

BRITISH COLUMBIA

Ministry of Energy and Mines

Exploration and Mining in the Omineca and Northeast regions

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2014 in review - Summary and Trends

The Omineca Region is prospective for metals including niobium, rare-earth elements (REE), molybdenum, nickel, copper, zinc, lead, silver and gold, whereas coal is of primary focus in the Northeast Region. The main deposit types explored for in the Omineca region were epithermal gold-silver (Nechako Plateau), porphyry copper-gold (Nechako Plateau, Quesnel Trough and Toodoggone area), and stratiform zinc-lead-silver (Kechika Trough). Total exploration expenditure in 2014 is estimated at \$42.5 million, largely from mine evaluation-stage and advanced-stage projects, about 59% less than in 2013. Grassroots and Early-stage projects combined comprised 26% of expenditure. At 42,000 m, drilling was 48% less than in 2013.

In 2014,

- ramp-up activities continued at the **Mt. Milligan** mine (Thompson Creek Metals Company Inc.)
- a final feasibility study was released for **Blackwater** (New Gold Inc.), and pre-feasibility study completed for **Aley** (Taseko Mines Limited)
- an application for an Environmental Assessment Certificate was submitted for **Blackwater**, and Project Descriptions (Initiating the environmental assessment process) were submitted for **Kemess Underground** (AuRico Gold Inc.) and **Aley**
- updated resource estimates were provided for **Capoose** (New Gold Inc.) and **3Ts** (Independence Gold Corp.); and resource and reserve estimates for **Aley** and **Blackwater**
- drilling was undertaken for porphyry copper-gold at **Kemess East** (AuRico Gold Inc.), **Col-Later** (Pacific Empire Minerals Corp.), **Blackwater South** and **Key** (New Gold Inc.); low-sulfidation epithermal or vein gold-silver at **Fawn** and **Van Tine** (New Gold Inc.), **3Ts** (Independence Gold Corp.) and **Green Gold** (0902744 B.C. Ltd.); SDEX zinc-lead-silver at **Akie** (Canada Zinc Metals Corp.) and **Cirque** (Teck Resources Limited); and high-purity limestone at **Giscome** (Graymont Western Canada Inc.).

About 18% of the province's coal production comes from the Peace River Coalfield in the Northeast Region. Metallurgical coal has been British Columbia's biggest mineral export commodity in recent years, representing about 60% of mineral production in 2013. The low-ash, low-sulphur bituminous coal in the region is internationally recognized for producing high-quality coke, a key ingredient in steel making. In concert with international oversupply and price decreases, coal production and exploration decreased in 2014. Total exploration expenditure was \$49.9 million, mainly from mine evaluation-stage and advanced-stage projects, a 39% drop from 2013. Drilling (25,500 m) decreased 53% from 2013 levels.

In 2014,

- the second component of the Mines Act Permit Amendment was granted for the **Roman Mountain** expansion, fully permitting the combined **Trend-Roman** operation (Anglo American plc)
- the final two permit requirements for the **Quintette (Babcock)** mine (Teck Coal Limited) were granted, fully permitting the proposed mine
- the decline at **Murray River** (HD Mining International Ltd.) was driven beyond 740 m, proceeding toward the length for collecting a bulk sample
- feasibility-level exploration work began at **Sukunka** (Glencore)
- drilling programs were undertaken at **EB** and **Hermann** (Walter Energy, Inc.), **Roman Mountain**, **Roman Northwest**, and **Waterfall** (Anglo American plc), **Sukunka** (Glencore), and **Dunlevy** (Jameson Resources Limited)
- trenching and bulk sampling continued at **Wapiti East** (Fertoz International Inc.) and a small mine application was submitted.

Mining in the southeast corner of the Endako pit, Endako mine.

Blast-hole drilling for Phase 2 mining in the MBX pit, Mt. Milligan mine.

**A**

Year	Omineca (Millions of dollars)	Northeast (Millions of dollars)
2010	37	20
2011	72	44
2012	164	109
2013	103	82
2014	42	50

**B**

Region	Grassroots (%)	Early (%)	Mine Evaluation (%)	Advanced (%)
Omineca Region	39.7	24.4	34.3	1.6
Northeast Region	3.0	6.2	52.1	38.2

**C**

Year	Omineca (Thousands of metres drilling)	Northeast (Thousands of metres drilling)
2010	85	42
2011	162	66
2012	302	120
2013	80	55
2014	25	42

**A.** Annual exploration spending estimates in millions of dollars for the **Omineca** and **Northeast** regions from 2010 to 2014. A total of **\$92.4 million** for the combined regions in 2014 was **down 50%** from 2013.

