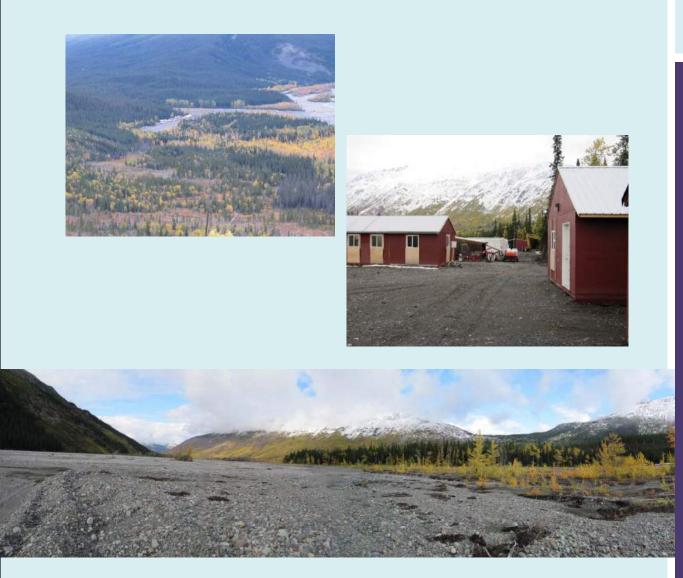




# **Copper Fox Metals Inc.** Schaft Creek Polymetallic Project

British Columbia, Canada

NI 43-101 Technical Report on Updated Mineral Resource Estimate



Submitted by: Greg Kulla, P.Geo. David Thomas, P.Geo. Tony Lipiec, P.Eng.

Effective Date: 26 July 2011 Project Number: 163579



#### **CERTIFICATE OF QUALIFIED PERSON**

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I, Gregory Kenneth Kulla, P.Geo., am employed as a Principal Geologist with AMEC Americas Ltd.

This certificate applies to the technical report entitled "Copper Fox Metals Inc. Schaft Creek Polymetallic Project British Columbia, Canada NI 43-101 Technical Report on Updated Mineral Resource Estimate" (the "Technical Report"), dated 26 July, 2011.

I am a member of the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC, member #23492), and of the Association of Professional Geoscientists of Ontario (APOG #1752). I graduated from the University of British Columbia with a Bachelor of Science in Geology degree in 1988.

I have practiced my profession continuously since 1988 and have been involved in precious and base metal disseminated sulphide deposit assessments in Canada, United States, Australia, Mexico, Chile, Peru, and India.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101).

I visited the Schaft Creek Polymetallic Project (the "Project") from 29 September to 03 October 2009.

I am responsible for the preparation of Sections 1 to 12 and 15 to 27 of the Technical Report.

I am independent of Copper Fox Metals Inc. as independence is described by Section 1.4 of NI 43–101.



I had not previously provided technical assistance to the Project, and have no prior involvement with the Project.

I have read NI 43-101, and this report has been prepared in compliance with that Instrument.

As of the date of this certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

"signed and sealed"

Greg Kulla P.Geo.

24 August 2011



#### **CERTIFICATE OF QUALIFIED PERSON**

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This certificate applies to the technical report entitled "Copper Fox Metals Inc. Schaft Creek Polymetallic Project British Columbia, Canada NI 43-101 Technical Report on Updated Mineral Resource Estimate" (the "Technical Report"), dated 26 July, 2011.

I am a Professional Geologist registered in British Columbia (P.Geo NRL # 149114) and a member of the Australasian Institute of Mining and Metallurgy (MAusIMM # 225250). I graduated in 1993 from Durham University, in the United Kingdom with a Bachelor of Science degree and in 1995 from Imperial College, University of London, in the United Kingdom with a Master of Science degree.

I have practiced my profession for over 15 years. In that time I have been directly involved in review of exploration, geological models, exploration data, sampling, sample preparation, quality assurance-quality control, databases, and mineral resource estimates for a variety of mineral deposits.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101).

I have not visited the Schaft Creek Polymetallic Project (the "Project").

I am responsible for Section 14 of the Technical Report, and those portions of the Summary, Conclusions and Recommendations that pertain to that section.

I am independent of Copper Fox Metals Inc. as independence is described by Section 1.4 of NI 43–101.

I had not previously provided technical assistance to the Project, and have no prior involvement with the Project.

I have read NI 43–101 and this report has been prepared in compliance with that Instrument.



As of the date of this certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

"Signed and sealed"

David G. Thomas P.Geo

Dated: 24 August 2011



#### **CERTIFICATE OF QUALIFIED PERSON**

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I, Ignacy (Tony) Lipiec (P.Eng.) am employed as a Principal Metallurgical Engineer with AMEC Americas Limited.

This certificate applies to the technical report entitled "Copper Fox Metals Inc. Schaft Creek Polymetallic Project British Columbia, Canada NI 43-101 Technical Report on Updated Mineral Resource Estimate" (the "Technical Report"), dated 26 July, 2011.

I am a Professional Engineer in the province of British Columbia. I graduated from the University of British Columbia with a B.A.Sc. degree in Mining & Mineral Process Engineering, in 1985.

I have practiced my profession for 25 years, and have previously been involved with metallurgical design and process engineering for base metal and disseminated sulphide projects in North America and South America.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101).

I have not visited the Schaft Creek Polymetallic Project (the "Project").

I am responsible for Section 13 and those portions of the Summary, Conclusions and Recommendations that pertain to that Section of the Technical Report.

I am independent of Copper Fox Metals Inc. as independence is described by Section 1.4 of NI 43–101.

I had not previously provided technical assistance to the Project, and have no prior involvement with the Project.

I have read NI 43–101 and this report has been prepared in compliance with that Instrument.



As of the date of this certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

"Signed and sealed"

Ignacy (Tony) Lipiec (P.Eng.)

Dated 24 August 2011

#### IMPORTANT NOTICE

This report was prepared as National Instrument 43-101 Technical Report for Copper Fox Metals Inc (Copper Fox) by AMEC Americas Ltd. (AMEC). The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in AMEC's services, based on i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Copper Fox subject to terms and conditions of its contract with AMEC. Except for the purposed legislated under Canadian provincial securities law, any other uses of this report by any third party is at that party's sole risk.



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#### 1.0 SUMMARY

AMEC Americas Limited (AMEC) was commissioned by Copper Fox Metals Inc. (Copper Fox) to prepare an independent Qualified Person's Review and NI 43-101 Technical Report (the Report) for the Schaft Creek Copper Project (the Project) located in British Columbia, Canada.

Copper Fox will be using the Report in support of disclosures in the Copper Fox press release dated 11 July 2011, entitled "Measured and Indicated Resource Estimate Exceeds 1 Billion Tonnes at Schaft Creek Deposit".

#### 1.1 Key Outcomes

Updated Mineral Resource estimate reported at a copper equivalent (CuEq) grade of 0.12% as follows:

- Measured Mineral Resource of 40.4 Mt grading 0.36% Cu, 0.023% Mo, 0.24 g/t Au and 0.61% CuEq
- Indicated Mineral Resource of 994.9 Mt grading 0.27% Cu, 0.017% Mo, 0.17 g/t Au and 0.44% CuEq
- Combined Measured and Indicated Mineral Resource of 1,035.3 Mt grading 0.27% Cu, 0.017% Mo, 0.18 g/t Au and 0.45% CuEq
- Inferred Mineral Resource of 301.3 Mt grading 0.24% Cu, 0.011% Mo, 0.14 g/t Au and 0.37% CuEq.

#### 1.2 Location, Climate, and Access

The Schaft Creek Project is approximately 60 km south of the village of Telegraph Creek, 45 km due west of Highway 37, and approximately 375 km northwest of the town of Smithers. The Project falls within the Cassiar Iskut Stikine Land and Resource Management Plan.

The Project area is characterized by cold winters and short, cool, summers. Precipitation begins to fall as snow in early October and continues until the end of May. Exploration work in the past has largely been conducted in the months between May and November. It is expected that mining activity will be conducted on a year-round basis.

The Project area is a remote, greenfields site with no developed access. Currently personnel and supplies are flown to the site either by fixed-wing aircraft or by helicopter. An access road, to be constructed from Highway 37 north from More Creek





along Upper Mess Creek, entering the proposed mine site area and Schaft Creek drainage near Snipe Lake, is under consideration.

Smithers is the closest supply centre with the capacity to service the Project during construction and operation.

A 60-person exploration camp is on site. There is no power available to site. The closest major power line is located approximately 150 km south in Meziadin Junction. Potable water would be expected to be supplied from wells located on the property. Process water for the planned mill would be supplied from pit dewatering wells and would be reclaimed from the proposed tailings pond.

There is sufficient suitable land available within the concessions for any future tailings disposal, mine waste disposal, and installations such as a process plant and related mine infrastructure. A review of the existing and likely power and water sources, manpower availability, and transport options indicate that there are reasonable expectations that sufficient labour and infrastructure is available to support declaration of Mineral Resources.

#### 1.3 **Project Agreements**

Copper Fox acquired mineral tenures as discussed in Section 1.4 (the Teck Agreement Claims) from Teck Resources Limited (Teck, and formerly Teck Cominco Limited). Copper Fox acquired the Teck Agreement Claims through an agreement between Guillermo Salazar and Teck dated January 1, 2002 (the Option Agreement, or Teck Agreement), and an assignment from Guillermo Salazar to 955528 Alberta Ltd. (predecessor to Copper Fox) dated February 12, 2003. At the time the Option Agreement was entered into, Teck held a 70% direct participating interest (the Direct Holding) in the Project as well as 23.4% carried interest (the Indirect Holding) through a 78% shareholding in Liard Copper Mines Ltd (Liard). Liard holds a 30% direct net carried proceeds interest in the property.

Once Copper Fox had spent more than \$15 M on the Schaft Creek project, Copper Fox had earned Teck's 70% Direct Holding. Copper Fox currently holds 70% of the Project.

Copper Fox is currently earning a 78% interest in Liard from Teck. Copper Fox, by funding a positive feasibility study, can earn Teck's indirect 23.4% interest (i.e. the Indirect Holding).

The Option Agreement also provides Teck with an "earn back" right. The earn back right will expire if Teck fails to give due notice of its wish to exercise this right to







Copper Fox within 120 days of Teck's receipt of the Feasibility Study from Copper Fox. The earn back right may be exercised by Teck in three ways:

- Teck may acquire a 20% interest in Copper Fox's interest in the Schaft Creek project by funding 100% of Copper Fox's qualifying costs into the Schaft Creek project at the time of the earn back right
- Teck may acquire a 40% interest in Copper Fox's interest in the Schaft Creek project by funding 300% of Copper Fox's qualifying costs into the Schaft Creek project at the time of the earn back right
- Teck may acquire a 75% interest in Copper Fox's interest in the Schaft Creek project by funding 400% of Copper Fox's qualifying costs into the Schaft Creek project at the time of the earn back right and arrange for project financing, including the Copper Fox portion.

On 24 March 2011, Copper Fox announced the acquisition of 26,954 shares of Liard from Mrs. Mary Elizabeth Dunn for a cash payment of \$269,540 and 245,000 common shares of Copper Fox.

On 26 July 2011, Copper Fox announced the acquisition of 2,388 common shares of Liard from Mr. Gary Bird for a cash payment of \$30,506.70 and 14,391 common shares of Copper Fox.

The shares acquired by Copper Fox as a result of the transactions with Mrs. Dunn and Mr. Bird represent approximately 1.56% of the issued and outstanding shares of Liard.

#### 1.4 Mineral Tenure

Copper Fox holds title and a 100% working interest in a contiguous 21,025 ha area, which consists of 40 claims that are subject to the Teck Agreement. The Schaft Creek deposit is located on the south boundary of claim 514603 and on the north boundary of claim 514637.

The boundaries of the mineral tenures have not been surveyed with the exception that in 1972, certain claims in the Schaft Creek Project area were surveyed.

The annual fees, rentals and minimum work requirement to maintain the mineral tenures are \$4.00 per ha plus a 10% submission fee. All mineral tenures that are subject to the Teck Agreement are in good standing until at a minimum of the year 2018.





In March 2011, Copper Fox purchased two mineral claims (2,786.54 ha) from Charles James Greig and John Bernard Kreft (collectively the Greig/Kreft claims). Copper Fox also purchased one mineral claim (192 ha) from Pembrook Mining Corp. (Pembrook) in the same month. All three claims abut the current Schaft Creek Teck Agreement mineral claims.

#### 1.5 Surface Rights

The mineral claims are on Crown land. Mineral claims do not confirm exclusive surface rights to a mineral claims holder.

#### 1.6 Royalties

The following royalties apply to the Project:

- Liard: 30% direct net carried proceeds interest on all claims within the Teck Agreement
- Royal Gold Inc. (formerly International Royalties): 5% overriding fully carried net profit interest, which applies to the Direct Holding and equates to 3.5%, factoring in Liard's 30% carried net proceeds
- Greig/Kreft: 2% net smelter return royalty on claims 569460 and 517462
- Pembrook: 2% net smelter return royalty on claim 521312.

#### 1.7 Environment, Socio-Economics and Permitting

#### 1.7.1 Environmental Considerations

Schaft Creek environmental and socio-economic baseline studies began in October 2005 and are ongoing. Baseline studies have included socio-economic, wildlife (moose, goats, bat, Western toad and bird studies), wildlife habitat suitability, water quality, aquatic biology, fisheries, hydrology (wetland and groundwater), noise, soils, vegetation, meteorology, archaeology, road route, navigable waters, geohazards, and metal leaching and acid rock drainage (ML/ARD) assessments. A Tahltan foods baseline assessment was also conducted.

In addition to these baseline studies, Copper Fox has commissioned studies on environmental and social work plans, alternatives assessments, geohazard options for tailings storage facility (TSF) locations, water management studies for the TSF and assessment of likely access routes.





Copper Fox has posted a reclamation bond with the British Columbia (BC) Ministry of Energy, Mines and Petroleum Resources (MEMPR) to reclaim the Schaft Creek property. This includes removing all existing surface facilities and reclaiming areas of disturbance. The bond has been deemed sufficient by the BC MEMPR to reclaim the property in the event that Copper Fox abandons the Project.

Closure costs estimated for a mining operation in the 2008 pre-feasibility study were about \$87 M. This figure will be reviewed during feasibility-level studies.

#### 1.7.2 Social Issues Considerations

The Schaft Creek mineral claims are located in traditional lands that Tahltan Nation have occupied and used. Copper Fox has initiated discussions with Tahltan Nation Development Corporation, which represents the economic arm of the Tahltan Nation, to set out the joint understanding and intention of both parties to co-operate in carrying out the work at the Project.

#### 1.7.3 Current Permits

Copper Fox has previously worked under an amended Notice of Work (NoW) and Reclamation Program from BC MEMPR under the Mines Act (British Columbia) (Permit #: MX-1-647, Amendment #: 07-01100455-0530; Mine #: 01400455). Use of the Schaft Creek airstrip is also covered under the NoW and Reclamation Program.

Copper Fox has filed an amended NoW for 2011 (Mine #: 0100455) and which has been subsequently approved. The planned start date was filed as May 25, 2011 and the NoW had a planned end date of December 30, 2014.

#### 1.7.4 Permits to Support Development Activities

The Schaft Creek project will require a BC Environmental Assessment Certificate to construct and operate the proposed Schaft Creek mine. The Project will require a Federal decision on the likelihood of environmental impacts if the Canadian Environmental Assessment Act (CEAA) applies to the Schaft Creek Project. Copper Fox has commenced the process to support Environmental Assessment application.

On February 7 2011, Copper Fox received the final Application Information Requirements (AIR – formerly the Terms of Reference) to meet the requirements of a cooperative being conducted pursuant to both the British Columbia's Environmental Assessment Act and the Canadian Environmental Assessment Act. The AIR incorporates comments from First Nations, provincial, federal and local governments and the public that were considered to be within the scope of the assessment.





The terms and conditions of the Application Information Requirement will be included in the Environmental Impact Statement/Application for an environmental assessment certificate for the Schaft Creek project currently being prepared by Stantec Consulting Ltd., on behalf of Copper Fox.

Copper Fox is working in conjunction with Provincial, Federal and Tahltan Heritage Resources Environmental Assessment Team representatives to allow the development of the Schaft Creek Project in an environmentally responsible manner. Following the mandatory review period of the EA Application, Copper Fox expects to obtain a BC Environmental Assessment Certificate and an approval under the Canadian Environmental Assessment Act in the fourth quarter of 2012.

In addition to a BC Environmental Assessment Certificate, the Schaft Creek Project will require various permits, licenses and authorizations from both the Provincial and Federal governments.

#### **1.8 Geology and Mineralization**

The Schaft Creek deposit is considered to be an example of a primary porphyrycopper system.

The Schaft Creek deposit is located in the Stikina Terrane, and is hosted in intermediate rocks of the Stuhini Group. Volcanic rocks of the Stuhini Group in the deposit area are andesitic to basaltic in composition and consist of various massive flows and pyroclastic deposits that dip steeply towards the east or northeast. The volcanic rocks are intruded and brecciated by narrow and locally discontinuous dykes and apophyses emanating from the Hickman batholiths, which are predominantly feldspar porphyry and feldspar quartz porphyry granodiorite. Multiple phases of felsic intrusive rock are present.

Three geologically distinct and spatially separate zones, representing distinct porphyry environments constitute the Schaft Creek deposit.

The largest of these zones is the Main (Liard) zone, which is characterized by synintrusive polyphase quartz–carbonate veins and stockworks, and mineralized with variable amounts of chalcopyrite, bornite and molybdenite and late fracture-hosted molybdenite. Higher gold values are associated with higher temperatures and bornite mineralization, whereas phyllic overprinting reflects lower temperatures, producing a pyrite–chalcopyrite association. Veining in the Liard/Main zone is ubiquitous and abundant, and veins are the primary sulphide host. The Main zone has currently defined dimensions of 1,000 x 700 x 300 m depth.





The second-largest zone is the Paramount zone, situated north of the Main zone, which is characterized by primary sulphide mineralization associated with an intrusive breccia phase, containing chalcopyrite, bornite, and molybdenite; quartz–carbonate stockworks; and late fracture molybdenite mineralization. This zone represents a deeper cupola environment. Veining in the Paramount zone exhibits a spatial preference with granodiorite and is commonly associated with quartz flooding. Sulphide mineralized stockworks are rare. The Paramount zone has currently defined dimensions of 700 x 200 x 500 m depth.

The smallest of the zones is the West Breccia zone, with currently-defined dimensions of  $500 \times 100 \times 300$  m depth. The zone lies immediately west of the Main zone. It is characterized by quartz tourmaline veining, pyrite and a hydrothermal breccia. Chalcopyrite is the dominant sulphide, followed by pyrite, bornite, and molybdenite.

Two prospects, the ES and GK zones, were acquired with the Greig/Kreft claims in March 2011. These appear to host similar copper porphyry-style mineralization to that identified at the Schaft Creek deposit.

In the opinion of the QPs, knowledge of the deposit settings, lithologies, and structural and alteration controls on mineralization is sufficient to support Mineral Resource estimation, as is the knowledge of the mineralization style and setting. Prospects and targets are at an earlier stage of exploration, and the lithologies, structural, and alteration controls on mineralization are currently insufficiently understood to support estimation of Mineral Resources.

#### 1.9 Exploration

Prior to acquisition by Copper Fox, the following companies had performed exploration activities in the Project area: the BIK Syndicate, a consortium of Silver Standard Mines Ltd. (Silver Standard), McIntyre Porcupine Mines Limited, Kerr Addison Mines Ltd. and Dalhousie Oil Ltd; Asarco Inc. (Asarco), Hecla Mining Company of Canada Limited (Hecla), and Teck. In the period from 1957, when the copper–gold–molybdenum mineralization was discovered at Schaft Creek to 2002, when Copper Fox assumed Project management, work completed included detailed and reconnaissance geological mapping, prospecting, induced polarization and resistivity geophysical surveys, petrographic studies, aerial photography, core drilling, mineral resource estimation, and engineering studies.

Work undertaken by Copper Fox since Project acquisition has included environmental baseline studies, regional and detailed mapping, stream sediment, grab, rock, and soil sampling, trenching and pitting, core drilling, ground geophysical surveys, mineralization characterization studies and metallurgical testing of samples.





Petrographic studies and density measurements on the different lithologies have also been carried out. Mineral resources, a preliminary economic assessment, and a pre-feasibility study have been completed.

The pre-feasibility study assumed a conventional truck-and-shovel open pit mining operation producing 100,000 t/d feeding a conventional flotation and concentrator plant to produce copper and molybdenum concentrates. Under the assumptions in the pre-feasibility study, the Project was shown to have positive economics. During 2010, a feasibility study was commissioned by Copper Fox. Wardrop Engineering (Wardrop) is managing the study.

As a consequence, Copper Fox are treating the pre-feasibility study as historic. Information in the pre-feasibility study is considered to be superseded, although some of the design bases in the study were used to support assessment of reasonable prospects of economic extraction, and to support discussions of likely Project infrastructure such as access routes.

AMEC was requested to perform the mineral resource estimate that will be the basis of the feasibility study. This estimate supercedes that of the 2008 pre-feasibility study.

In the opinion of the QPs, the exploration programs completed to date are appropriate to the style of the deposits and prospects within the Project.

#### 1.10 Exploration Potential

Mineralization at Schaft Creek is still open at depth and drilling currently underway in 2011 has confirmed this concept. The 2011 geophysical survey indicated that there may be potential for an additional 1 km of strike of deposit to the south.

Schaft Creek is part of an extensive porphyry complex. Geological mapping and geophysics surveys by Copper Fox indicate good potential for additional porphyry copper–gold–molybdenum mineralization within the complex. In particular, the 2011 high resolution magnetometer geophysical surveys have outlined an exploration area of interest that is approximately 4 km wide by 20 km long.

#### 1.11 Drilling

Drilling on the Project consists of 391 core drill holes (91,162 m), completed by Silver Standard, Asarco, Hecla, Paramount, Teck, and Copper Fox.

Standardized Excel logging forms and geological legends were developed by Copper Fox for the Project. Geotechnical logs were completed in sequence prior to the





geological logging. Geological logging used standard procedures and collected information on mineralization, lithic breaks, alteration boundaries, and major structures.

Core recoveries have generally averaged more than 90%. AMEC reviewed the core recovery data and found a trend of decreasing grade with decreasing core recovery. A similar trend is present when separating the core recovery data out by program by previous project operators. There is a risk of approximately 25% of the assays having negatively-biased copper, gold and molybdenum grades due to low core recoveries.

Copper Fox drill collar locations were picked up by a surveyor. All legacy drill collars were picked up by survey in 2006, and tied into the Project grid.

The Copper Fox drill programs used three different down hole survey instruments; a Reflex EZ shot tool, a Flexit tool and a COLOG down hole ABI40 Acoustic Televiewer Probe. The Hecla and Teck drill campaigns used a mixture of acid tube etching tests to measure the dip of the drilling and a single shot Sperry Sun instrument.

The central portion of the Main Zone (MZ) has been delineated at a nominal, but not regular spacing. In this area, the drill grid spacing is between 50 m by 50 m and 75 m by 75 m with most of the core holes drilled vertically. On the deposit margins, drill spacing widens to as much as 100 m by 100 m. Drill hole depths range from 25 m to 912 m, averaging 230 m. Drill hole orientations are typically vertical, but have also been drilled at angles ranging from 44° to 75°.

Core was typically sampled on 3.05 m lengths in the Copper Fox drill programs. This interval was selected to match the 10 ft intervals of the legacy sampling.

In the opinion of the QPs, the quantity and quality of the lithological, geotechnical, collar and down hole survey data collected in the exploration and infill drill programs are sufficient to support Mineral Resource estimation.

#### 1.12 Current Drill Program

To July 26 2011, Copper Fox have completed four core drill holes (totalling 2,476 m) in the Paramount zone. The 2011 drill program is designed to test the eastern extension (1,200 m long by 600 m wide) of the chargeability anomaly outlined in 2010. The drilling completed in 2010 tested the western side (approximately 25%) of this anomaly.





Where assay results are available, the drilling indicates similar grade tenors and thicknesses to previous drill programs. One core drill hole, CF407-2011, returned the highest copper and gold grades to date in the Paramount zone

#### 1.13 Sample Analysis and Security

Exploration and infill core samples were analysed by independent laboratories using industry-standard methods for copper, gold, silver, and molybdenum analysis. A number of different laboratories have been used on the Project. Since 2008, ACME Laboratories in Vancouver, BC, has been the primary laboratory, and holds ISO 9001-certification. During 2006, Loring Laboratories (Calgary, Alberta) was used, and from 2006–2008, Inspectorate (Vancouver, BC) was the primary laboratory.

Metallurgical testwork has been completed at a number of laboratories, but primarily by G&T Metallurgical (G&T) laboratories and Process Research Associates, both of which are located in BC.

Sample preparation for samples that support Mineral Resource estimation has followed a similar procedure for all Copper Fox drill programs. The preparation procedure is in line with industry-standard methods for porphyry copper–gold–molybdenum deposits. Sample preparation at Inspectorate-IPL and ACME consisted of drying up to 24 hours, crushing to > 80% less than 10 mesh, riffle splitting to 250 g and pulverization to > 85% passing less than 200 mesh.

The analytical method utilized at Loring was a copper assay using inductively coupled plasma atomic emission spectrometry (ICP-ES) following an aqua regia digest. Molybdenum analyses were performed with ICP-ES following a three-acid digest. The analytical method utilized at Inspectorate-IPL and ACME laboratories was a 30-element inductively-coupled plasma atomic emission spectrometry (ICP-AES or ICP-ES) method following a four-acid digest.

At Loring, Inspectorate-IPL and ACME, the gold analyses were performed by fire assay with an atomic absorption finish. At Loring, silver assays were performed by fire assay. At Inspectorate-IPL and ACME the silver assays were performed as a component in the ICP multi-element packages.

#### 1.14 Quality Assurance and Quality Control

There is no information on any quality assurance/quality control (QA/QC) programs for Asarco, Paramount and Silver Standard drilling campaigns.





Teck used blanks (crushed quartz every 20 samples), standard reference materials (SRM: one in every 20 samples) and check assays (one in every 20 samples). Teck's protocol was that a blank sample was not to be submitted adjacent to an SRM sample, but could not be any more than 10 samples from an SRM. Chain-of-custody and sample preparation protocols were also part of Teck's QA/QC program at Schaft Creek.

During the period 2006 to 2008, the QA/QC program undertaken by Copper Fox included a blank sample, a standard sample and a duplicate sample that were submitted in each batch of 40 samples. In total, 77 blanks, 77 duplicates and 78 standards were analyzed. A total of six standard reference material (SRM) samples were used during the 2006 program.

Due to the QA/QC deficiencies noted in the 2005 to 2008 drill campaigns, Copper Fox undertook a comprehensive program of check assaying. Batches of samples were sent to ACME laboratories for analysis. The samples were sent with blanks, standards, coarse duplicates and quarter-core twin samples inserted into the batches.

During 2010 and the first part of 2011, Copper Fox submitted samples from the 2010 drilling campaign together with pulp rejects from the 2005 to 2008 drilling campaigns and quarter-core samples collected from legacy drill holes.

Sample security for the Copper Fox programs has relied upon the fact that the samples were always attended or locked in the logging facility. Chain-of-custody procedures consisted of filling out sample submittal forms that were sent to the laboratory with sample shipments to make certain that all samples were received by the laboratory. Current sample storage procedures and storage areas are consistent with industry standards.

The QPs are of the opinion that the quality of the copper, gold, and molybdenum analytical data are sufficiently reliable to support Mineral Resource estimation and that sample preparation, analysis, and security are generally performed in accordance with exploration best practices and industry standards.

#### 1.15 Databases

All data in the field is recorded in written form in field books, log books, sample sheets, logging forms or shipping forms. Various phases of record keeping are repeated in the subsequent step to confirm recorded values or numbers.

All field data is entered into Excel tables. Errors in data entry picked up during the verification stage can be confirmed and corrected from filed data.





Data from third parties such as laboratories or survey contractors are generally supplied in digital and printed form. These records are printed out and kept in binders for reference during data verification.

#### 1.16 Data Verification

A number of data verification programs and audits have been performed over the Project history, primarily in support of technical reports. These were performed by Giroux and Ostensoe, (2004), McCandlish, (2007), Bender et al, (2007) and Bender et al., (2008, as amended). The review and audit conclusions were that no material errors were noted that would impact Mineral Resource estimation.

Cambria Geosciences Inc. (Cambria) undertook a database audit during 2010 on behalf of Copper Fox in preparation for construction of three-dimensional geological models. A number of issues were noted. These primarily related to historic Hecla and Teck era drilling programs, and included missing samples, missing drill holes, and depth and assay discrepancies associated with data entry errors.

AMEC performed a database audit during 2010–2011. Results included:

- The legacy drill hole data is sufficiently error free to be used in mineral resource estimation
- AMEC reviewed down hole surveys for some of the Copper Fox drilling, and found errors in the way in which the magnetic declination correction had been applied to the azimuth readings of the surveys. AMEC corrected the surveys which had no magnetic declination applied. Holes with suspect magnetic declination corrections were flagged for consideration during resource classification
- A comparison between the legacy and Copper Fox half-core re-assays shows that the Copper Fox assays are lower in copper and molybdenum grade on average than the legacy assays. It is likely that mineralized material has been lost from the core which Copper Fox re-sampled. Copper Fox assays from the re-sampling program were excluded due to the composite lengths and the lower grades obtained
- AMEC made a qualitative comparison of the twin drill holes. Overall, the grades of the legacy drill holes are generally similar to the grades of the twin Copper Fox drill holes located nearby
- Nearest pair analysis of legacy grade data with Copper Fox grade data showed differences in the grades. AMEC applied corrections to correct the observed differences. Subsequent comparison of grade models constructed using corrected





and uncorrected data showed that the corrections have a minor impact on the grades.

- Twin and infill drilling in areas where drill core data from predecessor companies was available indicated that the legacy copper, gold and molybdenum data were sufficiently in accordance with the data generated by the check programs that the original historic assay values could be used after applying adjustments to the data
- The legacy silver data are so different from those obtained by Copper Fox that the legacy silver assay values could not be used. AMEC is of the opinion that silver should not be reported as a part of the Mineral Resource estimate as there are data quality issues which preclude the classification of Measured and Indicated Mineral Resources for silver. Silver grades within the deposit range between 1 g/t and 2 g/t.

AMEC considers that a reasonable level of verification has been completed, and that no material issues would have been left unidentified from the programs undertaken. The QPs, who rely upon this work, have reviewed the appropriate reports, and are of the opinion that the data verification programs undertaken on the data collected from the Project adequately support the geological interpretations, the analytical and database quality, and therefore support the use of the data in Mineral Resource estimation

#### 1.17 Metallurgical Testwork

Testwork performed in 1970–71 and 1981–82 was not reviewed but the level of work is minor relative to the later work performed from 2004 onwards, which was reviewed by AMEC. All of the test work from 2005 onwards was conducted on drill core from the Schaft Creek 2005 and 2006 drilling programs. Copper Fox sent the samples from this drilling to PRA who originally performed much of the testwork. Material was subsequently transferred to G&T who prepared it for further testing and for transfer to other test facilities. The emphasis of the testwork was the Liard (Main) Zone which contains approximately 85% of the Mineral Resource with less work being performed on the Paramount Zone (approximately 14%) and the West Breccia Zone (1%).

Three types of metallurgical tests were implemented in these programs. They were:

- Optimization testing
- Variability testing
- Comminution Testing (semi-autogenous grind (SAG) and high-pressure grinding roll (HPGR) technology)





Mineralization has the following characteristics which will require close attention:

- Hard mineralized material which suggest operating costs will be sensitive to the cost of power and grinding media
- The requirement for a fairly fine regrind.

For the purposes of deriving parameters to inform reasonable prospects of economic extraction for the Mineral Resource estimate, the pre-feasibility study process design was reviewed. The 100,000 t/d concentrator design recommended in the study incorporated crushing, grinding, rougher flotation, rougher concentrate regrinding, and three stage cleaner stages to produce a bulk concentrate. A molybdenite separation circuit with roughers and five stages of cleaning was proposed to produce a molybdenite product. The gold and silver would report to the copper concentrate produced after the molybdenite concentrate. Copper, gold and silver would be sold to a smelter whereas the molybdenite concentrate would be toll-roasted and sold.

