Occurrence Details

Occurrence Number: 115I 008
Occurrence Name: Carmacks Copper
Occurrence Type: Hard-rock
Status: Deposit
Date printed: 6/15/2025 7:45:11 AM

General Information

Primary Commodities: copper, copper - oxide, copper - sulphide, copper - total, gold, silver
Aliases: Boy, Williams Creek, No. 1 Zone
Deposit Type(s): Porphyry Alkalic Cu-Au
Location(s): 62°20'42" N - -136°42'4" W
NTS Mapsheet(s): 115I07
Location Comments: .1 Kilometres
Hand Samples Available: Yes
Last Reviewed:

Capsule

Work History

Staked as Boy cl 1-150 (Y51099) in Mar/70 by A. Arsenault & G. Wing and optioned in July by Dawson Range Joint Venture (Straus Exploration Inc, Great Plains Development Corporation, Marietta Resources International Ltd, Molybdenum Corporation of America and Trojan Consolidated Mines Ltd).

The main showing (No. 1 zone) was found by prospecting in Aug/70 and explored with bulldozer trenching and 2 x-ray holes (31.4 m) in 1970; soil sampling, I.P., EM and magnetometer surveying, bulldozer trenching, road construction and drilling of 25 holes (5 583 m) in 1971; bulldozer trenching and drilling of 8 holes (1 531 m) in 1972; and a legal survey in 1974. Great Plains dropped its interest in 1971. The Trojan interest was transferred to BX Development Ltd in late 1972.

In 1982, the property was purchased by Archer, Cathro and Associates (1981) Ltd which conducted bulldozer trenching in 1987 and optioned the property to Western Copper Holdings Ltd in Aug/89. Western Copper began baseline environmental studies and farmed out a 50% interest to Thermal Exploration Ltd. The joint venture added W cl 1-49 (YB26708) in Sep/89, and shipped 2 composite bulk samples totalling 2 700 kg for metallurgical testing, and drilled 3 holes (321.6 m) in 1990. A major exploration program in 1991 included drilling 34 holes (3 463 m); excavating twenty-two trenches (1 856 m); one hectare of stripping at the south end of the No. 1 Zone; 83.7 km of VLF-EM and magnetometer surveying; and baseline environmental studies commenced.

WC cl 1-76 (YB36689) and War cl 38-50 (YB36765) were tied on to the northwest in Feb/92, joining the Williams Creek property to the Stu property (Minfile Occurrence #115I 011). W cl 87-99 (YB36925) were added to the south side of the property in Jul/92. The 1992 exploration program included 6.5 km of trenching, diamond drilling of 11 holes (3 781 m), percussion drilling of 11 holes (2 805 m), baseline environmental studies and numerous engineering, geotechnical and metallurgical studies. A 300 tonne test heap leach (grading 1.36% copper) and pilot plant was operated from September to Dec/93. Numerous surviving Dun, AC , W, X, and War claims were transferred to Western Copper Holdings Ltd in Apr/93.

In Sep/93 Western Copper Holdings contracted Kilborn Engineering Pacific Ltd to carry out a mining feasibility study of the Williams Creek property. In 1994 Western Copper began the permitting process and held preliminary economic development discussions with both the Yukon Territorial Government and the Little Salmon Carmacks First Nations. In Sep/94 Kilborn Engineering returned a positive feasibility study and Western Copper announced their intentions to place the property into production.

In Apr/95 Western Copper Holdings and Thermal Exploration announced their intention to amalgamate with Western Copper as the continuing entity. In Sep/95 Prime Equities International reached an agreement with Teck to acquire a controlling interest in Western Copper and the Williams Creek property. Prime announced that once the transaction closed it would take an active role in the management of Western Copper and assist it in raising capital to bring the Williams Creek property into production.

Western Copper Holdings continued geotechnical and engineering studies under the review process of the Canadian Environmental Assessment Act from 1996-1998. During 1997 the company also cleared the access road, leach pad and plant site and contracted Kilborn Engineering Pacific Ltd to carry out run-of-mine bulk sampling of the No. 1 zone 1 deposit. Leaching and decommissioning test work was then carried out by Beattie Consulting Ltd to provide a basis for predicting copper recovery and neutralization requirements.