**B.** Exploration expenditures in 2014 by exploration stage (**Grassroots**: initial reconnaissance; **Early stage**: focused work on a target; **Advanced stage**: resource delineation, preliminary economic assessment and pre-feasibility; **Mine Evaluation**: focus on feasibility studies, Environmental Assessment, and government permitting approval; **Mine Lease**: on-lease infill drilling and mine development exploration).

**C.** Annual exploration drilling estimates in thousands of metres for the **Omineca** and **Northeast** regions from 2010 to 2014. A total of **67,200 m** for the combined regions in 2014 was **down 50%** from 2013.

Mines and Selected Exploration Projects, Omineca and Northeast regions, 2014

Walter Energy, Inc. geologist looking southeast over the South Brule Pit, Brule mine.

Newly drilled core (KH-14-02), Kemess East.

Propylitically altered Hazelton Group andesite at the Key property.

Drilling at the Cirque deposit. Photo by John DeGrace.

TABLE 3. SELECTED EXPLORATION PROJECTS, OMINECA AND NORTHEAST REGIONS, 2014					
Property	Operator	Commodity; deposit type	Resource *not NI 43-101 compliant	Work program	Significant results
3Ts	Independence Gold Corp.	gold, silver; epithermal	5.45 Mt at 2.52 g/t gold, 71.5 g/t silver; inferred	drilling (2683 m)	none reported
Blackwater Regional (Van Tine, Van Tine South, Fawn, Blackwater South, Key)	New Gold Inc.	gold, silver, zinc, lead, copper, molybdenum; epithermal, porphyry, skarn	N/A	drilling (11 045 m), geophysics (IP, MG, VLF-EM) at Key, Fawn and Van Tine	broad area of porphyry-style mineralization at Key and Blackwater South; epithermal and deeper intrusive-related alteration styles at Van Tine and Fawn
Capoose	New Gold Inc.	silver, gold (zinc, lead, copper); epithermal	20.3 Mt at 0.50 g/t gold and 22.4 g/t silver; indicated	NI 43-101 technical report	updated resource estimate incorporated 2013 drilling program
Fox and 2 X Fred	Kootenay Silver Inc.	gold, silver; epithermal	N/A	48 grab samples (Fox) and 175 composite vein samples (2 X Fred)	32.6 g/t gold and 6049 g/t silver peak values (Fox); 0.34 g/t gold average value and 4.31 g/t gold peak value (2 X Fred)
Green Gold	0902744 B.C. Ltd.	gold; vein	N/A	drilling (388 m)	23 m at 1.64 g/t Au, including 8 m at 4.0 g/t Au (Discovery trench, 2011)
Decar	Cliffs Natural Resources Inc. (60%), First Point Minerals Corp. (40%, 1% NSR)	nickel; ultramafic-hosted	1159.5 Mt of 0.124% nickel (Davis Tube Recovered); indicated	bench scale market test	technical success in test processing of Decar concentrate
Chuchi	Chlormet Technologies Inc., Kiska Metals Corp.	copper, gold; porphyry	*50 Mt at 0.21% Cu, 0.21 g/t gold; inferred (Diggar Resources Inc., 1991)	ASTER satellite survey (Chlormet), field review, rock sampling (Kiska)	N/A
Col-Later	Pacific Empire Minerals Corp.	copper, gold, silver; porphyry	*1.81 Mt at 0.6% Cu; indicated (Kookaburra Gold Inc., 1989)	drilling (848 m), ground IP survey	N/A
Redton (Halobia)	Kiska Metals Corporation	copper, molybdenum; porphyry	N/A	geophysics (11 line-km; MG, IP), geochemical sampling (soil)	N/A
Rottacker	Serengeti Resources Inc.	copper, gold, silver; porphyry	Kwanika Central Zone: 243.6 Mt at 0.23% copper, 0.21 g/t gold, 0.69 g/t silver; indicated	geochemical sampling (rock)	6.7% copper, 5.9 g/t gold and 464 g/t silver
Kwanika East-Smoke	Serengeti Resources Inc.	copper, molybdenum; porphyry	N/A	ground IP survey	N/A
OGK	Blackeagle Development Corp.	copper, gold	N/A	mapping and sampling (rock, soil)	N/A