For the purposes of deriving parameters to inform reasonable prospects of economic extraction for the Mineral Resource estimate, indicative recoveries of 86.5% copper were recommended, together with 73.3% for gold and 60.9% for molybdenum. A copper concentrate grade of 29% Cu and a molybdenite concentrate grade of 50% were proposed. For the model, operating costs of \$5.12/t were advised.

#### 1.18 Mineral Resource Estimate

The estimation database comprises 366 core holes (84,221.49 m) from the Copper Fox, Asarco, Hecla, Paramount, Silver Standard and Teck, drill programs and has a cut-off date of for information to be included in the Report of 1 May, 2011.

Missing gold grades were found in the database and were assigned by linear regression against copper.

AMEC created grade shell solids using nominal cut-offs of 0.1% copper and 0.01% molybdenum. The cut-offs were chosen to be close to an economic cut-off of 0.12% copper equivalent. Polygons were digitised on east-west sections spaced between 50 and 100 m apart. The sectional interpretations were then linked together from section to section to form solids. The solids were then inspected and reconciled on a second set of orthogonal sections.

The grade shells define two broad domains, namely the Main Zone (MZ) and the Western Breccia Zone (WBZ). The MZ has a bowl shaped geometry, whereas the WBZ has a tabular elongate sub-vertical geometry which is consistent with a structurally controlled zone of mineralization.





Histograms, probability plots, indicator correlation plots and Monte Carlo simulation methods were used to evaluate grade outliers for copper, gold, and molybdenum by estimation domain. Copper, gold, and molybdenum assay grades were capped in each domain. AMEC regularized the assay intervals by compositing the drill hole data into 15 m lengths using the boundary of the copper grade shell. Exploratory data analysis comprised basic statistical evaluation of the 15 m composites for copper, gold and molybdenum. The evaluation showed that no significant statistical difference in copper, gold, and molybdenum grades exists between lithological rock types within the MZ. Significant differences between the grades of the rock types are present in the WBZ.

Sage2001 software was used to construct down-hole and directional correlograms for the estimation domains for copper, gold and molybdenum.

The block model consists of regular blocks (15 m x 15 m x 15 m) with no coordinate rotation. The block size was chosen such that geological contacts are reasonably well reflected and to support an open pit mining scenario.

AMEC estimated copper, gold and molybdenum grades by estimation domain using ordinary kriging (OK) interpolation for all domains. Inverse distance weighting (IDW) was used to interpolate the probabilities of each lithology in the WBZ. In the WBZ, the final block grades were derived by weighting of the probability of each rock type by the grade estimate for that rock type. A constant density value was assigned to all blocks based upon an average of the specific gravity measurements.

The Schaft Creek block model was validated to ensure appropriate honouring of the input data, including construction of a nearest neighbour (NN) model to validate the OK model. No biases or errors were noted with the model. Some over smoothing in the kriged model is observed. Depending on the selected cut-off grade, the impact of the oversmoothing could result in unplanned dilution of 2–3% in copper grades during mining. Comparison of OK grade models using original grades show that the use of corrections to legacy data and linear regression to calculate gold grades has no significant impact on the resource model.

AMEC used the following criteria to pre-classify blocks into categories as:

- Measured mineral resources: require composites from a minimum of three drill holes within a 70 m radius from a block centroid
- In addition, AMEC only classified blocks to the Measured category if more than two thirds of the ordinary kriging weight used in grade interpolation came from the higher confidence Copper Fox drill holes





• Indicated mineral resources: samples from a minimum of two drill holes within a 135 m distance from a block centroid.

Blocks that were not classified as Measured or Indicated categories, but falling within the copper grade shell were classified as Inferred. Remaining blocks were not classified. A semi-automated process was used to smooth the initial classification and avoid islands or isolated blocks of different categories.

Reasonable prospects of economic extraction were assessed by applying preliminary economic constraints within an open pit shell. Mining and process costs, as well as process recoveries were defined based on data supplied by Copper Fox, and on experience with Projects in the same geographic location. AMEC defined a cut-off value of 0.12% copper equivalent for reporting mineral resources from these parameters.

#### 1.19 Mineral Resource Statement

Mineral Resources for the Project were classified under the 2010 CIM Definition Standards for Mineral Resources and Mineral Reserves by application of a cut-off grade that incorporated mining and recovery parameters, and constraint of the Mineral Resources to a pit shell based on commodity prices. Mining and process costs, as well as process recoveries were defined from AMEC studies on similar projects in the same geographic location.

Mineral Resources at a copper equivalent cut-off grade of 0.12% are tabulated in Table 1-1. The Qualified Person for the Mineral Resource estimate is David Thomas, P.Geo. Mineral resources are reported at a long-term copper price of US\$2.90/lb, a gold price of US\$1,200 per ounce and a molybdenum price of US\$15.95/lb, and have an effective date of 1 May 2011.

The sensitivity of the Mineral Resource estimate to a reduction or increase in copper equivalent cut-off grades is shown in Table 1-2, with the base case highlighted.

Areas of uncertainty that may materially impact the Mineral Resource estimates include:

- Long-term commodity price assumptions
- Long-term exchange rate assumptions
- Operating and capital assumptions used
- Metal recovery assumptions used





• Any changes to the slope angle of the pit wall as a result of more detailed geotechnical information would affect the pit shell used to constrain the Mineral Resources.

Silver content represents a potential upside opportunity for the Project.



## Table 1-1: Mineral Resource Statement for Schaft Creek at a 0.12% CuEq Cut-off Grade (David Thomas P. Geo., Effective Date 1 May 2011)

Category	Tonnage	Copper	Molybdenum	Gold	Cu Eq.	Contained Metal		
	(Million Tonnes)	(%)	(%)	g/t	(%)	Cu (Mlbs)	Mo (Mlbs)	Au (Moz)
Measured	40.4	0.36	0.023	0.24	0.61	319.9	20.5	0.32
Indicated	994.9	0.27	0.017	0.17	0.44	5,854.5	365.7	5.55
Total Measured and Indicated	1,035.3	0.27	0.017	0.18	0.45	6,174.4	386.2	5.87
Inferred	301.3	0.24	0.011	0.14	0.37	1,562.1	70.3	1.38

#### Notes:

1. Mineral Resources base case is reported at a 0.12% copper equivalent cut-off grade; this cost incorporates considerations of process cost, recoveries, commodity price and selling cost

2. Mineral Resources are reported as undiluted

3. A Lerchs–Grossmann pit shell was used to constrain the Mineral Resources to assess reasonable prospects of eventual economic extraction using pit slopes of between 40–44°, and total mining costs of US\$5.12/t milled, and variable recoveries, averaging 86.5% for Cu, 73.3% for Au, and 60.9% for Mo

4. Mineral Resources are reported using a long-term copper price of US\$2.90/lb, a gold price of US\$1,200/oz and a molybdenum price of US\$15.95/lb

5. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content

6. Tonnage and grade measurements are in metric units. Contained gold ounces are reported as troy ounces, contained copper pounds as imperial pounds



	is	highlighte	d)						
Resource	Cut-Off	Tonnage	Copper	Molybdenum	Gold	Cu Eq.	Cor	ntained M	etal
Category	Cu Eq.	(Million Tonnes)	(%)	(%)	g/t	(%)	Cu (MIbs)	Mo (Mlbs)	Au (Moz)
Measured	0.10%	40.4	0.36	0.023	0.24	0.61	319.9	20.5	0.32
	0.12%	40.4	0.36	0.023	0.24	0.61	319.9	20.5	0.32
	0.15%	40.4	0.36	0.023	0.24	0.61	319.9	20.5	0.32
	0.20%	40.3	0.36	0.023	0.25	0.61	319.6	20.5	0.32
	0.25%	40.2	0.36	0.023	0.25	0.61	319.1	20.5	0.32
	0.30%	39.4	0.36	0.023	0.25	0.61	316.0	20.3	0.32
Indicated	0.10%	995.3	0.27	0.017	0.17	0.44	5855.1	365.7	5.55
	0.12%	994.9	0.27	0.017	0.17	0.44	5,854.5	365.7	5.55
	0.15%	992.5	0.27	0.017	0.17	0.44	5850.1	365.5	5.54
	0.20%	971.2	0.27	0.017	0.18	0.45	5795.7	363.2	5.50
	0.25%	898.6	0.28	0.018	0.18	0.47	5558.3	353.0	5.29
	0.30%	785.8	0.29	0.019	0.20	0.50	5105.9	333.7	4.93
Total	0.10%	1035.7	0.27	0.017	0.18	0.45	6175.0	386.2	5.87
Measured	0.12%	1035.3	0.27	0.017	0.18	0.45	6174.4	386.2	5.87
and Indicated	0.15%	1032.9	0.27	0.017	0.18	0.45	6169.8	386.0	5.86
	0.20%	1011.5	0.27	0.017	0.18	0.46	6113.7	383.6	5.81
	0.25%	938.8	0.28	0.018	0.19	0.47	5871.1	373.0	5.60
	0.30%	825.3	0.30	0.019	0.20	0.50	5411.0	353.4	5.23
Inferred	0.10%	301.5	0.24	0.011	0.14	0.37	1562.4	70.3	1.38
	0.12%	301.3	0.24	0.011	0.14	0.37	1562.1	70.3	1.38
	0.15%	299.5	0.24	0.011	0.14	0.38	1558.5	70.2	1.38
	0.20%	283.6	0.24	0.011	0.15	0.39	1517.2	68.8	1.34
	0.25%	244.1	0.26	0.012	0.16	0.41	1385.4	64.2	1.24
	0.30%	186.8	0.28	0.014	0.17	0.46	1150.6	56.6	1.05

# Table 1-2:Mineral Resource Statement for Schaft Creek Showing Sensitivity to Various<br/>CuEq Cut-offs (David Thomas P. Geo., Effective Date 1 May 2011; base case<br/>is highlighted)

## 1.20 Feasibility Study

In early 2010, Copper Fox retained Wardrop, the main contractor for the feasibility study, and Knight Piésold Ltd. and Stantec Consulting Ltd., to complete the feasibility study on the Schaft Creek deposit. The feasibility study will include an updated geological model, Mineral Resource estimate, Mineral Reserve estimate, revised capital cost and operating costs estimates and other technical, socio-economic and financial aspects related to the feasibility study. The study is planned to be completed by the end of 2011.

At the Report effective date, the Mineral Resource estimate to support the study has been completed, and engineering, mine, port, and process design work, although





substantially complete, were still being refined. Project cost estimation and financial analysis to support Mineral Reserve declaration are ongoing as of the effective date of this Report.

#### 1.21 Interpretation and Conclusions

In the opinion of the QPs:

- Mineral Resources, which were estimated using core drill data, have been performed to industry best practices, and conform to the requirements of CIM Definition Standards (2010)
- Concentrate produced from the Project is considered to be broadly marketable. Expected smelter and treatment charges have been identified, and can support assessment of reasonable prospects of economic extraction. Contracts are likely to be typical of, and consistent with, standard industry practice, and be similar to contracts for the supply of concentrates elsewhere in the world.
- Additional exploration potential remains within the Project area
- The Project is sufficiently advanced to support more detailed studies, and a feasibility study is underway, and expected to be completed by the end of 2011

#### 1.22 Recommendations

AMEC's recommended work program is aimed at supporting the study and collating additional data to support more detailed studies.

AMEC proposes a single-phase, geology, Mineral Resource, and exploration-focused work program, where all aspects of the work can be conducted concurrently, and no work item is dependent on the results of another. The recommended work program includes additional drilling, institution of a continuous program of bulk density/specific gravity determinations, complete a thorough review of existing assays and complete a re-assay program using certified silver standard reference materials in order to enable classification of the silver into the appropriate CIM mineral resource categories, and commence exploration in the Greig/Kreft claims.

AMEC has recommended a budget of between about \$3.0 M and \$3.4 M be allocated to this work. At the completion of this work, results should be reviewed and incorporated as appropriate into the ongoing feasibility study or, if data are available after the completion date for the feasibility study, into more detailed studies.





## 2.0 INTRODUCTION

AMEC Americas Limited (AMEC) was commissioned by Copper Fox Metals Inc. (Copper Fox) to prepare an independent Qualified Person's Review and NI 43-101 Technical Report (the Report) for the Schaft Creek Copper Project (the Project) located in British Columbia, Canada (Figure 2-1).

#### 2.1 Terms of Reference

Copper Fox will be using the Report in support of disclosures in the Copper Fox press release dated 11 July 2011, entitled "Measured and Indicated Resource Estimate Exceeds 1 Billion Tonnes at Schaft Creek Deposit".

All measurement units used in this Report are metric, and currency is expressed in US dollars unless stated otherwise. The Report uses Canadian English.

As at the effective date of the Report of 26 July 2011, the exchange rate was US\$1 equal to approximately \$1.03 Canadian.

#### 2.2 Qualified Person

The following are the Qualified Persons (QPs) as defined in National Instrument 43-101, *Standards of Disclosure for Mineral Projects*, for portions of the Report:

- Greg Kulla, P.Geo., Principal Geologist, AMEC Vancouver
- David Thomas, P.Geo., Principal Geologist, AMEC Vancouver
- Tony Lipiec, P.Eng., Principal Metallurgist, AMEC Vancouver

#### 2.3 Site Visits and Scope of Personal Inspection

Table 2-1 summarizes the site visit dates and the sections of responsibility for Report preparation. During the site visit, Mr Kulla visited the Project area, where he conducted an inspection of core and surface outcrops, viewed drill platforms and sample cutting and logging areas; discussed geology and mineralization interpretations with Copper Fox's staff.

Page 2-1





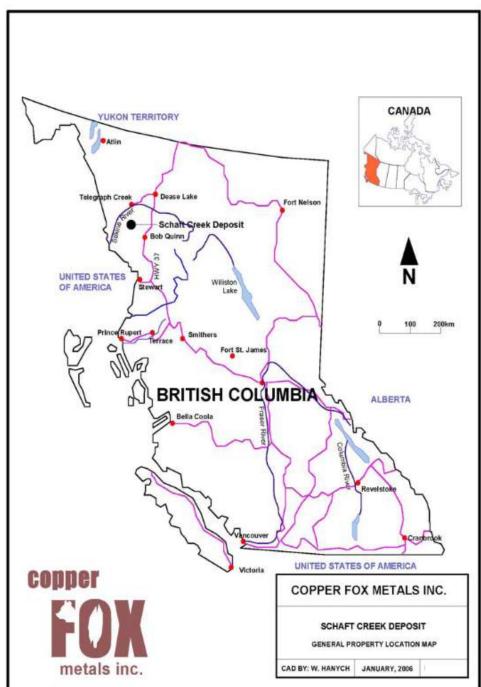


Figure 2-1: Project Location Plan

Note: Figure courtesy Copper Fox





Qualified Person	Date of Site Visit	Report Sections of Responsibility (or Shared Responsibility)
Greg Kulla	29 September to 03 October 2009	Sections 1 to 12, and 15 to 27
David Thomas	No site visit	Section 14 and those portions of the Summary, Conclusions and Recommendations that pertain to that section
Tony Lipiec	No site visit	Section 13 and those portions of the Summary, Conclusions and Recommendations that pertain to that section

Table 2-1: Site Visits and Areas of Report Responsibility

# 2.4 Effective Dates

The effective date of the Mineral Resource estimate is 1 May 2011. The Report contains updated mineral tenure data, current to 10 June 2011, and information on the ongoing drill program on the Project, current to 26 July 2011.

The effective date of the Report is the date of the latest information on the drill program, and is 26 July 2011.

### 2.5 Information Sources and References

Reports and documents listed in the Reference sections of this Report were used to support preparation of the Report.

Additional information was obtained from Copper Fox, or external consultants, or was been prepared by the QPs.

#### 2.6 **Previous Technical Reports**

Copper Fox has previously filed the following technical reports on the Project.

Bender M., and McCandlish, K., 2008: Copper Fox Metals, Inc. Canadian National Instrument 43-101 Amended Technical Report: Preliminary Feasibility Study on the Development of the Schaft Creek Project Located in Northwest British Columbia, Canada: unpublished technical report prepared by Samuel Engineering Inc. for Copper Fox, effective date 15 September 2008, amended and restated 17 June 2010.

Bender, M., Holm, K., Beauchamp, D., McCandlish, K., Uren, S., Pow, D., Gray, J., Hanych, W., and Hyyppa, R., 2008: Copper Fox Metals, Inc. Canadian National Instrument 43-101 Technical Report Preliminary Feasibility Study on the Development of the Schaft Creek Project Located in Northwest British Columbia, Canada:





unpublished technical report prepared by Samuel Engineering Inc. for Copper Fox, effective date 15 September 2008, amended and restated 28 November 2008.

Bender, M., Holm, K., Beauchamp, D., McCandlish, K., Uren, S., Pow, D., Gray, J., Hanych, W., and Hyyppa, R., 2008: Copper Fox Metals, Inc. Canadian National Instrument 43-101 Technical Report Preliminary Feasibility Study on the Development of the Schaft Creek Project Located in Northwest British Columbia, Canada: unpublished technical report prepared by Samuel Engineering Inc. for Copper Fox, effective date 15 September 2008.

Bender, M., McCandlish, K., Gray, J., and Hyppa, R., 2007: Copper Fox Metals, Inc. Canadian National Instrument 43-101 Technical Report Preliminary Economic Assessment on the Development of the Schaft Creek Project Located in Northwest British Columbia, Canada: unpublished technical report prepared by Samuel Engineering Inc. for Copper Fox, effective date: 7 December, 2007

McCandlish, K., 2007: Updated Resource Estimate for the Schaft Creek Deposit, Northwest British Columbia, Canada Technical Report on a Mineral Property Pursuant to National Instrument 43-101 of the Canadian Securities Administrators: unpublished technical report prepared by Samuel Engineering Inc. for Copper Fox, effective date 22 June 2007.

Ewanchuk, S., Fischer, P., and Hanych, W., 2007: 2006 Diamond Drill Report Schaft Creek Property Northwestern British Columbia For Copper Fox Metals Inc. Final Report: report prepared for Copper Fox and filed as a technical report, effective date 3 July 2007

Copper Fox Metals Inc. 2006: Schaft Creek Copper-Gold-Molybdenum-Silver Deposit Project Description: report prepared for the British Columbia Environmental Assessment Office and filed as a technical report, effective date 27 March 2007

Associated Mining Consultants Ltd., 2005a: Valuation Opinion of Copper Fox Metals Inc.'s Option to Acquire the Teck Cominco Limited Interest in the Schaft Creek Mineral Deposit, British Columbia, Canada: unpublished technical report prepared for Copper Fox, effective date 21 December 2005

Prior to listing, the predecessor company to Copper Fox, 955528 Alberta Ltd., filed the following reports:

Associated Mining Consultants Ltd., 2005b: Valuation Opinion of 955528 Alberta Ltd.'s Option to Acquire the Teck Cominco Limited Interest in the Schaft Creek Mineral





Deposit, British Columbia, Canada: unpublished technical report prepared for Copper Fox, effective date 16 March 2005

Associated Mining Consultants Ltd., 2004: Valuation Opinion of 955528 Alberta Ltd.'s Option to Acquire the Teck Cominco Limited Interest in the Schaft Creek Mineral Deposit, British Columbia, Canada: unpublished technical report prepared for Copper Fox, effective date 20 July 2004

Giroux, G., and Ostensoe, E., 2004: Summary Report: Status and Resource Estimate Schaft Creek Property, Northwestern British Columbia: unpublished technical report prepared for 955528 Alberta Ltd., effective date 30 June 2003, amended 20 May 2004.



# 3.0 RELIANCE ON OTHER EXPERTS

The QPs, as authors of the Report, have relied upon and disclaim responsibility for information derived from the following reports pertaining to mineral tenure, surface rights, royalties, and the environment and social issues.

### 3.1 Mineral Tenure

The QPs have not reviewed the mineral tenure, nor independently verified the legal status, ownership of the Project area, underlying property agreements or permits. AMEC has fully relied upon, and disclaims responsibility for, information derived from legal experts for this information through the following documents:

• Farris, Vaughan, Wills and Murphy LLP, 2011: Copper Fox Metals Ltd, Schaft Creek Project: legal opinion provided to AMEC, dated 10 June, 2011

This information is used in Section 4.2.1 of the Report.

### 3.2 Surface Rights

The QPs have fully relied upon and disclaim responsibility for information supplied by Copper Fox's staff and experts retained by Copper Fox for information relating to the status of the current Surface Rights as follows:

- Farris, Vaughan, Wills and Murphy LLP, 2011: Copper Fox Metals Ltd, Schaft Creek Project: legal opinion provided to AMEC, dated 10 June, 2011
- Stewart, E.B., 2011: Copper Fox Metals Inc. Schaft Creek Project Due Diligence Summary: report prepared by Elmer B. Stewart, President & Chief Executive Officer, Copper Fox Metals and provided to AMEC on 10 June 2011.

This information is used in Section 4.3 of the Report.

#### 3.3 Royalties

The AMEC QPs have fully relied upon and disclaim responsibility for information supplied by Copper Fox staff and experts retained by Copper Fox for information relating to the status of the current royalty provisions for the Project as follows:

• Farris, Vaughan, Wills and Murphy LLP, 2011: Copper Fox Metals Ltd, Schaft Creek Project: legal opinion provided to AMEC, dated 10 June, 2011





• Stewart, E.B., 2011: Copper Fox Metals Inc. Schaft Creek Project Due Diligence Summary: report prepared by Elmer B. Stewart, President & Chief Executive Officer, Copper Fox Metals and provided to AMEC on 10 June 2011.

This information is used in Section 4.4 of the Report.

# 3.4 Environmental

The AMEC QPs have relied upon information supplied by Copper Fox staff and experts retained by Copper Fox for information relating to the Project environmental status as follows:

• Uren, S., 2011: Environmental Assessment, Schaft Creek: information contained in email from Shane Uren, M.A.Sc., R.P.Bio, VP Environment & Permitting, Copper Fox Metals Inc to David Thomas, AMEC.

This information is used in Section 4.5 of the Report.

# 3.5 Social and Community Impacts

The AMEC QPs have relied upon information supplied by Copper Fox staff and experts retained by Copper Fox for information relating to the Project social status as follows:

• Rescan<sup>™</sup> Tahltan Environmental Consultants, 2010: Schaft Creek Project: Socioeconomic Baseline Study: unpublished report prepared by Rescan for Copper Fox, dated May 2010.

This information is used in Section 4.8 of the Report.





# 4.0 PROPERTY DESCRIPTION AND LOCATION

The Schaft Creek Project is located approximately 130 km southwest of Dease Lake within the Liard Mining Division and the Cassiar Iskut Stikine Land and Resource Management Plan. The Schaft Creek Project is located approximately 1,050 km northwest of Vancouver, British Columbia. The Schaft Creek Project is also located approximately 60 km south of the village of Telegraph Creek, 130 km southwest of Dease Lake and 80 km southwest of the village of Iskut and approximately 375 km northwest of the town of Smithers, BC.

The center of the Schaft Creek Project is located at approximately 57° 21' 45" N latitude and 131° W longitude, or approximate UTM coordinates of 379700 E and 6359500 N (Zone 9).

# 4.1 **Project Ownership**

Copper Fox acquired the mineral tenures set out in Section 4.2.1 (the Teck Agreement Claims) from Teck Resources Limited (Teck, and formerly Teck Cominco Limited). Teck held a 70% direct participating interest (the Direct Holding) in the Teck Agreement Claims as well as 23.4% carried interest (the Indirect Holding) through a 78% shareholding in Liard Copper Mines Ltd (Liard). Liard holds a 30% carried net proceeds interest in the Teck Agreement Claims.

Teck acquired its direct and indirect interest in the Teck Agreement Claims under a three-way agreement with Hecla Operating Company (Hecla) and Liard, by purchasing Hecla's 70% direct interest for cash and a reserved 5% overriding fully carried net profit interest, which applies to the direct 70% interest share of cash flow (which equates to 3.5% factoring in Liard's 30% carried net proceeds interest, the "Hecla Net Profit Interest") after Teck had recovered its designated costs. The Hecla Net Profit Interest was subsequently sold to Royal Gold Inc. (formerly International Royalties).

Teck was to provide the funding for Liard's 30% interest and hence Liard is shielded from carrying its share of the costs of the Project and putting it into production. Teck's costs of carrying Liard's 30% interest were to be recovered with interest before Liard's full 30% entitlement to cash generation sharing was to occur.

Copper Fox acquired the Teck Agreement Claims through an agreement between Guillermo Salazar and Teck dated January 1, 2002 (the Option Agreement), and an assignment from Guillermo Salazar to 955528 Alberta Ltd. (predecessor to Copper Fox) dated February 12, 2003.





On 24 March 2011, Copper Fox acquired 26,954 shares of Liard from Mrs. Mary Elizabeth Dunn for a cash payment of \$269,540 and 245,000 common shares of Copper Fox.

On 26 July, 2011, Copper Fox acquired 2,388 common shares of Liard from Mr Gary Bird, for a cash payment of \$30,506.70 and 14,391 common shares of Copper Fox.

The shares acquired by Copper Fox as a result of this transactions with Mrs. Dunn and Mr. Bird represent approximately 1.56% of the issued and outstanding shares of Liard.

#### **Direct Holding** 4.1.1

Under the Option Agreement, 955528 Alberta Ltd, now Copper Fox, had the right to acquire Teck's Direct Holding once Copper Fox had spent more than \$15 M on the Schaft Creek project. As at 30 June 2011, Copper Fox had spent \$54.5 million in qualified expenditures under the Option Agreement, thus Copper Fox has earned Teck's Direct Holding and Copper Fox currently holds 70% of the Teck Agreement Claims.

#### 4.1.2 Indirect Holding

Copper Fox, by funding a positive feasibility study (the Feasibility Study), can earn Teck's Indirect Holding.

#### 4.1.3 **Teck's Earn Back Right**

The Option Agreement also provides Teck with an "earn-back" right. The earn-back right will expire if Teck fails to give due notice of its wish to exercise this right to Copper Fox within 120 days of Teck's receipt of the Feasibility Study from Copper Fox. The earn-back right may be exercised by Teck in three ways:

- Teck may acquire a 20% interest in Copper Fox's interest in the Schaft Creek project by funding 100% of Copper Fox's qualifying costs into the Schaft Creek project at the time of the earn back right
- Teck may acquire a 40% interest in Copper Fox's interest in the Schaft Creek ٠ project by funding 300% of Copper Fox's qualifying costs into the Schaft Creek project at the time of the earn back right
- Teck may acquire a 75% interest in Copper Fox's interest in the Schaft Creek . project by funding 400% of Copper Fox's gualifying costs into the Schaft Creek project at the time of the earn back right and arrange for project financing, including the Copper Fox portion.







In exercising the earn back right, Teck and Copper Fox will form a joint venture to be managed by a committee and each partner will own their respective interest in the Property and bear all expenditures and liabilities proportional to their respective interests.

If the rights under the Option Agreement are not exercised in respect of the Indirect Holding or Teck does not exercise its earn back right, then Copper Fox will grant to Teck (at Teck's sole discretion) either a 1% net smelter royalty or Copper Fox shares having a value of \$1 M.

### 4.2 Mineral Tenure

### 4.2.1 Option Agreement Claims

Copper Fox holds a 100% working interest in a contiguous 21,025 ha property. Tenure is summarized in Table 4-1, and Table 4-2 and shown on Figure 4-1. Claims are held in the name of Copper Fox.

The Schaft Creek deposit is located on the south boundary of claim 514603 and on the north boundary of claim 514637.

The boundaries of the mineral tenures have not been surveyed with the exception that in 1972, certain fractional claims in the Schaft Creek Project area were surveyed by Underbill & Underbill (now known as Underbill Geomatics Ltd.). The purpose of the survey was to stake and locate certain internal fractions between existing mineral claims. The claims that were surveyed are located substantially north of the Schaft Creek deposit.

The annual fees, rentals and minimum work requirement to maintain the mineral tenures are \$4.00 per ha plus a 10% submission fee. All mineral tenures that are subject to the Option Agreement are in good standing until at a minimum of the year 2018.





Tenure Number	Claim Name	Owner	Issue Date	Good To Date	Status	Area (ha)
514595		207046 (100%)	2005/jun/16	2018/oct/30	GOOD	1653.04
514596		207046 (100%)	2005/jun/16	2018/oct/30	GOOD	1550.96
514598		207046 (100%)	2005/jun/16	2018/oct/30	GOOD	1412.62
514603		207046 (100%)	2005/jun/16	2018/oct/30	GOOD	1291.06
514637		207046 (100%)	2005/jun/17	2018/oct/30	GOOD	1256.71
514721		207046 (100%)	2005/jun/17	2018/oct/30	GOOD	1169.95
514723		207046 (100%)	2005/jun/17	2018/oct/30	GOOD	139.75
514724		207046 (100%)	2005/jun/17	2018/oct/30	GOOD	471.39
514725		207046 (100%)	2005/jun/17	2018/oct/30	GOOD	313.61
514728		207046 (100%)	2005/jun/17	2018/oct/30	GOOD	435.57
515035		207046 (100%)	2005/jun/22	2018/oct/30	GOOD	383.01
515036		207046 (100%)	2005/jun/22	2018/oct/30	GOOD	191.65
547789		207046 (100%)	2006/dec/21	2018/dec/21	GOOD	418.7
547798		207046 (100%)	2006/dec/21	2018/dec/21	GOOD	227
548487	BLOCK B1	207046 (100%)	2007/jan/02	2018/jan/15	GOOD	434.78
548488	BLOCK B2	207046 (100%)	2007/jan/02	2018/jan/15	GOOD	434.99
548489	BLOCK B3	207046 (100%)	2007/jan/02	2018/jan/15	GOOD	365.57
548490	BLOCK B4	207046 (100%)	2007/jan/02	2018/jan/15	GOOD	121.9
548492	BLOCK C1	207046 (100%)	2007/jan/02	2018/jan/15	GOOD	435.6
548493	BLOCK C2	207046 (100%)	2007/jan/02	2018/jan/15	GOOD	435.83
548494	BLOCK C3	207046 (100%)	2007/jan/02	2018/jan/15	GOOD	436.06
548495	BLOCK C4	207046 (100%)	2007/jan/02	2018/jan/15	GOOD	436.31
548496	BLOCK C5	207046 (100%)	2007/jan/02	2018/jan/15	GOOD	436.7
548498	BLOCK C6	207046 (100%)	2007/jan/02	2018/jan/15	GOOD	227.24
548759	AREA A	207046 (100%)	2007/jan/05	2018/jan/15	GOOD	365.06
548760	AREA C1	207046 (100%)	2007/jan/05	2018/jan/05	GOOD	436.9
548761	AREA C2	207046 (100%)	2007/jan/05	2018/jan/05	GOOD	437.12
548762	AREA C3	207046 (100%)	2007/jan/05	2018/jan/05	GOOD	367.41
548763	AREA C4	207046 (100%)	2007/jan/05	2018/jan/05	GOOD	122.54
548764	AREA B1	207046 (100%)	2007/jan/05	2018/jan/15	GOOD	366.04
548766	AREA B2	207046 (100%)	2007/jan/05	2018/jan/15	GOOD	418.11
548767	AREA B3	207046 (100%)	2007/jan/05	2018/jan/15	GOOD	435.38
548768	AREA B4	207046 (100%)	2007/jan/05	2018/jan/15	GOOD	435.6
548769	AREA B5	207046 (100%)	2007/jan/05	2018/jan/15	GOOD	418.19
548770	AREA B6	207046 (100%)	2007/jan/05	2018/jan/15	GOOD	418.19
548771	AREA B7	207046 (100%)	2007/jan/05	2018/jan/15	GOOD	418.19

 Table 4-1: Mineral Tenure Summary Table Option Agreement Claims





Tenure Number	Claim Name	Owner	Issue Date	Good To Date	Status	Area (ha)
548772	AREA B8	207046 (100%)	2007/jan/05	2018/jan/15	GOOD	418.19
551325	AREA D1	207046 (100%)	2007/feb/06	2018/feb/06	GOOD	435.18
551326	AREA D2	207046 (100%)	2007/feb/06	2018/feb/06	GOOD	435.17
551328	AREA D3	207046 (100%)	2007/feb/06	2018/feb/06	GOOD	417.71

Tenure Number	Claim Name	Owner	Issue Date	Good To Date	Status	Area (ha)
577025	SC SOUTH 1	207046 (100%)	2008/feb/23	2012/feb/23	GOOD	437.83
577026	SC SOUTH 2	207046 (100%)	2008/feb/23	2012/feb/23	GOOD	438.04
577028	SC SOUTH 3	207046 (100%)	2008/feb/23	2012/feb/23	GOOD	438.24
577031	SC SOUTH 4	207046 (100%)	2008/feb/23	2012/feb/23	GOOD	438.49
577033	SC SOUTH 5	207046 (100%)	2008/feb/23	2012/feb/23	GOOD	438.73
577034	SC SOUTH 6	207046 (100%)	2008/feb/23	2012/feb/23	GOOD	438.94
577037	SC SOUTH 7	207046 (100%)	2008/feb/23	2012/feb/23	GOOD	439.02
577039	SC SOUTH 8	207046 (100%)	2008/feb/23	2012/feb/23	GOOD	438.88
577042	SC SOUTH 9	207046 (100%)	2008/feb/23	2012/feb/23	GOOD	438.9
517462		207046 (100%)	2005/jul/12	2011/sep/11	GOOD	17.44
521312	SCHAFT 1 GREATER	207046 (100%)	2005/oct/18	2012/jul/11	GOOD	191.78
569460	KOPPER	207046 (100%)	2007/nov/05	2011/aug/31	GOOD	2769.1

Note: Claims 217462 and 569460 are collectively the Greig/Kreft claims, claim 521312 is the Pembrook claim.