Western Copper Holdings changed its name to Western Silver Corporation in March 2003. In May/2006, Glamis Gold Ltd bought out Western Silver and spun off the property to a new company, Western Copper Corporation. In 2006 Western Copper drilled 34 diamond drill holes (7 100 m), 61 rotary air blast holes (1 200 m) and re-initiated environmental baseline studies. The diamond drilling targeted infill and deepening of Zone no.1 and exploration of Zone no.13.

Western Copper released an independent feasibility study in Apr/2007 which proposed an open-pit mine with acid heap leach and solvent extraction and electrowinning. Production was projected at 1.73 million tonnes of ore per year over a six-year mine life. The company's 2007 exploration program consisted of 17 000 m of diamond drilling in 123 holes, 845 m of geotechnical drilling in 34 holes, 31.7 line kilometres of induced polararization surveys and surveying of all drill hole locations including all the historical drill holes, geotechnical holes and rotary air blast holes.

In Nov/2007 Western Copper released an updated resource estimate for zones 1, 4 and 7 of the Carmacks Copper Project. Using a 0.25% total copper cut-off grade Wardrop Engineering Inc calculated that the project hosts an Oxide Resource Estimate of 11 980 00 tonnes in the Measured and Indicated categories containing 1.06 % total copper, 0.86 % oxide copper, 0.46 g/t gold and 4.6 g/t silver. The Sulphide Resource Estimate equals 4 340 000 tonne in the measured and indicated categories containing 0.75% total copper, 0.03 % oxide copper, 0.21 g/t gold and 2.3 g/t silver.

The Carmacks Copper Project received its Yukon Environmental and Socio-economic Assessment Board (YESAB) final Screening Report in Jul/2008 which recommended approval of the project subject to terms and conditions of the mitigative factors outlined in the report. In Sep/2008 the Yukon Government issued a Decision Document agreeing with the recommendations of the Yukon Environmental and Socio-economic Assessment Board that the Carmacks Copper Project proceed, signalling the completion of assessment process under the Yukon Environmental and Socio-economic Assessment Act. Geotechnical drilling, engineering studies and water sampling were conducted in 2008 in preparation for mine development. In Dec/2008 the company submitted an updated Water Use License application to the Yukon Water Board. In addition the company filed updated Quartz Mining License application with the Yukon Government's Department of Energy, Mines and Resources.

In Apr/2009 Western Copper received a Quartz Mining License from the Yukon Government for the Carmacks Copper Project. This license permits the company to build the Carmacks Copper Mine and establishes many of the terms and conditions under which the mine will operate.

In May, 2010, the company was notified by the Yukon Water Board that the Water Use Licence application had been denied.

In Oct/2011 Western Copper Corp changed name to Western Copper and Gold Corporation and spun out Copper North Mining Corp, which retained the Carmacks Copper property.

In 2014, the company completed trenching and 1 200 m of diamond drilling in 6 holes. In 2015, they completed ground magnetic surveying, trenching and 3 270 m of diamond drilling in 34 diamond drill holes. In 2016, they completed soil sampling, trenching and initiated a PEA. In 2017 they completed 4 000 m of diamond drilling in 32 diamond drill holes.

In 2016, the company completed a Preliminary Economic Study for the site. The study was performed by

Capsule Geology

Carmacks Copper is one of several metamorphosed copper deposits which occur along the boundary between the Yukon Tanana and Northern Stikine terranes. The Carmacks Copper property hosts 15 similar occurrences and the large Carmacks-Minto belt hosts others which resemble Carmacks Copper including Stu (Minfile Occurrence #115I 011), Def (Minfile Occurrence #115I 021) and Minto (Minfile Occurrence #115I 022). A study by N. Kovacs, et. al. (2016) on the Carmacks Copper deposit provides new insight into the paragenesis of these occurrences. According to Kovacs, et. al., Carmacks Copper and the associated occurrences are hosted in compositionally heterogeneous, foliated and folded, and variably migmatitic metamorphic rocks, which occur as elongate, NNW-trending inliers in Early Jurassic granitoids of the Granite Mountain batholith. Hypogene copper mineralization is restricted to metamorphic host rocks, and occurs both as foliation-parallel chalcopyrite-dominant stringers in schistose rocks, and as net-textured bornite-chalcopyrite-dominant sulphides in the migmatitic rocks prevalent along the eastern margin of the metamorphic inlier. The latter style of mineralization is interpreted to form from a sulphide melt phase generated during partial melting of a previously mineralized protolith, during emplacement of the Granite Mountain batholith.