Takla-Rainbow	Manado Gold Corp.	gold, silver; epithermal, porphyry	*291 298 tonnes at 8.57 g/t gold; inferred and potential (Imperial Metals Corporation, 1988)	drilling (late 2013), mapping, prospecting, geochemical sampling (rock, till)	24.52 m (drilling length) of 0.18% copper, 2.01 g/t gold, 2.0 g/t silver (TR-13-88); 5 m chip sample of 0.292% copper, 0.553 g/t gold and 10.9 g/t silver; historic core samples up to 0.811% copper, 4.51 g/t gold, 10.9 g/t silver
Cat Mountain	Rift Valley Resources Corp.	copper, gold, silver; porphyry	N/A	geochemical sampling (rock chip and grab), blasting, trenching	1.2 m of 72.7 g/t gold, 11.45 g/t silver, 0.33% copper; grab samples up to 278 g/t gold, 22.92 g/t silver, 0.27% copper
Croy-Bloom	Serengeti Resources Inc.	gold, copper, iron, magnetite; porphyry	N/A	geochemical sampling (historic drill core)	0.97% copper, 3.1 g/t gold (core sample); three grab samples at 0.38%, 0.84%, and 0.93% copper
Thor	Copper North Mining Corp.	copper, gold, silver; porphyry	N/A	ground IP survey (80 line-km)	N/A
Kemess East	AuRico Gold Inc.	copper, gold, silver; porphyry	N/A	drilling (16 877 m), mapping, geochemistry (rock), airborne geophysics (VTEM, 1111 line-km), metallurgical studies	768 m of 0.442 g/t gold and 0.392% copper (KH-14-04); 304 m of 0.557 g/t gold and 0.421% copper (KH-14-09); 601 m 0.500 g/t gold and 0.391% copper (KH-13-08)
UDS	Serengeti Resources Inc.	gold, silver, copper, zinc, lead; porphyry, epithermal	N/A	mapping, geochemical sampling (rock, soil, silt)	10 samples between 0.1 - 0.7% copper (August 30 target); skarn sample 0.26% copper, 1.0 g/t gold
Akie	Canada Zinc Metals Corp.	zinc, lead, silver; sedimentary exhalative	12.7 Mt at 8.4% zinc, 1.7% lead and 13.7 g/t silver; indicated	drilling (2855 m), geophysics (airborne gravity)	9.44 m of 8.93% zinc, 1.25% lead, 10.54 g/t silver (A-14-111); 7.87 m of 5.97% zinc, 0.94% lead, 8.02 g/t silver (A-14-12); 8.42 m of 7.43% zinc, 1.19% lead, 10.72 g/t silver (A-14-115); 5.72 m of 5.45% zinc, 0.94% lead, 8.49 g/t silver (A-14-117)
Kechika Regional (Yuen North, Mt. Alcock)	Canada Zinc Metals Corp.	zinc, lead, silver; sedimentary exhalative	N/A	airborne gravity survey (940 line-km), geochemical sampling (soil) at Yuen North	zinc-lead-barite anomaly expanded to 4500 x 500 m at Yuen North
Cirque	Teck Resources Limited	zinc, lead, silver; sedimentary exhalative	*24.7 Mt at 8.5% zinc, 2.3% lead and 50.8 g/t silver; indicated (Curragh Resources Inc., 1991)	drilling (5200 m), airborne VTEM survey, airborne gravity survey	N/A
Kechika Regional (Elf, Fluke, Pie, Cirque East, Yuen)	Teck Resources Limited	zinc, lead, silver; sedimentary exhalative	N/A	airborne VTEM survey, airborne gravity survey (840 line-km), re-logging and sampling historic core (3500 m), geochemical sampling (rock), mapping, prospecting	N/A
Dunlevy	Jameson Resources Limited (Dunlevy Energy Inc.)	metallurgical coal	N/A	drilling (1302 m)	clean coal intersections up to 1.52 m thick; unoxidized samples indicate high-volatile A bituminous coals
Waterfall	Anglo American plc (Peace River Coal Inc.)	metallurgical coal	N/A	percussion drilling (1410 m), core drilling (360 m), trenching	N/A
Roman Northwest	Anglo American plc (Peace River Coal Inc.)	metallurgical coal	N/A	percussion drilling (2121 m), core drilling (1535 m), trenching	N/A
Wapiti River	Canadian Dehua International Mines Group Inc.	metallurgical coal	201.9 Mt (coal seam thickness >1.0 m); Measured and Indicated	feasibility study, baseline studies	N/A
Huguenot	Colonial Coal International Corp.	metallurgical coal	132.0 Mt in situ (surface), 145.7 Mt in situ (underground); Measured and Indicated	carbonization testing, coal washing studies, baseline studies	N/A