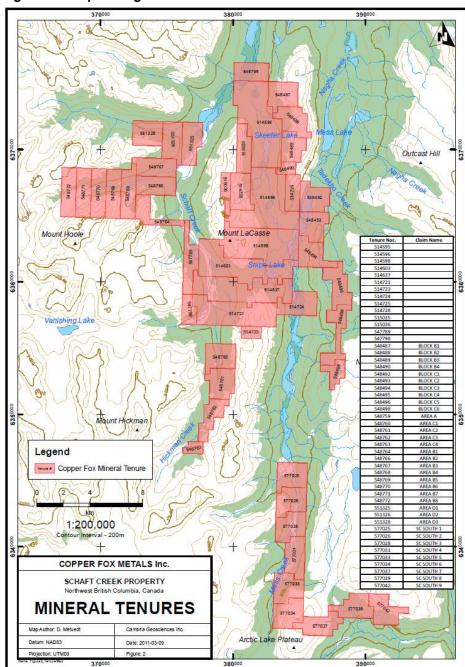


Figure 4-1: Option Agreement Tenure Plan

Note: Non-contiguous claims shown to the south of the main Schaft Creek project along Hinckman Creek and Mess Creek are not part of the Schaft Creek Project.





### 4.2.2 Greig/Kreft (Schaft North) Claims

In March 2011, Copper Fox purchased two mineral claims (Claims 217462 and 569460 totalling 2,786.54 ha) from Charles James Greig and John Bernard Kreft (Greig/Kreft) that are contiguous with the Schaft Creek Project claims. These claims are indicated in Figure 4-2.

Consideration paid by Copper Fox was \$250,000 cash, 1,250,000 common shares of Copper Fox and a 2% net smelter return (NSR) royalty on the mineral claims subject to a "Partial NSR Buyout Option". The Partial NSR Buyout Option allows Copper Fox at any time to purchase half of the NSR for a cash payment of \$1.5 M such that the net smelter royalty is reduced from 2% to 1%.

These mineral claims are located within the Area of Interest (essentially an "Area of Mutual Interest") set out in the Option Agreement, accordingly participation in these claims will be offered and included in the joint venture should one be negotiated with Teck.

#### 4.2.3 Pembrook Claim

In March 2011, Copper Fox purchased one mineral claim (Claim 521312, of 192 ha) from Pembrook Mining Corp. (Pembrook). The claim abuts the current Schaft Creek mineral claims owned by Copper Fox and is also shown in Figure 4-2. Copper Fox paid Pembrook \$350,000 cash and granted Pembrook a 2% net smelter return royalty on the mineral claim subject to a "Partial NSR Buyout Option". The Partial NSR Buyout Option allows Copper Fox to purchase half of the NSR for a cash payment of \$1.5 M such that the net smelter royalty is reduced from 2% to 1%.

#### 4.2.4 Additional Claims in Area

Copper Fox holds additional claims in the general vicinity of the Schaft Creek Project, to the south of the Project claims. These are shown on Figure 4-1 for completeness, but are not contiguous with the Project tenure, and are not considered to be part of the Project for reporting purposes.

#### 4.3 Surface Rights

The mineral claims are on Crown land. Mineral claims do not confirm exclusive surface rights to a mineral claims holder.





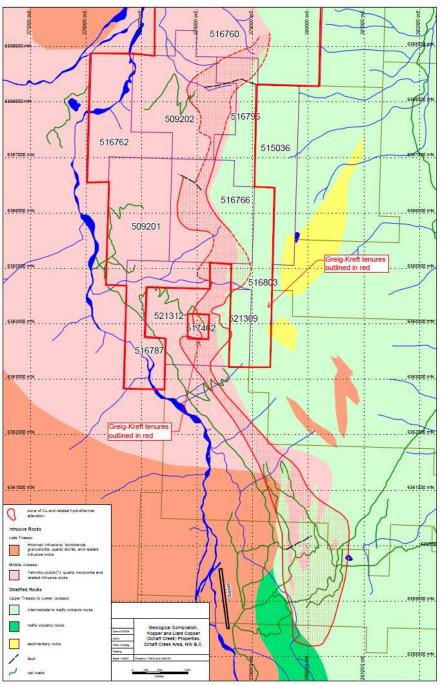


Figure 4-2: Greig/Kreft and Pembrook Acquisition Tenure Plan

Note: Grid squares on plan indicate scale and are 1 km x 1 km. Map north is to top of plan. Figure courtesy Copper Fox.





### 4.3.1 Cassiar Iskut-Stikine Land and Resource Management Plan

The Project falls within the boundaries of the Cassiar Iskut-Stikine Land and Resource Management Plan (LRMP) which was finalized in May 2000. The approved plan supports further exploration and development of the areas mineral resources by providing information to be considered during the permitting and impact assessment processes. The LRMP is primarily in territory claimed by the Tahltan First Nation.

The Tahltan Joint Councils, representing the Tahltan Band from Telegraph Creek and the Iskut Band, were full table members throughout the process and endorse the LRMP. Neighbouring First Nations include the Nisga'a, Kaska, and Tlingit Nations.

The LRMP identifies 15 geographic resource management zones, covering 31% of the plan area. The Schaft Creek project is part of the Telegraph Creek Community Watershed and therefore falls under Area-Specific Management requirements stipulated in the LRMP.

This zone includes the domestic water supply for the community of Telegraph Creek and is formally designated as a Community Watershed. The objective of the management approach is:

"To maintain the quality and quantity of community water supply and to maintain natural stream flow regimes within the natural range of variability".

The LRMP states that mineral exploration, including road construction, maintenance and deactivation, is to be conducted according to the guidelines for community watersheds outlined in the Mineral Exploration Code.

#### 4.4 Royalties and Encumbrances

The following royalties apply to the Project:

- Liard: 30% direct net carried proceeds interest on all claims within the Option Agreement
- Royal Gold Inc: 3.5% net proceeds interest on all claims within the Option Agreement (5% of the Teck Direct Interest of 70% for a net 3.5% net proceeds interest)
- Greig/Kreft: 2% net smelter return royalty on claims 569460 and 517462
- Pembrook: 2% net smelter return royalty on claim 521312.





# 4.5 Permits

#### 4.5.1 Current Permits

Copper Fox has previously worked under an amended Notice of Work (NoW) and Reclamation Program from BC MEMPR under the Mines Act (British Columbia) (Permit #: MX-1-647, Amendment #: 07-01100455-0530; Mine #: 01400455). Use of the Schaft Creek airstrip is also covered under the NoW and Reclamation Program.

Copper Fox has filed an amended NoW for 2011 (Mine #: 0100455) which has been subsequently approved. The planned start date was filed as May 25, 2011 and the NoW had a planned end date of December 30, 2014.

The types of activities that were advised would be undertaken in the application include:

- Grids, camps and helicopter pads
- Surface drilling
- Access construction, modification or reclamation work.

The BC MEMPR will send the permit amendment application to various government agencies and First Nations to review. These parties have 30 days to review the amendment application. Copper Fox has received preliminary indication that the BC Government will grant the permit.

Copper Fox has previously obtained an "Occupation Licence to Cut" from the BC Ministry of Forests (Permit #: L47555). This permit allowed Copper Fox to cut trees for the purpose of exploration activities. This permit was valid until June 14, 2009. During 2010, Copper Fox was brushing out old trails and did not require a renewal of the permit. In 2011, Copper Fox plans to apply for a permit to allow the Corporation to cut additional trees in the Project area to support exploration activities.

#### 4.5.2 Permits to Support Project Development

The information in this subsection is sourced from Bender et al., (2008), and Copper Fox experts.

The Schaft Creek Mine Project constitutes a reviewable project pursuant to Part 3 of the Reviewable Projects Regulation (B.C. Reg. 370/02) as the Project is a planned new mining facility that during operations is proposed to have a production capacity of greater than 75,000 t/a.





As required by British Columbia (BC) Environmental Assessment Act and specified in the section 10 order issued by the BC Environmental Assessment Office (EAO) on August 14, 2006, Copper Fox must submit an application for an environmental assessment certificate (Application) and receive and Environmental Assessment Certificate (EA Certificate) before proceeding with activities related to construction and operation of the Project. The BC EAO is responsible for administering the EA review and presenting its findings to the Ministers of Environment and Mines for a decision on issuance of an EA Certificate.

The Project is currently in the first of the Province's two staged EA process. The preapplication stage focuses on identification of the issues and concerns to be addressed in the EA Application. The pre-application stage is considered completed on acceptance of the EA Application for review by the BC EAO, initiating the Application Review stage of the EA process.

The Application must assess potential adverse environmental, social, economic, heritage and health effects, and practical means to prevent or reduce to acceptable level any potential adverse effects. The Application must also assess potential adverse effects on First Nation Aboriginal Interests and to the extent appropriate propose means to avoid, mitigate, or otherwise accommodate such potential adverse effects.

The Project is also subject to federal review under the Canadian Environmental Assessment Act, SC 1992, c.37 (CEAA) due to the requirement for federal statutory authorizations. Natural Resources Canada (NRCan) is a confirmed Responsible Authority (RA) under section 11(1) of the CEAA, due to the requirement for issuance of a licence under section 7(1)(a) of the Explosives Act. Fisheries and Oceans Canada (DFO), is also a confirmed RA due to the requirement for authorisation under subsection 35(2) of the Fisheries Act. Environment Canada has also confirmed RA status due to the likelihood that it will need to issue a licence under subsection 10(1) of the International River Improvements Regulations. Transport Canada (TC) is a potential RA as it may need to issue an approval under section 5 of the Navigable Waters Protection Act. Since the Project is listed in the schedule of the Comprehensive Study List Regulations (i.e. a proposed metal mine with a capacity of greater than 3,000 tonnes per day), it will be subject to a comprehensive study. Pursuant to subsection 11.01 (1) of the CEAA, the Canadian Environmental Assessment Agency (CEA Agency) will exercise the powers and perform the duties and functions of the RAs until the comprehensive study report is provided to the Minister of the Environment.

The Canada/British Columbia Agreement on Environmental Assessment Cooperation (2004) provides for cooperative EAs to minimize duplication whenever possible. A





cooperative assessment will be undertaken, pursuant to this agreement, and will be led by the EAO and CEA Agency. To ensure the EA of the Project is harmonized to the greatest extent possible, the EAO and CEA Agency will develop a work plan covering aspects of the EA such as timelines, Aboriginal and public consultation, and agency/departmental roles and responsibilities.

Copper Fox will submit a draft Application to the EAO and CEA Agency for screening to ensure compliance with the AIR. Following any changes required by the EAO based on feedback from a technical Working Group made of Government regulators and First Nations, Copper Fox will submit the final Application to the EAO and EAO will initiate the Application review phase, to be completed within 180 days. The Application will be made available to First Nations listed on the EAO's section 11 order, Government agencies, local governments, and the public. In the early stages of the Application review, the EAO will initiate a 45 day public comment period on the Application, as set out in the section 11 order. Following the public comment period, Copper Fox will track and address the issues raised during the Application review. At the end of the review the EAO will submit an assessment report, and recommendations to the Provincial Minister of Environment and Minister of Mines on the issuance of the EA Certificate.

The Federal government, on completing its review under the CEAA, will submit its conclusions and recommendations, in the form of a comprehensive study report, to the Federal Minister of the Environment for a decision under section 23 of the CEAA, whether to refer the Project back to the RAs for a course of action decision under section 37 of the CEAA.

Providing that Provincial and Federal EA approvals are obtained, Copper Fox will require a number of permits and authorizations from both Provincial and Federal departments before construction and operation can be initiated. Copper Fox has indicated that it intends on submitting applications for Provincial permits and authorizations related to the construction of the access road, concurrently during the Application review. While the Province's Concurrent Approval Regulation (B.C. Reg. 371/2002) allows for submission of eligible approvals required to construct and operate the Project during the province's review of the Application for an Environmental Assessment Certificate, a decision on those approvals cannot be made until and unless the certificate has been issued. There is no federal concurrent approval mechanism, and RAs will move into their permitting/authorization decision processes if and after making a course of action decision under section 37 of the CEAA.

Copper Fox has completed numerous environmental baseline studies in the fields of water quality, hydrology, hydrogeology, climate, fish and aquatics, wildlife, vegetation, soils, economics, social, health and heritage (refer to Section 4.7). Copper Fox will





use this information together with the final Project Description from the planned Feasibility Study to compete a draft EA Application for submission to the BC EAO and CEA Agency. Copper Fox intends to submit the draft EA Application in the fourth quarter of 2011.

### 4.5.3 Other Key Permits

Copper Fox is anticipating the following federal triggers:

- Transport Canada Navigable Waters Act
- Department of Fisheries and Oceans Fisheries Act; Metal Mining Effluent Regulations
- Natural Resources Canada Explosives Act.

The likely key Provincial permits identified during the pre-feasibility study are (Bender et al., (2008)):

- Permit Approving Work System and Reclamation Program (Mines Act)
- Water License (Water Act)
- Construction Permit (Drinking Water Protection Act)
- Operation Permit (Drinking Water Protection Act)
- Occupant License to Cut (Forest Act)
- Special Use Permit (Forest Act)
- License of Occupation (Land Act)
- Investigative Permit (Land Act)
- Surface Lease (Land Act)
- Right of Way (Land Act)
- Highway Access Permit (Transportation Act)
- Permit to Construct a Water Works (Drinking Water Protection Act)





- Waste Management Permit (Environmental Management Act)
- Camp Operations Permit (Environmental Management Act).

The following is a list of key Federal approvals and licenses likely required to develop the Schaft Creek project:

- Metal Mining Effluent Regulations (Fisheries Act/Environment Canada)
- Fish Habitat Compensation Agreement (Fisheries Act)
- Section 35(2) Authorization for harmful alteration, disruption or destruction of fish habitat (Fisheries Act)
- Navigable Water: Stream Crossings Authorization (Navigable Waters Protection Act)
- Tailings Dam Permit (Letter of Application) (Navigable Waters Works Regulations)
- Explosives Factory License (Explosives Act)
- Explosives Magazine License (Explosives Act)
- Ammonium Nitrate Storage Facilities (Canada Transportation Act)
- Radio Licenses (Radio Communication Act)

#### 4.6 Environmental Studies

Schaft Creek environmental and socio-economic baseline studies began in October 2005 and are ongoing. Baseline studies completed in 2006 included wildlife (moose, goats and bird studies), water quality, aquatic biology, fisheries, hydrology, meteorology, archaeology and metal leaching and acid rock drainage (ML/ARD). The results of the 2006 studies were reviewed by Federal and Provincial regulators and the Tahltan Nation.

The scope of work for the 2007 environmental and socio-economic baseline studies was increased significantly and was aimed at fulfilling requirements of both a Federal and Provincial environmental assessment process and the specific studies requested by the Tahltan Nation. Studies in 2007 consisted of aquatic and fisheries surveys, archaeological studies, meteorological baseline studies, a bat and Western toad survey, hydrological and road assessment studies, wetlands, groundwater and





hydrology baseline studies, noise, soils and vegetation baseline studies, ML/ARD studies and a Tahltan foods baseline assessment. The work and scope of the 2007 and 2008 environmental and socio-economic baseline studies were presented and approved by government authorities and the Tahltan Nation.

During 2008, studies included additional fisheries, bird, aquatic, vegetation, and ungulate surveys, ecosystem and vegetation mapping surveys, a navigable waters assessment, ML/ARD assessments, and an access route geohazard survey.

Update studies were performed in 2009 to assess the site meteorology and air quality, update the country foods assessment and complete the baseline hydrological survey.

During 2010, studies performed included moose and wildlife habitat suitability surveys, ML/ARD studies, land use and soils baseline studies, a socio-economic baseline study, archaeological and hydrometeorological studies, and a channel assessment and migration hazard study on Upper Mess Creek.

In addition to these baseline studies, Copper Fox has commissioned studies on environmental and social work plans, alternatives assessments, geohazard options for tailings storage facility (TSF) locations, water management studies for the TSF and assessment of likely access routes.

# 4.7 Environmental Liabilities

The Project has a long exploration history. On site are a 60-person camp and an existing airstrip. Additional disturbances are related to access roads and drill sites.

Copper Fox has posted a reclamation bond with the British Columbia (BC) Ministry of Energy, Mines and Petroleum Resources (MEMPR) to reclaim the Schaft Creek property. This includes removing all existing surface facilities and reclaiming areas of disturbance. The bond has been deemed sufficient by the BC MEMPR to reclaim the property in the event that Copper Fox abandons the Project.

Closure costs estimated for a mining operation in the 2008 pre-feasibility study were about \$87 M. This figure will be reviewed during feasibility-level studies.

# 4.8 Social License

The Schaft Creek mineral claims are located in traditional lands that Tahltan Nation have occupied and used. Copper Fox has initiated discussions with Tahltan Nation Development Corporation, which represents the economic arm of the Tahltan Nation,





to set out the joint understanding and intention of both parties to co-operate in carrying out the work at the Project.

On May 4, 2007, Copper Fox and the Tahltan Nation announced that they had completed a "Memorandum of Understanding" (MOU). The agreement defines the scope of work, program commitments, cooperation, and communication that Copper Fox will follow at Schaft Creek and recognizes that the Tahltan Nation Development Corporation will be a "preferred contractor."

# 4.9 Comments on Section 4

In the opinion of the QPs, the information discussed in this section supports the declaration of Mineral Resources, based on the following:

- Information from legal and Copper Fox experts support that the mining tenure held is valid and is sufficient to support declaration of Mineral Resources
- Mineral claims are on Crown land. AMEC notes that access agreements will be a prerequisite for the recommended drill programs in Section 24
- Four parties hold interests in the Project. These include:
  - Liard: 30% direct net carried proceeds interest on all claims within the Option Agreement
  - Royal Gold Inc.: 3.5% net proceeds interest on all claims within the Option Agreement
  - Greig/Kreft: 2% net smelter return royalty on claims 569460 and 517462
  - Pembrook: 2% net smelter return royalty on claim 521312.
- Permits obtained by the company to date to undertake exploration activities are sufficient to ensure that activities are conducted within the regulatory framework
- Additional permits will be required for Project development; preliminary discussions have been held with the relevant statutory authorities. A number of permits will be required to support Project development and operation
- At the effective date of this Report, environmental liabilities are limited to those expected for an exploration-stage project, and include a camp site, air strip, drill pads and access roads
- Baseline studies have been completed on the Project. The current state of knowledge of the environmental status for the Project supports the declaration of Mineral Resources. Copper Fox expects that the application for an environmental assessment certificate will be in approximately the fourth quarter of 2011.





# 5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

# 5.1 Accessibility

The Schaft Creek property is a remote, greenfields site with no developed access. An old, overgrown bulldozer trail exists on the east side of the broad Schaft Creek valley heading north to Telegraph Creek. Drill roads have been established within a 3 by 3 km area and total approximately 10 km of gravel trails that are 4 m in width.

A 1,220 m metre long airstrip lies adjacent to the Schaft Creek camp and was constructed in the 1960s for material handling and personnel transportation by fixed wing aircraft. The airstrip is gravel surfaced and requires annual maintenance. It is suitable for use by various rugged 'bush planes' such as a de Havilland Otter, Caribou or DC-3 craft and provides the only practical means of delivering bulk freight to the Project.

Helicopter service is normally available at Dease Lake and at Bob Quinn. Alternatively, fixed wing aircraft can be chartered from Smithers, British Columbia and flown directly to the Schaft Creek camp.

# 5.2 Climate

The Project is located on the eastern edge of the Coastal Mountain Range in northwestern British Columbia. The Project area has long cold winters, and short, warm summers.

Annual precipitation averages from 700 mm to 1100 mm, and is about equally in the form of rain and snow. The annual snowpack can reach a depth greater than 2 m and persist into June.

Temperatures range from 30°C to -30°C, averaging about 0°C. Mean monthly temperatures typically remain above freezing from April to October and drop below freezing from November through March.

The dominant wind direction in the area is from the south and southeast. Wind speed is highly dependent on location. Monthly average wind speeds were observed to vary between 1.0 and 3.0 m/s in more sheltered areas (Schaft Creek Saddle meteorological station) and up to 7.0 m/s in more exposed areas (LaCasse meteorological station)





Exploration work in the past has largely been conducted in the months between May and November. It is expected that mining activity will be conducted on a year-round basis.

# 5.3 Local Resources and Infrastructure

### 5.3.1 Existing Infrastructure

Smithers is the closest supply centre with the capacity to service the Project during construction and operation.

Three predominantly-Tahltan communities are within 125 km of the property. They are Telegraph Creek, Dease Lake and Iskut. These three communities would provide labour during any mine construction and operation. The Tahltan native population has a long history of involvement in the mineral exploration industry and in recent years has developed a thriving business supplying transportation, construction and catering services to mining operations at competitive rates.

A 60-person camp is on site. There is no power available to site. The closest major power line is located approximately 150 km south in Meziadin Junction. Potable water would be supplied from wells located on the property. Process water for the mill will be supplied from pit dewatering wells and would be reclaimed from the tailings pond.

#### 5.3.2 Proposed Infrastructure

In 2008, a pre-feasibility study was completed on the Project. In this study, (Bender et al., 2008), infrastructure considered to support a 100,000 t/d fly-in-fly-out mining operation included:

- Access road
- Airstrip upgrade
- Office, mine and process buildings
- Open pit mine
- Tailings storage facility
- Three waste rock facilities
- Ground water wells
- Power transmission line





A schematic showing the layout of the proposed major site infrastructure in relation to Mess Creek is included as Figure 5-1.

### 5.3.3 Road Access

Two access route options were identified for the Project in Bender et al. (2008). The first option (Mess Creek access route) extends north from More Creek along Upper Mess Creek, entering the proposed mine site area and Schaft Creek drainage near Snipe Lake.

A second option (Tahltan Highland route) traverses a high-elevation plateau south of Mess Creek and descends slopes on the east side of Mess Creek to intersect the first road option at km 25.5. A partially-constructed access road parallel to More Creek extends to Highway 37 east of the Iskut River.

The pre-feasibility study assumed that the Mess Creek access route was the preferred alternative. The route is shown in Figure 5-2.

# 5.4 Physiography

The Schaft Creek area is located within the Boundary Range of the Coast Mountains. The Schaft Creek valley area, at an elevation of 866 m, is the up-stream extension of the Telegraph Creek Lowlands. The immediate area of the Project is approximately 3 by 3 km in size rising rapidly eastward from the valley bottom to near-tree line elevation at the saddle in the vicinity of Snipe Lake, and towards Mess Creek to the east. The surrounding mountain to the south and west of the deposit is steep and rugged.

The Project area rises to above 2,000 m from the valley floor to snow-capped mountain peaks and ice fields within a few kilometres of the camp. To the east the elevation drops from the Snipe Lake saddle to Mess Creek. To the north of the deposit is the west-facing slope of Mount LaCasse, 2,200 masl. The broad, 1 km wide, north–south-trending valley of Schaft Creek to the west of the camp site is a braided stream plain made up of thick, glacio-fluvial and fluvial deposits.

The valleys and associated tributaries are typical alpine and sub-alpine glaciated valleys that exhibit broad U-shaped cross sections and steep valley slopes. The elevation of the tree line is variable but alpine vegetation predominates above the 1100 m level. Below that, forests are made up of balsam fir, sitka spruce, alder, willow, devils club and cedar. Higher up the valleys, glacial moraines are bare to sparsely overgrown by sub-alpine vegetation.





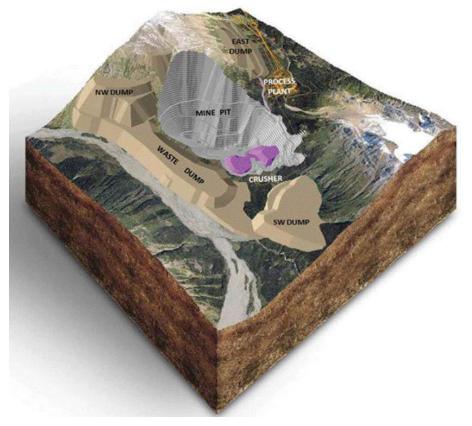


Figure 5-1: 2008 Pre-feasibility Study Proposed Site Layout Schematic

Note: Figure courtesy Copper Fox.





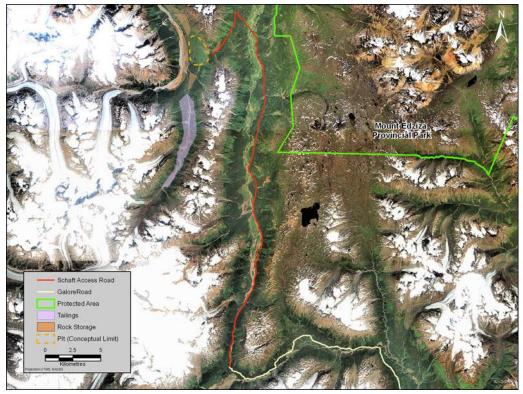


Figure 5-2: Proposed Access Road Location

Note: Figure courtesy Copper Fox.

# 5.5 Comments on Section 5

In the opinion of the QPs:

- There is sufficient suitable land available within the concessions for any future tailings disposal, mine waste disposal, and installations such as a process plant and related mine infrastructure.
- A review of the existing and likely power and water sources, manpower availability, and transport options indicate that there are reasonable expectations that sufficient labour and infrastructure is available to support declaration of Mineral Resources.
- It is expected that any future mining operations will be able to be conducted yearround.





# 6.0 HISTORY

Copper–gold–molybdenum mineralization was discovered at Schaft Creek in 1957 by prospector Nick Bird who was employed by the BIK Syndicate, a consortium of Silver Standard Mines Ltd., McIntyre Porcupine Mines Limited, Kerr Addison Mines Ltd. and Dalhousie Oil Ltd. The syndicate performed rock chip sampling, 3,000 feet of hand trenching, and completed three BQWL-sized (36.4 mm core diameter) diamond drill holes (629 m).

The prospecting syndicate was re-organized in 1966 into Liard Copper Mines Ltd. in order to recognize the respective interests of its members and to consolidate the holdings in the area. Silver Standard Mines Limited (Silver Standard), with a 66% interest, was the operator of the Project.

Asarco Inc. (Asarco) obtained an option over the Liard ground during 1966. Work completed included geological mapping and prospecting, induced polarization surveys and completion of 27 drill holes (12,441 ft or 3,792 m). A camp and airstrip were constructed. The option was relinquished in 1967.

Hecla Mining Company of Canada Limited (Hecla), a subsidiary of Hecla Mining Company of Wallace, Idaho, entered an option agreement to earn a 75% property interest. Hecla, in the period 1968 through 1977, completed 30,894 m of BQ (36.4 mm core diameter) and NQ-size (47.6 mm) core drilling, 6,500 m of percussion drilling, induced polarization and resistivity geophysical surveys, detailed and reconnaissance geological mapping, petrographic studies, aerial photography, and commenced engineering studies.

Giroux and Ostensoe (2004) note:

Wright Engineers Limited (Wright) was commissioned by Hecla in 1970 to produce a "preliminary feasibility study" to establish capital and operating costs and economics of development of a producing mine with capacity 50,000 short tons per day. Flowsheet and bench design parameters were based on two laboratory bench tests and a grinding test. The work indicated that a conventional open pit mining and milling operation was practicable.

Wright reviewed and updated their 1970 study in 1978 to include data from additional drilling and metallurgical test work and to review and revise costs. A bulk flotation flowsheet was prepared on the basis of the earlier test work: a conventional rod mill-ball mill grinding circuit was followed by bulk rougher flotation, with three stages of cleaning. After regrinding the rougher concentrate and molybdenite was to be separated from the bulk concentrate and upgraded by 12 stages of cleaning.





In 1978 Hecla sold its interest to Teck.

Teck, in 1980, commenced a program of exploration and drilling designed to confirm and expand on Hecla's work. Teck completed 199 core holes (80,767 ft or 24,617 m) for delineation and condemnation purposes. Teck then undertook an engineering study to determine the feasibility of mine development, and completed mineral resource and mineral reserve estimates. Further data reviews were completed by Western Copper Holdings in 1988 and Teck in 1993.

Copper Fox acquired the Project in 2002. Work completed since Project acquisition has included environmental baseline studies, regional and detailed mapping, stream sediment, grab, rock, and soil sampling, trenching and pitting, core drilling, ground geophysical surveys, mineralization characterization studies and metallurgical testing of samples. Petrographic studies and density measurements on the different lithologies have also been carried out.

In 2004, an initial resource estimate was prepared for Copper Fox. This was followed, in 2007, by a preliminary economic assessment based on an updated mineral resource estimate, and in turn, in 2008, by a pre-feasibility study.

Mineral resources were re-estimated for the pre-feasibility study, and mineral reserves declared. The pre-feasibility study assumed a conventional truck-and-shovel open pit mining operation producing 100,000 t/d feeding a conventional flotation and concentrator plant to produce copper and molybdenum concentrates. Under the assumptions in the pre-feasibility study, the Project was shown to have positive economics. During 2010, a feasibility study was commissioned by Copper Fox. Wardrop Engineering is managing the study.

As a consequence, Copper Fox are treating the pre-feasibility study as historic. Information in the pre-feasibility study is considered to be superseded, although some of the design bases in the study were used to support assessment of reasonable prospects of economic extraction, and to support discussions of likely Project infrastructure such as access routes.

AMEC was requested to perform the mineral resource estimate that will be the basis of the engineering estimates. The remainder of this Report discusses the updated mineral resource estimate performed by AMEC. This estimate supercedes that of the 2008 pre-feasibility study.





# 7.0 GEOLOGICAL SETTING AND MINERALIZATION

# 7.1 Regional Geology

The Canadian Cordillera comprises a number of disparate tectonic terranes that have been accreted to the western margin of North America. These terranes are classified into a number of super-terranes based upon a common assemblage prior to accretion to the craton. Five super-terranes exist in the Canadian Cordillera, the most important of which with respect to porphyry copper formation is the Intermontane belt.

The Intermontane belt includes three terranes which are known to host significant porphyry copper mineralization. From the east to the west, these are the Quesnellia, Cache Creek, and Stikina terranes. The terranes were amalgamated prior to accretion to ancestral North America, an event which is believed to have occurred sometime during the mid to late Jurassic. The majority of porphyry mineralization in these terranes occurred prior to the major accretionary event, and many of these pre-accretionary deposits are associated with island-arc settings.

The Schaft Creek deposit is located in the Stikina Terrane, which is the westernmost and most aerially extensive terrane of the Intermontane belt. The Stikina Terrane is composed of Devonian to Jurassic arc-related volcanic and sedimentary rocks with coeval plutons, and includes the Stikine Group of Devonian to Permian age, and the Stuhini Group of Triassic age.

The Schaft Creek deposit is hosted within the intermediate rocks of the Stuhini group. This group comprises a package of volcanic and sedimentary rocks that becomes dominated by sedimentary rocks eastwards, a trend which is consistent with the presence of a westerly volcanic arc. The Mess Lake facies hosts the Schaft Creek deposit and includes the most westerly volcanic rocks of the Stuhini Group, which are predominantly made up of basaltic andesitic to andesitic volcanic flows and subaerial tuffs, representing a proximal volcanic facies. The rocks of the Mess Lake facies unconformably overlie the Stikine Assemblage limestones of Lower Permian age to the northwest, and are unconformably overlain by Lower Jurassic conglomerates both to the west of Mess Creek and at their eastern margin. To the west, the rocks of the Mess Lake facies are bounded by the Hickman batholith. To the south, they are in faulted contact with Palaeozoic rocks of various affinities.

