

Exploration and Mining in the Omineca and Northeast regions

Ministry of Energy and Mines GeoFile 2015-12 C. P. Jago P.Geo. - Regional Geologist, Omineca-Northeast

2014 in review - Summary and Trends

The Omineca Region is prospective for metals including niobium, rareearth 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 Alexand 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.); SEDEX 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

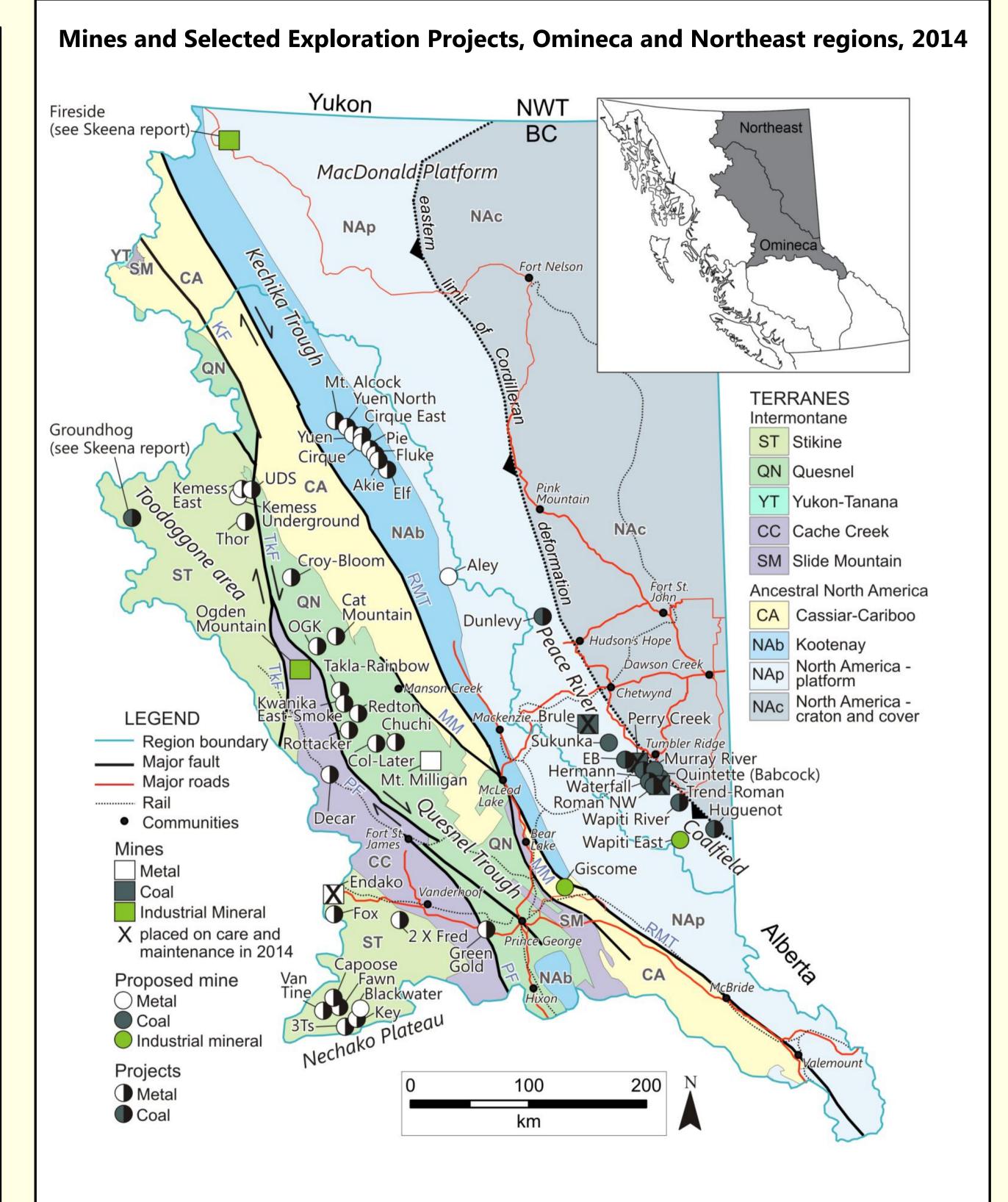
- the second component of the Mines Act Permit Amendment was granted for the **Roman Mountain** expansion, fully permitting the combined **Trend-Roman** operation (Anglo American plc)
- the final two permit requirements for the Quintette (Babcock) mine (Teck Coal Limited) were granted, fully permitting 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.

