

# **Technical Report on the Geology and Exploration Summary of the Solwezi Group of Prospecting Licences**

**Republic of Zambia, Southern Africa**

**26° 28' South Latitude, -12° 14' East Longitude  
Solwezi District, North-western Province**

**For:**

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# 1. Summary

This technical report outlines and describes the Solwezi Group of Prospecting Licences located in the North-western Province of Zambia, Southern Africa, currently owned and operated by Afroni Investments Ltd. The author has read the National Instrument 43-101 and Form 43-101 documents and this technical report has been prepared in compliance with above mentioned documents. The author is a registered Professional Geologist in the province of Alberta and the author fulfills the requirements to be a "qualified person" for the purposes of NI 43-101 technical reporting.

Midnight Sun Mining Corp. ("Midnight Sun") has entered into an option agreement with Kam Chuen Resource Holdings Ltd. ("Kam Chuen"), parent company of Afroni Investments Limited, whereby Midnight Sun can earn up to a sixty percent (60%) interest in the mineral prospecting licenses (14039-HQ-LPL and 12124-HQ-LPL) near Solwezi, Zambia by spending a total of \$3,666,667 and issuing a total of 15,333,333 common shares of Midnight Sun on or before a period of 48 months. The Solwezi Group of Prospecting Licences is comprised of 2 individual prospecting licences totalling 506 km<sup>2</sup>. The Solwezi Group of Prospecting Licences is located in the North-western Province of Zambia, Southern Africa, approximately 450 km from the Capital of Lusaka, Zambia. The fully serviced city of Solwezi lies within the northern boundaries of one of the prospecting licences.

The Kansanshi Mine owned and operated by First Quantum Minerals Limited is located roughly 15kms from the Solwezi Group of Prospecting Licences. The Kansanshi Mine is Zambia's single largest producing copper mine and also an important gold producer within Zambia. As of 2012, Kansanshi's updated Resource was calculated at 744.3 Mt @ 0.86% Cu and 0.15ppm Au Measured and Indicated and 365.2 Mt @ 0.71% Cu and 0.12ppm Au Inferred (Gregory, 2012). The author has been unable to verify the above mentioned Mineral Resource and that the information described above is not necessarily indicative of the mineralization within the Solwezi Group of Prospecting Licences.

The properties are largely accessible via a mixture of paved and unpaved roads. The climate of the area is cool as the property lies within the higher portion of the Central

African Plateau. Seasonal rains occur from December to March thus restricting exploration to April through November.

The Solwezi Group of Prospecting Licences lies within the Lufilian-Arc region of Northern Zambia and southern D.R. Congo, a prolific copper producing region of the world. The dominant mineral deposits within the Lufilian-Arc system are stratabound-type and hydrothermal vein type copper deposits. In addition to copper, cobalt is a common accessory mineral commonly occurring in minable quantities within copper deposits. The property encompasses the central and western portion of the Solwezi Dome, a Pre-Katanga basement complex comprising of granites, granite-gneisses, migmatites and pegmatite's. Unconformably overlying the Pre-Katanga basement is the Lower Roan Group which is comprised of quartzites, meta-conglomerates and mica schists. The Lower Roan Group is exposed around the flanks of the Solwezi Dome and is the favourable rock for stratabound Cu mineralization within the Lufilian-Arc.

Geochemical soil sampling has identified copper anomalies in multiple locations of the properties and successive diamond drilling has confirmed copper mineralization in multiple areas within the group of properties. A major highlight from diamond drilling is drill hole QZ400-22 drilled during 2012 in the NW Grid area to follow-up on a surface soil anomaly where the drill hole intercepted 8.5% Cu over 21.1m.

The mineralization encountered to date on the Solwezi Group of Prospecting Licences is copper with associated cobalt and occurs within the same style of mineralization as other Cu producing mines in Zambia

Based on a thorough review of existing data in addition to a property visit and sample verification, it is of the author's professional opinion that the Solwezi Group of Prospecting Licences are properties of merit and further work is warranted on the property.