The Carmacks Copper No. 1 zone deposit extends over a 700 m strike length and at least 450 m down dip. At its south end the No. 1 zone appears to splay into the No. 7 and 7A zones and is pulled apart, or fault offset into No. 4 zone. The deposit is open at depth and is oxidized to approximately 230 m in depth. The copper mineralization in the oxidized portion of the deposit is predominantly malachite, tennorite and azurite.

In the northern half of the No. 1 zone, copper grades are higher in the footwall relative to the hanging wall. Oxide copper grades increases with depth in both the footwall and hanging wall. Gold values are higher in the northern half of the zone. They average 0.75 g/t compared with 0.27 g/t in the south half. There is no apparent increase in values with depth and the highest grade gold values are not associated with the highest copper values. This lack of increase in gold values with depth suggests that gold distribution reflects primary distribution rather than a secondary distribution, such as the oxide copper values. There is no association of copper or gold values with rock type, mafic mineral content or grain size. The majority of gold occurs in a higher grade zone located between sections 1700 N and section 1200 N.

The general lack or very low quartz content and high mafic content suggest a volcanic origin for the gneiss. An andesitic to basaltic pyroclastic volcanic, probably tuffaceous, agglomerate of breccia precursor rock with some sedimentary re-working is considered most likely. Post mineralization aplite and pegmatites are common. They range in thickness from a few centimetres up to three meters. Quartz vein are uncommon and average two to five centimetres in thickness. Thin mafic dykes that were feeders for Carmacks Group volcanics are also uncommon. The only copper mineralization in these dykes and veins is non-sulphide secondary copper in aplite and pegmatite.

The character of the No. 1 zone changes along strike leading to a division into northern and southern halves. The northern half is more regular in thickness, dip angle, width and downdip characteristics. It pinches out to the north. The southern half splays into irregular intercalations and appears to terminate against sub-parallel faults down dip. The south end appears to splay into the No. 7, 7A zones and is pulled apart or fault offset into the No. 4 zone. The copper-gold mineralization in N0. 7 and 7A zones are similar to zone 1, with the exception that in some locations the depth of oxidation is shallower.

The No. 4 zone varies from biotite-hornblende gneiss as seen in the No. 1 zone in the northern part to a more granular, meta-volcano-sedimentary host rock in the south. The copper content is lower in the No. 4 zone and there is a shallower depth to oxidation. The shape of the zone changes to an irregular, wavy, shallowly dipping body, which forms a large "bowl" shape in the centre of the zone.

The 2016 PEA was completed by JDS Mining and Energy Inc. and included an updated resource calculation on zones 1, 4, 7, 7A, 13, 14 and 2000S. The update resource was divided between Oxide-Transition mineralization and Sulphide mineralization. The Oxide-Transition mineralization contained a Measured and Indicated resource of 15 690 000 tonnes with 0.94% total Cu, 0.74% weak acid soluble Cu, 0.38 g/t Au and 3.97 g/t Ag. The Oxide-Transition mineralization Inferred resource was 913 000 tonnes with 0.45% total Cu, 0.3% weak acid soluble Cu, 0.12 g/t Au and 1.9 g/t Ag. The Sulphide mineralization contained a Measured and Indicated resource of 8 068 000 tonnes with 0.68% total Cu, 0.05% weak acid soluble Cu, 0.18 g/t Au and 2.33 g/t Ag. The Sulphide mineralization Inferred resource was 8 407 000 tonnes with 0.63% total Cu, 0.3% weak acid soluble Cu, 0.15 g/t Au and 1.99 g/t Ag.

The PEA envisioned an open-pit operation that will use solvent extraction/electrowinning technology to extract copper from the upper oxidized portion of the deposit.

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WESTERN COPPER CORPORATION, Apr/2009. Assessment Report #095081 by S. Casselman.

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YUKON NEWS, 28 Sep/95.

