



Occurrence Details

Occurrence Number: 105G 143
Occurrence Name: Gp4f
Occurrence Type: Hard-rock
Status: Deposit
Date printed: 8/5/2025 9:03:25 AM

General Information

Primary Commodities: copper, gold, lead, silver, zinc
Aliases: Kudz Ze Kayah
Deposit Type(s): Volcanogenic Massive Sulphide (VMS) Kuroko Cu-Pb-Zn
Location(s): 61°26'43" N - -130°30'38" W
NTS Mapsheet(s): 105G07
Location Comments: Location = approximate center of deposit.
Hand Samples Available: No
Last Reviewed: Dec 13, 2016

Capsule

WORK HISTORY

Staked as part of Tag cl 264-1538 (YB48413) between April and August of 1994 by Cominco Ltd. The claims were staked following the first ore grade drill intercepts encountered on the neighboring ABM occurrence (Minfile Occurrence 105G 117) located approximately 5 km to the northwest.

In 1994 Cominco flew a large regional airborne magnetic/electromagnetic geophysical survey (approximately 15,000 line km) over their extensive claim holdings, including the ABM (Minfile Occurrence 105G 117) and the GP4F occurrences. Cominco systematically followed up the geophysical anomalies with extensive field and diamond drill programs.

In 1998 Cominco drilled 9 diamond drill holes (1,556 m) on the GP4F occurrence. The program was designed to test a geophysical target outlined by a previous airborne geophysical survey. All 9 of the drill holes intersected the favorable horizon and 7 holes intersected massive and semi-massive sulphide mineralization. Cominco also flew an airborne EM and magnetic survey over the eastern half of the R-15 land claim block (a block of land under interim Land Claim protection and claimed by the Ross River Dena Council) located approximately 0.5 km to the southeast. At the end of 1998 the company released an initial historical mineral resource estimate for the newly named GP4F deposit.

During the 1999 exploration season Cominco carried out ground In-Loop UTEM and HLEM/magnetic geophysical surveys over and around the GP4F deposit. Other than minor environmental monitoring and site remediation, no further physical work was carried out on the GP4F deposit or the larger Kudz Ze Kayah property until its sale to BMC Minerals in 2015.

In Mar/2000 Cominco announced an agreement in principal to sell the Kudz Ze Kayah property, including the ABM and the neighboring GP4F deposits to Expatriate Resources Ltd. During 2000 Expatriate completed a pre-feasibility study (Hatch Associates Ltd, 2000), the emphasis of which was the co-development of Cominco's ABM deposit and Expatriate's neighboring Wolverine deposit (Minfile Occurrence 105G 072).

In Jul/2001 Cominco merged with Teck Corp to form Teck Cominco Ltd. In Sep/2001, Expatriate terminated its agreement and returned all mineral claims to Teck Cominco. Despite the termination of the agreement, both companies pushed for the creation of an "area play" to bring the regions various properties into production.

In 2004 Teck Cominco signed a Socio-Economic Participation Agreement with the Ross River Dena Council on behalf of the Kaska Nation.

In December 2004, Expatriate reorganized and changed its name to Yukon Zinc Corporation.

In Apr/2009 Teck Cominco Ltd changed its name to Teck Resources Ltd.

On January 24, 2015 BMC Minerals (No. 1) Ltd, a private British based company purchased the Kudz Ze Kayah property including the GP4F deposit and the neighboring R-15 zone. At the time of purchase the company released a combined historical mineral resource estimate for the ABM and GP4F deposits based on Teck Cominco's last publicly reported estimate (2009). BMC Minerals also inherited the Socio-Economic Participation Agreement with the Ross River Dena Council originally negotiated by Teck Cominco.

Prior to commencement of the 2015 field season BMC Minerals rehabilitated the tote road, constructed a new camp, initiated a data compilation program and began re-logging historic diamond drill core. Upon the start of the field program the company carried out an airborne LiDAR survey and GPS surveyed the position of the tote road and all historic drill collars. BMC Minerals flew an airborne EM and magnetic survey over the property and adjoining R-15 zone and carried out ground gravity geophysical surveys over the ABM and GP4F deposits and the Rhyolite Peak area. Down-hole EM surveys were completed on seven diamond drill holes in the GP4F area and one exploration hole.