The Hickman batholith is a complexly-zoned intrusive body associated with the Middle to Late Triassic Stikine plutonic suite. Historical work indicated the presence of a cross-cutting intrusive body believed to be associated with the Three Sisters plutonic suite. This was the Yehiniko intrusive; however, recent U-Pb zircon dating supports a single zoned Triassic-aged intrusive rather than two distinct intrusive bodies. The





Yehiniko intrusive is interpreted to have provided the mineralizing fluids that formed the Schaft Creek deposit.

The general regional geology is shown in Figure 7-1, and a lithology key to the plan is included as Figure 7-2.

# 7.2 Project Geology

The Project geology description is summarized from Harrison et al., 2011.

### 7.2.1 Geological Setting

The Schaft Creek deposit lies between the Mess Creek valley and Schaft Creek along the western slope of Mount Lacasse. The deposit is bounded to the west by the Hickman batholith and to the east by volcanic rocks of the Mess Lake facies. The valley floor exposes the Stuhini Group volcanic units and conforms to the contact zone of these volcanic rocks with the east margin of the Hickman batholith. Topography within the valley floor is very subdued and largely covered by glacio-fluvial gravels. Bedrock exposures are very scarce in the lower elevations of the valley floor.

A total of 17 lithologies are recorded in drill logs. These are summarized in the following paragraphs.

Volcanic rocks of the Stuhini Group in the deposit area are andesitic to basaltic in composition and consist of various massive flows and pyroclastic deposits that dip steeply towards the east or northeast. The flows are massive and range from aphanitic to locally strongly augite-plagioclase±pyroxene phyric, while the pyroclastic units vary from ash-lapilli tuff to tuff breccia.

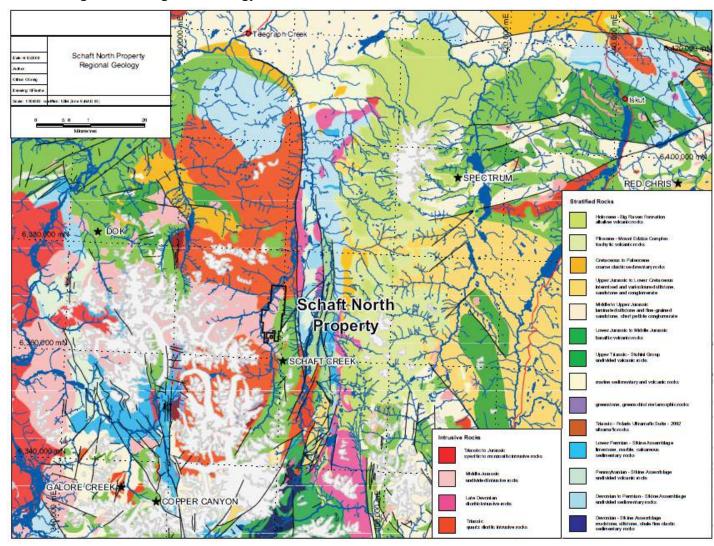
The volcanic rocks are intruded and brecciated by narrow and locally discontinuous dykes and apophyses emanating from the Hickman batholith. These intrusive rocks have been emplaced along variably north to northwesterly oriented structural breaks and are predominantly feldspar porphyry and feldspar quartz porphyry granodiorite. The felsic to intermediate intrusive rocks largely of granodioritic composition are more common and may form wider bodies in the northern part of the deposit, and become narrower and less prevalent in the southern portion.

Multiple phases of felsic intrusive rock are present. Both equigranular, granitic and feldspar quartz porphyritic varieties have been noted. There is considerable variation in the degree of alteration and mineralization among individual examples. Correlation of intrusive units between sections is ongoing, and may result in minor local changes in interpretation.









#### Figure 7-1: Regional Geology Plan

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#### Figure 7-2: Lithology Key to Regional Geology Plan

QUATERNARY					
Qt Active hotspring, calcareous tufa deposits					
Big Raven Formation					
Qal Unconsolidated glacial fill and poorly sorted alluvium	MIDDLE JURASSIC				
PLEISTOCENE	Three Sisters Plutonic Suite (179-176Ma)				
Arctic Lake Formation	MJ mz. Yehiniko Pluton: Pink, medium to coarse-grained, equigranular hornblende- blotte monzonite to granite				
Qb Olivine-plagioclase-augite basalt, subaerial lava flows, pyroclastic breccia and lenses of alluvium	LATE TRIASSIC TO EARLY JURASSIC				
TERTIARY-PLIOCENE	Copper Mountain Plutonic Suite (210-200Ma)				
Spectrum Formation	LTmz Loon Lake Stock: Salmon-orange, crowded plagioclase-pyroxene monzonite porphyry, trachytic and equigranular phases				
Exhile Hill Vent: Leucocratic peralkaline rhyolite and dark grey trachyte flows and	MIDDLE TO LATE TRIASSIC				
subvolcanic intrusions	Stikine Plutonic Suite (228-221Ma)				
Nido Formation (Kounugu Member)	LTHd Hickman Pluton: Medium to fine-grained, equigranular hornblende diorite,				
Dark grey, aphyric and microporphyritic olivine basalt, subaerial flows, flow breccia and intercalated fluvial gravel	LTpp Pale green, stubby-plagioclase porphyntic homblende-pyroxene dionte				
LOWER JURASSIC					
Maroon-weathering, polylithic cobble to boulder conglomerate and coarse	EARLY MISSISSIPPIAN				
Llog sandstone, well bedded, poorly-graded and quartz-rich, contains granitoid, volcanic and sedimentary clasts of Stikine assemblage and Stuhini Group strata	More Creek Plutonic Suite (~355Ma) EMg Equigranular to quartz-porphyritic biotite granite				
UPPER TRIASSIC					
Mess Lake Volcanic Facies					
UTSpp Maroon and dark green pyroxene porphyritic, plagioclase porphyritic and aphyric- basait flows and fragmental rocks					
UTSvt Massive to weakly stratified, grey and mauve lapilli and crystal tuff					
UTSvb Dark grey, massive plagioclase porphyritic basalt flows and coarse-bladed plagioclase and pyroxene porphyry dykes					
More Creek Sedimentary Facies Medium bedded, pale green tuff and epiclastic rocks, orange-weathering augite					
UTSV phyric and aphyric basalt flows and sills					
UTSs Thick bedded augite-bearing valcaniclastic sandstone, interbeds of sharpstone conglomerate					
UPPER CARBONIFEROUS					
UC Science of the second secon					
green turt and cherty suistone Pink flow-layered and spherulitic rhyolite, sparsely feldspar porphyritic lava and					
quartz teldspar-phyric flow breccia					
uCSmv Maroon andesitic feldspar-phyric lapilli and crystal tuff, includes unwelded to weakly welded ash-flow tuff beds					
uCSb Massive amygdaloidal, aphyric to plagioclase and pyroxene-phyric basalt and breccia flows					
uCSts Thin bedded, siltstone, poorly bedded tuff, tuffaceous wacke and sandstone, lesser chert					
MID CARBONIFEROUS (SERPUKHOVIAN - BASHKIRIAN)					
mCSc Grey, medium bedded to massive bioclastic limestone, locally with buff, silly doiomitic layers					
UPPER DEVONIAN AND LOWER CARBONIFEROUS (MISSISSIPPIAN)					
Pale to dark green, well bedded siliceous dust and ash tuff, scoriaceous DMSv1 mafic tuff and minor pyritic felsic welded tuff					
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This is because there are overlapping phases of alteration and mineralization that obscure original intrusive texture, classification of units can be uncertain due to rapid changes in internal textural variation from place to place in individual intrusive bodies and there are numerous eras of geological core logs, which are not consistent from drill program to drill program.

The orientation of the mineralizing structures, originally related to local stress fields, is associated with the emplacement of the batholith. Potassic alteration envelopes are associated with the dykes. Besides the genetic association of the dykes with the Hickman batholith, the batholith is also considered to be the source of the magmatic-hydrothermal fluids, which ultimately formed the mineralized breccias, veins and stockworks of the deposit.

Although the deposit is interpreted to be spatially related to the Hickman batholith, its exact position with respect to the batholith remains uncertain. The draping of the host volcanic rocks along the intrusion's eastern margin suggests that the deposit flanks the contact zone, but is related to one or more apophyses stemming from the main body of the Hickman batholiths (Figure 7-3). This relationship is further complicated by structural modification associated with accretionary tectonics.

Three geologically distinct and spatially separate zones, representing distinct porphyry environments constitute the Schaft Creek deposit (Figure 7-4 and Figure 7-5).

#### 7.2.2 Main Zone

The largest of these zones is the Main (Liard) zone, which is characterized by synintrusive polyphase quartz–carbonate veins and stockworks, and mineralized with variable amounts of chalcopyrite, bornite and molybdenite and late fracture-hosted molybdenite.

The Main zone has currently defined dimensions of  $1,000 \times 700 \times 300$  m depth. It has a 20° northerly plunge and is U-shaped in cross section, with the west boundary dipping 45° east and the east boundary dipping 80° west. Fracture, vein, sheeted vein and stockwork-controlled mineralization styles are hosted mainly by andesite flows.

This zone presently hosts the largest volume of mineralized material. Chalcopyrite is the dominant sulphide, followed by bornite, pyrite and molybdenite. The overall geometry of the zone in cross section, defined by metal distribution, is bowl or "U"-shaped. Copper Fox has interpreted this shape is the result of modification by late structural events. Initially, steep, easterly-dipping, volcanic successions influenced the distribution of upwardly-migrating hydrothermal solutions that originate from an apophyses of the Hickman batholith.





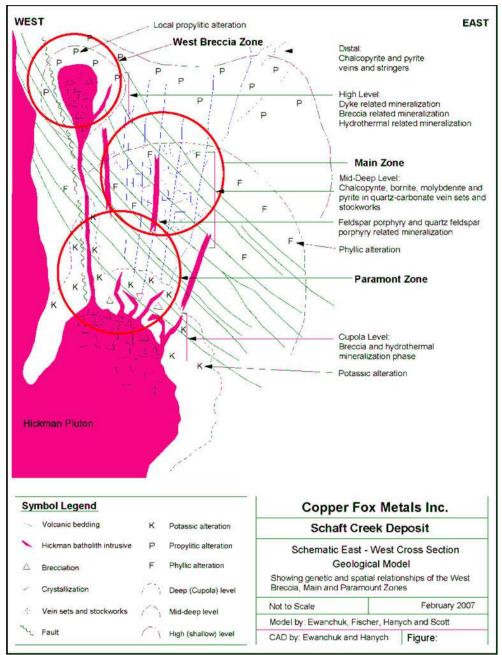


Figure 7-3: Geological Model Schematic Section

Note: Figure courtesy Copper Fox





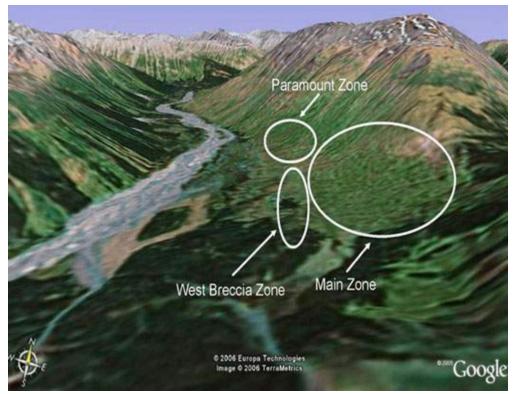


Figure 7-4: Deposit Location Schematic

Note: Figure courtesy Copper Fox; backdrop image from Google.

Subsequent to this, the lower portion of the zone was block faulted and rotated westerly by an ascending intrusion related to a later phase of the Hickman batholith. Higher gold values are associated with higher temperatures and bornite mineralization, whereas phyllic overprinting reflects lower temperatures, producing a pyrite-chalcopyrite association.

Sulphide species are dominated by, in order of decreasing abundance, chalcopyrite, pyrite, bornite and molybdenite. Other minerals that have been observed include sphalerite, galena, native copper and rarely cuprite. Malachite is most common in the oxidizing environment, and is usually associated with fractures.

The Main zone mineralization is controlled by syn-intrusive overpressure fractures and faults that propagated along bedding and lithological discontinuities and also formed regional scale longitudinal faults. The ground preparation served to accommodate the intrusion of feldspar porphyry dykes, hydrothermal veins, stockworks, vein sets and sheeted veins.



Veining in the Liard/Main zone is ubiquitous and abundant, and veins are the primary sulphide host. The following veins have been recognized with the Liard/Main zone and arranged from early to late:

- Early quartz veins with molybdenite and no carbonate
- Early quartz veins with high bornite Late quartz-carbonate veins with minor chlorite, containing chalcopyrite, bornite and trace molybdenum. These are the most common veins
- Late barren carbonate veins
- Late carbonate-gypsum veins

Vein widths vary from less than 1/10 mm to greater than 20 cm. The most common widths are 2 to 10 mm. Mineralogy of the veins is variable but is dominated by quartz and carbonate in varying proportions. The crystallinity of veins is mostly fine-grained. Wider veins, 2 to >10 cm display centers with 1 to 3 mm euhedral quartz and carbonate crystals, suggesting decompression. Ribbon veins are uncommon, but do occur, indicating continued distension of vein walls while gangue and minor sulphide minerals were being deposited. The position of sulphides within veins varies; commonly sulphides occur in the centre but are also concentrated along vein margins.

The relative sulphide abundance in veins varies strongly. Most commonly, total sulphides range from 1–10%, the remaining balance is usually quartz, carbonate and chlorite. Chalcopyrite stringers, 0.5–2 mm wide, are widespread and most commonly occur as sub-parallel clusters within the propylitic zone. Totally sulphide-free veins are uncommon and restricted to late-stage veins of carbonate and gypsum.

Vein density is generally in the order of 10–20 veins per metre; however, high densities ranging from 100–200 veins per metre do occur. Low vein densities ranging from 5–10 veins per metre can also be present. The orientation of veins is generally assumed to be random. Commonly, wider veins of 10 to 20 cm of quartz-carbonate have steep to vertical orientations relative to the core axis.

#### 7.2.3 Paramount Zone

The second largest zone is the Paramount zone, which is characterized by; primary sulphide mineralization associated with an intrusive breccia phase, containing chalcopyrite, bornite and molybdenite; quartz-carbonate stockworks; and late fracture molybdenite mineralization. This zone represents a deeper cupola environment.

The Paramount zone is the most northerly of the zones and has currently defined dimensions of 700 x 200 x 500 m depth. This east-dipping zone is situated north of the Main zone.





The mineralization is contained in an intrusive breccia within altered andesite and granodiorite. Chalcopyrite is the dominant sulphide, followed by molybdenite, pyrite and bornite.

The zone is characterized by a large volume of granodiorite, exhibiting a complex multi-phase intrusive, thermal and metasomatic history. The early granodiorite was brecciated by an overpressure event that intruded feldspar-quartz porphyry, which formed the matrix of the breccia. Subsequently, concentrically zoned sulphides exhibiting a core of pyrite, and successively rimmed by chalcopyrite and molybdenite were deposited by a hydrothermal fluid along with disseminated sulphides. This hydrothermal fluid metasomatically replaced potassic feldspar with plagioclase feldspar. The recrystallization of feldspar produced a fine grained, hornfelsic, mosaic rock.

Late pervasive silica flooding introduced and remobilized sulphides, forming quartz veins high in pyrite, chalcopyrite and molybdenite. In comparison to the other zones, the feldspars exhibit little to no alteration and are remarkably fresh. The fine-grained mosaic texture of the matrix feldspar is interpreted to be a result of high temperature thermal metamorphism.

The Paramount zone is the most proximal zone to the magmatic hydrothermal system, from which the mineralized solutions emanated. The Paramount zone is characterized by intrusive breccias, granodiorite and intense quartz flooding, associated with quartz veins hosted by the granodiorite.

Veining in the Paramount zone exhibits a spatial preference with granodiorite and is commonly associated with quartz flooding. Sulphide mineralized stockworks are rare. Veins often display diffuse wall boundaries and within the zone of flooding may contain millimetre to centimetre wide chalcopyrite and molybdenite stringers. Chlorite veinlets form a coalescing network resulting in a crackle breccia mineralized with molybdenite, chalcopyrite, and tourmaline.

The significant features of veining within the Paramount zone include:

- Variable densities, from millimetre to metre spacing
- Variable vein-widths, from <1–10 mm to 50 cm
- Dips are generally steep, but horizontal dips also exist. Scattered, 1 mm wide, parallel chalcopyrite stringers commonly have a shallow dip relative to the horizontal





Strikes of major veins most likely conform to regional trends, stockworks and major vein sets. They are probably controlled by local stress fields, but may have concentrated along specific lithological horizons, contacts or bedding planes

• The Hickman batholith was the source of hydromagmatic and hydrothermal fluids from which the veins were generated.

#### 7.2.4 West Breccia Zone

The smallest of the zones is the West Breccia zone. It is characterized by quartz tourmaline veining, pyrite and a hydrothermal breccia. This zone represents a low-temperature epizonal environment. Feldspar porphyry, in part, propagated a fault and breccia network that allowed the introduction of hydrothermal fluids and a volatile phase. Eventually this process created a breccia-pipe.

The West Breccia zone has currently defined dimensions of  $500 \times 100 \times 300$  m depth, and lies immediately west of the Main zone. Mineralization is contained within a fault-controlled tourmaline and sulphide rich hydrothermal breccia and feldspar porphyry.

Chalcopyrite is the dominant sulphide, followed by pyrite, bornite, and molybdenite.

The breccias exhibit multi-phase brecciation, heating, and sulphide mineralization. Initially, an early phase of ghost-like brecciation of a fine-grained felsic rock deposited fine sulphide disseminations, resulting in a polygonal pattern. Subsequent to this, an igneous phase brecciated the protolith and formed a matrix of fine-grained, flow oriented lath-like feldspar rock. This was followed by a hydrothermal breccia phase that precipitated coarse sulphides, chalcopyrite and molybdenite. The last event was another hydrothermal phase that is sulphide deficient but rich in tourmaline and quartz. The margins of the zone exhibit late phase, metal-deficient, intense, pervasive sericitic and carbonate alteration styles.

Veining in hydrothermal and intrusive breccias is much less prevalent than in andesitic volcanic rocks of the West Breccia zone. The veins are mineralogically composed of varying amounts of quartz-carbonate-chlorite. These veins are usually a late phase and sulphide-poor. The dominant vein assemblage is mono-mineralic and usually carbonate, varying in widths from 1 to 3 mm and commonly vuggy. Rare quartz-molybdenite-chalcopyrite veins occur in breccia rocks, preferentially within a few m of the contact with volcanic rocks.

The West Breccia zone is fault controlled, but is thought to connect with the Paramount zone via a fault feeder channel. Similar fine-grained felsic igneous rocks occur in both zones, despite being separated by 1000 m.





#### 7.3 Mineralization

In decreasing order of abundance, for the deposit as a whole, the following sulphide minerals occur: chalcopyrite (50%), pyrite (22.8%), bornite (14.2%), and molybdenite (13%).

Copper sulphide mineralogy is dominated by chalcopyrite and bornite, the most essential copper ore minerals, which occur in stockworks, as disseminations, and in breccias. Less commonly, chalcopyrite is observed as very thin (10–100  $\mu$ m) partial coatings on ubiquitous, decimeter spaced fractures and joints.

Molybdenite occurs as disseminated blebs and stringers in stockworks and veins and is quite common in the breccia zones. It can form thin coatings on slickensides and fractures.

Rare accessory sulphide minerals that have been observed include sphalerite, galena, native copper and possibly tetrahedrite.

Stockwork and vein associated mineralization are the most common mineralization styles. A wide range of widths of quartz-carbonate-sulphide veins exists; from 0.1 to 1.0 mm to the most common width of 1 to 10 mm, while rare 5 to 20 cm veins exist. 0.5 to 3 mm wide chalcopyrite stringers and crackle breccia veinlets of millimetre to centimetre spacing, 0.5 to 1 mm wide, randomly oriented, sulphide filled, distensional vein system are also common sulphide-bearing veins. The orientation of sulphide-bearing veins is considered random, but there is a tendency for such veins to be steeply dipping.

Medium- to fine-grained disseminated chalcopyrite, bornite, and pyrite are a common type of mineralization associated with feldspar porphyry dykes and their potassic alteration halos. Disseminated sulphides also occur in the millimetre to centimeter potassic halos around veins.

Very fine disseminated sulphides of chalcopyrite and pyrite, 20 to 200  $\mu$ m in size are observed in polished and thin section samples of weakly altered andesitic volcanic rocks. These sulphide grains are dispersed throughout the rock and are associated with <1 mm clusters of quartz–chlorite–sericite.

Very thin sulphide coatings on fractures are common. These coatings are commonly very thin chalcopyrite or minor molybdenite film. The estimated thicknesses of the coatings are in the order of 20–100  $\mu$ m. This feature differs from molybdenite-coated slickensides as it lacks striations.





Hydrothermal breccia matrix is the infilling of inter-clast space for hydrothermally deposited chlorite, carbonate, quartz, tourmaline and sulphides. This style of mineralization is an important but volumetrically smaller mineralization type in the West Breccia and Paramount zones.

Chalcopyrite, bornite, minor molybdenite, and trace pyrite are the dominant sulphides and are generally coarse-grained, ranging from 1 to 10 mm.

The deposition of sulphides at Schaft Creek is the result of a complex polyphase series of mineralizing events. Figure 7-5, Figure 7-6 and Figure 7-7 display cross-section through the Schaft Creek deposit showing copper, gold, and molybdenum grades, respectively.

#### 7.4 Alteration

The typical porphyry alteration assemblages are observed at Schaft Creek. These consist of typical potassic alteration (K-feldspar +/- rare biotite) and sericite–chlorite alteration (a hybrid phyllic alteration), with chloritic and propylitic alteration typically developed distally at shallow and deeper levels respectively

In plan view, the distribution of potassic alteration at Schaft Creek is atypical of a "normal" porphyry system in that it occurs as three distinct linear zones 100 to 300 m in width and 1,000 to 1,200 m in length. This suggests that hydrothermal solutions and associated feldspar porphyry were channelled in a complex system of conduits controlled by north–south structures.

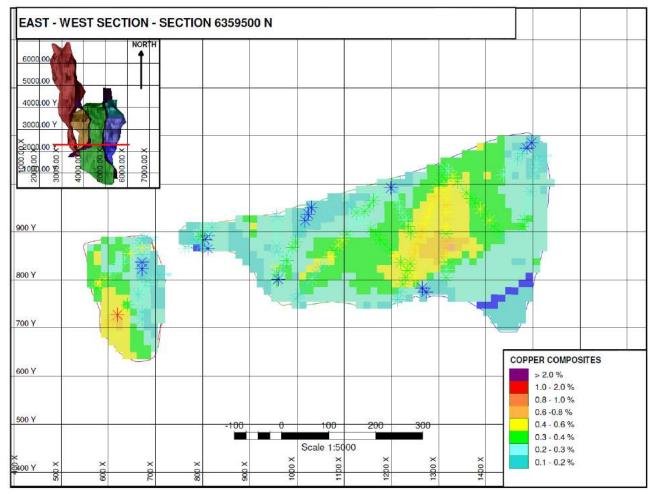
Quartz-sericite-pyrite (phyllic) alteration occurs as a late overprinting, imparting a yellowish tinge to the rock. It is much more pervasive in its distribution but appears to have been controlled by the same 'plumbing' system as the potassic alteration. In plan view, it forms a linear, continuous zone, 200–300 m in width, stemming from the Paramount zone in a general south direction. In the vicinity of the Main zone it curves to the northeast, forming a "U" shape. Harrison et al. (2011) note that although phyllic alteration is locally observed, the equivalent dominant assemblage is a chlorite-sericite assemblage. The chlorite-sericite assemblage imparts a pale grey-green colour to the rocks and normally over-prints or partially destroys the earlier potassic assemblage.

Propylitic alteration forms an extensive zone, loosely conforming to, but extending well beyond, the zones of potassic and phyllic alteration. Epidote alteration is locally abundant in the outer fringes of the West Breccia zone. It may overlap with the deposit-scale propylitic zone.





# Figure 7-5: Example Vertical Section (6,359,500N) with 15 m Composites Coloured by Cu (%) Ranges Overlapping Lithological Interpretation



Note: grid squares are 100 m x 100 m





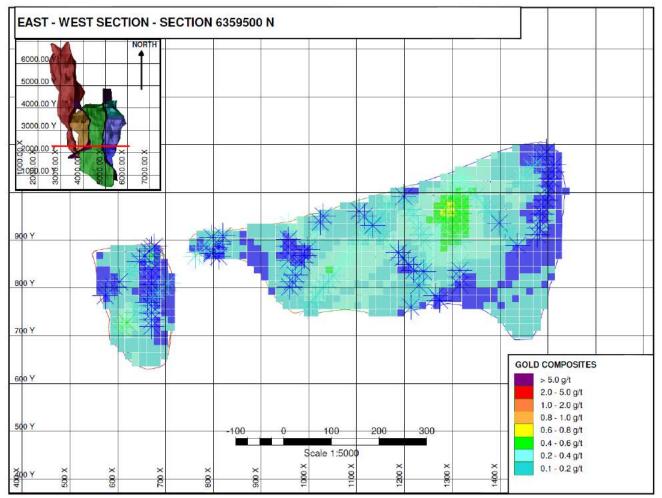
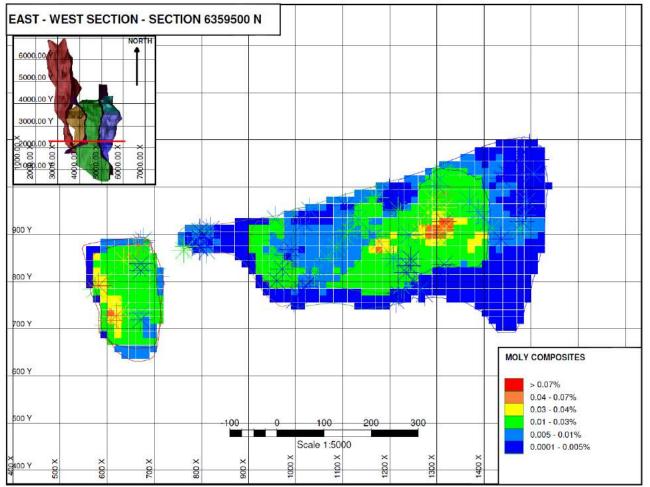


Figure 7-6: Example Vertical Section (6,359,500N) with 15 m Composites Coloured by Au (g/t) Ranges

Note: grid squares are 100 m x 100 m







#### Figure 7-7: Example Vertical Section (6,359,500N) with 15 m Composites Coloured by Mo (%) Ranges

Note: grid squares are 100 m x 100 m





Silicification occurs as centimetre to metre sections of quartz flooding and stockworks and typically overprints the host rocks. Bornite and chalcopyrite mineralization in the form of disseminations and stringers are commonly associated with this phase.

Hematite alteration forms extensive zones, imparting a reddish tinge to the rocks. It is a late phase of alteration, and is best developed in the volcanic rocks.

#### 7.5 Oxidation

Extensive areas in the vicinity of the Saddle contain fractures painted and disseminated with malachite. In drill core, open vuggy quartz veins and fractures exhibit the effects of oxidizing conditions up to 30 m depths.

#### 7.6 Structure

Fracturing and faulting are ubiquitous and generally strong, in all zones. Key findings from geological mapping and core logging include:

- Fractures have a generally moderate to high density spacing, resulting in low rock quality designation (RQD) numbers; there are several conjugate fracture directions
- Microfaulting is common, often occurring as groups of parallel, centimetre-spaced microfaults showing several en echelon offsets of a vein. Each offset is 5 mm to 1 cm
- Slickensides and striations are common; striations are commonly coated with hematite or molybdenite
- Crushed zones were noted in the Main zone, and are common in the Paramount zone. They are preferentially developed in granodiorite
- Fault spacing is typically of the order of 1–10 m; dips are steep with variable strikes and are assumed to be preferentially north–south oriented; strongly fractured rocks with 3–50 fractures per metre are commonly logged as fault zones
- Foliated units are 1 to 10 m wide, generally with steep dips and an unknown strike orientation; foliation generally includes brecciation and an introduction of chlorite
- Minor, strongly foliated, feldspar porphyry, associated with several mylonite units, fault gouges and diabase dykes indicates zones of structural weakness and strong deformation; these zones are associated with an epidote–chlorite–hematite breccia matrix and oriented quartz veins.





#### 7.7 Prospects

The ES Zone is located approximately 3 km north of the Paramount Zone and has an extent of about 1,100 m long by 300 m wide. The 32 samples collected from this zone averaged 0.87% copper and 0.31 g/t gold.

The GK Zone is located approximately 3 km north of the ES Zone and has an extent of least 1,700 m long by 250 m wide. The 17 grab and chip samples collected from the GK Zone averaged 1.24% copper, 16 g/t silver and 0.07 g/t gold.

Prospect locations are shown in Figure 7-8.

#### 7.8 Comment on Section 7

In the opinion of the QPs, knowledge of the deposit settings, lithologies, and structural and alteration controls on mineralization within the Schaft Creek deposit is sufficient to support Mineral Resource estimation.

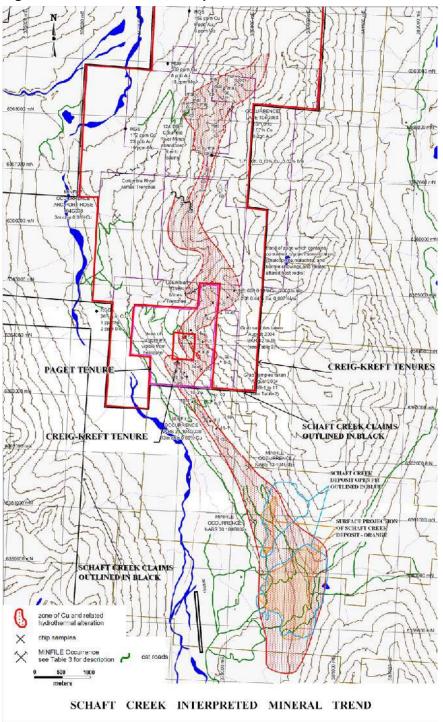
The near-by prospects are at an earlier stage of exploration, and the lithologies, structural, and alteration controls on mineralization are currently insufficiently understood to support estimation of Mineral Resources.

The mineralization style and setting of the deposit is sufficiently well understood to support Mineral Resource estimation





Figure 7-8: Location Plan, Prospects







### 8.0 DEPOSIT TYPES

The Schaft Creek deposit is considered to be an example of a primary porphyrycopper system. The following discussion of the typical nature of porphyry-copper deposits is sourced from Sillitoe, (2010), Berger et al., (2008), and Sinclair (2006).

Porphyry-copper systems commonly define linear belts, some many hundreds of kilometres long, as well as occurring less commonly in apparent isolation. The systems are closely related to underlying composite plutons, at paleo-depths of 5 km to 15 km, which represent the supply chambers for the magmas and fluids that formed the vertically elongate (>3 km) stocks or dike swarms and associated mineralization.

Commonly, several discrete stocks are emplaced, resulting in either clusters or structurally controlled alignments of porphyry-copper systems. The rheology and composition of the host rocks may strongly influence the size, grade, and type of mineralization generated in porphyry-copper systems. Individual systems have life spans of circa 100,000 years to several million years, whereas deposit clusters or alignments, as well as entire belts, may remain active for 10 million years or longer.

Deposits are typically semicircular to elliptical in plan view. In cross section, ore-grade material in a deposit typically has the shape of an inverted cone with the altered, but low-grade, interior of the cone referred to as the "barren" core. In some systems, the barren core may be a late-stage intrusion.

The alteration and mineralization in porphyry-copper systems are zoned outward from the stocks or dike swarms, which typically comprise several generations of intermediate to felsic porphyry intrusions. Porphyry copper–gold–molybdenum deposits are centered on the intrusions, whereas carbonate wall rocks commonly host proximal copper–gold skarns and less commonly, distal base metal and gold skarn deposits. Beyond the skarn front, carbonate-replacement copper and/or base metal–gold deposits, and/or sediment-hosted (distal-disseminated) gold deposits can form. Peripheral mineralization is less conspicuous in non-carbonate wall rocks, but may include base metal- or gold-bearing veins and mantos. Data compiled by Singer et al. (2008) indicate that the median size of the longest axis of alteration surrounding a porphyry copper deposit is 4–5 km, while the median size area of alteration is 7–8 km<sup>2</sup>.

