Pb, Cu, Mo	Epithermal, porphyry, skarn	drilling (11 045 m; 23 drill holes), ground geophysics (IP, VLF-EM, magnetics) at Key, Fawn and Van Tine	Broad area of porphyry-style mineralization at Key and Blackwater South; epithermal and deeper intrusive-related alteration at Van Tine and Fawn
<b>Bow</b>	Skeena	Decade Resources Ltd.	104B 132	Au	Porphyry	Diamond drilling (15 holes)	49.6 m of 15.25 g/t Au (14 (Bow-1)
<b>Brett</b>	Thompson-Okanagan-Cariboo	Ximen Mining Corp.	082LSW110	Au	Vein/disseminated	Geology, geochemistry; geophysics; drilling	New targets; improved geological model
<b>Brucejack</b>	Skeena	Pretium Resources Inc.	104B 193	Au, Ag	Porphyry	Diamond drilling (9,325 m, 7 holes, 14 wedges) Geology, Geochemistry, Corporate, Underground development, ENV	2.1 m of 2,415 g/t Au, 353 g/t Ag (SU-632-W4) 22.1 m of 26 g/t Au, 10 g/t Ag (SU-644-W1)
<b>Bul River (underground)</b>	Kootenay-Boundary	Purcell Basin Minerals Inc.	082GNW002	Cu-Ag-Au+-Pb-Zn	Cu-Ag veins	Permitting; environmental baseline; mine plan and mine design; ARD/ML	Proposed restart of Bul River Mine; draft project proposal

Table 5. Continued.

Property	Region	Operator	MINFILE	Commodity	Deposit Type	Work Program	Significant Results
<b>Cat Mountain</b>	Omineca	Rift Valley Resources Corp.	094C 069	Cu, Au, Ag	Porphyry	geochemical sampling (rock chip and grab), blasting, trenching	1.2 m of 72.7 g/t Au, 11.45 g/t Ag, 0.33% Cu; grab samples up to 278 g/t Au, 22.92 g/t Ag, 0.27% Cu (No. 1 Magnetite Vein)
<b>Ches</b>	Skeena	Northern Abitibi Mining Corp.	093F 042	Mo, Cu, Zn, W	Porphyry	7 trenches, Geochemistry (274 rock chips)	1.5 m rock chip sample: 1.25% Zn, 0.16% Cu and 0.12% WO <sub>3</sub>
<b>Cirque</b>	Omineca	Teck Resources Limited	094F 008	Zn, Pb, Ag	Sedimentary exhalative	drilling (5200 m), airborne VTEM survey, airborne gravity survey	-
<b>Croy-Bloom</b>	Omineca	Serengeti Resources Inc.	094D 019, 25, 105	Au, Cu, Fe	Porphyry	geochemical sampling (historic drill core)	0.97% Cu, 3.1 g/t Au (core sample); three grab samples at 0.38%, 0.84%, and 0.93% Cu
<b>Daylight</b>	Kootenay-Boundary	Sultan Minerals Inc.	082FSW175, 174	Ag-Pb-Zn +/- Au-Cu	Polymetallic vein; porphyry	Mapping; sampling	Four new veins/silicified zones discovered; grab samples 80.4g/t Au + 117.0g/t Ag; 23.4g/t Au + 7.8g/t Ag
<b>Decar</b>	Omineca	Cliffs Natural Resources Inc. (60%), First Point Minerals Corp. (40% and 1% NSR)	093K 039, 41, 72	Ni	Ultramafic-hosted	Bench scale market test	The bench-scale tests indicate that Decar concentrate can be blended with laterite nickel as feedstock in ferronickel production, and as direct feed in stainless steel circuits.
<b>Del Norte</b>	Skeena	Teuton Resources Corp.	104A 176	Au	Vein/Breccia	Diamond drilling (2 holes) Geology, Geochemistry, Corporate	12.19 m of 0.92 g/t Au, 0.15% Cu and 3.07 g/t Ag (D14-03)
<b>Dillard</b>	Thompson-Okanagan-Cariboo	Fjordland Exploration Inc./Sumac Mines Ltd.	092HNE042	Cu	Porphyry	Geochemistry, trenching; drilling	Mineralized zones extended
<b>DOK</b>	Skeena	Boxxer Gold Corp.	104G 043	Cu, Au	Porphyry	Diamond drilling (834.9 m, 2 holes), Geology, Geochemistry	pending



Table 5. Continued.