In order to advance the properties, a two phase exploration program is recommended. Phase One would consist of a thorough review and compilation of all current and historical exploration data and entered into a suitable database. A field exploration program consisting of soil sampling and ground EM geophysics and 2000m of RC drilling would be completed in the NW Grid area surrounding drill hole QZ400-22 where

21.1m grading 8.5% Cu was reported. Both soil and geophysical programs would be roughly 30 km<sup>2</sup>. The Phase One program would cost an estimated \$296,000. Phase Two would be contingent on the results of Phase One and would consist of a 4000m diamond drilling program to follow up and reconfirm the mineralization encountered in diamond drill hole QZ400-22 and to test additional anomalies discovered during Phase One. The Phase Two program would cost an estimated \$751,250

## **2. Introduction**

This Technical report was commissioned by Midnight Sun Mining Corp. to summarize the geology, mineralization and exploration potential of the Solwezi group of Prospecting Licenses: 12124-HQ-LPL, 14039-HQ-LPL, located in the Republic of Zambia, Southern Africa (Figure 1), and to recommend a suitable exploration program to test and expand previously identified copper targets. The author, Mr. Adrian Karolko, P.Geo. of Calgary, Alberta was retained by the Directors of Midnight Sun Mining Corp. to complete this technical report which has been prepared in conformity with guidelines presented in National Instrument 43-101 and companion documents. The information contained in this report was taken primarily from current exploration data, historical reports and maps supplied by Afroni Investments Limited. The author visited the Ministry of Mines, Energy, and Water Development of Zambia in Lusaka to source information on regional geology in addition to review historical reports on past exploration.

The author visited Zambia to collect information related to this technical report from June 18<sup>th</sup> to June 30<sup>th</sup>, 2013 and conducted a personal inspection of the Solwezi Group of Prospecting Licenses between June 23<sup>rd</sup> and June 25<sup>th</sup>, 2013 and was accompanied with Mr. Youwei Ye, a director of Midnight Sun, and Mr. Songjin Du, V.P. Exploration of Afroni Investments Ltd. During the site visit, the author visited the shallow technical drillhole location of QZ400-22 and diamond drillhole ZK60-1 and ZK28-1. The author also viewed trenches TC62-1 and TC60-1. The author also inspected the property for accessibility, communications and nearby infrastructure.

### **3. Reliance on other Experts**

This report has been prepared by Adrian Karolko P. Geo. for Midnight Sun Mining Corp. The information, opinions, and conclusions contained herein are based on information available to the author at the time of preparation of this report, assumptions, conditions and, qualifications as set forth in this report and data, reports, and other information supplied by Adventure Resources Limited and other third party sources.

For the purpose of History, Exploration, and Drilling the author has relied on information provided by Afroni Investments Limited.

For the purpose of property ownership and permitting, the author personally conducted an electronic search at the Mining Cadastre Unit of the Ministry of Mines and Minerals Development in Lusaka on June 20<sup>th</sup>, 2013 to view current ownership of the Solwezi Group of Properties. In addition, the author is relying on copies of the mineral concession title documents provided by Afroni Investments Ltd., as well as a legal Title Opinion document dated July 18th, 2013, entitled: " Client and Attorney Priviledge and Confidential Information" prepared by Dr. Overs M.M. Banda, a licensed and practicing lawyer within Zambia on behalf of Midnight Sun Mining Corp. Documentation of both property ownership and the legal Title Opinion are attached in Appendix I.

For the purpose of Climate, and Physiography the author has relied on three reports dated September 2012, entitled: "Environmental Project Brief for Mineral Exploration Activities in Solwezi District, Exploration Licence No. 12124-HQ-LPL", "Environmental Project Brief for Mineral Exploration Activities in Solwezi District, Exploration Licence No. 14039-HQ-LPL". The report was prepared by DN Consulting Associates Limited of Kitwe, Zambia. The above reports did not list an author(s), and the author of this report was unable to identify the author(s) even after contact with DN consultants.

