



Location/Identification

MINFILE Number: 094E 315

Name(s): KEMESS EAST
KEMESS, NEW KEMESS 3, ALTUS

Status: Developed Prospect

Regions: British Columbia

BCGS Map: 094E007

NTS Map: 094E02E

Latitude: 57 04 04 N

Longitude: 126 43 29 W

Elevation: 1662 metres

Location Accuracy: Within 100M

Comments: Drillhole KH-13-09s located in the southeastern headwaters of a north-flowing tributary of Attycelley Creek, approximately 4.3 kilometres east of Duncan Lake, about 190 kilometres north-northwest of the community of Germansen Landing.

Mining Division: Omineca

Electoral District: Peace River North

Resource District: Mackenzie Natural Resource District

UTM Zone: 09 (NAD 83)

Northings: 6327220

Easting: 637960

Mineral Occurrence

Commodities: Copper, Gold, Silver, Molybdenum

Minerals

Significant: Chalcopyrite, Molybdenite

Associated: Quartz, Pyrite, Anhydrite, Magnetite, Calcite

Alteration: K-Feldspar, Chlorite, Silica, Sericite, Epidote, Biotite, Zeolite

Alteration Type: Potassic, Chloritic, Sericitic, Propylitic

Deposit

Character: Disseminated, Vein

Classification: Porphyry

Type: L04: Porphyry Cu +/- Mo +/- Au

Host Rock

Dominant Host Rock: Volcanic

Stratigraphic Age	Group	Formation	Igneous/Metamorphic/Other
Lower Jurassic	Hazelton	Toodoggone	-----
Upper Triassic	Stuhini	-----	-----
Lower Jurassic	-----	-----	Black Lake Suite

Isotopic Age	Dating Method	Material Dated
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Lithology: Andesitic Volcanic, Basaltic Volcanic, Quartz Monzonite, Quartz Diorite, Andesite, Basalt

Geological Setting

Tectonic Belt: Intermontane

Terrane: Stikine, Plutonic Rocks

Metamorphic Type: Regional, Contact

Grade: Greenschist, Hornfels

Physiographic Area: Omineca Mountains

Inventory

Ore Zone: EAST
Category: Indicated
Quantity: 113,100,000 tonnes

Year: 2017
Report On: Y
NI 43-101: Y

Commodity	Grade
Silver	1.94 grams per tonne
Gold	0.46 grams per tonne
Copper	0.38 per cent

Comments:

Reference: Assessment Report 37902.

Ore Zone: EAST
Category: Inferred
Quantity: 63,800,000 tonnes

Year: 2017
Report On: Y
NI 43-101: Y

Commodity	Grade
Silver	1.90 grams per tonne
Gold	0.31 grams per tonne
Copper	0.34 per cent

Comments:

Reference: Assessment Report 37902.

Capsule Geology

The Kemess East (Altus) occurrence is located in the southeastern headwaters of a north-flowing tributary of Attycelley Creek, approximately 4.3 kilometres east of Duncan Lake, about 190 kilometres north-northwest of the community of Germansen Landing.

The Toodoggone district lies within the eastern margin of the Intermontane Belt and is underlain by a northwest-trending belt of Paleozoic to Paleogene sediments, volcanics and intrusions covering an area of 90 by 25 kilometres. The basement rocks are Proterozoic metasedimentary equivalents of the Hadrynian Ingenika Group. These rocks are unconformably overlain by volcanic and sedimentary units of the Devonian to Permian Asitka Group, which are in turn overlain by Upper Triassic basaltic to andesitic flows, volcanoclastics and minor limestone of the Stuhini Group. Volcanoclastic rocks of the Lower Jurassic Hazelton Group and rhyolitic to dacitic flows, intrusions and volcanoclastics of the Lower Jurassic Toodoggone Formation (Hazelton Group) overlie the Stuhini Group. Further to the west, nonmarine sediments of the Cretaceous Sustut Group overlie the volcanic strata and form the western margin of the district.