High-sulphidation epithermal deposits may occur in lithocaps above porphyry-copper deposits, where massive sulphide lodes tend to develop in deeper feeder structures and precious metal-rich, disseminated deposits form within the uppermost 500 m.

Porphyry-copper mineralization occurs in a distinctive sequence of quartz-bearing veinlets as well as in disseminated forms in the altered rock between them. Magmatic-





hydrothermal breccias may form during porphyry intrusion, with some breccias containing high-grade mineralization because of their intrinsic permeability. In contrast, most phreatomagmatic breccias, constituting maar-diatreme systems, are poorly mineralized at both the porphyry copper and lithocap levels, mainly because many such phreatomagmatic breccias formed late in the evolution of systems.

Copper mineral assemblages are a function of the chemical composition of the fluid phase and the pressure and temperature conditions affecting the fluid. In primary, unoxidized or non-supergene-enriched ores, the most common ore–sulphide assemblage is chalcopyrite  $\pm$  bornite, with pyrite and minor amounts of molybdenite. In supergene-enriched ores, a typical assemblage can comprise chalcocite + covellite  $\pm$  bornite, whereas, in oxide ores, a typical assemblage could include malachite + azurite + cuprite + chrysocolla, with minor amounts of minerals such as carbonates, sulphates, phosphates, and silicates. Typically, the principal copper sulphides consist of millimetre-scale grains, but may be as large as 1–2 cm in diameter and, rarely, pegmatitic (larger than 2 cm).

Alteration zones in porphyry-copper deposits are typically classified on the basis of mineral assemblages and consist of potassic, propylitic, phyllic and argillic zones. In silicate-rich rocks, the most common alteration minerals are K-feldspar, biotite, muscovite (sericite), albite, anhydrite, chlorite, calcite, epidote, and kaolinite. In silicate-rich rocks that have been altered to advanced argillic assemblages, the most common minerals are quartz, alunite, pyrophyllite, dickite, diaspore, and zunyite. In carbonate rocks, the most common minerals are garnet, pyroxene, epidote, quartz, actinolite, chlorite, biotite, calcite, dolomite, K-feldspar, and wollastonite. Other alteration minerals commonly found in porphyry-copper deposits are tourmaline, andalusite, and actinolite.

Porphyry-copper systems are initiated by injection of oxidized magma saturated with sulphur- and metal-rich, aqueous fluids from cupolas on the tops of the subjacent parental plutons. The sequence of alteration–mineralization events is principally a consequence of progressive rock and fluid cooling, from >700° to <250°C, caused by solidification of the underlying parental plutons and downward propagation of the lithostatic–hydrostatic transition. Once the plutonic magmas stagnate, the high-temperature, generally two-phase hyper-saline liquid and vapour responsible for the potassic alteration and contained mineralization at depth and early overlying advanced argillic alteration, respectively, gives way, at <350°C, to a single-phase, low- to moderate-salinity liquid that causes the sericite–chlorite (phyllic) and sericitic alteration and associated mineralization. This same liquid also causes mineralization of the peripheral parts of systems, including the overlying lithocaps.





The progressive thermal decline of the systems combined with syn-mineral paleosurface degradation results in the characteristic overprinting (telescoping) and partial to total reconstitution of older by younger alteration–mineralization types. Meteoric water is not required for formation of this alteration–mineralization sequence, although its late ingress is common.

#### 8.1 Comment on Section 8

In the opinion of the QPs, Schaft Creek is considered to be an example of a porphyry system based on the following:

- Multiple emplacements of successive intrusive phases and a variety of breccias
- Copper-bearing igneous rocks are intrusive into host volcanic and sedimentary rocks
- Mineralization is spatially, temporally, and genetically associated with the intrusive–breccia activity and hydrothermal alteration of the intrusive and breccia bodies
- Large zones of veining and stockwork mineralization, together with minor disseminated and replacement mineralization occur throughout large areas of intrusive–breccia and hydrothermally-altered rock
- Hydrothermal alteration is extensive and zoned, which is common to porphyry copper deposits. The alteration assemblages are consistent with the physico-chemical conditions of a porphyry environment
- Mineralization is focused in well-developed quartz–sulphide stockworks; veins, crackle and breccia zones are also present
- Tenor of copper, molybdenum, silver, and gold grades.
- Large tonnage.



### 9.0 EXPLORATION

Exploration activities such as geological mapping and sampling have been performed by Copper Fox and predecessor companies Asarco, Hecla, Paramount, Silver Standard and Teck. Contractors were used for activities such as geophysical surveys.

Exploration activities on the Project have included regional and detailed mapping, stream sediment, grab, rock, and soil sampling, trenching and pitting, core drilling, ground geophysical surveys, mineralization characterization studies and metallurgical testing of samples. Petrographic studies and density measurements on the different lithologies have also been carried out.

A summary of the work programs completed to the Report effective date are summarized in Table 10-1.

#### 9.1 Grids and Surveys

In 1969, Hecla contracted Underhill and Underhill to set up a local grid. Nine cairns were erected using a helicopter. A survey of the claims separating the Liard and Paramount properties was completed and a legal boundary was established.

In 1980, Teck contracted McElhanney Associates to survey all drill hole collars using a laser thedolite located at fixed previously surveyed points with prisms at drill hole collars. McElhanney also surveyed some of the Hecla drill holes to tie in the survey to the previous Hecla surveys.

Eagle Mapping completed a photogrammetry survey during 2005 to provide sufficient topographic resolution to support pre-feasibility and feasibility-level studies. Data were provided at 1:2,000 scale and on 5 m contour intervals.

#### 9.2 Geological Mapping

In 1964, the BIK syndicate completed basic mapping of eight traverses crossing the area of the Schaft Creek deposit.

In 1969, Hecla completed regional geological mapping of the area surrounding the Schaft Creek deposit covering an area of 10 miles by 6 miles at a scale of 1":400'.

In 1971, the Geological Survey of Canada mapped the regional geology at a scale of 1:250,000. Geological mapping by BC Department of Mines, Hecla and Teck personnel supplemented drill hole information.





Year	Company	Work Performed	Comment
1964	BIK syndicate	eight geological mapping traverses	
		excavation of 3,000 ft of "trenches" using hand tools	
1965	Silver Standard	Geological mapping	
		IP survey	
1966	Paramount	450 soil samples	Performed by Adera Mining
		IP and magnetic geophysical surveys	
1966	Asarco	Exploration program, construction of airstrip, permanent camp erected	
1972	Phelps Dodge	soil and silt geochemical survey	Number of samples taken unknown
		cobra drill trenching, bulldozer trenching	trenches yielded disappointing results
		induced polarization, magnetometer, and magnetic geophysical surveying	weak and apparently discontinuous anomalies
1974	Hecla	low level air photography	
		induced polarization surveys	Performed by McPhar Geophysics Ltd
Late 1970s	Teck	17 rock chip samples	Claim 517462
1980	Teck	IP geophysical survey	Performed by Phoenix Geophysics
1981	Teck	5 rock chip samples (45 m)	Claim 517462
1969	Hecla	Setup of local grid	Performed by Underhill and Underhill surveyors
		Regional geological mapping	Area of 10 miles by 6 miles at a scale of 1":400
1980	Teck	Resurvey of drill collars	Performed by McElhanney Associates
2005	Pembrook	5 rock samples	Pembrook claim
2006	Pembrook	24 rock samples	Identified two Au and Cu anomalous zones
2007	Copper Fox	Prospect-scale geological mapping	Area of 3.6 km by 2.6 km at a scale of 1:5,000
		IP survey	induced polarization – chargeability anomaly found immediately east of the Liard Zone
2008	Greig and Kreft	183 soil samples	
		17 grab and chip samples	
2010	Copper Fox	Titan-24 direct current induced polarization (DCIP) and magneto-telluric (MT) surveys on 10 lines with one tie-in line	Performed by Quantec Geosciences Ltd.
2011	Copper Fox	High resolution aeromagnetic survey	Performed by Precision GeoSurveys Inc

#### Table 9-1: Exploration Summary Table





In 2007, Copper Fox completed a surface mapping program that encompassed an area of 3.6 km by 2.6 km (936 ha) was completed at a scale of 1:5,000 using global positioning system (GPS) control. Targeted outcrops were identified by airphoto interpretation and archival geological maps. Locations were subsequently plotted on a 1:5,000 topographical base map derived from digital orthophoto georeferenced maps produced by Eagle Mapping Ltd.

#### 9.3 Geochemical Sampling

#### 9.3.1 Rock Chip Sampling

A total of 17 rock chip samples were taken by Teck over Claim 517462, which returned low grade copper and molybdenum grades. A portion of the same claim area was sampled in June 1981 by Teck, with five chip samples for a total of 45 m collected. Results were not encouraging.

During 2005, Pembrook conducted a limited reconnaissance mapping program, during which five rock chip samples were collected. Two 40 cm chip samples yielded excellent gold values, with one returning 3.56 g/t Au, 4.6 ppm Ag, 2.06% Cu, and 805 ppm Mo, and the other 1.520 g/t Au, 32.5 g/t Ag, 6.40 % Cu, and 679 ppm Mo. In addition, a 4.0 metre chip sample yielded 0.610 g/t Au, 3.8 g/t Ag, 0.848% Cu, and 98 ppm Mo.

In their follow-up program in 2006, Pembrook collected a total of 24 rock samples, noting that significant copper mineralization was traced along the intrusive–volcanic contact over a strike length exceeding one kilometre, and across widths of up to 300 m (Bradford 2006). Bradford (2006) noted that the average grade of the 24 samples collected was 5,532 ppm Cu and 0.131 g/t Au, and that a small zone containing higher-grade gold mineralization was identified in the southern part of the property, west of where the higher-grade gold mineralization discovered in the 2005 sampling was encountered. In the new zone, five samples averaged 4,290 ppm Cu and 0.536 ppm Au. Bradford (2006) noted that the zone of copper mineralization outlined by Pembrook the previous year (and by others prior to that), and which more or less coincided with the contact between intrusive and volcanic rocks, was in fact not confined to the contact, but extended well into the intrusive rocks.

Wide-spaced reconnaissance sampling on the Greig/Kreft claims in 2008 consisted of 17 grab and chip samples that averaged 1.24% copper, 16 g/t silver and 0.07 g/t gold according to a property assessment report filed in 2008.





#### 9.3.2 Soil Sampling

Little geochemical sampling has been conducted at Schaft Creek due to the presence of thick transported glacial till and alluvial layers which obscure any geochemical response from underlying mineralisation in bedrock.

A total of 450 soil samples were taken over Claim 517462 by Adera Mining Ltd. during 1966.

In 1972, a fairly extensive work program was undertaken by Phelps Dodge Corporation of Canada Ltd., on what is now the southern and central parts of the Greater Kopper claim, north of the claims held by Paramount Mining Ltd. (Phelps and Gutrath 1972). Phelps Dodge had optioned the property from Columbia River Mines Ltd., and their work program included a soil and silt geochemical survey.

In 2008, Greig and Kreft completed a soil geochemical survey. Because of the steepness of the terrain, the location of the reconnaissance soil geochemical lines was determined primarily by where it was possible to traverse across the belt without encountering overly dangerous terrain. Samples on each line were spaced approximately 25 m apart. A total of 183 soil samples were collected, with 122 samples yielding values greater than 100 ppm copper, 28 returning over 400 ppm Cu, 69 with over 200 ppm Cu, and a high of over 1% Cu (12,900 ppm). Nine samples returned values greater than 100 ppb gold, with a high of 959 ppb Au, and 82 samples vielded greater than 10 ppm molybdenum, with 22 samples returning greater than 20 ppm molybdenum, and a high of 205 ppm molybdenum. A considerable number of soil geochemical samples yielded multi-element anomalies.

#### 9.4 Geophysics

In 1966, Adera Mining Ltd. on behalf of Paramount completed induced polarization and magnetic geophysical surveying. In 1972, Phelps Dodge undertook an induced polarization and resistivity survey, and a magnetometer survey. Phelps Dodge also ran an induced polarization and resistivity survey on the Arc and Rose grid in 1972, but only weak and apparently discontinuous anomalies were found (Mullan and Bell 1972). AMEC has not been able to confirm which claim the Arc and Rose grid was established on.

In 1974, Hecla established a grid of cut lines for mapping and geophysical surveys and conducted low level air photography. Induced polarization surveys completed by McPhar Geophysics Ltd. revealed the distribution of sulphides, in particular the pyritic halo, which proved to be a reliable tool for predicting trends of mineral zones.





In 1980 Teck contracted Phoenix Geophysics to complete an IP geophysical survey over the Schaft Creek claims using a dipole-dipole array with dipole lengths of 100 m on 300 m-spaced lines (Betmanis, 1980). The results showed the presence of a strong northeast-striking IP anomaly associated with the Main Zone (Liard Zone).

In 2007, Copper Fox completed an IP survey over an area which had been proposed as a potential mill site. An induced polarization–chargeability anomaly was found immediately east of the Liard Zone. It is 250 to 300 m wide and is located in an area never touched by drilling or geophysical surveys. The coincident chargeability and resistivity anomalies have a similar signature to that of the Main/Liard Zone, as shown on the same survey line further west. This anomaly is directly south of the mineralization found under the LaCasse ridge.

In 2010, Copper Fox contracted Quantec to complete a Titan-24 geophysical survey comprising direct current induced polarization (DCIP) and magneto-telluric (MT) surveys over the Schaft Creek deposit. The survey was completed on ten lines that were surveyed using differential GPS instrumentation. Survey sections were completed at 400 m line spacing, with stations at 50 m intervals along lines. The Titan-24 survey typically images DC resistivity to depths of 500–750 m and the IP typically images to 500–750 m, in sub-vertical tabular geological settings. Results included (Figure 9-1):

- The IP survey failed to reconfirm the chargeability anomaly identified in 2007
- The chargeability anomaly that reflects the Schaft Creek deposit has been extended an additional 800 m to the north and 800 m to the south. The anomaly has a strike length of 3,200 m and significantly increases the potential size of the deposit
- At a depth of 700 m below surface, the chargeability anomaly located in the center of the Schaft Creek deposit measures 1,000 m long by 500 m wide and is open to depth
- The chargeability anomaly suggests that the majority of the historical drilling was completed on a possible flank of the deposit (Liard Zone) and was too shallow to test the deeper part of the chargeability anomaly.

In April 2011, Copper Fox contracted Precision GeoSurveys Inc. from Vancouver, British Columbia to perform a high resolution aeromagnetic survey. The airborne survey was flown at 200 m-spaced flight lines at an average altitude above ground level of 39 m. Tie lines were flown at 2 km intervals. The magnetic data were collected using a Scintrex cesium vapour CS-3 magnetometer, a high sensitivity/low noise magnetometer.





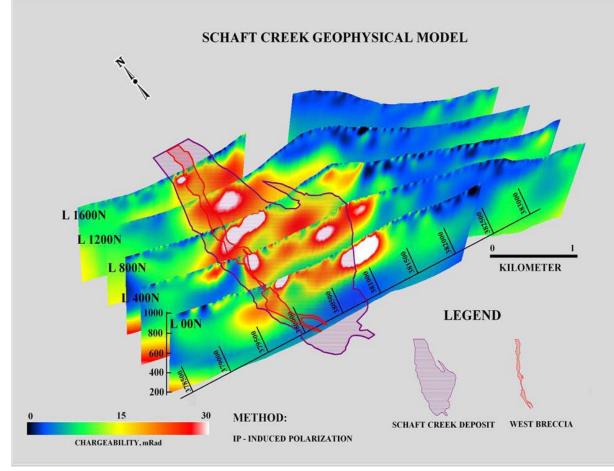


Figure 9-1: Geochemical and Ground Geophysical Anomalies, Schaft Creek

Note: Figure courtesy Copper Fox

The magnetometer and the base station used in the survey have absolute accuracy range of 0.1 nT (gamma) and a sensitivity of 0.1 nT (gamma) at a two-second sampling rate.

The high resolution airborne magnetic survey covered a 25 km long by 17 km wide area. A total of 2,520 line kilometres (including tie-lines) of survey were completed. The preliminary interpretation of the Total Field magnetic data (TF) and the Calculated Vertical Gradient (CVG) magnetic data has identified a potential area of exploration interest that has a strike length of approximately 20 km.

The area of exploration interest is an elliptical shaped zone that is approximately 4 km wide by 20 km long and bounded on both sides by narrow, linear, positive TF and CVG





magnetic signatures. These positive magnetic signatures are interpreted to be regional scale faults.

The Schaft Creek deposit, the ES and GK zones of copper mineralization and the recently identified Schaft Creek mineral trend are located immediately adjacent to the 20 km-long positive magnetic feature located on the west side of the area of exploration interest.

The airborne magnetic survey has identified three distinct positive magnetic signatures that correlate with the Schaft Creek deposit and the ES and GK zones of copper mineralization (Figure 9-2).

The airborne magnetic signature over the Schaft Creek deposit correlates well with the Quantec Titan-24 DCIP and MT survey results and suggests that the Schaft Creek deposit could extend for an additional 1,000 m to the south.

#### 9.5 Pits and Trenches

Little trenching has been conducted at Schaft Creek due to the presence of thick till and alluvial layers which prevent surficial excavations from exposing bedrock. Prospector Nick Bird employed by BIK Syndicate in 1957 discovered copper mineralization that became the Schaft Creek property and explored the occurrences using hand tools to excavate narrow trenches on outcrop in the Saddle area.

In 1972, a fairly extensive work program was undertaken by Phelps Dodge Corporation of Canada Ltd. Including cobra drill trenching, bulldozer trenching. All of the trenches yielded disappointing results, although one ten foot sample in the longest (143 feet) trench yielded 0.38% copper. Phelps and Gutrath (1972) noted that copper mineralization in the trenches appeared to be best developed in the vicinity of sericitized shears and fractures.

#### 9.6 Petrology, Mineralogy, and Research Studies

Petrography, mineralogical and paragenetic studies in support of mineralogical and geological interpretations have been completed on the project

#### 9.7 Geotechnical and Hydrological Studies

During earlier mining studies on the project, Knight Piésold calculated pit slope design parameters. Information in this subsection on pit slopes is taken from Bender et al. (2008) which is based on the Knight Piésold work. Intact rock strengths were generally found to be strong and the rock mass quality was typically fair to poor.





Large-scale structural features across the deposit area were noted to occur as sets of steeply dipping north-south and east-west trending faults. Discontinuities measured on outcrops across the deposit area reflected the major structural trends shown in the fault system.

For the 2008 pre-feasibility study pit design, an inter-ramp slope angle of 45° was recommended for the Southwest and Northwest Sectors where adverse structural features were considered to be less significant. An inter-ramp slope angle of 43° was recommended for the Northeast and Southeast Sectors to reduce the potential for wedge failure in the Northeast wall and toppling failure in the Southeast wall. The resulting overall slope angle for the Northeast and Southeast and Southeast Walls will be approximately 40° after allowing for cleanout benches. A 44° overall pit slope is appropriate for the remaining walls where the maximum slope height is less significant.

The proposed Northeast Wall will reach a maximum slope height of 1,200 m.

Baseline hydrological studies have been undertaken and hydrological studies are ongoing. A preliminary water balance model has been completed. Water management structures will be required for water diversion around major infrastructure, such as any tailings storage facility.

#### 9.8 Exploration Potential

Mineralization at Schaft Creek is still open at depth and recent drilling in 2011 has confirmed this concept. The 2011 airborne high-resolution magnetometer geophysical survey indicated that there may be potential for an additional 1 km of strike of deposit to the south.

Schaft Creek is part of an extensive porphyry complex. Geological mapping and geophysics surveys by Copper Fox indicate good potential for additional porphyry copper–gold mineralization within the complex. In particular, the 2011 geophysical surveys have outlined an exploration area of interest that is approximately 4 km wide by 20 km long.

The GK and ES prospects identified in the Greig/Kreft claims also have exploration potential and represent additional porphyry copper–gold–molybdenum mineralization targets.





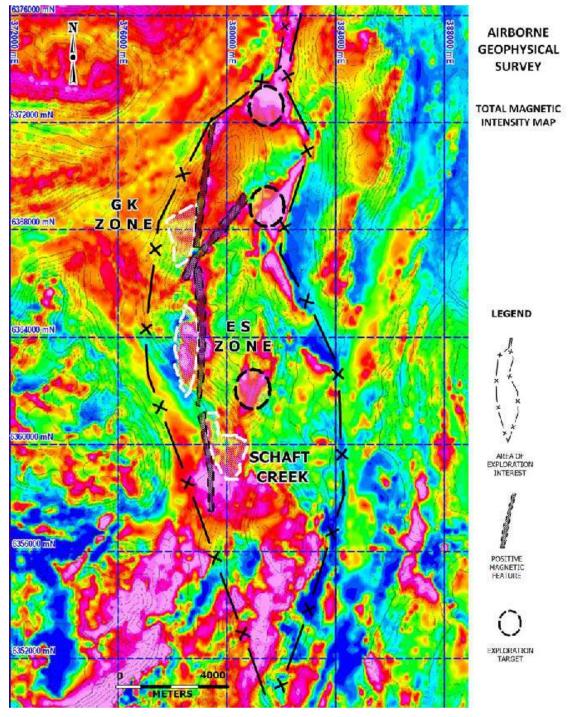
#### 9.9 Comments on Section 9

In the opinion of the QPs, the exploration programs completed to date are appropriate to the style of the deposits and prospects within the Project. The petrographic research work supports the genetic and affinity interpretations.





Figure 9-2: Magnetic Anomalies Identified



Note: Figure courtesy Copper Fox





#### 10.0 DRILLING

Drilling on the Project consists of 391 core drill holes (91,162 m). A drill summary table by operator is included in Table 11-1; this table does not include any condemnation, geotechnical, or hydrogeological drilling. Drill hole locations for the Schaft Creek deposit are shown in Figure 11-1. A regional drill location plan is included as Figure 11-2.

#### 10.1 Drill Methods

In the period from 1969–1977 Hecla contracted Canadian Longyear Limited to undertake the drill campaigns. The Hecla drill campaigns used Longyear 44 and Longyear 38 drill rigs to drill core with BQ and NQ size diameters. All holes were started with a tri-cone drill bit to drill through the overburden and weathered bedrock; a diamond drill bit was used once competent rock was intersected.

There is no information about the drilling methods used by Silver Standard, or Asarco.

In 1980 and 1981, Thirty-Two Albert Crescent Limited (part of the Tonto Group of companies) were contracted by Teck to undertake the drilling campaigns. Teck used three Longyear Super 38 drill rigs. The holes were started with a tri-cone drill bit in overburden. Other deeper sections of the drill holes were drilled with the tri-cone drill bit where highly fractured and incompetent rock would cause excessive diamond loss. The drill holes were predominantly drilled with NQ size diameter core except in the northern portion of the Liard Property where the holes were collared with HQ due to fractured and partly oxidized bedrock conditions (Bethmanis, 1980 and 1981). Occasionally holes were reduced to BQ in bad ground conditions.

Core was transported to the camp area where it was washed, measured and examined in cursory fashion, then logged in detail, with details of rock type, types and intensities of alteration, and mineralization and fracture intensity, and any notable or enigmatic features, being recorded on forms designed for the purpose. Selected portions of cores were treated with acids to reveal the extent of feldspathic alteration and carbonate content.

In the period 2005–2008, Copper Fox contracted Hytech Diamond Drilling Ltd. of Smithers, B.C. to undertake the drilling of the PQ portion of the program as well as a segment of the HQ-portion. Lyncorp International Ltd. of Calgary, Alberta was also commissioned to complete a portion of the HQ-program. During 2010–2011, Copper Fox contracted Geotech drilling and Cabo drilling to undertake the drilling program.





		Core			
Year	Project Operator	Number Holes	Metres		
1956	Silver Standard	3	629		
1966	Asarco	23	3,182		
1968-1977	Hecla	75	27,868		
1969-1972	Paramount	10	2,924		
1980-1981	Teck	Number Holes32375	24,839		
	Total Legacy	230	59,442		
2005	Copper Fox	15	3,159		
2006		42	9,024		
2007		42	6,304		
2008		47	6,821		
2010		11	3,936		
2011		4*	Metres           629           3,182           27,868           2,924           24,839           59,442           3,159           9,024           6,304           6,821		
	Total Copper Fox	161	29,244		
	Total All Programs	391	91,162		

#### Table 10-1: Drill Summary Table

\* To July 26, 2011 drilling at the Project is ongoing





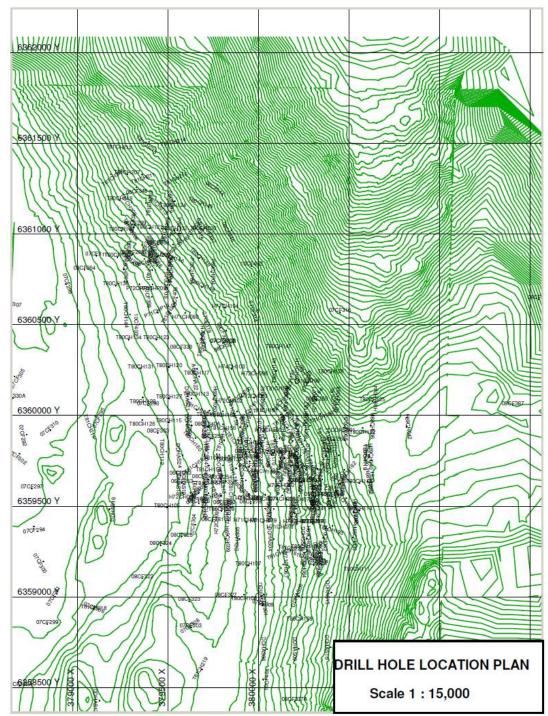


Figure 10-1: Drill Hole Location Plan, Schaft Creek

Note: Figure courtesy Copper Fox





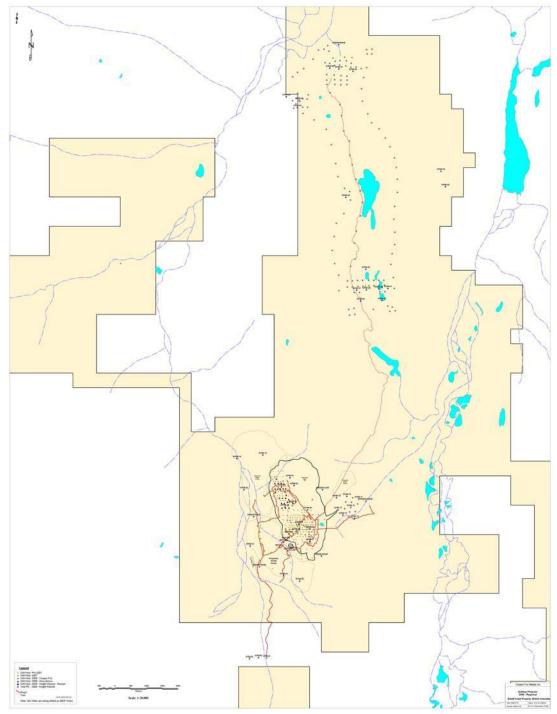


Figure 10-2: Exploration and Regional Drill Hole Location Plan, Schaft Creek

Note: Figure courtesy Copper Fox





The Copper Fox programs used HQ (63.5 mm diameter) or PQ (85 mm diameter) core sizes. The 2005–2008 drill programs Hy-Tech skid, Longyear 38, Atlas Copco CS 1000P6 and Canterra HP-200 drill rigs. The 2010–2011 drill program used a Hydrocore 2000 drill rig and a B-20 drill rig.

For the Copper Fox programs, core was transferred to wooden core boxes. Rock quality descriptions (RQD) measurements were performed at the drill site, then boxes were lidded, and transported by porters hired by Copper Fox to the Project core processing facility where it was photographed, logged for geologic and geotechnical information.

#### 10.2 Geological Logging

There is no information available describing geological core logging completed by Silver Standard or Asarco.

For the Hecla drilling campaigns, core was logged for rock types, alteration and mineralization features of interest.

Teck Exploration employed industry standard methods of core logging and noted rock types, mineralization, alteration and fracturing. Logging was performed using the Geolog software system that prevented entry of erroneous rock codes into the database (Betmanis, 1981).

Copper Fox logging of diamond drill core was performed by a geologist and recorded onto a log sheet. Once identified, the lithological units were put into a rock-TCC field in the database. A Copper Fox geologist worked through this list and broke these codes up into the rock-CCU1 field for modeling purposes. Core description was done by identifying minerals, grain sizes (where applicable), mineral assemblages, color, and lastly by giving a rock identifier code. Log sheets were then captured into Microsoft Excel. Core from a portion of the legacy drill campaigns have been relogged by Copper Fox.

#### 10.3 Recovery

Drill core recovery data from portions of the legacy drill campaigns are available. For the Hecla and Teck drill campaigns staff measured core lengths and calculated RQD at site. For the Copper Fox drill campaigns, Copper Fox staff have recorded core lengths and calculated core recoveries and RQD at the sites of the drill holes. Core recoveries have generally averaged more than 90%.





AMEC reviewed the core recovery data and found a trend of decreasing grade with decreasing core recovery. A similar trend is present when separating the core recovery data out by program by previous project operators.

There is a risk of approximately 25% of the assays having negatively-biased copper, gold and molybdenum grades due to low core recoveries. Summary statistics of the core recovery data from the entire project database are shown in Table 11-2.

#### 10.4 Collar Surveys

There is no information available describing collar surveying completed by Silver Standard or Asarco.

In 1969, Hecla surveyed drill hole collar locations using a theodolite to triangulate locations from points with known locations on a local grid system. All previous drill holes from Silver Standard and Asarco were re-surveyed.

In 1980, Teck contracted McElhanney Associates to survey all drill hole collars using a laser theodolite located at fixed previously surveyed points with prisms at drill hole collars. McElhanney also surveyed some of the Hecla drill holes to tie in the survey to the previous Hecla surveys.

Copper Fox drill collar locations were picked up by a licenced surveyor from McElhanney Consultancy Services Ltd. using GPS Static and RTK surveys and published in the DAF83CSRS/CGVD 28 Datum. All legacy drill collars were picked up by qualified surveyors, and tied into the Project grid.

#### 10.5 Downhole Surveys

There is no information available describing down hole surveying completed by Silver Standard or Asarco.

In 1974, the Hecla drill campaign used acid tube etching tests to measure the dip of the drilling to measure the dip of the drill holes. A single shot Sperry Sun instrument was also used. Documentation supporting the down hole survey methods is incomplete.

In 1980, the Teck drill program initially only used acid tube etching tests to measure the dip of the drilling. Towards the end of the drill campaign, deflection of holes during triconing of overburden and fractured rock was found to be considerable in some cases.





	90-100% Recovery		< 90% Recovery			
	Number	Mean	Number	Mean	Relative Difference	% Data
Copper (%)	17,148	0.223	5,718	0.190	-14.5%	25.0%
Gold (g/t) Molybdenum	11,145	0.181	3,407	0.150	-17.2%	23.4%
(%)	17,088	0.013	5,750	0.011	-17.7%	25.2%

#### Table 10-2: Core Recovery Statistics, All Data

In 1981, the Teck drill program used a single shot Sperry Sun for all down hole survey measurements.

The Copper Fox drill programs used three different down hole survey instruments; a Reflex EZ shot tool, a Flexit tool and a COLOG down hole ABI40 Acoustic Televiewer Probe. The acoustic televiewer probe collects a down hole survey by using deflection of light down the hole, similar to the better known Maxibor down hole survey tool.

#### 10.6 Geotechnical and Hydrological Drilling

Between 2006 and 2011, a total of 71 geotechnical and hydrogeological holes (8,282 m) were completed. These are summarized in Table 10-3. Drill hole collar locations are shown in Figures 10-3 to 10-5.

#### 10.7 Metallurgical Drilling

Two major sampling programs were used for metallurgical testwork. Core from 51 drill holes completed between 2004 and 2008 were used for the initial testwork. In 2004 a total of 719.79 m of core were used for metallurgical testwork from 14 drill holes. In 2005 a total of 1,080 m of core (PQ) was used for metallurgical testwork from 15 holes. In 2006 to 2008 a total of 366.05 m of core were used for metallurgical testwork in 22 drill holes.