For the purpose of Deposit Types, the author relied on a scientific publication entitled "Some constraints on the formation of the Zambian Copperbelt deposits", Sweeny, M.A. and Binda, P.L., Journal of African Earth Sciences, 1994, Vol. 19, No.4, pp, 303-313.

For the purpose of the option agreement the author is relying on information provided by Midnight Sun Mining Corp.

## 4. Property Description and Location

The Solwezi Group of Prospecting Licences is located in the Solwezi District within the North-Western Province of Zambia, Southern Africa. The Solwezi Group of Prospecting Licences surrounds First Quantum's Kansanshi Mine to the east, south and west.



Figure 1: Regional map showing location of Prospecting Licences 12124-HQ-LPL and 14039-HQ-LPL.

The Solwezi Group of mineral exploration licences are registered as Large-Scale Prospecting License 14039-HQ-LPL and 12124-HQ-LPL with the Zambia Ministry of Mines and Energy and Water Development where it was originally acquired by Afroni Investments Limited in late 2009 thru early 2010. The contiguous properties form an irregular shaped boundary whose corner locations are shown in Table 1 and is displayed in Figure 2.

The Solwezi Group of Prospecting License 14039-HQ-LPL and 12124-HQ-LPL are centered approximately 26° 17' 24" South, -12° 11' 36" East; and 26° 28' 18" South, -12° 14'

6" East (Lat-Long Arc, 1950) and encompass an area of 228.9km<sup>2</sup> and 289km<sup>2</sup> respectively.

Within the Republic of Zambia all rights of ownership in, searching for, mining and disposing of, minerals wheresoever located in the Republic are vested in the President on behalf of the Republic (Mines Act, 2008).

Mineral exploration and development is controlled by the Mines and Minerals Development Act, 2008 and is administered by the Ministry of Mines and Energy and Water Development.

A prospecting license, once granted, is valid for a period of two years. A prospecting license may be renewed for an additional two-year term, with a total maximum period not exceeding seven years.

Prospecting License 12124-HQ-LPL was acquired December 29<sup>th</sup>, 2009 and Prospecting License 14039-HQ-LPL was acquired March 25<sup>th</sup>, 2010. Due to a restructuring of the Zambian Ministry of Mines and Energy in 2011 a substantial backlog of renewal applications has occurred, thus delaying the approval of renewal for Prospecting License 12124-HQ-LPL and 14039-HQ-LPL. Applications for renewal on Prospecting License 12124-HQ-LPL was submitted on September 22<sup>nd</sup>, 2011, and only recently granted on July 3<sup>rd</sup>, 2013. Applications for renewal on Prospecting License 14039-HQ-LPL was submitted on April 3<sup>rd</sup>, 2012 and granted on May 7<sup>th</sup>, 2013.

During the writing of this technical report, Prospecting License 12124-HQ-LPL and 14039-HQ-LPL are in their first two year extensions and due to expire on December 22<sup>rd</sup>, 2015 and January 24<sup>th</sup>, 2015 respectively.

Both prospecting licenses are limited to exploration and development of subsurface copper, gold, iron ore, uranium, nickel and zinc. Additional commodities may be amended to the prospecting license by applying to the Director of Geological Survey. As set out in the in Regulation 23(3) of the Mines and Minerals Development (General) Regulations of 2008 surface rights and legal access must be obtained from legal occupiers of land or local chiefs. Afromi has obtained permission to access the properties encompassed by the Solwezi Group of Prospecting Licenses from local Chief

Kapijimpanga. In order to maintain the Prospecting Licenses, Afromi Investments Ltd. must meet the terms and conditions set out in Regulation 23(3) of the Mines and Minerals Development (General) Regulations of 2008 and pay the appropriate licensing fees. See Appendix I.