The Early Jurassic Black Lake Suite, of quartz monzonitic to granodioritic composition, has intruded the older strata in the central and eastern parts of the region and forms the eastern margin of the Toodoggone district. Within the district, syenomonzonitic and quartz feldspar porphyritic dikes may be feeders to the Toodoggone Formation.

The Kemess East area is mainly underlain by andesitic to basaltic volcanics of the Stuhini Group, with the exception of the eastern regions, which are underlain by fragmental tuffs of the Toodoggone Formation. Lower Jurassic stocks, dikes, and possible sills of quartz monzonite to quartz diorite composition have intruded the Stuhini Group. Porphyry-style copper-gold mineralization occurs mainly within Black Lake intrusive and Stuhini volcanic rocks and to a lesser extent the lowermost Toodoggone Formation rocks. See Kemess North (094E 021) for a detailed description of the regional geology.

Mineralization consists of disseminations and stringers of pyrite, chalcopyrite and molybdenite hosted by variably potassic-, chlorite-, quartz-, sericite-, epidote- and biotite altered massive basalt flows, massive andesite flows, and massive andesitic augite porphyry flows with calcite, zeolite, sericite, magnetite and anhydrite veining. Chalcopyrite is typically associated with sericite-magnetite-calcite veining. The volcanics have been intruded by porphyritic granodiorite dikes, with quartz-calcite and calcite-anhydrite veins hosting minor pyrite and molybdenite. The Kemess East zone is reported to be open to the north and at depth.

The area has been historically explored in conjunction with the nearby Kemess North developed prospect (094E 021) located 2.2 kilometres west-southwest, and the Kemess South past-producing mine (094E 094) located 7 kilometres south.

During 1966 through 1971, Kennco Explorations Ltd. completed programs of geochemical sampling and geological mapping on the area immediately

west as the Kemess 1-100 claims. In 1975 and 1976, Getty Mines Ltd. examined the property and completed programs of soil sampling and geological mapping on the area immediately west.

During 1986 through 1989, El Condor Resources Ltd. completed programs of rock and soil sampling, geological mapping, trenching and a 14.1 line kilometre ground magnetic survey on the area immediately west as the New Kemess 1-2 claims.

In 1990 and 1991, El Condor Resources Ltd. conducted programs of geological mapping, geochemical sampling and a 201.0 line kilometre induced polarization survey on the area as apart of the Kemess property.

During 2000 through 2006, Northgate Minerals Corp. examined the area as the Kemess property and completed programs of geochemical sampling, geophysical surveys and geological mapping. In 2002 and 2006, Northgate conducted diamond drilling programs on the Kemess property, including the Kemess East zone. In 2006, diamond drilling, located approximately 700 metres south-southeast (Altus zone), yielded intercepts of up to 0.18 gram per tonne gold and 0.21 per cent copper over 226 metres in drillhole KH-06-03, and 0.19 gram per tonne gold with 0.26 per cent copper over 32 metres in hole KH-06-14 (Assessment Report 29049). The Kemess East zone is still open to the north and at depth (Assessment Report 29049). In 2007, Northgate continued exploration with 25 diamond-drill holes totalling 16,016.6 metres, and a ground induced polarization survey on the Kemess East property. Notable Altus zone intersections included drillhole KH-07-03 which assayed 0.16 gram per tonne gold and 0.22 per cent copper over 84.2 metres; hole KH-07-05 which assayed 0.23 gram per tonne gold and 0.33 per cent copper over 128.2 metres, and hole KH-07-07 which assayed 0.25 gram per tonne gold with 0.27 per cent copper over 179.0 metres (Assessment Report 29848).