BMC Minerals collared 99 diamond drill holes (21,279.7 m) in 2015 considered exploration in nature. Ten holes (3,291 m) tested targets associated with the GP4F deposit. BMC Minerals also restarted hydrological, environmental, heritage other studies previously implemented by Cominco.

On January 18, 2016 BMC Minerals released a JORC compliant (Australasian Code for Reporting Results, Mineral Resources and Ore Reserves) updated mineral resource estimate for the ABM and GP4F deposits.

During the 2016 exploration season BMC Minerals carried out an additional 19,000 m of diamond drilling. An unknown number of holes tested the GP4F deposit. On November 2016 the company released a JORC compliant (Australasian Code for Reporting Results, Mineral Resources and Ore Reserves) updated mineral resource estimate. The new resource estimate will form the basis of a prefeasibility study due to be released in late 2016.

GEOLOGY

The Kudz Ze Kayah property lies within Yukon-Tanana Terrane near the center of the Finlayson Lake area. It hosts the ABM (Minfile Occurrence 105G 117), and GP4F, volcanogenic-hosted massive sulphide (VHMS) deposits. Volcanic massive sulphide mineralization is hosted by felsic volcanic and variably carbonaceous sedimentary rocks assigned to the Kudz Ze Kayah Formation, part of the Upper Devonian to Lower Mississippian (?) Grass Lakes Succession.

Geological mapping by Murphy and Piercey (1999, 2000) and Murphy et al., (2001) and Cominco geologists shows that the GP4F deposit is hosted by felsic volcanic and variably carbonaceous sedimentary rocks assigned to the Kudz Ze Kayah Formation. The GP4F deposit is thought to lie at a lower stratigraphic level than the Kudz Ze Kayah deposit located 5 km to the northwest.

The 1994 airborne EM and magnetic survey outlined numerous anomalies, one of which was labeled "Geophysical Anomaly 4F" (or GP4F). Cominco tested the anomaly in 1998 with 9 diamond drill holes, seven of which intersected massive and semi-massive sulphide mineralization. In 1999 Cominco released a historical estimate (which they labeled as an Inferred Resource), for the GP4F deposit of 1.5 million tonnes grading 6.4% zinc, 3.10% lead, 0.10% copper, 89.7 g/t silver and 2.0 g/t gold (Cominco Ltd 1999 Annual Report, also Yukon Exploration and Geology 1999, p. 21). The company also

reported that the deposit contained significantly low grades of selenium; averaging ~8 ppm. The selenium content of the deposit was important as the neighboring Wolverine deposit (Minfile Occurrence 105G 072) reported average levels of 1,035 ppm selenium and the ABM deposit reported average levels of 210 ppm selenium (see Boulton, 2002).

The historical estimate for the GP4F deposit remained in effect until January 18, 2016 when BMC released a JORC Code compliant (Australasian Code for Reporting Results, Mineral Resources and Ore Reserves) Inferred mineral resource estimate for the GP4F deposit. JORC Code is derived from the Joint Ore Reporting Committee, an independent mineral industry body from Australian based industry professional associates while NI 43-101 code is derived from Canadian Securities Authorities. The new resource calculation displayed a slightly higher Inferred resource (1.7 million tonnes) but an overall lower grade. This resource was calculated before the 2015 diamond drill program results were released (see Resource/Reserve Section).

BMC Minerals has not publicly released specific drilling results for the GP4F deposit. It is known that the company did drill the deposit in both 2015 and 2016 in order to increase the confidence of the mineral resource from Inferred to Indicated.

On November 10, 2016 BMC Minerals released an updated JORC Code compliant mineral resource estimate for the GP4F deposit. The majority of resources were upgraded to Indicated class (1 million tonnes) versus 0.7 million tonnes classified as Inferred (see Resource/Reserve Section).