The author visited the Mining cadastre Unit of the Ministry of Mines and Mineral Development in Lusaka, Zambia to view the current standing of the Solwezi Group of Prospecting Permits. In addition the author used a legal title opinion of the Solwezi Group of Prospecting Permits to verify the ownership and current standing. The title opinion was completed by Dr. Overs M.M. Banda, a practicing lawyer within the Republic of Zambia on behalf of Midnight Sun Mining Corp. See Appendix I for documentation of prospecting license ownership, applications for renewal, renewal granting letters, and legal title opinion.

To the best of the author's knowledge the Prospecting Licenses have not been legally surveyed. To the best of the author's knowledge there are no royalties, back-in rights, payments or any other agreements or encumbrances associated with prospecting licenses 14039-HQ-LPL or 12124-HQ-LPL. A holder of a prospecting license must complete an independent Environmental Project Brief (EPB). A EPB for Prospecting License 12124-HQ-LPL and 14039-HQ-LPL was completed by DN Consulting Associates Limited, an independent contractor, in September 2012. The report highlighted no environmental liabilities associated with the property.

Afromi Investments Limited has received approval for exploration on Prospecting License 14039-HQ-LPL and 12124-HQ-LPL from the Environmental Council of Zambia. See Appendix I. No additional permitting is required to conduct exploration on the prospecting license at this time.

To the best of the author's knowledge there are no other significant factors and risks that may affect access title or right or ability to conduct work on the property.