Property	Region	Operator	MINFILE	Commodity	Deposit Type	Work Program	Significant Results
<b>Dolly Varden</b>	Skeena	Dolly Varden Silver Corporation; Hecla Mining	103P 188	Ag	Vein/Breccia	Diamond drilling (5280 m, 12 holes) Geology, Geochemistry (2500 soils), Geophysics (IP + EM, 10.9 line km, 2 borehole IP+EM)	9.01 m of 1,496.78 g/t Ag (DV14010)
<b>Driftwood Magnesite</b>	Kootenay-Boundary	MGX Minerals Inc.	082KNE068	Magnesite	-	Drilling (8 DDH: 438m); mapping; metallurgical test work; re-assay of 2008 core	Recovery rates of 93.4% reverse flotation and removal of up to 70% silica and 30% calcium oxides
<b>Dunlevy</b>	Northeast	Jameson Resources Limited (Dunlevy Energy Inc.)	094B 023, 25	metallurgical coal		drilling (1302 m)	clean coal intersections up to 1.52 m thick; unoxidized samples indicate high-volatile A bituminous coals
<b>Eaglehead</b>	Skeena	Carmax Explorations Ltd.	104I 008	Cu, Mo	Porphyry	Diamond drilling (2264.22 m, 4 holes), Geology, Geochemistry	521 m of 0.23% Cu, 0.013% Mo, 0.06 g/t Au, 0.91 g/t Ag (DDH 0121) 78 m of 0.38% Cu, 0.003% Mo, 0.01 g/t Au, 0.88g/t Ag (DDH 0124)
<b>Eldorado</b>	Skeena	Colorado Resources Ltd.	104H 026	Au, Cu	Porphyry	Diamond drilling (892 m, 4 holes), Geology, Geochemistry	147 m of 0.17g/t Au, 0.05% Cu (EL14-007) 196 m of 0.19 g/t Au, 0.06% Cu (EL14-008)
<b>Elk (Siwash North)</b>	Thompson-Okanagan-Cariboo	Gold Mountain Mining Corporation	092HNE096	Au, Ag	Vein/Breccia	Bulk sampling; metallurgy	Improved recovery
<b>Fenton</b>	Skeena	Similco Mines Ltd. (private company)	093L 248	Cu, Ag, Zn	Vein/Breccia	Diamond drilling (3,000 m, 9 holes), Percussion Drilling (1,600 m, 53 holes) Geology, Geochemistry, Geophysics (IP, 9 line Km)	Not available
<b>Findlay</b>	Kootenay-Boundary	MMG Limited	082KSE041, 53, 60, 75	Pb-Zn-Ag +/- Cu	SEDEX, polymetallic vein	Drilling (2 DDH); mapping; geophysics; modelling	Failed to reach drill target due to poor ground conditions

Table 5. Continued.