Mine	Operator	Commodity; Deposit type	Estimated Production (based on Q1 to Q3 2014)	Reserves (Proven and Probable - <i>Dec 31, 2013)</i>	Additional resource (Meas. and Ind Dec 31, 2013)	Near-mine exploration; other
Endako (75% share)	Thompson Creek Metals Co. Inc.	molybdenum; porphyry	4309 tonnes (9.5 Mlbs) Mo oxide	65.8 Mt at 0.052% Mo	109.4 Mt at 0.051% Mo	placed on C&M end-2014
Mt Milligan	Thompson Creek Metals Co. Inc.	copper, gold, silver; porphyry	28 395 tonnes (62.6 Mlbs) copper; 5645 kg (181 500 oz) gold	477.5 Mt at 0.388 g/t Au, 0.199% Cu	226.2 Mt at 0.204 g/t Au, 0.14% Cu	IP survey (31.2 line-km)
Trend	Anglo American plc (Peace River Coal Inc.)	metallurgical coal	1.71 Mt	10.0 Mt saleable (excluding Roman Mountain)	27.7 Mt mineable in- situ (excluding Roman Mountain)	placed on C&M, end-2014
Perry Creek	Walter Energy, Inc. (Western Coal Corp.)	metallurgical coal	564 000 t	9.4 Mt saleable; proven	N/A	placed on C&M, Apr. 2014
Brule	Walter Energy, Inc. (Western Coal Corp.)	metallurgical coal	1.02 Mt	17.5 Mt saleable; proven	N/A	placed on C&M, Jun. 2014
Ogden Mountain	Green Mountain Gemstones Inc.	nephrite jade; jade	< 5 tonnes (raw), 8 tonnes (stockpile)	N/A	N/A	placer and in situ