Work History

Date	Work Type	Comment
12/31/2009	Studies	Various permits applied for.
12/31/2008	Studies	Various permits applied for.
12/31/2007	Drilling	One hundred twenty-three holes, 17,000 m. Also 845 m of geothecnical drilling in 34 holes.
12/31/2007	Studies	
12/31/2007	Ground Geophysics	31.7 line kilometres
12/31/2007	Other	Surveying of all drill hole locations, geotechnical holes and rotary blast holes.
12/31/2006	Drilling	Thirty-four holes, 7,100 m. Zone 1, Zone 13
12/31/2006	Studies	Baseline studies restarted.
12/31/1997	Geochemistry	
12/31/1997	Development, Surface	Cleared trees from access road and pad site.
12/31/1996	Studies	
12/31/1995	Studies	
12/31/1995	Trenching	

12/31/1994	Geochemistry	
12/31/1994	Studies	
12/31/1994	Lab Work/Physical Studies	Conducted pilot test of leach system, held discussions with Y.T.G.
12/31/1993	Geochemistry	
12/31/1993	Studies	
12/31/1993	Lab Work/Physical Studies	Conducted pilot test of leach system, held discussions with Y.T.G.
12/31/1990	Geochemistry	
12/31/1990	Drilling	Three holes, 321.6 m.
12/31/1990	Lab Work/Physical Studies	
12/31/1974	Other	
12/31/1972	Drilling	Eight holes, 1,530.71 m.
12/31/1972	Trenching	
12/31/1971	Drilling	Twenty-five holes, 5,583.02 m.
12/31/1971	Lab Work/Physical Studies	
12/31/1971	Geochemistry	
12/31/1971	Ground Geophysics	Also EM and magnetics.
12/31/1971	Trenching	
12/31/1970	Drilling	Two holes, 31.99 m.
12/31/1970	Geology	
12/31/1970	Geochemistry	
12/31/1970	Trenching	
12/13/2017	Drilling	4 000 m in 32 holes
12/13/2016	Trenching	
12/13/2016	Geochemistry	
12/13/2016	Studies	
12/13/2015	Trenching	
12/13/2015	Drilling	3 270 m in 34 holes
12/13/2015	Ground Geophysics	
12/13/2014	Trenching	
12/13/2014	Drilling	1 200 m in 6 holes
10/31/2012	Studies	M3 Engineering, 2012. Includes Wardrop's 2008 resource.
1/3/2008	Studies	Wardrop, 2008.

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
096851	2015	2015 Technical Assessment Report on the Geology and Geophysics of the Carmacks Copper Project, Yukon	Diamond - Drilling, Magnetics - Ground Geophysics, Backhoe - Trenching	35	3271
096688	2014	2014 Assessment Report for the Carmacks Copper Project	Diamond - Drilling, Soil - Geochemistry, IP - Ground Geophysics, Line Cutting - Other, Prospecting - Other, Mechanical - Trenching	15	1082.09
095081	2008	Air Photo Study of Surficial Geology of the Southern Access Route for the CARMACKS COPPER Project	Interpretation - Airphotography		
094984	2007	Assessment Report on the WS TOTAL Claims Target Evaluation Program	Gamma-Ray Spectrometry - Airborne Geophysics, Magnetic - Airborne Geophysics, Rock - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology, Prospecting - Other		
094996	2007	2007 Assessment Report for the CARMACKS COPPER Project	All Weather Road - Development, Surface, Diamond - Drilling, IP - Ground Geophysics, Line Cutting - Other, Prospecting - Other	122	17830
094529	2005	Development of Westcoast Biotech Sulphur Process to Carmacks Ore	Metallurgical Tests - Lab Work/Physical Studies		