To date the GP4F deposit comprises a continuous shallow-dipping zone of volcanic-hosted massive sulphide (VHMS) mineralization hosted within a felsic tuff and sill/flow complex similar to that hosting the ABM deposit. The mineralization occurs under 10 to 25 m of glacial overburden and comprises thin lenses of massive sulphide up to 10 m in true thickness within a much larger tabular body of disseminated mineralization and alteration. The alteration and mineralization of the deposit is texturally and mineralogically similar to the ABM deposit. Mineralization consists of pyrite + pyrrhotite + sphalerite + galena within an envelope of stringers and blebby to disseminated bands of sphalerite + pyrite ± pyrrhotite + galena + chalcopyrite. Massive sulphide mineralization typically contains relatively high zinc and silver grades. The GP4F deposit has an east-west strike extent of approximately 300 m and a down dip extent of approximately 350 m. The deposit remains open both along strike and down-dip.

The results from the 2015 and 2016 work programs on the ABM and GP4F deposits will form the basis of a prefeasibility study to be completed in early 2017.

Work History

Date	Work Type	Comment
12/31/1998	Drilling	Nine holes completed (1,556 m).
12/31/1994	Airborne Geophysics	Also magnetic survey.
12/13/2016	Studies	BMC released JORC compliant mineral Resource estimates (2) for GP4F deposit.
12/13/2016	Drilling	Unknown number of holes collared on GP4F deposit, used to upgrade resources into Indicated category.
12/13/2015	Pre-existing Data	Compiled all data pertaining to work carried out by Cominco Ltd and Expatriate Resources.
12/13/2015	Drilling	Ten holes (3,291 m) collared on GP4F deposit.
12/13/2015	Development, Surface	Rehabilitated tote road into property.
12/13/2015	Airborne Geophysics	Also magnetic survey.
12/13/2015	Ground Geophysics	Also gravity survey over deposit.
12/13/2015	Studies	BMC Minerals restarted various studies originally started by Cominco Ltd.
12/13/2015	Airphotography	Airborne LIDAR survey.
12/13/2004	Other	Teck Cominco signed Socio-Economic Participation Agreement with Ross River Dena Council on behalf of Kaska Nation.
12/13/2002	Pre-existing Data	Boulton, Amy, University of Victoria BSc Thesis on GP4F deposit.
12/13/1999	Studies	MacRobbie and Holroyd, released historical mineral resource estimate. Reported in various publications.

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
097150	2017	2017 Geological, Geochemical, Geophysical, Diamond Drilling and Geotechnical Report o the Kudz Ze Kayah (KZK) Property	Diamond - Drilling, Soil - Geochemistry, Bedrock Mapping - Geology, EM - Ground Geophysics	48	4928.70
096997	2016	2016 Geological, Geophysical, Diamond Drilling and Geotechnical Program Report on the Kudz Ze Kayah (KZK) Property	Magnetic - Airborne Geophysics, VTEM - Airborne Geophysics, Orthophoto - Airphotography, Diamond - Drilling, Downhole Survey - Ground Geophysics, Petrographic - Lab Work/Physical Studies, Research/Summarize - Pre-existing Data, LIDAR - Remote Sensing, Environmental Assessment/Impact - Studies	53	16897.98
096898	2015	2015 Geological, Geophysical, Diamond Drilling and Environmental Report on the Kudz Ze Kayah Property	Electromagnetic - Airborne Geophysics, Magnetic - Airborne Geophysics, Diamond - Drilling, Historical Drill Core - Geochemistry, Downhole Survey - Ground Geophysics, Gravity Survey - Ground Geophysics, Surveying - Other, Data Compilation - Pre-existing Data, Process/Interpret - Pre-existing Data, LIDAR - Remote Sensing	99	21279.70
096914	2012	2012 Diamond Drilling Summary Report R15 Project	Diamond - Drilling	5	686.88
093712	1996	1996 Assessment Report Kudz Ze Kayah Property Linecutting, Soil Geochemistry, Geological Mapping, Geophysical Surveying and Diamond Drilling	Diamond - Drilling, Regional Bedrock Mapping - Geology, EM - Ground Geophysics, Gravity Survey - Ground Geophysics, Magnetics - Ground Geophysics, Line Cutting - Other, Prospecting - Other	1	99.20
093432	1995	Assessment Report Kudz Ze Kayah Property Tag Claims Diamond Drilling Watson Lake M.D., Y.T.	Diamond - Drilling	28	4925.50