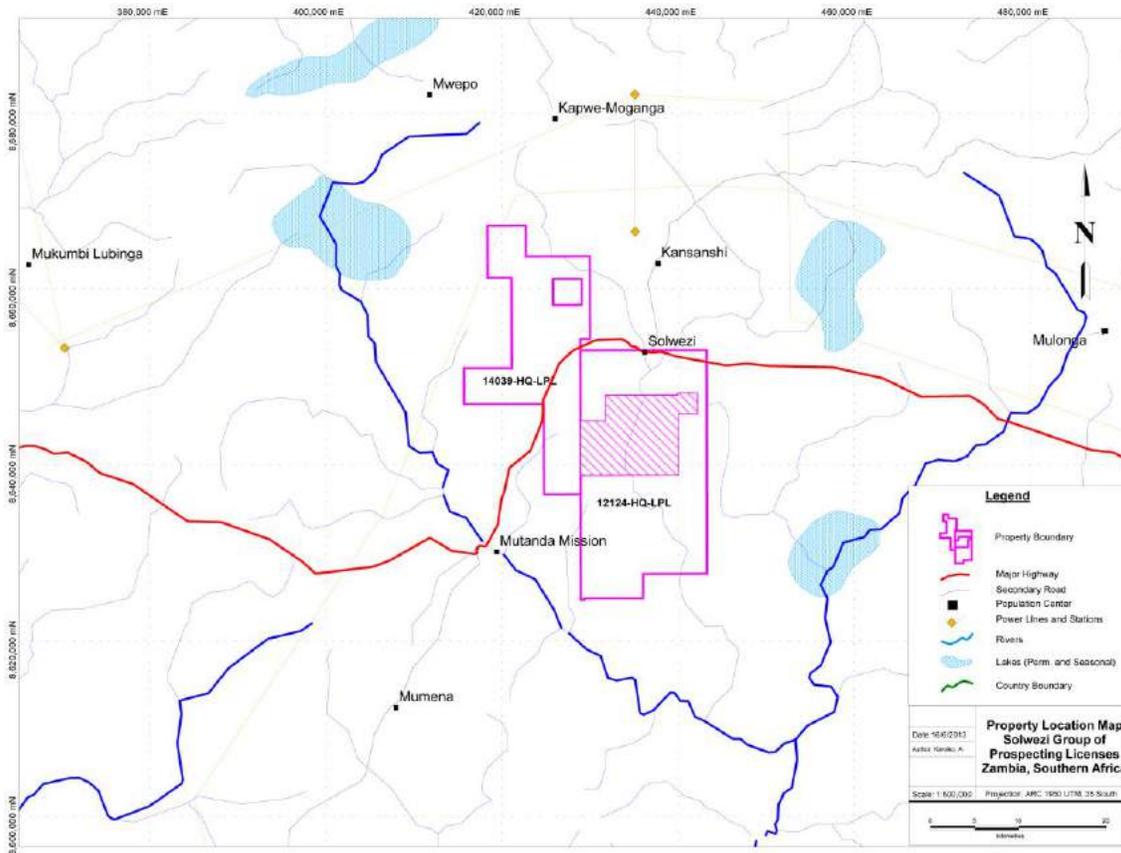


Figure 2: Property Location of Solwezi Group of Prospecting Licenses 14039-HQ-LPL and 12124-HQ-LPL. Note: area with pink hash marks is not a part of the Group of Prospecting Licences.

Table 1. Solwezi Prospecting Licenses Corner Post Coordinates

License No.	Point	Longitude (Deg)	Latitude (Deg)
14039-HQ-LPL	1	26°20'48"E	-12°10'24"S
14039-HQ-LPL	2	26°20'48"E	-12°20'00"S
14039-HQ-LPL	3	26°18'30"E	-12°20'00"S
14039-HQ-LPL	4	26°18'30"E	-12°14'24"S
14039-HQ-LPL	5	26°13'30"E	-12°14'24"S
14039-HQ-LPL	6	26°13'30"E	-12°12'12"S
14039-HQ-LPL	7	26°16'30"E	-12°12'12"S
14039-HQ-LPL	8	26°16'30"E	-12°06'36"S
14039-HQ-LPL	9	26°15'00"E	-12°06'36"S
14039-HQ-LPL	10	26°15'00"E	-12°03'24"S
14039-HQ-LPL	11	26°17'24"E	-12°03'24"S
14039-HQ-LPL	12	26°17'24"E	-12°05'18"S
14039-HQ-LPL	13	26°21'24"E	-12°05'18"S
14039-HQ-LPL	14	26°21'24"E	-12°10'24"S
14039-HQ-LPL	15	26°20'48"E	-12°10'24"S
	-16	26°20'54"E	-12°08'18"S
	-17	26°20'54"E	-12°06'42"S
	-18	26°19'06"E	-12°06'42"S

	-19	26°19'06"E	-12°08'18"S
	-20	26°20'54"E	-12°08'18"S
12124-HQ-LPL	1	26°28'42"E	-12°11'06"S
12124-HQ-LPL	2	26°28'42"E	-12°24'54"S
12124-HQ-LPL	3	26°24'42"E	-12°24'54"S
12124-HQ-LPL	4	26°24'42"E	-12°26'24"S
12124-HQ-LPL	5	26°21'00"E	-12°26'24"S
12124-HQ-LPL	6	26°21'00"E	-12°26'30"S
12124-HQ-LPL	7	26°20'48"E	-12°26'30"S
12124-HQ-LPL	8	26°20'48"E	-12°18'48"S
12124-HQ-LPL	9	26°26'54"E	-12°18'48"S
12124-HQ-LPL	10	26°26'54"E	-12°15'00"S
12124-HQ-LPL	11	26°28'06"E	-12°15'00"S
12124-HQ-LPL	12	26°28'06"E	-12°13'48"S
12124-HQ-LPL	13	26°26'54"E	-12°13'48"S
12124-HQ-LPL	14	26°26'54"E	-12°13'54"S
12124-HQ-LPL	15	26°22'24"E	-12°13'54"S
12124-HQ-LPL	16	26°22'24"E	-12°15'30"S
12124-HQ-LPL	17	26°20'48"E	-12°15'30"S
12124-HQ-LPL	18	26°20'48"E	-12°11'06"S
12124-HQ-LPL	19	26°28'42"E	-12°11'06"S

Table 1: Property corner post coordinates of 14039-HQ-LPL and 12124-HQ-LPL shown in Lat-Long, Arc 1950. Note negative numbers in the Points column designate coordinates of land lying within overall land package that are NOT held by Afroni Investments Limited

Midnight Sun Mining Corp. has entered into an option agreement on May 9, 2013 with Kam Chuen Resource Holdings Ltd. ("Kam Chuen"), parent company of Afroni Investments Limited, where by Midnight Sun can earn up to a 60 % interest in the mineral prospecting licenses (14039-HQ-LPL and 12124-HQ-LPL) near Solwezi, Zambia.