094003	1998	[CARMACKS COPPER Report-Bulk Sampling, Geotechnical and Environmental Studies Compilation]	Rock - Geochemistry, Bulk Sample - Lab Work/Physical Studies, Column Leach Test - Lab Work/Physical Studies, Metallurgical Tests - Lab Work/Physical Studies, Data Compilation - Pre-existing Data, Research/Summarize - Pre-existing Data, Environmental Assessment/Impact - Studies, Geotechnical - Studies, Pre-feasibility - Studies, Handblast - Trenching, Mechanical - Trenching		
094292	1997	Leaching and Decommissioning of Samples from Carmacks Oxide Copper Project	Rock - Geochemistry, Bulk Sample - Lab Work/Physical Studies, Column Leach Test - Lab Work/Physical Studies, Metallurgical Tests - Lab Work/Physical Studies, Handblast - Trenching, Mechanical - Trenching		
093083	1992	Biophysical Assessment Report of Williams Creek	Silt - Geochemistry, Water - Geochemistry, Data Compilation - Pre-existing Data, Biophysical Mapping - Studies, Environmental Assessment/Impact - Studies, Heritage/Archeological - Studies		
093100	1992	Assessment Report WILLIAMS CREEK Property	Diamond - Drilling, Reverse Circulation - Drilling	22	2017
093023	1991	Assessment Report WILLIAMS CREEK Property	All Weather Road - Development, Surface, Diamond - Drilling, EM - Ground Geophysics, Magnetics - Ground Geophysics, Metallurgical Tests - Lab Work/Physical Studies, Petrographic - Lab Work/Physical Studies, Line Cutting - Other, Environmental Assessment/Impact - Studies, Mechanical - Trenching	36	3463.75
093040	1991	WILLIAMS CREEK Copper Oxide Project	Metallurgical Tests - Lab Work/Physical Studies, Research/Summarize - Pre-existing Data, Environmental Assessment/Impact - Studies, Pre-feasibility - Studies, Resource Estimate - Studies		
092944	1990	Assessment Report WILLIAMS CREEK Property	Diamond - Drilling	3	321.56
092859	1989	Bulk Sampling and Metallurgical Investigations WILLIAMS CREEK COPPER Property	Rock - Geochemistry, Metallurgical Tests - Lab Work/Physical Studies		
060114	1972	Report on 1972 Geochemical Diamond Drilling and Trenching Program-WILLIAMS CREEK Property	Interpretation - Airphotography, Diamond - Drilling, Drill Core - Geochemistry, Soil - Geochemistry, Detailed Bedrock Mapping - Geology, Line Cutting - Other, Mechanical - Trenching	8	1530.71
060203	1970	Geology and Geochemistry of the WILLIAMS CREEK Property	Diamond - Drilling, Soil - Geochemistry, Regional Bedrock Mapping - Geology, Line Cutting - Other, Prospecting - Other, Mechanical - Trenching	2	31.39

Related References

Number	Title	Page(s)	Reference Type	Document Type
ARMC006749	Pit design and evaluation of the Williams Creek copper property		Property File Collection	Geoscience Map (General)
ARMC006750	1990 annual report -		Property File Collection	Report
ARMC006753	Trip comments - Western Copper Holdings and Thermal Exploration Co.		Property File Collection	Report
ARMC006759	News releases - Results of drilling program on Williams Creek		Property File Collection	News Release
ARMC003590	Summary of exploration and development work - 1978 - Carmacks claims		Property File Collection	Report
ARMC003591	Summary of exploration and development work - 1978 - Various claims		Property File Collection	Report
YEG2003_21	Early Jurassic porphyry(?) copper (-gold) deposits at Minto and Williams Creek, Carmacks Copper Belt, western Yukon		Yukon Geological Survey	Annual Report Paper
ARMC020132	Correspondence Re: Williams Creek copper-gold deposit, Yukon Territory		Property File Collection	Miscellaneous Company Documents
ARMC020316	Correspondence to Carl Freitang Re: Williams Creek oxide copper property - Notes and maps		Property File Collection	Miscellaneous Company Documents
ARMC020317	Summary report - Williams Creek copper deposit - Carmacks area, Yukon Territory		Property File Collection	Report
ARMC020321	Metallurgical investigation of Williams Creek copper oxide ore - File no. M90-001		Property File Collection	Report
ARMC020322	Correspondence Re: Williams Creek copper deposit		Property File Collection	Miscellaneous Company Documents
ARMC020323	Williams Creek copper deposit summary report		Property File Collection	Report
ARMC020339	Orthogonal longitudinal section - Williams Creek copper oxide project		Property File Collection	Geoscience Map (General)
YEG2016_6	New geological insights into the Carmacks Copper Cu-Au-Ag deposit, central Yukon (Yukon MINFILE 115I 008)		Yukon Geological Survey	Annual Report Paper