Related References

Number	Title	Page(s)	Reference Type	Document Type
YEG1999_OV	Yukon Mining & Exploration Overview 1999	p. 21, 30.	Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Annual Report
12	Volcanic-associated massive sulphide (VMS) mineralization in the Yukon-Tanana Terrane and coeval strata of the North American miogeoclinal, in the Yukon and adjacent areas		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Bulletin
1999-4	Geological map of parts of Finlayson Lake area (105G/7, 8, and parts of 1, 2 and 9) and Frances Lake (parts of 105H/5 and 12) map areas, southeastern Yukon		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Open File (Geological - Bedrock)
2003-10/D1	Till geochemistry of the Finlayson Lake (105G), Glenlyon (105L) and east Carmacks (115I) map areas, Yukon Territory		Yukon Geological Survey	Open File (Geochemical)
YEG1999_06	Syn-mineralization faults and their re-activation, Finlayson Lake massive sulphide district, Yukon-Tanana Terrane, southeastern Yukon		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Annual Report Paper
2001-33	Preliminary bedrock geological map of northern Finlayson Lake area (NTS 105G) Yukon Territory (1:100 000 scale)		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Open File (Geological - Bedrock)
YEG2001_17	Finlayson Lake Targeted Geoscience Initiative (southeastern Yukon), Part 1: Bedrock geology		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Annual Report Paper
YEG2000_OV	Yukon Mining & Exploration Overview 2000	p. 7-8, 25.	Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Annual Report
YEG2015_OV2	Yukon Hard Rock Mining, Development and Exploration Overview 2015	p. 38, 45, 46.	Yukon Geological Survey	Annual Report Paper

Resource/Reserve

[illegible]