Property	Region	Operator	MINFILE	Commodity	Deposit Type	Work Program	Significant Results
<b>Fox and 2 X Fred</b>	Omineca	Kootenay Silver Inc.	N/A	Au, Ag	Epithermal	48 grab samples (Fox) and 175 composite vein samples (2 X Fred)	32.6 g/t Au and 6,049 g/t Ag peak values (Fox); 0.34 g/t Au average value and 4.31 g/t Au peak value (2 X Fred)
<b>Gold Drop</b>	Kootenay-Boundary	Ximen Mining Corp.	082ESE 153, 152, 126	Au-Ag-Pb-Zn+/-Cu	Vein, alkalic intrusion-associated Au	Trenching; mapping; sampling	Chip sample results up to 0.60m grading 43.6g/t Au, 141g/t Ag; and 0.55m grading 56.2g/t Au, 259g/t Ag; upper North Star vein extended along 315m strike
<b>Green Gold</b>	Omineca	0902744 B.C. Ltd.	093G 032	Au	Vein	drilling (388 m)	23m at 1.64 g/t Au, including 8m at 4.0 g/t Au (Discovery trench, 2011)
<b>Groundhog</b>	Omineca	Atrum Coal	104A 078	Metallurgical Coal	Anthracite	Diamond drilling, (10,084 m, 51 holes), Geophysics (seismic)	8 step out exploration holes averaged net anthracite seam thickness of 20.5 m
<b>Haskins Reed</b>	Skeena	Pacific Bay Minerals Ltd.	104P 021	Zn, Pb, Ag, Mo	Skarn	Diamond drilling (409 m, 6 holes), Geology, Geochemistry	48.6 m of 2.31 % Zn, (14-02)
<b>Hat</b>	Skeena	Doubleview Capital Corp.	104J 015	Cu, Au	Porphyry	Diamond drilling (2,831 m, 7 holes), Geology, Geophysics	404.2 m of 0.25% Cu, 0.255 g/t Au, (HAT-022) Incl. 118.4 m of 0.55% Cu, 0.41 g/t Au
<b>Homestake Ridge</b>	Skeena	Agnico Eagle Mines/Homestake Resource Corporation	103P 216	Au, Ag, Zn	Vein/Breccia	Diamond drilling (2972 m, 6 holes), Geology, Geochemistry	4.5 m of 144 g/t Ag (HR14-264)
<b>Huguenot</b>	Northeast	Colonial Coal International Corp.	093I 014	Metallurgical coal		carbonization testing, coal washing studies, baseline studies	-
<b>Hushamu</b>	South-West Coast Region	North Isle Copper and Gold Inc.	092L 240	Cu, Mo, Au, Re	Porphyry	Diamond drilling, 1800 m, 5 holes, geochemistry, metallurgy	0.12% Cu, 0.002% Mo and 0.12 gpt Re over a core length of 63 m
<b>Huu-ay-aht Sarita</b>	South-West Coast Region	Huu-ay-aht First Nation	092C 032	Au	Skarn	Diamond drilling 300 m, 9 holes	-
<b>IKE</b>	Thompson-Okanagan-Cariboo	Amarc Resources Ltd.	092O 025	Cu, Mo, Ag	Porphyry	Geology, geochemistry; geophysics; drilling	New Cu-Mo-Ag discovery. Highlights from the drill program included, 247 m of 0.28% Cu, 0.030% Mo, 2.0 g/t Ag and 308 m of 0.26% Cu, 0.032% Mo, 1.8 g/t Ag.

Table 5. Continued.

Property	Region	Operator	MINFILE	Commodity	Deposit Type	Work Program	Significant Results
<b>Jersey-Emerald</b>	Kootenay-Boundary	Margaux Resources Inc.	082FSW010, 9	Pb-Zn-Ag±-W-Au-Mo-Bi	Stratiform, skarn	Drilling (35 DDH: 6,319 m); mapping; sampling; geological modeling	Initial assay results indicated zones of 10-20 m width, grading 0.10 to 0.15% WO <sub>3</sub> ; and >0.5% over 1-3 m; 10.2 m grading 24.98 g/t Au with elevated Bi
<b>Jumbo</b>	Kootenay-Boundary	Noram Ventures Inc.	-	Flake graphite	-	2013 results released	2013 Drill results released: 86.7 m grading 1.81% graphitic carbon, including 16.3, grading 3.11% C; EM targets drilled and tested graphitic schist
<b>Jumbo Graphite</b>	Kootenay-Boundary	Noram Ventures Inc.	082LSE076, 77, 78	Flake graphite	-	Analytical drill results reported from Phase I (8 DDH: 1,295 m)	High-grade intervals 40.9 m grading 2.49% C;
<b>Jumping Josephine</b>	Kootenay-Boundary	Orex Minerals Inc.	082ESE275	Au-Ag; Au	Quartz veins	Drilling (25 DDH: 8,115 m); mapping; trenching	Drill results expected early 2015; trenching results included: 7 m grading 80.18 g/t Au, 706g/t Ag; 8 m grading 6.34 g/t Au, 2.7 g/t Ag (coarse Au signature)
<b>Kechika Regional (Elf, Fluke, Pic, Cirque East, Yuen)</b>	Omineca	Teck Resources Limited	094F 008, 9, 11, 13 23	Zn, Pb, Ag	Sedimentary exhalative	airborne VTEM survey, airborne gravity survey (840 line-km), re-logging and sampling historic core (3500 m), geochemical sampling (rock), mapping, prospecting	-
<b>Kechika Regional (Yuen North, Mt. Alcock)</b>	Omineca	Canada Zinc Metals Corp.	094F 013, 15	Zn, Pb, Ag	Sedimentary exhalative	airborne gravity survey (940 line-km), geochemical sampling (soil) at Yuen North	Zn-Pb-barite anomaly expanded to 4500 x 500 m at Yuen North
<b>Kemess East</b>	Omineca	AuRico Gold Inc.	094E 021	Cu, Au	Porphyry	drilling (16,877 m), mapping, geochemistry (rock), airborne geophysics (VTEM, 1111 line-km), metallurgical studies	768 m of 0.442 g/t Au and 0.392% Cu (KH-14-04); 304 m of 0.557 g/t Au and 0.421% Cu (KH-14-09); 601 m 0.500 g/t Au and 0.391% Cu (KH-13-08)