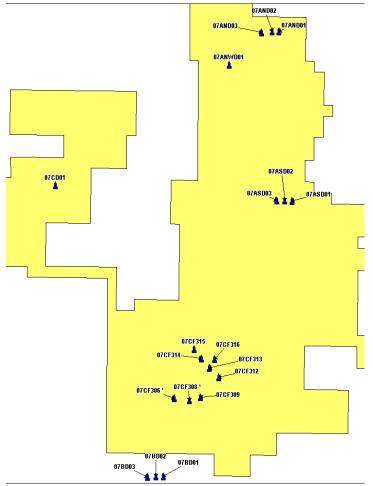
Drill collar locations for the metallurgical programs are shown in Figure 10-6.





Year	Purpose	Number of Drill Holes	Total Metres
2007	•	8	1,985
2007	Tailings dam boreholes	12	1,264
2008	Open pit area, plant site area, waste dump area, north and south TSF dam areas,	41	4,781
2010	Hydrology	7	178
2010	Plant site geotechnical drill holes	3	74
	Totals	71	8,282





Note: Figure courtesy Copper Fox





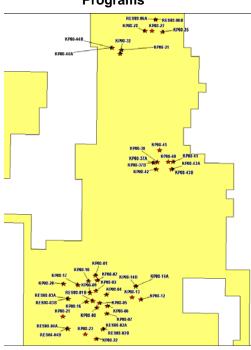


Figure 10-4: Drill Collar Location Plan, 2008 Geotechnical and Hydrological Drill Programs

Note: Figure courtesy Copper Fox

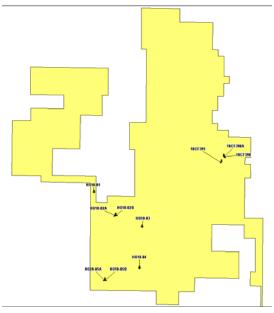
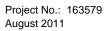


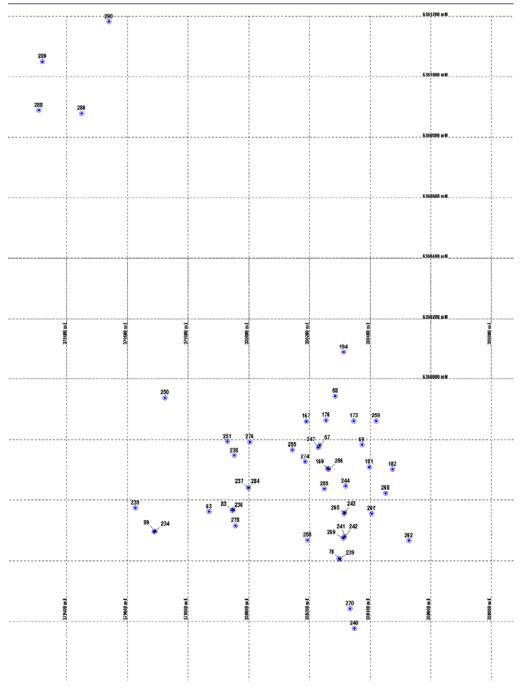
Figure 10-5: Drill Collar Location Plan, 2010 Geotechnical and Hydrological Programs

Note: Figure courtesy Copper Fox









#### Figure 10-6: Drill Collar Location Plan, 2004–2008 Metallurgical Programs

Note: Figure courtesy Copper Fox





#### 10.8 Condemnation Drilling

A total of 31 drill holes (3,817.2 m) were sited to condemn the sites selected as potential waste disposal areas near the deposit in 2007. One of the drill holes indicated that mineralization extended for approximately 400 m further south of the West Breccia, and three drill holes, with narrow Cu, Mo and Au intercepts were noted away from the deposit toward a swampy area to the south.

#### **10.9** Sample Length/True Thickness

The central portion of the MZ has been delineated at a nominal, but not regular spacing. In this area, the drill grid spacing is between 50 m by 50 m and 75 m by 75 m with most of the core holes drilled vertically. On the deposit margins, drill spacing widens to as much as 100 m by 100 m.

Drill hole depths range from 25 m to 912 m, averaging 230 m. Drill hole orientations are typically vertical, but have also been drilled at angles ranging from 44° to 75°.

The relationship between true widths, drill intercepts, lithologies and copper grades for drill hole intervals in selected drill holes are shown on the cross-sections included as Figure 7-5, Figure 7-6 and Figure 7-7 in Section 7.

#### **10.10** Summary of Drill Intercepts

Example drill intercepts for the deposits are summarized in Table 10-4, and are illustrative of the nature of the mineralization. The example drill holes contain areas of higher-grade in lower-grade intervals.

#### 10.11 2011 Drill Program

To July 26 2011, Copper Fox had completed four core drill holes (totalling 2,476 m) in the Paramount zone. The 2011 drill program is designed to test the eastern extension (1,200 m long by 600 m wide) of the chargeability anomaly outlined in 2010. The drilling completed in 2010 tested the western side (approximately 25%) of this anomaly.

Drill collar locations for the 2011 program are indicated in Figure 10-8.





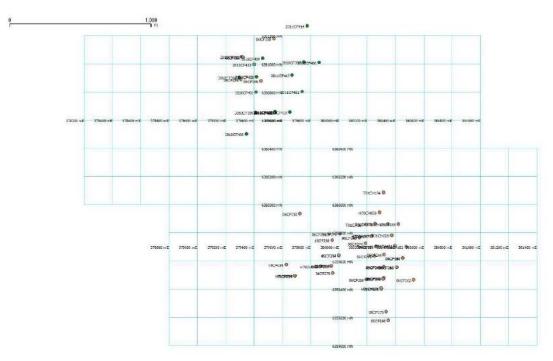


				,			
Hole-ID	From (m)	To (m)	Drill Hole Intercept Interval (m)	Copper Grade (%)	Gold Grade (g/t)	Molybdenum Grade (%)	Domain
05CF241	0.0	244.1	240.9	0.51	0.31	0.0219	MZ
06CF276	1.9	350.9	348.4	0.28	0.25	0.0189	MZ
06CF288	1.6	183.0	180.0	0.33	0.15	0.0192	WBZ
DDHAS07	9.0	85.9	75.9	0.31	NA	0.0182	MZ
DDHAS19	9.1	66.1	57.0	0.55	NA	0.0100	WBZ
DDHAS24	41.4	75.8	34.3	0.22	NA	0.0165	WBZ
H68CH033	51.3	365.7	314.4	0.29	NA	0.0137	MZ
H70CH059	14.7	354.9	339.4	0.30	0.19	0.0172	MZ
H70CH064	8.9	318.9	308.2	0.23	0.06	0.0143	MZ
P69CHP02	14.8	51.1	36.3	0.30	NA	0.0034	WBZ
P70CHP07	56.5	468.6	406.4	0.23	NA	0.0177	WBZ
P72CHP11	14.5	178.0	162.2	0.17	NA	0.0055	WBZ
T81CH201	17.4	121.9	102.1	0.30	0.08	0.0164	WBZ
T80CH145	184.0	500.0	307.0	0.31	0.37	0.0319	WBZ
T81CH211	36.2	121.9	85.7	0.11	0.03	0.0230	WBZ
T81CH220	4.3	91.4	37.4	0.16	0.12	0.0060	MZ

## Table 10-4: Drill Hole Intercept Summary Table (includes intercepts from Main, Western Breccia and Paramount zones)

Note: Depending on the dip of the drill hole, and the dip of the mineralization, drill intercept widths are typically greater than true widths.





Note: Figure courtesy Copper Fox. Drill collars indicated in brown are metallurgical test holes, drill collars shown as green are infill and step-out drilling based on the 2010 geophysical survey results. 2011 drilling has "2011" in the collar name.







Where assay results are available, the drilling indicates similar, or higher, grade tenors and thicknesses to the 2010 drill programs. One core drill hole, CF407-2011, returned the highest copper and gold grades intercepted to date in the Paramount zone. AMEC notes that the 2010 and 2011 drill programs have, to date, returned higher grades than previous programs.

AMEC expects that the 2011 drill program will provide local changes in the geological model. In the area of the chargeability anomaly, drilling is indicating the presence of previously unrecognised mineralization. Although insufficient data are currently available to fully assess the impact of the drilling, AMEC expects that the results will provide Project upside within the current pit shell, and therefore represent upside potential for the next Mineral Resource estimate update.

#### 10.12 Comments on Section 10

In the opinion of the AMEC QPs, the quantity and quality of the lithological, geotechnical, collar and downhole survey data collected in the exploration and infill drill programs completed are sufficient to support Mineral Resource estimation as follows:

- Core logging meets industry standards for gold, molybdenum, and copper exploration
- Collar surveys have been performed using industry-standard instrumentation
- Down-hole surveys were performed using industry-standard instrumentation
- Recovery data from core drill programs are acceptable to allow reliable sample data for mineral resource estimation
- Geotechnical logging of drill core meets industry standards for planned open pit operations
- Depending on the dip of the drill hole, and the dip of the mineralization, drill intercept widths are typically greater than true widths
- Drill orientations are generally appropriate for the mineralization style, and have been drilled at orientations that are optimal for the orientation of mineralization for the bulk of the deposit area
- Drill orientations are shown in the example cross-sections (Figures 7-5 to 7-7), and can be seen to appropriately test the mineralization. The sections display typical drill hole orientations for the deposits, show summary assay values using colour ranges for assay intervals that include areas of non-mineralized and very low grade mineralization, and outline areas where higher-grade intercepts can be identified within lower-grade sections. The sections confirm that sampling is





representative of the gold, molybdenum, and copper grades in the deposits, reflecting areas of higher and lower grades

- Drill hole intercepts as summarized in Table 10-4 appropriately reflect the nature of the gold, molybdenum, and copper mineralization
- No factors were identified with the data collection from the drill programs that could affect Mineral Resource estimation with the exceptions of a correction factor applied to magnetic declination in 20 of the drill holes, there are biases evident with some assay data such that a correction factor has been applied, and that there is a negative bias with respect to assay values in areas of low core recovery.



# 11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

# 11.1 Sampling Methods

#### 11.1.1 Geochemical Samples

There is no information available on the sampling methods for the geochemical sampling programs over the Schaft Creek deposit.

Soil and rock chip geochemical sampling programs have been completed over the newly acquired Greig/Kreft claims to the north of the Schaft Creek deposit.

Where possible, during the 2008 Greig/Kreft program, soil samples were collected from the B horizon, at an average depth of approximately 10 to 15 cm. A mattock was used to dig the holes, and the soil was placed by hand into standard Kraft paper soil sample bags that were labelled with sample numbers.

Control on locations was provided by hand-held GPS, and sample sites were marked with flagging tape labelled with sample numbers. The soil samples were analyzed at ALS Chemex Laboratories in Vancouver, British Columbia. To evaluate reproducibility, 12 blank samples were collected from a common location, inserted in the sample sequence, and sent to ALS Chemex together with the samples collected from the property.

Rock geochemical samples collected in the field on the Greig/Kreft claims were placed in strong, well-labelled plastic bags, which were sealed with flagging tape. As with the soil samples, sample sites were marked with flagging tape that was labelled with sample numbers. Because of the limited number of samples, no blanks were submitted with the rock samples, which were analyzed at ALS Chemex Laboratories in North Vancouver, British Columbia.

#### 11.1.2 Pit and Trench Sampling

There is no information available on the sampling methods for the geochemical sampling program completed by the BIK syndicate in 1957. Trenching has been completed on the newly-acquired Greig/Kreft claims to the north of the Schaft Creek deposit, but limited information is available on the methodologies used.

# 11.1.3 Core Sampling

No information is available describing the core sampling protocols from the Silver Standard and Asarco drilling campaigns.





Drill core generated by Hecla and Teck was split using a mechanical anvil and chisel splitter; typically the sample intervals were 10 feet (3.05 metres) in length. The first sample interval was taken to the nearest ten foot interval of hole depth. All other sample intervals were then measured in ten-foot-of-hole-depth increments. The geologist designated core intervals for sampling purposes and recorded the sample intervals relative to a sample number. The core was split longitudinally and one half was bagged and sent for analysis. The other half was stored for archiving.

Copper Fox drill core was sampled differently depending on the core size:

- PQ core was quartered for assay sections, with the other half being for metallurgical testwork. Banner et al. (2008) noted that all PQ core, for the purpose of twinning and verifying archival results and obtaining material for metallurgical testing, was sawed in half and one-half quartered. As the core was broken, the rubble was scooped out and divided according to samples. Pieces larger than 10 cm were sawed. Continuous sampling for assay samples was done in fixed 3.05 m intervals for the purpose of matching samples of previous archival sampling;
- HQ core was halved with half sent for assay analysis and the other was retained for archiving. Samples are 3.05 m in length.

Assay samples were placed in numbered five-gallon plastic pails and metallurgical samples in numbered 10 gallon pails; both were equipped with security lids. The sample tag for each pail was inserted into a small zip lock plastic bag and affixed to the inside of the pail's rim. Each sample pail carried a shipping tag fixed to the outside of the pail with the relevant laboratory's address. Both sample groups were air lifted to a strip at the road and stored in a locked Seacan container. At weekly intervals, a bonded trucking firm retrieved both sample groups and delivered the samples directly to the laboratories.

# 11.2 Density Determinations

AMEC used 2,784 specific gravity determinations (81 outliers were removed from the measurements). AMEC assigned a constant specific gravity value of 2.69 g/cm<sup>3</sup> to all bedrock material. A constant specific gravity value of 1.8 g/cm<sup>3</sup> was assigned to overburden material.





# 11.3 Analytical and Test Laboratories

#### 11.3.1 Assay Laboratories

Several primary assay laboratories have been used for routine analyses over the Project history. No information is available from the Silver Standard and Asarco exploration campaigns.

The primary laboratory for the Hecla exploration campaigns was Chemex Ltd (Chemex), in North Vancouver, B.C. Hecla completed check assays at Chemex, Coast Eldridge Laboratories (Coast Eldridge), and Bondar-Clegg & Co. Ltd. (Bondar Clegg), in Vancouver. Laboratory accreditations at the time samples were analysed are not known.

For the Teck program, Giroux and Ostensoe (2004) note:

The assay laboratory attached to the Afton mine and smelter complex at Kamloops, BC was employed for metal determinations. That operation was a not-at-arms-length affiliate of Teck but was an industry standard facility staffed by registered assayers. Teck also carried out programs of check assaying to maintain confidence in the results.

At the time of analysis, the Afton mine was a Teck operation. In addition, Giroux and Ostensoe (2004) note:

...samples were delivered to both a not-at-arms-length and a commercial analytical laboratory.

Teck gold analyses were performed by the University of British Columbia. Check assays for gold and silver were performed at General Testing Laboratories. Additional single-sample checks were performed at Chemex, Bondar-Clegg, and Southwestern Assayers & Chemists Inc. (Southwestern) in Tucson, Arizona. Laboratory accreditations at the time samples were analysed are not known.

Copper Fox has used a number of analytical laboratories as the primary laboratory over the Project history, including:

• 2005: Loring Laboratories Ltd. (Loring) in Calgary, Alberta. Loring was not an accredited laboratory at the time the analyses were performed, but did take part in proficiency testing. Loring Laboratories achieved registration with ISO90000:2001 in 2009 and is working towards ISO17025 in certain analysis methods.





- 2006–2008: Inspectorate-IPL Laboratories Ltd. (Inspectorate) in Vancouver, BC. Inspectorate currently holds ISO 9001:2000 and undergoes regular proficiency testing
- 2008–2011: Acme Laboratories (Acme) in Vancouver, BC. Acme achieved ISO9001 accreditation in 1996. The Vancouver laboratory is currently working toward completing the ISO 17025:2005 accreditation process

Check assays for the Copper Fox programs were also analysed by Acme.

#### 11.3.2 Metallurgical Laboratories

The following metallurgical laboratories have been used since 2004. Limited information is available on laboratories that performed metallurgical testwork prior to that date. Laboratories used are summarized in Table 11-1.

Metallurgical testing facilities are typically not accredited.

# **11.4** Sample Preparation and Analysis

## 11.4.1 Hecla Programs

Information on the sample preparation and analysis for the Hecla drill programs is taken from Giroux and Ostensoe (2004):

Hecla's half-core samples were delivered to a fully accredited analytical laboratory for copper and molybdenum determinations. Samples were catalogued, sorted and dried at the lab prior to being crushed to -2 mesh in a standard jaw crusher and then passed through a secondary cone crusher that yielded material of -8 mesh size. Crushed material was passed repeatedly through a stainless Jones "riffle" to yield a manageable sized sample (about 1/16 of the original sample with weight of 150-250 gms) that was then pulverized to -60 mesh in a "ring" mill (i.e. floating "hockey puck" type).

The sample was then rolled 150 times to thoroughly mix the sulphides (Brown, 1969). A two gram sample of the pulverized material was digested and assayed for total copper and total molybdenum using standard atomic absorption methods. Crushing and pulverizing equipment was cleaned between samples using brushes and compressed air blasts. Reject material was preserved for possible future use in replicate analyses, submission to other laboratories for quality control purposes, or for preparation of composite samples.





Year	Laboratory	Company	Work Performed				
1970–71	Lakefield Research	Hecla Mining Company	preliminary flotation tests				
1981–82	Lakefield Research	Teck	preliminary flotation tests				
2004–2007	Process Research Associates, Richmond, BC	Copper Fox	laboratory flotation tests				
2005–2009	G&T Metallurgical Services, Kamloops, BC	Copper Fox	optimization tests, flowsheet development studies, pilot plant tests				
2005–2008	Hazen Research, Inc., Golden, Co.	Copper Fox	JKTech comminution parameters				
2005–2008	JKTech Support services, Red Bluff, CA, USA	Copper Fox	JKTech comminution parameters				
2005–2008	Polysius AG, Neubeckum, Germany	Copper Fox	high pressure grinding roll (HPGR) testing				
2007	Lehne & Assoc., Germany	Copper Fox	Mineralogical examinations				
2007–2008	Teck Cominco CESL Technology Laboratory, Vancouver, BC	Copper Fox	CESL testing (a Teck- proprietary hydrometallurgical leaching technology				

#### Table 11-1: Metallurgical Testwork Laboratories

Gold determinations were obtained in the early years of Hecla's work using standard fire assay techniques and then, as techniques were perfected, by atomic absorption methods.

#### 11.4.2 Teck Programs

Information on the sample preparation and analysis for the Teck drill programs is taken from Giroux and Ostensoe (2004):

Teck's core samples were prepared in the field using routines similar to those employed by Hecla.

Samples were sent to the Afton mine laboratory, then pulverized to pulps, assayed for copper and molybdenite and analysed by atomic absorption techniques for silver. Beads obtained from the same pulps were sent to the University of British Columbia for gold determination by neutron activation.

#### 11.4.3 Copper Fox Programs

#### Sample Preparation

Sample preparation at Inspectorate-IPL and ACME consisted of drying up to 24 hours, crushing to > 80% less than 10 mesh, riffle splitting to 250 g and pulverization to > 85% passing less than 200 mesh.





## Inductively-coupled Plasma Multi-element and Copper Assays

The analytical method utilized at Loring was a copper assay using inductively coupled plasma atomic emission spectrometry (ICP-ES) following an aqua regia digest. Molybdenum analyses were performed with ICP-ES following a three-acid digest.

The analytical method utilized at Inspectorate-IPL and ACME laboratories was a 30element inductively-coupled plasma atomic emission spectrometry (ICP-AES or ICP-ES) method following a four-acid digest.

- 0.25 to 1.0 g of sample is weighed and transferred into a 150 ml beaker. HCl, HNO<sub>3</sub>, HClO<sub>4</sub>, and HF acid solutions are added and digested on a hot plate until dry. The sample is boiled again with 80 ml of 25% HCl for 10 minutes, cooled, bulked up to a fixed volume with distilled H<sub>2</sub>O and thoroughly mixed
- Cu, Mo, and Ag are determined using an inductively coupled plasma emission spectrometer. All elements are corrected for inter-element interference and all data are stored onto a computer disk
- Quality control: the spectrophotometer is first calibrated using three known standards and a blank. The samples to be analyzed are then run in batches of 38 or fewer samples. Two tubes with an in-house standard and an acid blank are digested with the samples. A known standard with characteristics best matching the samples is chosen and inserted after every 15<sup>th</sup> sample. Every 20<sup>th</sup> sample is re-weighed and analyzed at the end of the batch. The blank used at the beginning of the run is analyzed again. The readings of the control samples are compared with the 'pre-rack known' to detect any calibration drift.

At Inspectorate-IPL a number of samples were also analysed using atomic absorption (AA) following a four-acid digest.

#### Gold

At Loring, Inspectorate-IPL and ACME, the gold analyses were performed by fire assay with an atomic absorption finish. Below is a description of the generic procedures used in lead fire assaying for gold:

- Duplicates of 50 g (2 assay tons) are weighed into fusion pots together with various flux materials, including lead oxide. After thorough mixing of silver inquart, a thin borax layer is added.
- The sample is placed into a fire assay furnace at 2000°F for 1 hr. Elemental lead, from lead oxide, collects the Au and Ag.





- After 1 hr fusion, the sample is poured into a conical cast iron mold. The Au and Ag-bearing lead button/bead at the bottom is separated from the slag.
- The lead button is placed in a preheated cupel into the furnace for a second separation at 1650°F. Lead is absorbed by the cupel, whereas gold and silver remain on the surface of the cupel.
- After 45 min of cupellation, the cupel is removed from the furnace and cooled. The dore bead containing the precious metals is transferred to a test tube (sample duplicates are combined) and dissolved in hot aqua regia.
- The Au in solution is determined with an atomic absorption spectrophotometer. The Au value in ppb or g/t is calculated by comparing the reading with that of a standard.
- Fire assay quality control: every group of 24 fusion pots contains 22 samples, one internal standard or blank, and a re-assay of every 20th sample. Samples with Au >1,000 ppb are automatically checked by fire assay/AA. Samples with Au >10,000 ppb are automatically checked by fire assay/gravimetric methods.

## Silver

At Loring, the silver assays were performed by fire assay. At Inspectorate-IPL and ACME the silver assays were performed as a component in the ICP multi-element packages.

A table of laboratory methods and their detection limits are shown in Table 11-2.

# 11.5 Quality Assurance and Quality Control

# 11.5.1 Legacy QA/QC Programs

There is no information on any quality assurance/quality control (QA/QC) programs for Asarco, Paramount and Silver Standard drilling campaigns.

Giroux and Ostensoe (2004) note for the Hecla drill programs that:

Blind duplicate samples and check assaying procedures were employed to determine the reproducibility of assay laboratory results. Some pulp samples were submitted to other laboratories as a quality control.





Method Code	Laboratory	Element	Copper Lower Detection Limit	Molybdenum Lower Detection Limit	Silver Lower Detection Limit	Gold Lower Detection Limit	Description
		Multi-					Assay: ICP-ES (Hot 4-acid
7TDES	Acme	element	0.001%	0.001%	2 ppm	N/A	digestion)
G6	Acme	Au	N/A	N/A	N/A	0.005 ppm	Assay: Fire Assay (30 g) with Instrumentation Finish
00	, torno	, (a				0.000 ppm	Assay: Fire Assay (30 g) with
FAAAS	IPL	Au	N/A	N/A	N/A	0.01 ppm	Atomic Absorption Finish
		Multi-					Geochemical: ICP (Multi-Acid
ICPM	IPL	element	1 ppm	1 ppm	0.5 ppm	N/A	digestion)
							Assay: Atomic Absorption
AA	IPL	Cu	0.01%	N/A	N/A	N/A	(Multi-Acid digestion)
FA	Loring	Au, Ag	N/A	N/A	0.1 ppm	0.01 ppm	Assay: Fire Assay/AA, 30g
	0	<i>,</i> 0					Assay: ICP with Aqua Regia
ICP	Loring	Cu	?	N/A	N/A	N/A	digestion
	-						Assay: ICP with
ICP	Loring	Мо	N/A	0.0006%	N/A	N/A	HNO <sub>3</sub> /HClO <sub>4</sub> /HCl digestion

#### Table 11-2: Laboratory Analytical Method Summary Table

Teck used blanks (crushed quartz every 20 samples), standard reference materials (SRM: one in every 20 samples) and check assays (one in every 20 samples). Teck's protocol was that a blank sample was not to be submitted adjacent to an SRM sample, but could not be any more than 10 samples from an SRM. Chain-of-custody and sample preparation protocols were also part of Teck's QA/QC program at Schaft Creek.

#### 11.5.2 Copper Fox QA/QC Programs

During the period 2005 to 2008, the QA/QC program that was Copper Fox included a blank sample, a standard sample and a duplicate sample that were submitted in each batch of 40 samples. In total, 77 blanks, 77 duplicates and 78 standards were analyzed.

A total of six standard samples were used during the 2006 program. Two of these were from Canadian laboratories, and four were prepared by International Plasma laboratories (IPL) for Copper Fox from samples from the property. Duplicate samples were submitted by further splitting the half core in half (quartered).

Due to the QA/QC deficiencies noted in the 2005 to 2008 drill campaigns (refer to Section 12), Copper Fox undertook a comprehensive program of check assaying. Batches of samples were sent to ACME laboratories for analysis. The samples were sent with blanks, standards, coarse duplicates and quarter-core twin samples inserted into the batches.





During 2010 and the first part of 2011, Copper Fox submitted samples from the 2010 drilling campaign together with pulp rejects from the 2005 to 2008 drilling campaigns and quarter-core samples collected from legacy drill holes.

# Duplicates

Copper Fox included 62 field and 124 coarse duplicate rejects to test the data-set for preparation precision. These represent 1.3% and 2.6 % of the assays. Copper Fox did not include pulp duplicates and analytical precision was not assessed. There was insufficient sample for the analyses of Mo and Cu.

The results of the field duplicates are shown in Table 11-3. The samples that were used are a combination of re-sampling as well as new samples. A relatively high failure rate of 16.4 % for Cu is not considered to be material, and results needs to be separated into the new and re-sampled results for future analyses. A relatively high failure rate for Mo (16%) is not considered to be material as a large portion of failed samples are close to the detection limit. Of these, 10 samples were re-assayed for Au and 76 for Ag. The results of the coarse duplicate analyses are shown in Table 11-4.

## Blanks

Copper Fox included 140 blank samples, representing 3% of the original samples. Two different blanks were used, but both were assessed simultaneously.

The results for Cu, Au, Mo and Ag for both blanks are at detection limit and indicate that there is no carry over contamination for these elements. One hundred and a thirty eight of the 140 Cu assay results for blanks are less than 10 times the detection limit, with the results of SC-2010-BLANK indicating slightly higher levels of Cu for this material than for SC-2010-BLANK2, where the results are between the detection limit and five times the detection limit. AMEC considers these levels of Cu to represent background levels for Cu.

Though no carry over is indicated, blanks should usually be submitted after samples with elevated levels of mineralization to give a better assessment of the levels of contamination.





# Table 11-3: Summary of the Performance of Field Duplicates for the Copper Fox Drill Holes

Element	No. of Pairs	No. of Failures	Failure Rate
Cu	61	10	16.4%
Мо	61	10	16.4%
Au (G6-50)	52	6	11.5%
Au (G6)	10	1	10.0%
Ag (7TDES)	62	0	0.0%
Ag 1EX	39	1	2.6%

Table 11-4: Summary of the Performance of Coarse Duplicates for the Copper Fox D	Drill
Holes	

Element	No. of Pairs	No. of Failures	Failure Rate		
Cu	125	12	9.6%		
Мо	125	6	4.8%		
Au (G6-50)	125	16	12.8%		
Au (G6)	10	1	10.0%		
Ag (7TDES)	125	0	0.0%		
Ag 1EX	76	7	9.2%		

# **Standard Reference Materials**

Copper Fox have inserted three commercially-supplied CRMs, with 211 CRM samples representing 4.5 % of the total data-set. SRMs were obtained from CDN Resource Laboratories Ltd. Two of the standards, CDN-CM-4 and CDN-CM-7 were certified for Au, Cu and Mo, and CDN-GS-P2 was certified for Au only.

The results of the assessment of SRM performance are shown in Table 11-5. The results of the SRMs indicate that there is no measurable bias for all three elements and that the analytical procedure that is used is adequate for the style of mineralization. AMEC notes that the CDN-GS-P2 SRM is not certified for Cu or Mo and none of the SRMs are certified for Ag.

# 11.6 Databases

All data in the field is recorded in written form in field books, log books, sample sheets, logging forms or shipping forms. Various phases of record keeping are repeated in the subsequent step to confirm recorded values or numbers.





		Certifi	ied Values		AMEC Calculated Values							
Standard	Element	Certified Value	2 Standard Deviations	No. of results	Mean of results	Calculated Bias	Calculated Std Deviation					
CDN-CM-4	Au g/t	1.18	0.012	20	1.1543	-2.2%	0.062					
	Cu %	0.508	0.025	30	0.504	-0.8%	0.011					
	Mo %	0.032	0.004	30	0.0311	-2.8%	0.001					
CDN-CM-7	Au g/t	0.427	0.042	100	0.4193	-1.8%	0.033					
	Cu %	0.445	0.027	100	0.445	0.0%	0.008					
	Mo %	0.027	0.002	100	0.0266	-1.4%	0.001					
CDN-GS- P2	Au g/t	0.214	0.02	81	0.2036	-4.9%	0.012					

#### Table 11-5: Summary of the Performance of CRMs.

All field data is entered into Excel tables. Errors in data entry picked up during the verification stage can be confirmed and corrected from filed data.

Data from third parties such as laboratories or survey contractors are generally supplied in digital and printed form. These records are printed out and kept in binders for reference during data verification.

In 2010, Copper Fox contracted Cambria Geosciences Ltd. to compile a complete Acquire<sup>®</sup> database of all geological information collected at the project. Cambria completed the following activities during compilation of the project database:

- Assembly of the historical data files and paper records available to Copper Fox.
- Analytical information was obtained from the original certificates from the labs, loaded in the Mark 1 acQuire database and verified against the log records and certificates.
- The Copper Fox data (2005 and later) was loaded directly from the geologists Excel-file drill core logs (geology, RQD, core recovery, and assay intervals and sample numbers).
- Assembly of a Mark 1 acQuire database for storage of the assembled information.
- Cambria created a database structure in acQuire, and a script was written to extract a "best assay" result for each interval in the drill hole database. The "best assay" result is selected based upon a qualitative judgment of the available assay data with the latest Acme laboratory results taking priority over all other assays from previous assay laboratories





# 11.7 Sample Security and Storage

Sample security at the Schaft Creek Project during the Copper Fox drilling programs relied upon the remote nature of the site. Sample collection and transportation have always been undertaken by company or laboratory personnel using company vehicles.

Assay samples were placed in numbered 5 gal plastic pails and MET samples in numbered 10 gal pails, both with security lids. The sample tag for each pail is inserted into a small zip lock plastic bag and affixed to the inside of the pail's rim. Each sample pail carries a shipping tag fixed to the outside of the pail with the laboratory's address.

Assay samples were shipped to International Plasma Labs Ltd. (IPL) in Richmond, B.C., and MET samples were sent to Process Research Assoc. Ltd (PRA) in Richmond, B.C. For this purpose both sample groups were air lifted to a strip at the road and stored in a locked Seacan container. At weekly intervals, a bonded trucking firm retrieves both sample groups and delivers them directly to the laboratories.

Chain of custody procedures consisted of filling out sample submittal forms that were sent to the laboratory with sample shipments to make certain that all samples were received by the laboratory.

All core is stored on racks within secure storage facilities at the field camp.