Resource/Reserve

Year	Zone	Type	Commodity	Grade	Tonnage	Amount	Reported Amount	43-101 Compliant	Cut-off

2012	Z1 Sulphide (Open Pit)	Inferred	copper - oxide	.01 %	4,031,000		No	Yes	0.25% Total Cu
M3 Engineering, Oct 2012.									
2012	Z1 Sulphide (Open Pit)	Inferred	copper - sulphide	.7 %	4,031,000		No	Yes	0.25% Total Cu
M3 Engineering, Oct 2012.									
2012	Z1 Sulphide (Open Pit)	Inferred	gold	.179 g/t	4,031,000		No	Yes	0.25% Total Cu
M3 Engineering, Oct 2012.									
2012	Z1 Sulphide (Open Pit)	Inferred	silver	1.9 g/t	4,031,000		No	Yes	0.25% Total Cu
M3 Engineering, Oct 2012.									
2012	Proven Reserve (Open Pit)	Proven	copper - total	1.039 %	4,127,000	42864479	Yes	Yes	0.18% recoverable Cu
M3 Engineering, Oct 2012. Fully diluted.									
2012	Proven Reserve (Open Pit)	Proven	copper - oxide	.851 %	4,127,000		No	Yes	0.18% recoverable Cu
M3 Engineering, Oct 2012. Fully diluted. Cu oxide= soluble Cu.									
2012	Proven Reserve (Open Pit)	Proven	copper - sulphide	.188 %	4,127,000		No	Yes	0.18% recoverable Cu
M3 Engineering, Oct 2012. Fully diluted.									
2012	Proven Reserve (Open Pit)	Proven	gold	.559 g/t	4,127,000		No	Yes	0.18% recoverable Cu
M3 Engineering, Oct 2012. Fully diluted.									
2012	Proven Reserve (Open Pit)	Proven	silver	5.39 g/t	4,127,000		No	Yes	0.18% recoverable Cu
M3 Engineering, Oct 2012. Fully diluted.									
2012	Probable Reserve (Open Pit)	Probable	copper - total	.943 %	7,424,000	69989302	Yes	Yes	0.18% recoverable Cu
M3 Engineering, Oct 2012. Fully diluted.									
2012	Probable Reserve (Open Pit)	Probable	copper - oxide	.78 %	7,424,000		No	Yes	0.18% recoverable Cu
M3 Engineering, Oct 2012. Fully diluted. Cu oxide= soluble Cu.									
2012	Probable Reserve (Open Pit)	Probable	copper - sulphide	.163 %	7,424,000		No	Yes	0.18% recoverable Cu
M3 Engineering, Oct 2012. Fully diluted.									
2012	Probable Reserve (Open Pit)	Probable	gold	.365 g/t	7,424,000		No	Yes	0.18% recoverable Cu
M3 Engineering, Oct 2012. Fully diluted.									
2012	Probable Reserve (Open Pit)	Probable	silver	3.76 g/t	7,424,000		No	Yes	0.18% recoverable Cu
M3 Engineering, Oct 2012. Fully diluted.									
2012	Z1,4 & 7 Oxide (Open Pit)	Inferred	copper - total	.73 %	90,000		No	Yes	0.25% Total Cu
M3 Engineering, Oct 2012.									
2012	Z1,4 & 7 Oxide (Open Pit)	Inferred	copper - oxide	.53 %	90,000		No	Yes	0.25% Total Cu
M3 Engineering, Oct 2012.									
2012	Z1,4 & 7 Oxide (Open Pit)	Inferred	copper - sulphide	.2 %	90,000		No	Yes	0.25% Total Cu
M3 Engineering, Oct 2012.									
2012	Z1,4 & 7 Oxide (Open Pit)	Inferred	gold	.128 g/t	90,000		No	Yes	0.25% Total Cu
M3 Engineering, Oct 2012.									
2012	Z1,4 & 7 Oxide (Open Pit)	Inferred	silver	1.809 g/t	90,000		No	Yes	0.25% Total Cu
M3 Engineering, Oct 2012.									
2012	Z1 Sulphide (Open Pit)	Inferred	copper - total	.71 %	4,031,000		No	Yes	0.25% Total Cu
M3 Engineering, Oct 2012.									
2008	Z1 Sulphide (OPEN PIT)	Indicated	gold	.205 g/t	3,645,000		No	Yes	0.25% Total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2008	Z1 Sulphide (OPEN PIT)	Measured	gold	.261 g/t	695,000		No	Yes	0.25% Total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2008	Z1,4 & 7 Oxide (OPEN PIT)	Indicated	gold	.391 g/t	7,949,000		No	Yes	0.25% Total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									