Table 5. Continued.

Property	Region	Operator	MINFILE	Commodity	Deposit Type	Work Program	Significant Results
<b>Kenville</b>	Kootenay-Boundary	0995237 B.C. Ltd. (privately owned)	082FSW086	Au-Cu-Pb-Zn-Ag-W	Au-veins, Cu-Au alkali porphyry, intrusion-related Au, pyrrhotite veins	Permitting for surface and underground; surface work; mine planning; public consultation; mapping	Extension of power line to site; plans for underground development and bulk sampling
<b>KSM</b>	Skeena	Seabridge Gold Inc.	104B 103	Au, Cu, Ag, Mo	Porphyry	Diamond drilling (29,508 m, 29 holes), Geology, Geochemistry, Geophysics, Corporate	514 m of 0.68 g/t Au, 0.3% Cu, 5.2 g/t Ag (IC-14-053) 366 m of 0.59 g/t Au, 0.17% Cu, 2.5 g/t Ag (IC-14-055) 776 m of 0.39 g/t Au, 0.22% Cu, 4 g/t Ag (IC-14-058) 592 m of 1.14 g/t Au, 0.37% Cu, 3.7 g/t Ag (IC-14-059) 737 m of 0.36 g/t Au, 0.59% Cu, 1.1 g/t Ag (K-14-34A) 252 m of 0.55 g/t Au, 0.69% Cu, 1.4 g/t Ag (K-14-39)
<b>KSP</b>	Skeena	Colorado Resources Ltd.	104B 138	Au, Cu	Porphyry	Diamond drilling (791 m, 6 holes) Geophysics (mag, 600 line km), Geology, Geochemistry (soils, rock chips)	101.4 m of 1.16 g/t Au (KSP14-003) incl. 34 m of 2.98 g/t Au
<b>Lavington</b>	Thompson-Okanagan-Cariboo	Asher Resources Corp.	082LSW120	Au	Vein / shear zone	Drilling	Mineralized zone extended; improved geological model
<b>Maggie</b>	Thompson-Okanagan-Cariboo	Constantia Resources Ltd.	092INW015	Cu, Mo, Ag	Porphyry	Drilling; community engagement	Drill results not available.
<b>Man-Prime</b>	Thompson-Okanagan-Cariboo	Sunrise Resources Ltd.	092HNE243	Cu, Au	Porphyry	Drilling	Drill results not available.
<b>Marten Phosphate</b>	Kootenay-Boundary	Fertoz Ltd.	082GNE027	Phosphate	Upwelling	Drilling (7 RC: 301m), mapping; trenching; bulk sample (2,000t); XRF of stockpiles	XRF of stockpiles: 24 – 27% P2O5

Table 5. Continued.