# 11.8 Comments on Section 11

The QPs are of the opinion that the quality of the gold, copper, and molybdenum analytical data are sufficiently reliable (also see discussion in Section 12) to support Mineral Resource estimation for copper, gold and molybdenum, and that sample preparation, analysis, and security are generally performed in accordance with exploration best practices and industry standards as follows:

- Geochemical sampling covered sufficient area and was adequately spaced to generate first-order geochemical anomalies, and thus was representative of first-pass exploration sampling
- Drill sampling has been adequately spaced to first define, then infill, gold and copper anomalies to produce prospect-scale and deposit-scale drill data. Drill hole spacing varies with depth. Drill hole spacing in the core of the deposit is approximately 50 m. Drill hole spacing increases with depth as the number of holes decrease and holes deviate apart, and is more widely-spaced on the edges of the deposit





- Sample preparation for samples that support Mineral Resource estimation has followed a similar procedure since 2005. The preparation procedure is in line with industry-standard methods for copper–gold–molybdenum deposits
- Core drill programs were analysed by independent laboratories using industry-standard methods for copper, gold, and molybdenum analysis
- There is limited information available on the QA/QC employed for the earlier drill programs; however, there are twin drill holes that confirm the grades and lithologies, and the core from the drill programs has been re-assayed, so that the data can be accepted for use in Mineral Resource estimation with some limitations. AMEC placed a restriction during the classification of Mineral Resources such that blocks estimated primarily from legacy data had a maximum confidence category assignment of Indicated
- Typically, Copper Fox drill programs included insertion of blank, duplicate and SRM samples. The QA/QC program results do not indicate any problems with the analytical programs, therefore the copper, gold, and molybdenum analyses from the core drilling are suitable for inclusion in Mineral Resource estimation
- Verification is performed on all data on upload to the main database, and includes checks on surveys, collar co-ordinates, lithology data, and assay data. The checks are appropriate, and consistent with industry standards
- Sample security has relied upon the fact that the samples were always attended or locked in the on-site sample preparation facility.
- Chain-of-custody procedures consist of filling out sample submittal forms that are sent to the laboratory with sample shipments to make certain that all samples are received by the laboratory
- Current sample storage procedures and storage areas are consistent with industry standards.





# 12.0 DATA VERIFICATION

A number of data verification programs and audits have been performed over the Project history, primarily in support of technical reports. These were performed by Giroux and Ostensoe, (2004), McCandlish, (2007), Bender et al, (2007) and Bender et al., (2008, as amended). The review and audit conclusions were that no material errors were noted that would impact Mineral Resource estimation.

# 12.1 Cambria, 2010

Cambria Geosciences Inc. (Cambria) undertook a database audit during 2010 on behalf of Copper Fox in preparation for construction of three-dimensional geological models. The work program included:

- Assembly of the historical data files and paper records available to Copper Fox.
- Data verification of the supplied master databases and Excel spreadsheets supplied by Copper Fox. Cambria opted to re-build all Copper Fox data from source documents
- Data verification and limited core re-logging on site at the Copper Fox field camp and core facility.
- Assembly of an initial ("Mark 1") acQuire database for storage of the assembled information.
- Creation of provisional cross-sections and plans from the Mark 1 acQuire database.

A number of issues were noted. These primarily related to historic Hecla and Teck era drilling programs, and included missing samples, missing drill holes, and depth and assay discrepancies associated with data entry errors. Cambria observed:

"A total of 77 drillholes had no discrepancies or all assay data in acQuire appears to agree with the source documents. Most of the 77 drillholes are from Teck, and are between T80CH144 to T81CH223. Once all the Mark 1 acQuire database assay data was checked, many discrepancies were revealed, yielding 155 drillholes that have at least one error which include: missing samples, missing drillholes, and depth and assay discrepancies associated with data entry errors."

Cambria corrected the missing sample records using the original source documents. Corrections to the assay data have been performed and all the results below detection have since been consistently entered into the spreadsheet with the associated lessthan symbols.



Of note are the following sample depth discrepancies noted by Cambria:

"A total of 25 drillholes in the Mark 1 acQuire database have sample depth discrepancies. It appears that these discrepancies are the result of typing errors (technician error?) and there are between one and six errors per hole. In addition, most of the results in the Mark 1 acQuire database are recorded per ten feet, which relates to a ten foot sampling interval. On occasion, these samples are combined together, similar to a composite sample. Approximately nineteen drillholes have combined two to four samples to create a new sample with a length of 20 to 40 feet. Unfortunately, in the Teck access database, thence the Mark 1 acQuire database these results are recorded per ten foot interval and the same result were repeated multiple times, but at a different depth. No changes were made for these composite samples."

AMEC has dealt with the sample depth discrepancies by compositing prior to resource estimation (compositing to 15 m or approximately 45 ft). AMEC has also considered the quality of the legacy drill holes during resource classification.

## 12.2 AMEC, 2010–2011

AMEC performed a database audit during 2010–2011 in support of the Mineral Resource estimate in Section 14.

Drilling at the Schaft Creek project is classified as legacy drilling (completed by operators other than Copper Fox) and Copper Fox drilling. The legacy drilling that is incorporated in the database was conducted by three operators prior to 1982:

- Asarco Incorporated (Asarco)
- Hecla Mining Company (Hecla)
- Teck Cominco Ltd. (Teck).

The Copper Fox drilling was from 2005–2006.

#### 12.2.1 Legacy Drill Holes

AMEC reviewed the legacy drill holes in 2010. The collar surveys, down hole surveys, geological logs and assays or Cu, Mo, Au and Ag were verified against source documentation. Two Asarco, four Hecla and seven Teck drill holes were selected for data verification. The drill holes were selected to spatially represent the mineralization.





AMEC verified the collar coordinates of 16 legacy drill holes during the site visit and inspection using a Garmin 76CS handheld GPS unit. Differences between GPS and database coordinates were all of less than  $\pm$ 15 m, which is within the expected errors of a hand-held instrument.

AMEC checked collar location records against source documentation and noted that there were inconsistencies in the easting of the collar of two drill holes, H71CH072 and H71CH067, where there is a 20 ft discrepancy. This is not considered to be material to the Mineral Resource estimate.

AMEC checked the down hole survey records of the 13 legacy drill holes against the source documentation. The down hole survey information for the Hecla and Asarco drill holes were found in copies of the assay reports. The down hole surveys for the Teck drill holes were found in copies of the drill logs. The data in the database was converted from meters to feet with a factor of 0.3048 to compare against the source documents. The data were free of errors and there was no evidence of excessive deviations in measurements from one record to the next.

AMEC compared the lithologies logged in 11 legacy holes with the lithologies relogged by Copper Fox. Differences between the original and re-logged Lith codes are considered minor.

During 2010, AMEC conducted a data entry verification of the legacy assay data-set, compared the Cu, Mo, Au, and Ag results in assay certificates against the values in the project database. AMEC checked 3305 records, or 6.4% of the total records. Distances were reported in the imperial system and were converted to metric using a conversion factor of 0.3048. Mo was reported as %  $Mo_2S$  in the assay reports, and was converted to % Mo using a factor of 0.559. Au and Ag were reported as oz/t and were converted to g/t units by using a factor of one ounce/st = 34.28571. The results are shown in Table 12-1.

Checks on Au and Ag values, showed that for three out of the four selected Hecla drill holes, the conversion factor applied was 32.3 instead of 34.28571. AMEC requested Copper Fox to re-apply the correct correction factor of 34.28571 to the legacy Au and Ag legacy data-set.

In 2011, AMEC compared the corrected project database to the previous project database. For depths and copper, the two data-sets were similar. A single difference between the Mo values, was observed and was due to rounding. The Au and Ag data-sets had differences between the two data-sets. Only the Hecla and Teck drill holes were affected.





	•		•						
Element	Operator	No. in DB	No of Checks	% Checked	No of Errors	% of Errors			
Cu	Asarco	1,050	57	5.4%	0	0.00%			
	Hecla	8,780	527	6.0%	1	0.19%			
	Teck	7,385	409	5.5%	1	0.24%			
Мо	Asarco	906	57	6.3%	0	0.00%			
	Hecla	8,777	527	6.0%	3	0.57%			
	Teck	7,385	409	5.5%	2	0.49%			
Au	Asarco	-	-	-	-	-			
	Hecla	3,392	290	8.5%	0	0.00%			
	Teck	5,312	369	6.9%	1	0.27%			
Ag	Asarco	-	-	-	-	-			
	Hecla	3,410	290	8.5%	0	0.00%			
	Teck	5,283	370	7.0%	3	0.81%			
Total		51,680	3,305	6.4%	11	0.33%			

 Table 12-1: Summary of 2010 Data Entry Errors for the Assays of the Legacy Drill Holes

AMEC conducted a data entry exercise for all of the affected records. There were seven data entry errors, 22 missing Au records in the corrected database, nine Au and Ag records in the database, but not in the source documents and two records with duplicated values in the source documents, but not repeated in the database. AMEC considers these differences to be non-material.

AMEC concluded that the legacy drill hole data is sufficiently error free to be used in mineral resource estimation.

# 12.2.2 Copper Fox Drill Holes

#### Collar Surveys

The collars of holes drilled between 2005 and 2008 were surveyed by D. Allwood, a qualified surveyor, working for McElhannay Consultancy Services Ltd., using a GPS Statis and RTK surveys. The results were reported in the NAD83CSRS GVD 28 datum, elevations orthometric, using a HT2 Geoid.

AMEC received the collar survey certificates for six of the drill holes drilled in 2010. AMEC imported the data into Access and compared it to the values in the database. The data was error free.

AMEC re-surveyed drill holes 2010CF397 to 2010CF400 with a hand-held GPS during the site visit. The results were compared the coordinates of the drill logs to the values in the data base and found them to be error free.





#### Down Hole Surveys

AMEC checked the down hole survey records of 68 drill holes with down hole surveys. The down hole survey values of 3,090 down hole surveys were compared to 3,236 records found in the database. Results are shown in Table 12-2.

Seventy-eight of the 2005–2010 Copper Fox drill holes are un-surveyed. The projected traces of eight of these drill holes, drilled deeper than 250 m, are inclined and are considered to have a risk that the actual trace of the drill hole deviates significantly.

Eleven drill holes used the planned collar set-up surveys to determine the orientation of the trace at the collar of the drill hole. These are suitable for all but four drill holes, where the collar surveys should have been adjusted to that of the first down hole survey interval. The azimuths and dips of these drill holes were corrected.

The magnetic declination for the period averaged 21.5°. The traces of 13 drill holes of the 2005–2008 Copper Fox drill holes were not corrected for magnetic declination. AMEC applied the magnetic declination correction to these drill holes.

Twenty nine of the 2005–2006 Copper Fox drill holes were corrected with a factor of  $\pm 28^{\circ}$ . Seven of these, drilled deeper than 240 m, are inclined. The traces of these drill holes are considered to have a risk of significant deviation from the true drill hole trace beyond a depth of 240 m.

Holes with suspect magnetic declination corrections were flagged for consideration of limited use during resource classification, meaning that the maximum confidence category assignment for the blocks below 240 m with suspect magnetic declination was Indicated.

#### Assay Data

AMEC completed an audit of the Copper Fox assay database. Samples were matched by sample number. The number of errors and the corresponding error rates are shown in Table 12-3.

AMEC considers the error rates to be sufficiently low and suitable to support mineral resource estimation.





Type of Survey	No. Of Drill Holes	No. Of Surveys in DB	No. Of Surveys Checked	% Checked	No. Of Depth Errors	No. Of Azimuth Errors	No. Of Dip Errors	Error Rate
Planned, Not surveyed	78	78	0	0%	-	-	-	N/A
Planned Surveyed	11	61	0	0%	-	-	-	N/A
COLOG	10	2,966	2,966	100%	0	0	0	0%
Reflex EZ Shot	48	102	102	100%	45	102	0	48%
Flexit	7	22	22	100%	1	0	1	3%
No Record	3	8	0	0%	-	-	-	
TOTAL	157	3,236	3,090	95%	51	102	1	2%

#### Table 12-2: Data Entry Error Rates 2005–2010 Down Hole Surveys by Survey Method

Table 12-3: Summary of Data Entry Errors for the Assays of the Copper Fox Drill Holes

Element	No. of No of LDL's Records		FLDL'S No of No. of Rounding Errors Discrepancies		Best Value with no Certificate	Error Rate	
Cu	9,351	584	16	54	24	0.18%	
Au	9,352	1,889	3	0	0	0.04%	
Ag	9,351	5,160	3	0	22	0.07%	
Мо	9,352	2,542	1	88	0	0.01%	

# 12.2.3 Re-Sampling Program Comparison

A comparison between the original and Copper Fox half-core re-assays shows that the Copper Fox assays are lower in copper and molybdenum grade on average than the original assays (Table 12-4). It is likely that mineralized material has been lost from the core which Copper Fox re-sampled. Based on this, all of the historical data were added to the final database, and the Copper Fox assays from the re-sampling program were excluded due to the composite lengths and the lower grades obtained.

# 12.2.4 Twin Drill Holes

AMEC made a qualitative comparison of the twin drill holes. Overall, the grades of the original legacy drill holes are similar to the grades of the twin Copper Fox drill holes located nearby. Some of the twin drill holes show higher grades than the original legacy drill holes while other twin drill holes show lower grades than the original legacy drill holes.





		Copper		Molybdenum					
Operator	Original	Relative Re-Sample Difference		Original	Re-Sample	Relative Difference			
Asarco	0.39	0.35	12.0	0.0148	0.0117	19.4			
Hecla	0.31	0.28	10.9	0.0196	0.0155	27.1			
Silver Standard	0.36	0.32	10.9	0.0203	0.0160	26.3			
Paramount	0.28	0.29	-0.6	0.0204	0.0206	-1.1			

#### Table 12-4: Mean and Relative Difference of Re-Sampling Results

#### 12.2.5 Paired Sample Comparisons

AMEC compared the legacy assay datasets with the Copper Fox assay dataset by finding pairs of samples with the lowest separation distance to form nearest pair samples (NP). AMEC plotted X-Y scatter plots of the NP data using maximum separation distances of 5 m and 10 m. Outliers were identified visually and were removed from subsequent bias calculations.

AMEC considered the number of samples, the proportion of outliers within the data and the correlation coefficients between the two datasets as measures of confidence in the bias evaluations. The results of the bias analyses are shown in Table 12-5.

AMEC applied the following corrections based on the NP analysis. In the following formulas, y is the corrected value and x is the original legacy assay result.

#### Asarco

• Mo – correction y = (x - 0.0039) / 0.8605

The correction is applied up to a maximum grade of 0.03% Mo. At higher grades no correction is applied as the corrected grades would be higher than the original grades.

#### Hecla

- Cu correction y = (x+0.0114) / 1.0659
- Au –correction y = (x + 0.0022) / 1.1271
- Ag correction y = (x 0.2685) / 0.9418





#### Table 12-5: Summary Bias Results and Recommendations Based on NP Data

Copper	10 m Separation Mean Slope Constant Correin N (%) (%) (%) Coeff. % Outliers						5 m Separation Mean Slope Constant Correin %						Choice
	N	(%)	(%)	(%)	Coeff.	% Outliers	N	(%)	(%)	(%)	Coeff.	Outliers	
Asarco	103	1.8	-2.0	-0.10	0.73	13.6%	87	-2.0	-2.9	0.9	0.7	8.0%	No Action
Hecla	673	3.4	12.3	-8.7	0.49	2.5%	375	3.7	6.6	-2.8	0.51	6.7%	Correct
Teck	413	8.7	13.3	-4.3	0.62	1.2%	91	-2.5	-9.1	11.4	0.72	1.1%	No Action

Moly	N	Mean (%)	Slope (%)	10 m Separ Constant (%)	ation Correln Coeff.	% Outliers	N	Mean (%)	5 n Slope (%)	n Separatior Constant (%)	Correin Coeff.	% Outliers	Choice
Asarco	105	23.5	-19.4	34.7	0.15	11.4%	87	21.3	-13.9	29.1	0.16	5.7%	Correct/Remove
Hecla	655	1.1	8.6	-7.4	0.41	5.3%	375	-7.2	-6.4	-0.8	0.4	5.1%	No Action
Teck	404	10.3	-2.8	11.8	0.53	3.5%	91	-4.2	-16.6	13.0	0.82	6.6%	No Action

Gold				10 m	Separ	ation						5 n	n Separatior	1			Choice
	N	Mean (%)	Slope (%)	Cons (%)	stant	Correin Coe	eff.	% Ou	tliers	N	Mean (%)	Slope (%)	Constant (%)	Corre Coeff.		% Outliers	
Asarco		-	-	-		-		-		-	-	-	-	-		-	
Hecla	531	10.7	9.2	1.4		0.69		3.6%		316	12.0	12.7	-0.7	0.73		5.1%	Correct
Teck	377	2.3	-8.0		10.1	C	).63		6.4%	91	-7.4	-20.5	14.2		0.8	7.7%	No Action

Silver		10 m Separation Constant			5 m Separation Mean Slope Constant Correln %				Choice				
	Ν	Mean	Slope	(%)	Correin Coeff.	% Outliers	Ν	(%)	(%)	(%)	Coeff.	Outliers	
Asarco	-	-	-	-	-	-	-	-	-	-	-	-	
Hecla	550	-5.4	1.6	-7.4	0.28	3.6%	316	5.2	-5.8	10.5	0.22	0.0%	Correct
Teck	402	138.8	12.4	52.9	0.31	10.4%	91	64.7	-49.5	69.4	0.25	3.3%	Correct

Note: The bias in the mean is expressed in percent difference relative to the grade of the Copper Fox data. RMA regression is Y = aX+b, where X if the Copper Fox grade. The constant term (b) is expressed as a percentage of the mean of the y-axis variable. The bias in the slope (a) is expressed as a percentage of the gradient. The rows marked in red indicate the drill campaign and metal which is to be corrected. Additional red cells are marked where correlation coefficients are considered to be low.





The correction is applied up to a maximum of 4.6 g/t silver. At higher grades no correction is applied as the corrected grades would be higher than the original grades. Grades below 0.27 g/t are re-set to zero.

# Teck

• Ag - correction x = (y - 1.5064) / 0.5047

The correction is applied up to a maximum of 3.04 g/t silver. At higher grades no correction is applied so that the corrected grades are not increased by applying the correction. Grades below 1.51 g/t silver are re-set to zero.

# 12.3 Comments on Section 12

The process of data verification for the Project has been performed by external consultancies and contractors, primarily in support of technical reports.

The QPs, who rely upon this work, have reviewed the appropriate reports, and are of the opinion that the data verification programs undertaken on the data collected from the Project adequately support the geological interpretations, the analytical and database quality, and therefore support the use of the data in Mineral Resource estimation:

- Sample data collected for lithology, Cu, Au, and Mo adequately reflect deposit dimensions, true widths of mineralization, and the style of the deposit
- No significant Cu, Mo or Au sample biases were identified from the QA/QC programs undertaken
- Twin and infill drilling in areas where drill core data from predecessor companies was available indicated that the legacy copper, gold and molybdenum data were sufficiently in accordance with the data generated by the check programs that the original historic assay values could be used after applying adjustments to the data
- AMEC placed a restriction during the classification of Mineral Resources such that blocks estimated primarily from legacy data had a maximum confidence category assignment of Indicated
- The legacy silver data are so different from those obtained by Copper Fox that the original historic assay values could not be used
- External reviews of the database have been undertaken in support of technical reports, producing independent assessments of the database quality. No significant problems with the database, sampling protocols, flowsheets, check analysis program, or data storage were noted





• Drill data are typically verified prior to Mineral Resource estimation by running a software program check.





# 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

# 13.1 Metallurgical Testwork

The information for the metallurgy was derived from the same information utilized for previous preliminary assessment (Bender et al., 2007) and preliminary feasibility study reports (Bender et al., 2008, as amended). This testwork is summarized in Table 13-1.

The testwork performed in 1970–71 and 1981–82 was not reviewed but the level of work is minor relative to the later work performed from 2004 onwards.

All of the test work from 2005 onwards was conducted on drill core from the Schaft Creek 2005 and 2006 drilling programs. Copper Fox sent the samples from this drilling to PRA who originally performed much of the testwork. Material was subsequently transferred to G&T who prepared it for further testing and for transfer to other test facilities. The emphasis of the testwork was the Liard (Main) Zone which contains approximately 85% of the Mineral Resource with less work being performed on the Paramount Zone (approximately 14%) and the West Breccia Zone (1%).

Three types of metallurgical tests were implemented in these programs. They were:

- Optimization Testing
- Variability Testing
- Comminution Testing (SAG and HPGR)

The testwork is detailed in Bender et al., (2007) and Bender et al., (2008).

It is briefly summarized in the sections below to provide support for the selection of the process criteria inputs used to assess reasonable prospects of economic extraction for the Mineral Resource estimate in Section 14.

#### 13.1.1 2005 PRA Testwork on Legacy Core

PRA conducted testwork on historical core in 2005. This work was to determine the general responses of the material to typical copper processing methods and to see if reasonable results could be attained from historical core. Encouraging results were achieved indicating metallurgical recoveries that were typical of copper porphyry deposits could be achieved.





Year	Laboratory	Testwork Performed
1970-71	Lakefield Research, Lakefield, Ontario	Very preliminary testwork for Hecla Mining
1981-82	Lakefield Research, Lakefield, Ontario	Flowsheet development work for Teck Mining Group
2004	PRA Labs, Richmond, BC	PRA0402903 – Flotation development work from historical core and sample validation work
2005	PRA Labs, Richmond, BC	PRA0502002 – Flotation & grinding development work including locked cycle testwork.
2006	PRA Labs, Richmond, BC	PRA0603303 – Process development on 2005 core – 4 zones
2006	Hazen Research, Golden, CO, USA	Preliminary comminution testwork
2007	PRA Labs, Richmond, BC	PRA0701301 – Process development on 2006 core – 3 zones
2007	Lehne & Assoc., Germany	Mineralogical Examination of drill core composites and metallurgical test products
2007	Hazen Research, Golden, CO, USA	Hazen101515 – Drop weight comminution testwork
2007	CESL, Richmond, BC	Hydrometallurgical bench scale testwork
2008	Polysius AG, Neubeckum, Germany	Preliminary HPGR testwork
2008	G&T Metallurgical Services, Kamloops, BC	KM2050 – Flotation response work from 3 different ore zones
2008	G&T Metallurgical Services, Kamloops, BC	KM2136 – Advanced flowsheet development studies
2009	G&T Metallurgical Services, Kamloops, BC	KM2292 – Pilot plant work to produce bulk concentrate for engineering test purposes

#### Table 13-1: Metallurgical Testwork Summary Table

#### 13.1.2 2005–2006 PRA Testwork on 2005 Drill Core

Five composite samples were tested in this program which was created from core sourced from the 2005 drilling work. These composite samples were the:

- Main Liard Zone (MLZ)
- West Liard Zone (WLZ)
- North Liard Zone (NLZ)
- West Breccia Zone (WBZ)
- Pit Composite (composed of equal portions of the four zones)

Preliminary work concentrated on establishing a basic flowsheet at a chosen grind of 160  $\mu$ m. From this work, locked cycle testwork was performed on all five samples. Results are included in Table 13-2.

In addition, a pilot plant run was performed on 1,600 kg to generate sample for molybdenum separation work. This work went poorly and in subsequent analysis by Copper Fox's consulting metallurgists it was noted that carbon contamination probably caused problems in the attaining molybdenite concentrate grade.





Sample	Bulk Con			Recovery				Feed Grade				
	% Cu	g/t Au	g/t Ag	%Mo	%Cu	% Au	% Ag	%Mo	%Cu	g/t Au	g/t Ag	% Mo
MLZ	25.38	15.56	81.4	0.95	84.2	84.5	66.3	79.6	0.435	0.27	1.8	0.017
WLZ	34.21	33.44	129.6	1.24	71.8	75.9	62.5	61.1	0.355	0.33	1.5	0.015
NLZ	32.08	27.43	149.0	1.91	76.2	76.1	76.2	71.8	0.344	0.29	1.9	0.022
WBZ	24.60	10.30	122.1	1.24	82.7	78.0	74.8	79.8	0.421	0.19	2.3	0.027
Pit	25.54	15.93	112.1	1.36	84.8	78.4	60.6	78.4	0.457	0.30	2.8	0.026

Table 13-2: Locked Cycle Results, PRA2005 Work

Grade variability testing was also performed in 2005 by PRA. Twenty five open circuit tests were performed at grades varying from 0.146 to 1.253% cu. Recoveries typically were:

- 80%+ for copper
- 60 to 90% for gold
- 14 to 78% for silver
- over 50% for molybdenum into the bulk concentrate

Recoveries typically were good when feed grade was high and recoveries suffered with a decrease in feed grade.

#### 13.1.3 2006 Hazen Testwork on 2005 Drill Core Material)

Comminution testwork was also performed at Hazen Research and this work is summarized in Table 13-3. These results suggest a moderately abrasive material which is hard.

#### 13.1.4 CESL Testwork on 2005 Drill Core Derived Material

Approximately 3.5 kg of bulk concentrate from the 2005 work was tested by Cominco Engineering Services Ltd. (CESL) for amenability to processing by that method to cathode copper. Preliminary testing indicated that the concentrate would be amenable to the CESL process with yields from 96.0 to 98.8% Cu extraction. Gold extraction varied from 50 to 90% depending on oxidation time with the recovery decreasing with pressure oxidation time. Silver extraction varied from 80% to over 90% with recovery increasing with pressure oxidation time.





Zone	Ai	RWi	BWi	
MLZ	0.25	24.0	22.4	
WLZ	0.27	23.7	24.5	
NLZ	0.18	24.1	24.1	
WBZ	0.30	21.2	20.7	
Average	0.25	23.3	22.9	

#### Table 13-3: Comminution Testing, Hazen 2006 Work

Note: Abrasion index (Ai), Bond Rod Mill Work Index tests (RWi), Bond Ball Mill Work Index tests (BWi)

#### 13.1.5 2007 PRA Testwork on 2006 Drill Core Material

Approximately 50 t of material was sent to PRA in February, 2007 and this was composed of 2006 core material. PRA tested 725 kg of this material and prepared another 6,000 kg for pilot plant testing. In addition, 90 kg of material from three zones were prepared for comminution testwork to be performed at Hazen Research.

From the 6,000 kg, PRA prepared a composite for each of the three resource areas. A fourth composite (Master) - was prepared with equal portions of the three zones. A primary grind of P80 = 100  $\mu$ m was selected for all rougher and scavenger flotation locked cycle tests. Concentrates were reground to P80 = 20 to 25  $\mu$ m. The results of the four locked cycle tests subsequently indicated a need to regrind the feed to the cleaner circuit to 15  $\mu$ m in order to achieve both high concentrate grades and recoveries. Higher concentrate grades had been achieved for the 2005 drill core tests using a P80 of 15 to 20  $\mu$ m. It was further indicated that a higher level of secondary material in the 2005 core may also have contributed to better performance with that material.

#### 13.1.6 2007 Hazen Testwork on 2006 Drill Core Material

A series of tests were conducted to complete the design of the comminution circuit. Nine (45 total) 3 m intervals were selected from each of the five HQ drill holes to represent the upper, middle and lower sections of each hole. Samples from each individual hole were composited into composites each weighing approximately 90 kg representing the Liard, West Breccia and Paramount zones. These composites were tested by Hazen Research to determine the JKTech comminution parameters.

The following tests were performed on each material:

- JKTech Drop Weight tests
- JKTech SMC tests
- JKTech Abrasion tests





- Bond Crushing Index tests (CWi)
- Bond Rod Mill Work Index tests (RWi)
- Bond Ball Mill Work Index tests (BWi)
- Bond Abrasion tests

The mineralization from both a Bond and a JKSimMet viewpoint can be viewed as being 'hard'. Results are summarized in Table 13-4.

# 13.1.7 2008–2009 G&T Testwork on 2006 Drill Core Material

In 2008, it was decided to optimize the flow sheet and design parameters for the largest mineral resource zone, the Liard. For the optimization testing at G&T, it was decided to concentrate on the first 5 years of production at approximately 0.35% Cu. Therefore samples from a total of 42 three m intervals were selected from 12 PQ drill holes from the 2006 drill program for these tests. The selected drill holes were distributed over the Liard Zone with the hole intervals being selected to represent the upper, middle and lower sections of the hole. The assays of the individual intervals ranged from less than 0.2% Cu to over 0.5% copper for each hole with an average grade for samples from each hole of approximately 0.35% Cu. G&T then combined these samples into one 300 kg sample which assayed approximately 0.36% Cu.

The optimization work indicated an optimum grind of approximately 150 microns from the locked cycle testwork. The results are shown in Table 13-5.

A second series of samples was selected based on grade and spatial variability. These were used to test the metallurgical variability of the Schaft Creek resource using the standard test conditions and flow sheet that was determined by the optimization tests. Samples from a total of 11 drill holes were selected for these tests. Ten of the drill holes were in the Liard Zone and one drill hole was selected from the Paramount Zone. A total of 34 three-metre drill-hole intervals were selected ranging in grade from less than 0.2% Cu to over 1.0% Cu.

These samples used for the grade variability testing were tested by open cycle tests. These tests indicated that it should be possible to make the final concentrate grade regardless of copper grade in the feed. Recoveries were found to be typically between 80 to 90%. Hardness was also evaluated and as in previous testwork was classified as hard to very hard. It was also seen that typically that gold recoveries followed copper recovery while there did not appear to be a copper silver relationship. These results are provided in detail in Bender et al, (2008).





Sample						
	Ai	CWi	RWi	BWi	Axb	ta
Liard Zone	0.198	8.93	20.1	21.4	44.7	0.64
West Breccia Zone	0.186	6.31	19.6	19.8	42.7	0.71
Paramount Zone	0.380	6.71	21.4	20.1	39.1	0.35

#### Table 13-4: Comminution Testing, Hazen 2007 Work

Sample		Recovery				Feed Grade						
	% Cu	g/t Au	g/t Ag	%Mo	%Cu	% Au	% Ag	%Мо	%Cu	g/t Au	g/t Ag	% Mo
109	32.0	19.0	142.0	1.04	89	67	60	71	0.32	0.26	2.1	0.013
142	32.3	21.1	135.0	1.21	87	71	59	78	0.33	0.27	2.1	0.014
173	30.9	18.8	143.0	1.12	86	72	55	87	0.33	0.24	2.4	0.012

#### Table 13-5: Locked Cycle Results, G&T Optimization Work

A pilot plant was run on approximately 6.0 t of crushed drill core in a flotation pilot plant to produce a sufficient quantity of bulk concentrate to conduct bench-scale molybdenum separation testing. Approximately 35 kg of bulk concentrate was produced. Standard molybdenum separation conditions were employed. The bulk concentrates were processed in rougher flotation cells and, then, four stages of cleaner flotation were run in locked-cycle tests. The average grade of the final concentrate was approximately 47% molybdenum with a recovery of approximately 75% from the bulk concentrate. Since the major diluents in the molybdenum concentrates are liberated materials, it is anticipated that molybdenum concentrates containing a grade of at least 50% molybdenum can be realized.

#### 13.1.8 2008–2009 Polysius HPGR Testwork on 2006 Drill Core Material

As part of the comminution testing, a total of 35 drill-hole intervals were selected from seven drill holes in the Liard Zone for the HPGR tests. Each interval was crushed to approximately 25 mm and all the material was composited into one sample weighing approximately 250 kg. The Schaft Creek resource is a potential candidate for high pressure grinding roll (HPGR) technology as the material is hard and only moderately abrasive. This report was not available at the Report compilation date. AMEC notes that HPGR technology is not used within the base option of the process design.

# 13.2 **Process Design Assumptions**

For the purposes of deriving parameters to inform reasonable prospects of economic extraction for the Mineral Resource estimate in Section 14, the pre-feasibility study process design was reviewed.





The process design suggested in the 2008 pre-feasibility study was for a concentrator with a nominal processing capacity of 100,000 t/d. The concentrator design recommended in the study incorporated crushing, grinding, rougher flotation, rougher concentrate regrinding, and three stage cleaner stages to produce a bulk concentrate.

A molybdenite separation circuit with roughers and five stages of cleaning was proposed to produce a molybdenite product. The gold and silver would report to the copper concentrate produced after the molybdenite concentrate. Copper, gold and silver would be sold to a smelter whereas the molybdenite concentrate would be toll-roasted and sold. The rougher tails and the cleaner scavenger tails would be discharged to a tailings containment facility. The cleaner concentrate would be dewatered and shipped offshore to a smelter for refining.

# 13.3 Recovery Estimates

For the purposes of deriving parameters to inform reasonable prospects of economic extraction for the Mineral Resource estimate in Section 14, indicative recoveries of 86.5% copper were recommended, together with 73.3% for gold and 60.9% for molybdenum. A copper concentrate grade of 29% Cu and a molybdenite concentrate grade of 50% were proposed. For the model, operating costs of \$5.12/t were advised.

# 13.4 Metallurgical Variability

Metallurgical response to variation across the mineralized zone was fairly consistent with typically acceptable results achieved for a wide range of feed grades and for locations across the main zone of mineralization (Laird). The following characteristics which would require close attention are:

- The mineralization being hard, the operating costs will be sensitive to the cost of power and grinding media and this characteristic of the deposit will have to be considered closely.
- With the requirement for a fairly fine regrind, this will be another factor which may contribute to a variation in recovery and concentrate grade across the mineralization

# 13.5 Deleterious Elements

No significant penalties have been indicated as being present in the concentrate and copper and molybdenum concentrates should be saleable.