In order to earn its 60% interest, Midnight Sun must commit to spending \$3,666,667 in Canadian funds of work expenditures and issuing a total of 15,333,333 common shares of Midnight Sun to Kam Chuen on or before a period of 48 months of the effective date. A break-up of payment is shown in the following timeframe:

1. 1,333,333 Midnight Sun common shares within five business days of the Acceptance Date
2. Incur \$1,000,000 of exploration expenditures and issue 4,000,000 Midnight Sun shares within 18 months of the effective date; and
3. Incur an additional \$1,333,333 and issue 10,000,000 Midnight Sun shares within 36 months of the effective date; and
4. Lastly, spend a further \$1,333,334 within 48 months of the effective date.

## **5. Accessibility, Climate, Local Resources, Infrastructure, Physiography, and Vegetation**

The Solwezi group of prospecting licenses is situated in the North-western Province of Zambia, approximately 450km, from Lusaka, the capital of Zambia.

Zambia is serviced by an International Airport located in Lusaka with daily flights to all neighbouring Southern African countries. The major international traffic is directed through Johannesburg, South Africa; Dubai, United Arab Emirates; or Nairobi, Kenya. The dominant roadway linking Lusaka to the major districts throughout the Zambian copperbelt is called the Great North Road: a year-round paved highway that serves as the main artery to Northern Zambia. All major industrial traffic commutes along the Great North Road to service the many mines in Northern Zambia.

The Solwezi group of properties may be accessed via the Great North Road (T5) from Lusaka to Solwezi. From Solwezi, a secondary paved highway (M8) runs directly south. Both the east/west trending T5 and north south trending M8 highways cut directly through all three prospecting licences making the property highly accessible. A large network of unpaved roads allows easy access to large portions of the prospecting licences.

The City of Solwezi has a population of roughly 65,000 people in a fully serviced population centre just 10km south of the First Quantum's Kansanshi Mine and 65km east of Barrick's Lumwana Mine. Being in the heart of a mining district, Solwezi has the appropriate services needed when conducting advanced exploration. Solwezi is also serviced by a small regional airport with daily flights from Lusaka. Many towns and villages lie along the network of unpaved roads throughout the prospecting licences. Although un-serviced, they could be used for a source of labourers.

The Solwezi area lies within the higher portion of the Central African Plateau, at roughly 1400m. elevation. The Climate of the area is slightly cooler than most other regions in Zambia with temperatures ranging from 15-25°C and is characterized by three distinct seasons: The winter months range from April to July; the summer season ranges from August to November; and the rainy season occurs from December to March. The winter months average temperature ranges from 15-17°C with lows of 5°C. The average rainfall

during the rainy season is between 800-1000mm. The area lies within the basin catchment of the Mutanda and Kitubwa rivers. The rainfall would likely inhibit exploration during these month, thus limiting the advanced field exploration season to 8 months.

The morphology of the area is characterized by dominantly plateau type averaging 1200m ASL.

The area is dominantly vegetated by three distinct vegetation types: the Chipya, Miombo and Mateshi. The Chipya is characterized as an open woodland area consisting of perennial grasses that grow up to 2 metres in height and frequent small trees ranging in height from 5-10m. The Miombo woodland area is dominated by closed canopy leguminous trees species *Brachystegia*, and *Julbernadia*. These deciduous trees and form a single story canopy and average a height of 12-15 metres. The Mateshi are characterized as coniferous forests with trees that range in height from 15-25m. Evergreen scrubs are also common within the Mateshi. The Mateshi evergreens are relatively scarce and occur in small patches throughout the north-western province.