Property	Region	Operator	MINFILE	Commodity	Deposit Type	Work Program	Significant Results
<b>Newmont Lake</b>	Skeena	Romios Gold Resources Inc.	104B 281	Au, Ag, Zn	Skarn	Geophysics ( ZTEM, 372 line km,) Geology, Geochemistry (314 Rock chips)	173 Burgundy Ridge 1.5 m chip samples averaged 0.40% Cu, 0.48 g/t Au, 4.78 g/t Ag; highest grades were > 9% Cu, 52 g/t Au, 171 g/t Ag
<b>North ROK</b>	Skeena	Colorado Resources Ltd.	104H 035	Cu, Au	Porphyry	Diamond drilling (2,191 m, 5 holes), Geology	80 m of 0.44% Cu, 0.124 g/t Au ( NR14-030) 199 m of 0.21% Cu, 0.416 g/t Au (NR 14-034)
<b>Ootsa</b>	Skeena	Aureach Resources Ltd.	093E 105	Cu, Au	Porphyry	Diamond drilling, (9,795 m, 20 holes) , Geology, Geochemistry (soils)	207 m of 0.31% Cu, 0.24 g/t Au, 4.45 g/t Ag, 0.034% Mo 752 m of 0.20% Cu, 0.1 g/t Au, 3.5 g/t Ag, 0.027% Mo (S14-208) 668 m of 0.28% Cu, 0.17g/t Au, 3.34 g/t Ag, 0.033% Mo (S14-201)
<b>Pacific Iron</b>	South-West Coast Region	Canadian Dehua International Mines Group Inc.	092C 022, 23, 25,	Fe (magnetite)	Skarn	Ground magnetic survey (100 line km), rock geochemistry, geological mapping	-
<b>Premier</b>	Skeena	Ascot Resources Ltd.	104B 054	Au	Vein/Breccia	Diamond drilling (36672 m, 169 holes), Geology, Geochemistry	0.75 m of 14,394 g/t Au, 6,830 g/t Ag (P14-707) 1 m of 1,115 g/t Au, 481 g/t Ag (P14-717)
<b>Ptarmigan</b>	Kootenay-Boundary	Silver Mountain Mines Inc.	082KSE030, 36	Ag-Pb-Zn+/- Au-Cu	Manto, polymetallic veins	Drilling (28 DDH: 3,690m)	Extension of mineralized zones; 4.60m grading 1.949g/t Ag, 0.803g/t Au, 0.72% Cu; 3.96m grading 1.05g/t Au, 260g/t Ag, 0.14% Cu
<b>Red Mountain</b>	Skeena	IDM Mining Ltd.	103P 086	Au	Vein/Breccia	Diamond drilling (3630 m, 12 holes), Geology, Geochemistry, Corporate	138 m of 1.41 g/t Au (MC14-03)
<b>ROK</b>	Skeena	Oz Minerals optioned from Firesteel Resources Ltd.	104H 012	Mo, Cu	Porphyry	Diamond drilling (842.15 m, 2 holes), IP (44.85 line km), Geology	109.1 m of 0.11 g/t Au, 0.05% Cu (DD14RK006)
<b>Roman Northwest</b>	Northeast	Anglo American plc (Peace River Coal Inc.)	N/A	Metallurgical coal		percussion drilling (2121 m), core drilling (1535 m), trenching	-

Table 5. Continued.