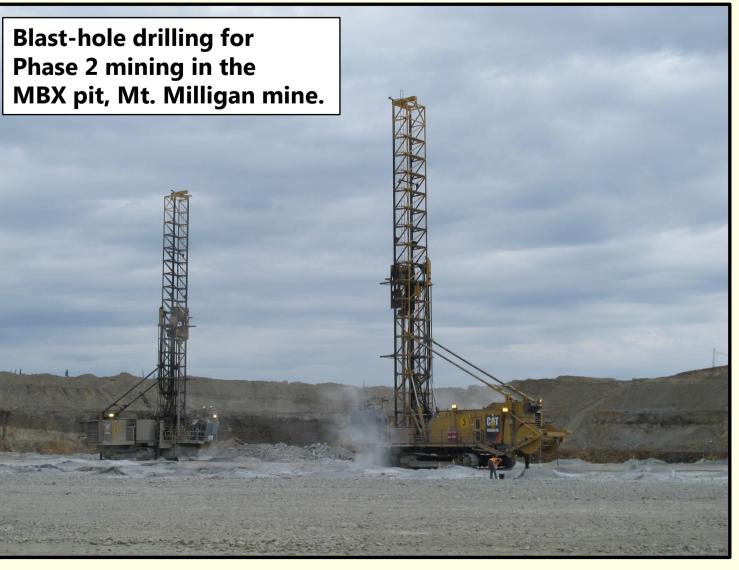
Mine	Operator	Commodity; deposit type	Reserves (Proven and Probable)	Resource (Meas. & Ind.) *additional to reserves	Work program	Significant results, other
Blackwater	New Gold Inc.	gold, silver; epithermal	344.4 Mt at 0.74 g/t gold, 5.5 g/t silver	396.9 Mt at 0.74 g/t gold, 5.5 g/t silver	ENG, EA (app- sub)	feasibility study released
Aley	Taseko Mines Limited	niobium; carbonatite-hosted	83.8 Mt at 0.50% Nb ₂ O ₅	258.8 Mt at 0.37% Nb ₂ O ₅	ENG, MET, PFS, EA (pre-app), EN	>50% recovery of niobium in test processing
Kemess Underground	AuRico Gold Inc.	copper, gold, silver; porphyry	100.4 Mt at 0.28% copper, 0.56 g/t gold, 2.0 g/t silver	*65.4 Mt at 0.24% copper, 0.41 g/t gold, 1.8 g/t silver	EA (pre-app), C&M (Kemess South)	initiated EA
Roman Mountain	Anglo American plc (Peace River Coal Inc.)	metallurgical coal	26.6 Mt saleable	*4.2 Mt mineable in situ	drilling (PD; 7735 m)	fully permitted, placed on C&M at end-2014
Quintette (Babcock)	Teck Coal Ltd.	metallurgical coal	41.1 Mt clean coal	*124 Mt raw coal	ENG, saleable coal test sample (50 000 tonne)	fully permitted, placed on C&M in July
Murray River	HD Mining International Ltd.	metallurgical coal	261.6 Mt (proven mineable)	314.2 Mt in Plot-1 area	decline driven for UG-BS (100 Kt), ENG, EN, EA (und-rev)	decline to 742 m length in October
Hermann	Walter Energy, Inc. (Western Coal Corp.)	metallurgical coal	9.1 Mt clean coal	N/A (30.6 Mt in situ, Mar 31, 2010)	drilling (CD; 999 m)	N/A
EB (Mt. Spieker)	Walter Energy, Inc. (Western Coal Corp.)	metallurgical coal	15.6 Mt clean coal	N/A	drilling (CD, AD; 1039 m), test pitting	N/A
Sukunka	Glencore plc	metallurgical coal	N/A	140 Mt in situ	drilling (CD, PD, GD, HD; 8630 m), BS (10 tonne), TR, CQT, FS	feasibility stage assessment
Giscome	Graymont Western Canada Inc.	limestone	N/A	>100 Mt of limestone (>95% calcite, <5% dolomite) in situ; Indicated	drilling (CD, AD; 1854 m), TP, EA	N/A
Wapiti East	Fertoz International Inc.	phosphate	N/A	1.54 Mt at 21.6% P ₂ O ₅ ; Inferred	TR, BS (1250 tonnes)	1.2 - 2.5 m width or $13 - 27\% P_2O_5$ in mineralized zone

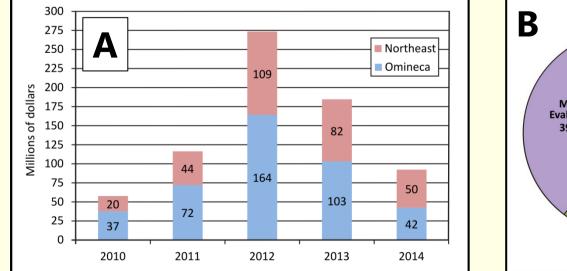
Work Program Abbreviations: AD = augur drilling; BS (X tonnes)

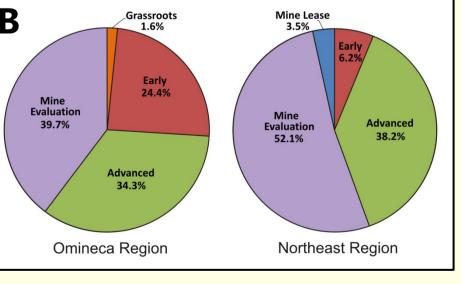
AD = augur drilling; BS (X tonnes) = bulk sample (weight in tonnes if known); C&M = Care and Maintenance; CD (X metres) = core drilling; (totalling X metres); CQT = coal quality testing; EA (stage) = Environmental Assessment (pre-application, application-submitted, under-review); EN = environmental baseline studies, remediation work; ENG = engineering studies, FS = feasibility studies; GD = geotechnical drilling; HD = hydrogeological drilling; MET = metallurgical studies; PD = percussion drilling; PFS = prefeasibility studies; TR = trenching; TP = test pitting; UG-BS = underground bulk sample.