# 13.6 Comments on Section 13

In the opinion of the QPs, the metallurgical test work conducted to date supports the declaration of Mineral Resources based on the following:

- The metallurgical testwork completed on the Project has been appropriate to establish a process route that is applicable to the mineralization types
- Tests were performed on samples that were representative of the mineralization for the purposes of establishing an optimal conceptual process flowsheet
- The process route proposed uses conventional technology
- Recovery factors from the tests are appropriate to the mineralization types and selected process route based on the available testwork data. If put into operation, the plant will see recovery factors will vary on a day to day basis depending on grade and mineralization type
- No significant penalties have been indicated as being present in the concentrate and copper and molybdenum concentrates should be saleable
- Given the hard grinding characteristics of the material, further work should be undertaken to establish grinding information throughout the deposit. Alternatively a conservative approach to grinding circuit design could be adopted.



# 14.0 MINERAL RESOURCE ESTIMATES

# 14.1 Key Assumptions/Basis of Estimate

The 2011 AMEC mineral resource estimate uses 10 more core drill holes than were considered in the September 2008 estimate that supported the pre-feasibility study. The estimation database comprises 387 core holes (88,685 m of core) from the Asarco, Hecla, Paramount, Silver Standard, Teck and Copper Fox drill programs. The drill database was provided by Copper Fox as MS Excel® spreadsheets exported from an Acquire® database. The database cut-off date for Mineral Resource estimate purposes was 1 May, 2011.

AMEC imported the collar, survey, lithology, alteration, and assay data into GEMS® (version 6.2.4), a commercial mining software program. GEMS® validation routines were used to check for overlapping intervals, missing intervals, and consistent drill hole lengths between tables and errors were reported where gold and molybdenum grades are missing from the database. The missing gold grades were assigned to those intervals by linear regression against copper (refer to Section 14.3).

Topographic contour limits were based on a photogrammetric interpretation undertaken on aerial photograph coverage provided by McElhaney, which was accurate to 1 m(x, y, z).

# 14.2 Geological Models

AMEC created grade shell solids using nominal cut-offs of 0.1% copper and 0.01% molybdenum. The cut-offs were chosen to be close to an economic cut-off of 0.12% copper equivalent. Polygons were digitised on east-west sections spaced between 50 and 100 m apart. The sectional interpretations were then linked together from section to section to form solids. The solids were then inspected and reconciled on a second set of orthogonal sections.

The grade shells define two broad domains, namely the Main Zone (MZ) and the Western Breccia Zone (WBZ). The Main Zone has a bowl-shaped geometry, whereas the Western Breccia has a tabular elongate sub-vertical geometry which is consistent with a structurally controlled zone of mineralization. AMEC further subdivided the Main Zone into an East limb (dipping to the west), Central zone (gently dipping to the west) and West limb (dipping to the east). The East limb was then subdivided into north, central and south sub-domains based on changes in the magnitude of the dip to the west. From south to north, the dip of the East limb increases from gently-dipping at 20–30° to the west to 80° to the west. Domains are summarized in Table 14-1.





Domain	Domain Code	Description
Main Zone	100	MZ, Central Inside Cu shell, outside Moly shell
(MZ)	101	MZ, East limb north, inside Cu shell, outside Moly shell
	102	MZ, East limb central, inside Cu shell, outside Moly shell
	103	MZ, East limb south, inside Cu shell, outside Moly shell
	110	MZ, West limb, inside Cu shell, outside Moly shell
	200	MZ, Central Inside Cu shell, inside Moly shell
	201	MZ, East limb north, inside Cu shell, inside Moly shell
	202	MZ, East limb central, inside Cu shell, inside Moly shell
	203	MZ, East limb south, inside Cu shell, inside Moly shell
	210	MZ, West limb, inside Cu shell, inside Moly shell
West	300	Inside Cu shell, outside Moly shell
Breccia Zone (WBZ)	400	Inside Cu shell, inside Moly shell

#### Table 14-1: Estimation Domains

The MZ and WBZ domains were coded and flagged to blocks and back-flagged to assays and composites and were used as the basis for matching samples and blocks during the estimation process.

Copper mineralization at Schaft Creek is related to porphyry intrusions, breccias and potassic, phyllic, argillic and advanced argillic alteration. Copper mineralization is zoned with higher grade, bornite-dominant zones grading outwards to lower grade chalcopyrite-dominant zones. AMEC recommends building lithological, alteration and mineral zonation models for the next phase of study. A combination of lithology, alteration and mineral zones should provide a more robust support for the mineralized envelope and the definition of grade estimation domains.

# 14.3 Linear Regression of Gold Grades with Copper

AMEC plotted X–Y scatter plots of the existing gold and molybdenum grades against copper grades. Outliers were identified visually and were removed from subsequent linear regression calculations.





The scatter plots of molybdenum against copper grades showed a lack of correlation which precluded the development of a suitable linear regression formula to calculate molybdenum grades at un-assayed locations.

AMEC used the formulae below to calculate gold grades at un-assayed locations within the MZ and WBZ:

- (Au g/t) = (0.6457 x (Cu%)) + 0.0222 (MZ)
- (Au g/t) = (0.44 x (Cu%)) + 0.0313 (WBZ)

AMEC completed a sensitivity study by comparison of the use of the linear regression formulae above with a stepwise regression using a median value of the gold grades within the 0.08% to 0.12% copper grade range. The results show that a gold grade which is between 5% and 11% lower would be obtained.

AMEC also completed a comparison of the impact of using linear regression by estimating grade models with and without calculated gold values.

# 14.4 Grade Capping/Outlier Restrictions

AMEC evaluated log-scaled histograms, probability plots, indicator correlation plots, and a Monte Carlo simulation based method (metal at risk) to define grade outliers for copper, gold and molybdenum within each estimation domain. Copper, gold and molybdenum values were capped at the thresholds defined. The grade thresholds for the different element outliers are shown in Table 14-2.

# 14.5 Composites

Although the nominal sample length for assays is 3.05 m, sample lengths in the Schaft Creek assay database range from 0.57 m to 3.76 m. In order to normalize the weight of influence of each sample, AMEC regularized the assay intervals by compositing the drill hole data into 15 m lengths using no geological or domain boundaries. AMEC then back-tagged the 15 m composites using the grade shell solid shapes and assigned estimation domain codes.

# 14.6 Exploratory Data Analysis

Exploratory data analysis comprised basic statistical evaluation of the 15 m composites for copper, gold and molybdenum.

Co-efficients of variation (CVs) for copper are low, around and below one, in all domains.





Element	Domain	Threshold	Number Capped
Copper (%)	Main Zone	1.30	23
	Western Breccia Zone	2.00	10
Gold (g/t)	Main Zone	2.00	13
	Western Breccia Zone	2.00	13
Molybdenum (%)	Main Zone Low Grade	0.05	41
	Main Zone High Grade	0.30	9
	Western Breccia Zone – Low Grade	0.05	13
	Western Breccia Zone – High Grade	0.31	4

Table 14-2: 0	Outlier Thresholds for Copper, Gold and Molybdenum
---------------	--

AMEC evaluated statistical distributions of lithological units, within the MZ and WBZ domains. The evaluation showed that no significant statistical difference in copper, gold and molybdenum grades exists between lithological rock types within the MZ. Significant differences between the grades of the rock types are present in the WBZ. Contact analyses were completed for molybdenum composite values and AMEC defined hard boundaries for molybdenum estimation from this analysis.

# 14.7 Density Assignment

AMEC used 2,784 specific gravity determinations (81 outliers were removed from the measurements) to assign a constant specific gravity value of 2.69 g/cm<sup>3</sup> to all lithological rock types. A constant value of 1.8 g/cm<sup>3</sup> was assigned to all overburden material. The determinations were performed using an immersion technique to measure the weight of each sample in air and in water.

# 14.8 Variography

AMEC used Sage 2001 software to construct down-hole and directional correlograms for the MZ and WBZ estimation domains for copper, gold and molybdenum.

Based upon the variable orientation of the MZ, AMEC rotated the MZ East limb and West limb composite coordinates to approximately the same planar coordinates as the MZ Central zone. The East limb and West limb coordinates were then offset by 1,000 m in elevation so that variogram pairs were not calculated between non-rotated and rotated data.

For copper, gold and molybdenum, AMEC used spherical models to fit the experimental correlograms with two nested structures and a nugget effect. AMEC





oriented the axes of the MZ variogram model in the same orientations as the axes of the search ellipse used for the MZ.

Table 14-3 to Table 14-5 show the variogram models, search distances and search ellipse orientations for the MZ. Table 14-6 to Table 14-8 show the same data for WBZ.

## 14.9 Estimation/Interpolation Methods

The block model consists of regular blocks (15 m x 15 m x 15 m) and no rotation is used. The block size was chosen such that geological contacts are reasonably well reflected and to support an open pit mining scenario.

Within the WBZ, due to the complexity of the lithology and the observed differences in grades between the different lithologies, AMEC used a probabilistic approach to modelling grades. AMEC estimated the proportion or probability of each rock type within each block using inverse distance weighting (IDW) and estimated a grade for each rock type using ordinary kriging (OK). The final block grades were derived by weighting of each grade of each rock type by the respective proportion of each rock type. Within the MZ, AMEC estimated copper, gold and molybdenum grades using OK interpolation.

The grade interpolation process included:

- Grade estimation was completed in three passes
- Search orientations for all domains were based upon variogram orientations
- A minimum of 3 and a maximum of 12 drill hole composites were required for estimation in the first and second passes. A maximum of two composites per drill hole ensures a minimum of two holes are used for estimation
- A minimum of 1 and maximum of 12 drill hole composites were required for estimation in the third pass
- The estimate of grades in the WBZ was divided into lithological populations and the final grade calculated by weighting grades by the respective probability for each lithology.

## 14.10 Block Model Validation

AMEC validated the Schaft Creek block model to ensure appropriate honouring of the input data. Nearest-neighbour (NN) grade models were created to validate the OK grade models. A NN model of the lithology indicators was created to validate the IDW indicator model.





Table 14-3.	Conner (	old and	Molybdenum	Variogram	Models M7
	copper, c	solu allu	worybuenum	vanogram	

		•• *						•			
				1st Structure				2nd Struct			
Grade	Nugget	C1	C2	Туре	х	Y	Z	Туре	Х	Υ	Z
Au	0.2	0.54	0.26	Spherical	75	100	70	Spherical	470	345	140
Cu	0.2	0.36	0.44	Spherical	50	180	60	Spherical	425	310	150
Мо	0.25	0.27	0.48	Spherical	80	85	65	Spherical	450	250	105

#### Table 14-4: Search Distances, MZ

Search Distance		Pass	Pass 1			2		Pass 3		
Main Zone	Domain Code	Х	Y	Z	Х	Y	z	Х	Y	Z
East Limb North	101+201	100	60	25	200	125	50	300	180	75
East Limb Central	102+202	100	60	25	200	125	50	300	180	75
East Limb South	103+203	100	60	25	200	125	50	300	180	75
Central	100+200	100	60	25	200	125	50	300	180	75
West Limb	110+210	100	60	25	200	125	50	300	180	75

#### Table 14-5: Search Ellipse Orientations, MZ

Main Zone	Domain Code	Principal Azimuth	Principal Dip	Intermediate Azimuth
East Limb North	101+111	346	-25	358
East Limb Central	102+202	346	-25	45
East Limb South	103+203	346	-25	67
Central	100+200	166	23	65
West Limb	110+210	346	-25	117

#### Table 14-6: Copper, Gold and Molybdenum Variogram Models, WBZ

				1st Struct	ure	e 2nd Structure					Principal	Principal		
Grade	Nugget	C1	C2	Туре	х	Y	z	Туре	x	Y	z	Azimuth	Dip	Intermediate Azimuth
Au	0.15	0.34	0.51	Spherical	60	35	115	Spherical	200	300	100	75	-30	345
Cu	0.15	0.51	0.34	Spherical	45	70	55	Spherical	190	100	145	120	-40	30
Мо	0.35	0.51	0.14	Spherical	80	80	80	Spherical	250	250	250	-	-	-

#### Table 14-7: Search Distances, WBZ

		Pass 1						Pass 3		
	Domain Code	Х	Y	Z	Х	Y	z	Х	Y	Z
Inside Cu Shell	300	75	75	25	150	150	50	300	300	100
Inside Cu and Inside Mo shells	400	75	75	25	150	150	50	300	300	100
Rock type proportion	300,400	300	300	100	-	-	-	-	-	-







#### Table 14-8: Search Ellipse Orientations, WBZ

Breccia Zone	Domain Code	Principal Azimuth	Principal Dip	Intermediate Azimuth
Inside Copper Shell	300	80	-75	350
Inside Copper and Moly Shells	400	80	-75	350
Rock type Proportions	300,400	80	-75	350

Additional OK and NN models were constructed of uncapped grades, gold grades without linear regression and original copper, gold and molybdenum grades without the corrections described in Section 12.2.5.

The validation comprised:

- Detailed visual inspection of block grade versus composited data in section and plan view. The visual inspection of block grade versus composited data showed a good reproduction of the data by the model
- A comparison between the OK and NN estimates was completed to check for global bias in the copper, gold and molybdenum grade estimates. Differences were within acceptable levels and no global biases were noted in the estimates.
- Comparison of the global proportions of each lithology indicator in the NN and IDW models show differences which are within acceptable levels.
- Swath plot validation compared average grades from OK and NN models along different directions. Except in areas where there is currently limited drilling, the swath plots indicated good agreement for all variables.
- Swath plot validation of the lithology indicator from IDW and NN models indicate good agreement.
- The degree of smoothing due to kriging was assessed by considering change of support correction using Hermetian polynomials. Considering blocks from the MZ and WBZ independently above a cut-off grade of 0.1% copper, the results show a smoothing of between 2.5% and 3.5% more tonnes with a grade 1.5% to 2.0% lower, resulting in a difference of less than 1% in contained metal. AMEC concludes that the kriging smoothing is within an acceptable range.
- AMEC evaluated the impact of capping by estimating uncapped and capped grade models. Generally the amounts of metal removed are consistent with the amounts estimated during the grade capping study.
- The impact of linear regression on the estimated gold grades is minor.





• The impact of the corrections applied to the copper, gold and molybdenum grades are not significant.

## 14.11 Classification of Mineral Resources

AMEC used the following criteria to pre-classify blocks into categories as:

- Measured mineral resources: composites from a minimum of three drill holes within 70 m radius from a block centroid
- In addition, AMEC only classified blocks to the Measured category if more than two thirds of the ordinary kriging weight used in grade interpolation came from the higher confidence Copper Fox drill holes
- Indicated mineral resources: composites from a minimum of two drill holes within 135 m distance of the block centroid.

Blocks that were not classified as Measured or Indicated categories, but falling within the copper grade shell were classified as Inferred. The copper grade shells represent the limit at which grade continuity can reasonably be assumed. Remaining blocks were not classified. AMEC used a semi-automated process to smooth the initial classification and avoid islands or isolated blocks of different categories.

## 14.12 Reasonable Prospects of Economic Extraction

AMEC assessed the classified blocks for reasonable prospects of economic extraction by applying preliminary economics for potential open pit mining methods. The assessment does not represent an economic analysis of the deposit, but was used to determine reasonable assumptions for the purpose of determining the mineral resource. Mining and process costs, as well as process recoveries were defined based on data supplied by Copper Fox, and on experience with Projects in the same geographic location.

A large bulk mining open pit operation is envisioned for Schaft Creek, featuring large rope shovels working on 15 m benches. A single pit with internal phases is projected to provide mill feed at a rate of 120,000 t/d.

AMEC defined a pit shell, optimized using Whittle® (version 4.3) software, based on the parameters listed in Table 14-9. The metal prices used by AMEC represent long-term estimates for Mineral Resources.





Mining Costs	Unit	Value
Mining Reference Cost	US\$/t mined	1.35
Process +Tailings + G&A Cost	US\$/t milled	5.12
Mill Sustaining Capex Allowance	US\$/t milled	0.00
Closure Costs Allocation	US\$/t milled	0.00
Total Ore Based Costs	US\$/t milled	5.12
Cu Price	US\$/lb	2.90
Au Price	US\$/oz	1,200.00
Mo Price	US\$/oz	15.95
Selling Cost	US\$/lb Cu	0.53
	US/oz Au	6.00
	US/Ib Mo	2.74
Cu Recovery	%	86.5%
Au Recovery	%	73.3%
Mo Recovery	%	60.9%
Pit Slope(s)	Degree	East 40°, West 44°

Table 14-9: Optimization Parameters for Resource Pit Shell

Based on information supplied in the 2008 pre-feasibility study, concentrate produced from the Project is considered to be broadly marketable. Expected smelter and treatment charges have been identified, and can support assessment of reasonable prospects of economic extraction. Contracts are likely to be typical of, and consistent with, standard industry practice, and be similar to contracts for the supply of concentrates elsewhere in the world.

## 14.13 Marginal Cut-off Grade Calculation

AMEC defined a marginal cut-off of 0.12% copper equivalent. AMEC selected a base case 0.12% Cu cut-off for mineral resource reporting based upon the operating cut-offs of comparable projects in the same geographical location. The parameters informing the marginal cut-off calculation are included as Table 14-10.

Cu Eq (%) = Cu (%) + Mo (%) x Mo factor + Au (g/t) x Au factor where:

Mo factor (%Cu per %Mo) which is 4.0568, and is recovered \$ from 1% in-situ Mo converted to % in-situ Cu Au factor (%Cu per g/t Au) which is 0.6243 and is recovered \$ from 1 g/t in-situ Au converted to % in-situ Cu

## 14.14 Mineral Resource Statement

Mineral Resources for the Project were classified under the 2010 CIM Definition Standards for Mineral Resources and Mineral Reserves by application of a cut-off grade that incorporated mining and recovery parameters, and constraint of the Mineral Resources to a pit shell based on commodity prices.





Parameters	Value
Processing Cost (US\$/t)	5.12
Recovery (%)	86.5
Price (US\$/lb)	2.90
Selling Cost (US\$/lb)	0.53
Cut-Off Cu (%)	0.12

Mineral resources are tabulated in Table 14-11. The Qualified Person for the Mineral Resource estimate is David Thomas, P.Geo. Mineral Resources are reported at a long-term copper price of US\$2.90/lb, a gold price of US\$1,200/oz and a molybdenum price of US\$15.95/lb, and have an effective date of 1 May 2011.

The sensitivity of the mineral resource to a reduction or increase in copper equivalent cut-off is shown in Table 14-12. The base case mineral resource above a 0.12% copper equivalent cut-off is reported separately within the Breccia Zone (Table 14-13) and within the Main (Liard) Zone (Table 14-14).

AMEC is of the opinion that silver should not be reported as a part of the Mineral Resource estimate as there are data quality issues which preclude the classification of Measured and Indicated resources including silver. Silver grades within the deposit range between 1 g/t and 2 g/t.



# Table 14-11: Mineral Resource Statement for Schaft Creek at a 0.12% CuEq Cut-off Grade (David Thomas P. Geo., Effective Date 1 May 2011)

	•		,			,			
Category	Tonnage	Copper	Molybdenum	Gold	Cu Eq.	Contained Metal			
	(Million Tonnes)	(%)	(%)	g/t	(%)	Cu (Mlbs)	Mo (Mlbs)	Au (Moz)	
Measured	40.4	0.36	0.023	0.24	0.61	319.9	20.5	0.32	
Indicated	994.9	0.27	0.017	0.17	0.44	5,854.5	365.7	5.55	
Total Measured and Indicated	1,035.3	0.27	0.017	0.18	0.45	6,174.4	386.2	5.87	
Inferred	301.3	0.24	0.011	0.14	0.37	1,562.1	70.3	1.38	

Notes:

1. Mineral Resources base case is reported at a 0.12% copper equivalent cut-off grade; this cost incorporates considerations of process cost, recoveries, commodity price and selling cost

2. Mineral Resources are reported as undiluted

 A Lerchs–Grossmann pit shell was used to constrain the Mineral Resources to assess reasonable prospects of eventual economic extraction using pit slopes of between 40–44°, and total mining costs of US\$5.12/t milled, and variable recoveries, averaging 86.5% for Cu, 73.3% for Au, and 60.9% for Mo

4. Mineral Resources are reported using a long-term copper price of US\$2.90/lb, a gold price of US\$1,200/oz and a molybdenum price of US\$15.95/lb

5. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content

6. Tonnage and grade measurements are in metric units. Contained gold ounces are reported as troy ounces, contained copper pounds as imperial pounds



	U	ate 1 May 2	011).						
Resource	Cut-Off	Tonnage	Copper	Molybdenum	Gold	Cu Eq.	Cor	ntained M	etal
Category	Cu Eq.	(Million Tonnes)	(%)	(%)	g/t	(%)	Cu (Mlbs)	Mo (Mlbs)	Au (Moz)
Measured	0.10%	40.4	0.36	0.023	0.24	0.61	319.9	20.5	0.32
	0.12%	40.4	0.36	0.023	0.24	0.61	319.9	20.5	0.32
	0.15%	40.4	0.36	0.023	0.24	0.61	319.9	20.5	0.32
	0.20%	40.3	0.36	0.023	0.25	0.61	319.6	20.5	0.32
	0.25%	40.2	0.36	0.023	0.25	0.61	319.1	20.5	0.32
	0.30%	39.4	0.36	0.023	0.25	0.61	316.0	20.3	0.32
Indicated	0.10%	995.3	0.27	0.017	0.17	0.44	5855.1	365.7	5.55
	0.12%	994.9	0.27	0.017	0.17	0.44	5,854.5	365.7	5.55
	0.15%	992.5	0.27	0.017	0.17	0.44	5850.1	365.5	5.54
	0.20%	971.2	0.27	0.017	0.18	0.45	5795.7	363.2	5.50
	0.25%	898.6	0.28	0.018	0.18	0.47	5558.3	353.0	5.29
	0.30%	785.8	0.29	0.019	0.20	0.50	5105.9	333.7	4.93
Total	0.10%	1035.7	0.27	0.017	0.18	0.45	6175.0	386.2	5.87
Measured	0.12%	1035.3	0.27	0.017	0.18	0.45	6174.4	386.2	5.87
and Indicated	0.15%	1032.9	0.27	0.017	0.18	0.45	6169.8	386.0	5.86
	0.20%	1011.5	0.27	0.017	0.18	0.46	6113.7	383.6	5.81
	0.25%	938.8	0.28	0.018	0.19	0.47	5871.1	373.0	5.60
	0.30%	825.3	0.30	0.019	0.20	0.50	5411.0	353.4	5.23
Inferred	0.10%	301.5	0.24	0.011	0.14	0.37	1562.4	70.3	1.38
	0.12%	301.3	0.24	0.011	0.14	0.37	1562.1	70.3	1.38
	0.15%	299.5	0.24	0.011	0.14	0.38	1558.5	70.2	1.38
	0.20%	283.6	0.24	0.011	0.15	0.39	1517.2	68.8	1.34
	0.25%	244.1	0.26	0.012	0.16	0.41	1385.4	64.2	1.24
	0.30%	186.8	0.28	0.014	0.17	0.46	1150.6	56.6	1.05

#### Table 14-12: Mineral Resource Statement for Schaft Creek Showing Sensitivity to Various CuEq Cut-offs, with Base Case Highlighted (David Thomas P. Geo., Effective Date 1 May 2011).

#### Table 14-13: Mineral Resource Reported within the Breccia Zone at a 0.12% CuEq Cut-off Grade (David Thomas P. Geo., Effective Date 1 May 2011)

	``		,			,		
Resource Category	Tonnage (Million Tonnes)	Copper (%)	Molybdenum (%)	Gold g/t	Cu Eq. (%)	Contained Metal		
						Cu (Mlbs)	Mo (Mlbs)	Au (Moz)
Measured	16.2	0.32	0.024	0.21	0.55	114.3	8.5	0.11
Indicated	389.6	0.28	0.020	0.16	0.46	2,417.2	168.1	2.01
Total Measured and Indicated	405.7	0.28	0.020	0.16	0.46	2531.5	176.7	2.11
Inferred	146.2	0.25	0.012	0.14	0.39	812.4	39.4	0.65







Resource Category	Tonnage (Million Tonnes)	Copper (%)	Molybdenum (%)	Gold g/t	Cu Eq. (%)	Contained Metal		
						Cu (Mlbs)	Mo (Mlbs)	Au (Moz)
Measured	24.2	0.38	0.022	0.27	0.64	205.6	12.0	0.21
Indicated	605.3	0.26	0.015	0.18	0.43	3,437.3	197.5	3.54
Total Measured and Indicated	629.6	0.26	0.015	0.19	0.44	3645.2	209.6	3.76
Inferred	155.1	0.22	0.009	0.15	0.36	749.7	31.0	0.73

# Table 14-14: Mineral Resource Reported within the Main Zone (Liard) at a 0.12% CuEqCut-off Grade (David Thomas P. Geo., Effective Date 1 May 2011)

## 14.15 Factors That May Affect the Mineral Resource Estimate

Areas of uncertainty that may materially impact the Mineral Resource estimates include:

- Long-term commodity price assumptions
- Long-term exchange rate assumptions
- Operating and capital assumptions used
- Metal recovery assumptions used
- Any changes to the slope angle of the pit wall as a result of more detailed geotechnical information would affect the pit shell used to constrain the mineral resources.

Silver content represents a potential upside opportunity for the Project.

## 14.16 Comments on Section 14

The QPs are of the opinion that the Mineral Resources for the Project, which have been estimated using core drill data, have been performed to industry best practices, and conform to the requirements of CIM Definition Standards (2010).





## 15.0 MINERAL RESERVE ESTIMATES

Copper Fox are treating the 2008 pre-feasibility study as historic. Information in the pre-feasibility study is considered to be superseded as the Mineral Resource estimate on which the Mineral Reserves were based has been superceded. Therefore, this section is not relevant to this Report.

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# 16.0 MINING METHODS





# 17.0 RECOVERY METHODS





# 18.0 PROJECT INFRASTRUCTURE





## **19.0 MARKET STUDIES AND CONTRACTS**





# 20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT





# 21.0 CAPITAL AND OPERATING COSTS





# 22.0 ECONOMIC ANALYSIS





# 23.0 ADJACENT PROPERTIES





# 24.0 OTHER RELEVENT DATA AND INFORMATION

In early 2010, Copper Fox retained Wardrop Tetra Tech Company, the main contractor for the feasibility study, and Knight Piésold Ltd. and Stantec Consulting Ltd., to complete the feasibility study on the Schaft Creek deposit. The feasibility study will include an updated geological model, Mineral Resource estimate, Mineral Reserve estimate, revised capital cost and operating costs estimates and other technical, socioeconomic and financial aspects related to the feasibility study. The study is planned to be completed by the end of 2011.

At the Report effective date, the Mineral Resource estimate to support the study has been completed, and engineering, mine, port, and process design work, although substantially complete, were still being refined. Project cost estimation and financial analysis to support Mineral Reserve declaration are ongoing as of the effective date of this Report.



## 25.0 INTERPRETATION AND CONCLUSIONS

The QPs, as authors of this Report, have reviewed the data for the Project and are of the opinion that:

- Legal opinion provided by experts retained by Copper Fox to AMEC indicates that the mining tenure held by Copper Fox in the Project area is valid, and sufficient to support declaration of Mineral Resources
- The permits held by Copper Fox for the Project are sufficient to ensure that exploration activities are conducted within the regulatory framework. Additional permits will be required for Project development
- Environmental permits for Project development have to be secured. This process will determine the precise number of environmental management plans that the regulatory authorities will require to ensure compliance with environmental design and permit criteria. Copper Fox is progressing the Project through the British Columbia (BC) and federal environmental assessment (EA) processes
- The existing and planned infrastructure, availability of staff, the existing power, water, and communications facilities, the methods whereby goods are transported to the mine, and any planned modifications or supporting studies are wellestablished, or the requirements to establish such, are well understood by Copper Fox, and can support the declaration of Mineral Resources
- The geologic understanding of the deposit settings, lithologies, and structural and alteration controls on mineralization is sufficient to support estimation of Mineral Resources
- The mineralization style and setting is well understood and can support declaration of Mineral Resources
- The exploration programs completed to date are appropriate to the porphyry copper style of the deposit
- Work completed in the period 1967 to date has consisted of geological mapping, prospecting, stream sediment, grab, rock chip and soil geochemical sampling, trenching and pitting, ground IP/resistivity and magnetic geophysical surveys, petrographic studies, bulk sampling for metallurgical testing, re-logging and re-sampling of historic drill core, and core drilling. Completed exploration programs were appropriate to the mineralization style. To date, a deposit consisting of three main zones, and two exploration targets have been identified
- Sampling methods are acceptable, meet industry-standard practice, and are acceptable for Mineral Resource estimation purposes





- The quality of the Copper Fox copper, gold, and molybdenum drill core and analytical data is reliable and that sample preparation, analysis, and security are generally performed in accordance with exploration best practices and industry standards
- Legacy drill data have been validated by Copper Fox's relogging and re-assay programs, and copper, molybdenum and gold data from these programs are reliable, and can be used to support Mineral Resource estimates
- The legacy silver data are so different from those obtained by Copper Fox that the original historic assay values could not be used; silver values represent Project upside potential
- Current testwork has included comminution and variability comminution tests, tests on the effects of grind sizes, collectors and pH, sulphidization, cleaner flotation tests, locked cycle tests and pilot plant tests
- Recovery assumptions used to support reasonable prospects of economic extraction were 86.5% for copper, 73.3% for gold, and 60.9% for molybdenum. A copper concentrate grade of 29% Cu and a molybdenite concentrate grade of 50% was assumed. Operating costs of \$5.51/t were included
- Mineral Resources, which were estimated using core drill data, have been performed to industry best practices, and conform to the requirements of CIM Definition Standards (2010)
- Concentrate produced from the Project is considered to be broadly marketable. Expected smelter and treatment charges have been identified, and can support assessment of reasonable prospects of economic extraction. Contracts are likely to be typical of, and consistent with, standard industry practice, and be similar to contracts for the supply of concentrates elsewhere in the world.
- Additional exploration potential remains within the Project area
- The Project is sufficiently advanced to support more detailed studies, and a feasibility study is underway, and expected to be completed by the end of 2011.





# 26.0 **RECOMMENDATIONS**

Copper Fox has commissioned a feasibility study, which is underway and scheduled for completion by the end of 2011. Therefore, AMEC's recommended work program is aimed at supporting the study and collating additional data to support more detailed studies.

AMEC proposes a single-phase, geology, Mineral Resource, and exploration-focused work program, where all aspects of the work can be conducted concurrently, and no work item is dependent on the results of another. The program will cost between about \$3.0 M and \$3.4 M.

AMEC recommends that Copper Fox should:

- Complete a full review of the lithology, alteration and mineral zonation by relogging drill holes and complete an interpretation on vertical sections reconciled to bench plans. Estimated cost: US\$40,000 to US\$60,000
- AMEC recommends that Copper Fox complete a thorough review of existing assays and complete a re-assay program using certified silver standard reference materials in order to enable classification of the silver into the appropriate CIM mineral resource categories. AMEC estimates that the likely maximum cost would be approximately US\$30,000
- Drill additional holes to increase the level of confidence of the lithological interpretation and to explore the zone of higher-grade mineralization present within the WBZ associated with a high chargeability geophysical anomaly. An additional 10 holes (9,000 m) is suggested. Estimated cost: US\$2.7 M to US\$3 M
- Institute a continuous program of bulk density/specific gravity determinations from core samples. AMEC recommends that one sample in 20 be subject to density determination; this equates to approximately a 50 m spacing for density samples. The addition of density determinations to all future analytical programs is expected to add between 2% and 5% to the cost of the programs.
- On the newly acquired Greig/Kreft claims, AMEC recommends that Copper Fox complete a Titan-24 DCIP and MT geophysical survey over the area in order to better define drill targets. Following definition of drill targets AMEC recommends that approximately five drill holes (1,000 m) are completed to initiate drill testing of the targets. This program has an estimated cost of between \$0.25 M and \$0.5 M.

At the completion of this work, results should be reviewed and incorporated as appropriate into the ongoing feasibility study or, if data are available after the completion date for the feasibility study, into more detailed studies.





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