Property	Region	Operator	MINFILE	Commodity	Deposit Type	Work Program	Significant Results
<b>Rosland Gold</b>	Kootenay-Boundary	West High Yield (W.H.Y) Resources Ltd.	082FSW119, 116, 117	Au-Ag-Pb-Zn, Mg	Polymetallic veins, ultramafic-hosted talc-magnetite	Mapping; sampling	Four samples grading 70.3g/t Au, 13.4g/t Au, 17.9g/t Au, and 52.0g/t Au
<b>Rottacker</b>	Omineca	Serengeti Resources Inc.	093N 098, 093N 073 (Kwanika)	Cu, Au, Ag	Porphyry	geochemical sampling (rock)	6.7% Cu, 5.9 g/t Au and 464 g/t Ag
<b>Sheslay</b>	Skeena	Firesteel Resources Inc. JV with Prosper Gold Corp.	104J 035	Cu, Au	Porphyry	Diamond drilling (6,221.5 m, 19 holes), Geology, Geochemistry	106.98 m of 0.77% Cu, 0.407 g/t Au, 1.02 g/t Au (S045)
<b>Shovelnose</b>	Thompson-Okanagan-Cariboo	Westhaven Ventures Inc.	092HNE309	Au	Vein / Breccia	Drilling	6 m grading 0.83 g/t Au and 5.2 g/t Ag, 5 m grading 0.76 g/t Au and 11.8 g/t Ag and 19 m grading 0.28 g/t Au and 1.46 g/t Ag.
<b>Spectrum</b>	Skeena	Skeena Resources Limited	104G 036	Au	Vein/Breccia	Diamond drilling (1,940 m, 9 holes), Geology, Geochemistry	27 m of 10.63 g/t Au (14-SP-004)
<b>Sully</b>	Kootenay-Boundary	Santa Fe Metals Corp.	-	Gravity anomaly	-	Drilling (4 DDH); mapping; magnetics; geophysical and geological modeling	Drill hole correlations and geophysical modeling suggest two gravity targets in thrust repeat; sulphides and alteration halo intersected
<b>Swift Katie</b>	Kootenay-Boundary	Riverside Resources Inc.	082FSW290	Cu-Au-Ag+/-Mo	Porphyry	Drilling (5 DDH: 1,423m); soil geochem; mapping	Precious metal and polymetallic zones encountered, Including: 23.4 g/t Au, 0.62% Cu, and 435 g/t Ag over 1.5m; 5.69 g/t Au, 0.13% Cu and 26.6 g/t Ag over 2m;
<b>Takla-Rainbow</b>	Omineca	Manado Gold Corp.	093N 082	Au, Ag	Epithermal	drilling (late 2013), mapping, prospecting, geochemical sampling (rock, till)	24.52 m (drilling length) of 0.18% Cu, 2.01 g/t Au, 2.0 g/t Ag (TR-13-88); 5 m chip sample of 0.292% Cu, 0.553 g/t Au and 10.9 g/t Ag; historic core samples up to 0.811% Cu, 4.51 g/t Au, 10.9 g/t Ag
<b>Tanzilla</b>	Skeena	Kaizen Discovery Inc.	104I 023	Cu, Mo	Porphyry	Diamond drilling (1,386 m, 5 holes), Geology, Geochemistry, Corporate	Strong, pervasive silica, alteration assemblages and high sulphidation and porphyry style Cu-molybdenite-Au mineralization. Anomalous Cu up to 0.133%, 0.08% Mo, 0.15 g/t Au (TZ14-05)
<b>Teddy Glacier/Spider Mine</b>	Kootenay-Boundary	Jazz Resources Inc.	082KNW069	Ag-Pb-Zn+/-Au	Polymetallic veins	Metallurgical test work (flotation); ARD	Pb flotation concentrate with 62% Pb, 83% Au and 92% Ag; Zn flotation concentrate with 48.7% Zn; Permit for pilot mill and tailings pond at former Spider Mine to process bulk samples(2013)



Table 5. Continued.

Property	Region	Operator	MINFILE	Commodity	Deposit Type	Work Program	Significant Results
<b>Thor</b>	Kootenay-Boundary	Taranis Resources Inc.	082KNW030, 31, 60, 61	Ag-Pb-Zn+/- Au	Polymetallic veins, stratiform manto	Surface drilling (29 EW core, pack drill); trenching; mapping; panel sampling; metallurgical test work; assessment of stockpiles to NI 43-101 standards	Extended Au-bearing zone at the SIF, including 30.59 g/t Au over 17.55m; metallurgical testing at SIF shows 75% gravity recoveries for Au; discovery of SIF Carbon zone
<b>Thorn</b>	Skeena	Brixton Metals Corp.	104K 031	Au, Cu	Vein/Breccia	Diamond drilling (1,287 m, 8 holes), Geology, Geochemistry, Corporate	59.65 m of 1.15 g/t Au, 5.64 g/t Ag (THN14-128)
<b>UDS</b>	Omineca	Serengeti Resources Inc.	094E 070, 115, 117, 120, 121, 244	Au, Ag, Cu, Zn, Pb	Porphyry, epithermal	mapping, geochemical sampling (rock, soil, silt)	10 samples between 0.1 - 0.7% Cu (August 30 target); skarn sample 0.26% Cu, 1.0 g/t Au
<b>Wapiti River</b>	Northeast	Canadian Dehua International Mines Group Inc.	093I 013	Metallurgical coal		feasibility study, baseline studies	-
<b>Waterfall</b>	Northeast	Anglo American plc (Peace River Coal Inc.)	N/A	Metallurgical coal		percussion drilling (1410 m), core drilling (360 m), trenching	-
<b>Willa</b>	Kootenay-Boundary	Discovery Ventures Inc.	082FNW070, 71	Ag-Pb-Zn +/-Au-Cu-Mo	Subvolcanic breccia, polymetallic veins, porphyry Mo, Au-skarn	Preliminary Economic Assessment; geological modelling; mine design; Dam safety inspection of MAX tailing facility; MAX mill upgrades; core re-sampling; Lidar survey; permitting	Acquisition of partial interest in MAX Mine and mill for processing; mill upgrades