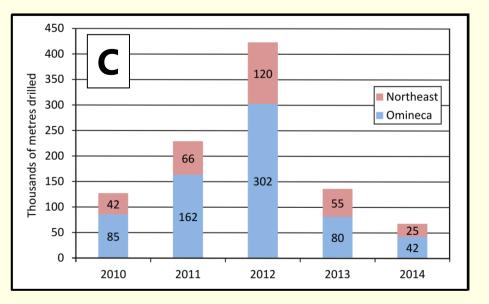






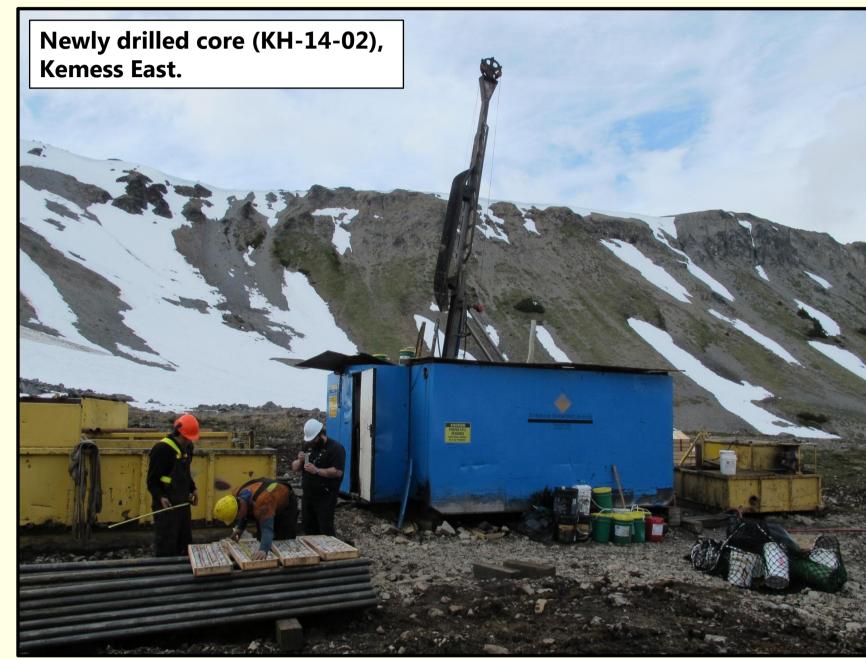






- A. Annual exploration spending estimates in millions of dollars for the Omineca and Northeast regions from 2010 to 2014. A total of \$92.4 million for the combined regions in 2014 was down 50% from 2013.
- **B.** Exploration expenditures in 2014 by exploration stage (Grassroots: initial reconnaissance; 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.









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 minerali at Key and Blackwater South; epither 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 incorpora 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 (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 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 or concentrate
Chuchi	Chlormet Technologies Inc., Kiska Metals Corp.	copper, gold; porphyry	*50 Mt at 0.21% Cu, 0.21 g/t gold; inferred (Digger 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 s
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% coppositions and 2.01 g/t gold, 2.0 g/t silver (TR-13-88); chip sample of 0.292% copper, 0.553 gold and 10.9 g/t silver; historic core samples up to 0.811% copper, 4.51 g/t 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, copper; grab samples up to 278 g/t go 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 samp three grab samples at 0.38%, 0.84%, a 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% co (KH-14-04); 304 m of 0.557 g/t gold an 0.421% copper (KH-14-09); 601 m 0.50 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% coppe (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, 10.56 silver (A-14-111); 7.87 m of 5.97% zinc 0.94% lead, 8.02 g/t silver (A-14-12); 8 of 7.43% zinc, 1.19% lead, 10.72 g/t sil 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 t 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 sunoxidized 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