2008	Z1,4 & 7 Oxide (OPEN PIT)	Measured	gold	.588 g/t	4,031,000		No	Yes	0.25% Total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2008	Z1 Sulphide (OPEN PIT)	Indicated	silver	2.296 g/t	3,645,000		No	Yes	0.25% Total Cu
Wardrop January 2008 and M3 Engineering, Oct 2012.									
2008	Z1 Sulphide (OPEN PIT)	Measured	silver	2.542 g/t	695,000		No	Yes	0.25% Total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2008	Z1,4 &7 Oxide (OPEN PIT)	Indicated	silver	4.039 g/t	7,949,000		No	Yes	0.25% Total Cu
Wardrop January 2008 and M3 Engineering, Oct 2012.									
2008	Z1, 4 & 7 Oxide (OPEN PIT)	Measured	silver	5.666 g/t	4,031,000		No	Yes	0.25% Total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2008	Z1 Sulphide (OPEN PIT)	Indicated	copper - total	.74 %	3,645,000		No	Yes	0.25 Total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2008	Z1 Sulphide (OPEN PIT)	Measured	copper - total	.8 %	695,000		No	Yes	0.25% total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2008	Z1,4 & 7 Oxide (OPEN PIT)	Indicated	copper - total	1.04 %	7,949,000		No	Yes	0.25% Total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2008	Z1,4 & 7 Oxide (OPEN PIT)	Measured	copper - total	1.1 %	4,031,000		No	Yes	0.25% Total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2008	Z1 Sulphide (OPEN PIT)	Indicated	copper - sulphide	.71 %	3,645,000		No	Yes	0.25% Total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2008	Z1 Sulphide (OPEN PIT)	Measured	copper - sulphide	.77 %	695,000		No	Yes	0.25% Total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2008	Z1,4 & 7 Oxide (OPEN PIT)	Indicated	copper - sulphide	.2 %	7,949,000		No	Yes	0.25% Total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2008	Z1,4 & 7 Oxide (OPEN PIT)	Measured	copper - sulphide	.2 %	4,031,000		No	Yes	0.25% Total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2008	Z1 Sulphide (OPEN PIT)	Indicated	copper - oxide	.03 %	3,645,000		No	Yes	0.25 total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2008	Z1 Sulphide (OPEN PIT)	Measured	copper - oxide	.02 %	695,000		No	Yes	0.25% Total Cu
Wardrop January 2008 and M3 Engineering, Oct 2012.									
2008	Z1,4 & 7 Oxide (OPEN PIT)	Indicated	copper - oxide	.83 %	7,949,000		No	Yes	0.25% total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2008	Z1,4 & 7 Oxide (OPEN PIT)	Measured	copper - oxide	.9 %	4,031,000		No	Yes	0.25% Total Cu
Wardrop, January 2008 and M3 Engineering, Oct 2012.									
2003	CARMACK PROJECT (OPEN PIT)	Proven	copper	1.01 %	15,500,000		No	Unknown	Unknown
Western Silver Corporation Web Site @ www.westerncopper.com, Sep/2003.									

Drill core at YGS core library

Number	Property	Year Drilled	Core Size	Photos	Data
DDH-90-WC01 (90W1-18)	Carmacks Copper	1990	NQ	14	1
DDH-90-WC02 (90W1-19)	Carmacks Copper	1990	NQ	13	1
DDH-90-WC03 (90W1-20)	Carmacks Copper	1990	NQ	14	1
DDH-1-13	Carmacks Copper	1970	BTW	0	2
DDH-1-14	Carmacks Copper	1970	BTW	0	2
DDH-1-15	Carmacks Copper	1970	BTW	0	2

DDH-1-16	Carmacks Copper	1970	BTW	0	2
DDH-1-17	Carmacks Copper	1970	BTW	0	2