During late 2013 through December 2014, AuRico Gold Inc. completed a program of geological mapping, soil, silt and metallurgical sampling, and 19 diamond-drill holes totalling 27,214 metres on the Kemess East property. Highlights of drilling included drillhole KH-13-07 which yielded 0.466 gram per tonne gold, 0.400 per cent copper and 0.007 per cent molybdenum over 195.0 metres; hole KH-13-08 which yielded 0.500 gram per tonne gold, 0.391 per cent copper and 0.007 per cent molybdenum over 601 metres; hole KH-13-09 which yielded 0.543 gram per tonne gold, 0.448 per cent copper and 0.010 per cent molybdenum over 442 metres; hole KH-14-04 which yielded 0.442 gram per tonne gold and 0.392 per cent copper over 768 metres, and hole KH-14-09 which yielded 0.557 gram per tonne gold and 0.421 per cent copper over 304 metres (Press Release - AuRico Gold Inc., December 15, 2014).

In January 2015, AuRico Gold released an initial resource estimate for the Kemess East deposit: indicated resources of 55,864,000 tonnes grading 0.52 gram per tonne gold, 2.00 gram per tonne silver and 0.41 per cent copper; and inferred resources of 117,152,000 tonnes grading 0.38 gram per tonne gold, 1.79 gram per tonne silver and 0.34 per cent copper (Press Release - AuRico Gold Inc., January 21, 2015). In 2015, Aurico Gold completed a program of geological mapping and 19 diamond-drill holes totalling 20,734.9 metres. Highlights of the diamond drilling program included drillhole KH-15-01 which intersected 305 metres of 0.625 gram per tonne gold and 0.433 per cent copper; hole KH-15-02 which intersected 301 metres of 0.466 gram per tonne gold and 0.394 per cent copper; hole KH-15-27 which intersected 590 metres of 0.516 gram per tonne gold, 0.366 per cent copper and 0.005 per cent molybdenum, and hole KH-15-30 which intersected 771.7 metres of 0.465 gram per tonne gold, 0.365 per cent copper and 0.006 per cent molybdenum (Assessment Report 36283).

In March 2016, a resource estimate based on the results of the 2015 drilling program indicated a resource of 39,200,000 tonnes grading 0.50 gram per tonne gold, 1.99 grams per tonne silver, 0.40 per cent copper and 0.008 per cent molybdenum, with an inferred resource of 109,600,000 tonnes grading 0.38 gram per tonne gold, 1.98 grams per tonne silver, 0.37 per cent copper and 0.009 per cent molybdenum (Assessment Report 36283).

In 2017, AuRico Metals Inc., formerly AuRico Gold Inc., completed a further eight diamond-drill holes totalling 11,920.3 metres on the Kemess East property. Highlights of the diamond drilling program include intercepts of up to 0.64 gram per tonne gold, 0.45 per cent copper, 2.13 grams per tonne silver and 0.008 per cent molybdenum over 338 metres in drillhole KH-17-05 (Assessment Report 37902).

Prior to the 2017 diamond drilling program, an updated Kemess East resource was reported with 113,100,000 tonnes Indicated grading 0.38 per cent copper, 0.46 gram per tonne gold and 1.94 grams per tonne silver, and 63,800,000 tonnes Inferred grading 0.34 per cent copper, 0.31 gram per tonne gold and 1.90 grams per tonne silver (Assessment Report 37902).

Bibliography

EMPR ASS RPT 1705, 5748, 6069, 16333, 19962, 21539, 22280, *29049, *29848, 33320, 35094, 35540, *36283, 37902, 39449
EMPR EXPL 2001-12; 2013-6,13; 2014-19,23,25
EMPR BULL 86
EMPR OF 2001-01; 2004-4
GSC BULL 270
GSC OF 306; 483
GSC P 80-1A, pp. 27-32
GSC MAP 14-1973
ECON GEOL Vol.86, pp. 529-554, 1991
PR REL AuRico Metals Inc. Dec.15, 2014, Jan.21, Aug.18, 2015
SRK Consulting (Canada) Inc. (2016-05-06): Technical Report for the Kemess Underground Project and Kemess East Resource Estimate, British

Date Coded:	2015/08/19	Coded By:	Sarah Meredith-Jones (SMJ)	Field Check:	N
Date Revised:	2021/07/30	Revised By:	George Owsiacki (GO)	Field Check:	N