2016	GP4F - INDICATED (NEW) (Undetermined)	Indicated	lead	2.7 %	1,000,000		No	Yes	None
BMC (UK) LTD Press Release 10 November 2016. Figures prepared in accordance with JORC (2012). Figures based on 2015 and 2016 diamond drill programs. The Mineral Resource has not been reported above a cut-off grade as the mineralization was modeled primarily by logged massive, semi and stockwork lithologies. These zones correlated to significant grades of copper, lead, zinc, gold and silver. On this basis it was deemed that no cut-off grade was required.									
2016	GP4F - TOTAL (OLD) (Undetermined)	Inferred	copper	.2 %	1,719,000		No	Yes	None
BMC (UK) LTD Press Release 10 November 2016. Figures prepared in accordance with JORC (2012). Figures based on 2015 and 2016 diamond drill programs. The Mineral Resource has not been reported above a cut-off grade as the mineralization was modeled primarily by logged massive, semi and stockwork lithologies. These zones correlated to significant grades of copper, lead, zinc, gold and silver. On this basis it was deemed that no cut-off grade was required.									
2016	GP4F - TOTAL (OLD) (Undetermined)	Inferred	zinc	6.1 %	1,719,000		No	Yes	None
BMC (UK) LTD Press Release 10 November 2016. Figures prepared in accordance with JORC (2012). Figures based on 2015 and 2016 diamond drill programs. The Mineral Resource has not been reported above a cut-off grade as the mineralization was modeled primarily by logged massive, semi and stockwork lithologies. These zones correlated to significant grades of copper, lead, zinc, gold and silver. On this basis it was deemed that no cut-off grade was required.									
2016	GP4F - TOTAL (OLD) (Undetermined)	Inferred	silver	76 g/t	1,719,000	130644000	No	Yes	None
BMC (UK) LTD Press Release 10 November 2016. Figures prepared in accordance with JORC (2012). Figures based on 2015 and 2016 diamond drill programs. The Mineral Resource has not been reported above a cut-off grade as the mineralization was modeled primarily by logged massive, semi and stockwork lithologies. These zones correlated to significant grades of copper, lead, zinc, gold and silver. On this basis it was deemed that no cut-off grade was required.									
2016	GP4F - TOTAL (OLD) (Underground)	Inferred	gold	1 g/t	1,719,000	1719000	No	Yes	None
BMC (UK) LTD Press Release 10 November 2016. Figures prepared in accordance with JORC (2012). Figures based on 2015 and 2016 diamond drill programs. The Mineral Resource has not been reported above a cut-off grade as the mineralization was modeled primarily by logged massive, semi and stockwork lithologies. These zones correlated to significant grades of copper, lead, zinc, gold and silver. On this basis it was deemed that no cut-off grade was required.									
2016	GP4F - TOTAL (OLD) (Undetermined)	Inferred	lead	2.6 %	1,719,000		No	Yes	None
BMC (UK) LTD Press Release 10 November 2016. Figures prepared in accordance with JORC (2012). Figures based on 2015 and 2016 diamond drill programs. The Mineral Resource has not been reported above a cut-off grade as the mineralization was modeled primarily by logged massive, semi and stockwork lithologies. These zones correlated to significant grades of copper, lead, zinc, gold and silver. On this basis it was deemed that no cut-off grade was required.									
1998	GP4F - TOTAL (Undetermined)	Historical Estimate	copper	.1 %	1,500,000		No	No	Unknown
Quoted in Amy Bolton BSc. Thesis using internal Cominco Ltd documents. Also quoted in Yukon Exploration and Geology 1999 and Canadian Mines Handbook 1999-2000. Based on internal reports written by MacRobbie and Holroyd for Cominco Ltd in 1998, 1999 and 2000. Widely reported and classified as an Inferred resource.									
1998	GP4F - TOTAL (Undetermined)	Historical Estimate	zinc	6.4 %	1,500,000		No	No	Unknown
Quoted in Amy Bolton BSc. Thesis using internal Cominco Ltd documents. Also quoted in Yukon Exploration and Geology 1999 and Canadian Mines Handbook 1999-2000. Based on internal reports written by MacRobbie and Holroyd for Cominco Ltd in 1998, 1999 and 2000. Widely reported and classified as an Inferred resource.									
1998	GP4F - TOTAL (Undetermined)	Historical Estimate	silver	89.7 g/t	1,500,000	134550000	No	No	Unknown
Quoted in Amy Bolton BSc. Thesis using internal Cominco Ltd documents. Also quoted in Yukon Exploration and Geology 1999 and Canadian Mines Handbook 1999-2000. Based on internal reports written by MacRobbie and Holroyd for Cominco Ltd in 1998, 1999 and 2000. Widely reported and classified as an Inferred resource.									
1998	GP4F - TOTAL (Undetermined)	Historical Estimate	gold	2 g/t	1,500,000	3000000	No	No	Unknown
Quoted in Amy Bolton BSc. Thesis using internal Cominco Ltd documents. Also quoted in Yukon Exploration and Geology 1999 and Canadian Mines Handbook 1999-2000. Based on internal reports written by MacRobbie and Holroyd for Cominco Ltd in 1998, 1999 and 2000. Widely reported and classified as an Inferred resource.									
1998	GP4F - TOTAL (Undetermined)	Historical Estimate	lead	3.1 %	1,500,000		No	No	Unknown
Quoted in Amy Bolton BSc. Thesis using internal Cominco Ltd documents. Also quoted in Yukon Exploration and Geology 1999 and Canadian Mines Handbook 1999-2000. Based on internal reports written by MacRobbie and Holroyd for Cominco Ltd in 1998, 1999 and 2000. Widely reported and classified as an Inferred resource.									