Due to human presence throughout the region, large wildlife is nearly nonexistent as animals have either been heavily hunted or have migrated away from populated areas. Wildlife that has remained is comprised mainly of numerous species of reptiles and amphibians, as well as some small animals and rodents.

The area has no known archaeological sites and it is considered to have low potential for discovering any ancient sites of significant value.

The property is not within any national park boundaries or protected zones. The dominant industry in this region is subsistence farming and ranching.

For the purpose of exploration and drilling, labourers could be sourced from nearby towns and villages or from the city of Solwezi. Drilling water could potentially be sourced from nearby rivers and streams depending on the time of year, but would likely need to be trucked to the site from nearby boreholes and water wells.

The Solwezi group of licenses has sufficient surface rights that should an economic mineral deposit be defined, there is adequate area for potential tailings storage areas,

waste disposal, heap leach pads and processing facilities if required. Due to the large amount of rainfall the area experiences, water storage facilities could be put into place to supply the demand of mining. Electricity could be sourced from a main power station which is located roughly 14km north of the city of Solwezi. Mining personnel could be sourced from the nearby the city or Solwezi or any of the nearby villages and towns.

## **6. History**

The author visited the Ministry of Mines in an attempt to obtain information on historical exploration work completed either wholly or partially within the Prospecting License. Within the Ministry of Mines, Energy and Water Development, the Geological Survey Department and the Technical Records Office are responsible for collecting and storing historical exploration records, along with geological information. The following information is summarized from previous known exploration and is cited below.

From 1968 to 1970 Mwinilunga Mines Ltd. located and ultimately drilled a uranium anomaly located along the NW flank of the Solwezi Dome. The anomaly was originally identified by scintillometer prospecting. A total of two mineralized areas were identified, the NE zone and West zone. Both areas were subsequently drilled in 1969 by wagon and diamond drilling. A total of 156 wagon drill holes and 21 diamond drill holes were completed to test subsurface mineralization originally identified by scintillometer prospecting (Searston, 1990). Of the 156 wagon holes, only 11 intercepted mineralization and 11 of the 21 diamond holes intercepted mineralization of economic value. Mineralization is preferentially found within fine grained quartzose mica schists. Mineralization occurs as sklodowskite, uraninite, torbernite, uraconite, and autunite. The extent of mineralization at depth is unknown and the lack of marker beds and repeating fault zones has made understanding the continuity of mineralization impossible. The mineralized area covers roughly 1200m x 700m (Searston, 1990). The mineralization is reported to be open to the south however no records indicate that the area was investigated further. To the best of the author's knowledge no further work has been completed on the Mitu area since 1970.

Between 1997 and 1999, Cyrus Amax Zambia conducted exploration within the property boundary currently held by Afrimi. Their primary focus was the Kansanshi Mine area,

however Cyrus Amax did conduct exploration on other prospective areas. In 1997 Cyrus conducted an airborne magnetic and radiometric survey over a large portion of the property. A total of 15,754 line km were flown at 200m spacing in addition to 100m spaced lines surrounding the Kansanshi Mine area. Interpretation of the radiometric data identified a unique signature of the Kansanshi mineralization: elevated uranium and thorium values and depleted potassium values coincide with Cu mineralization (Unknown Author, 1999). The author was unable to locate a copy of the geophysical results while at the Ministry of Mines.

A 1:25000 scale soil sampling program within the south eastern portion of the dome was also completed. A total of 3068 samples were collected and Cyrus Amax identified a 15km long north-south trending anomaly from 200 to 2900m in width of > 100ppm Cu and is roughly coincident with a north-south trending structure identified from aeromagnetic data (Unknown Author, 1999). Mineralization occurs as weakly disseminated chalcopyrite, bornite and malachite within a biotite gneiss thought to be a folded and overturned portion of Mine Series sediment within the Basement complex.

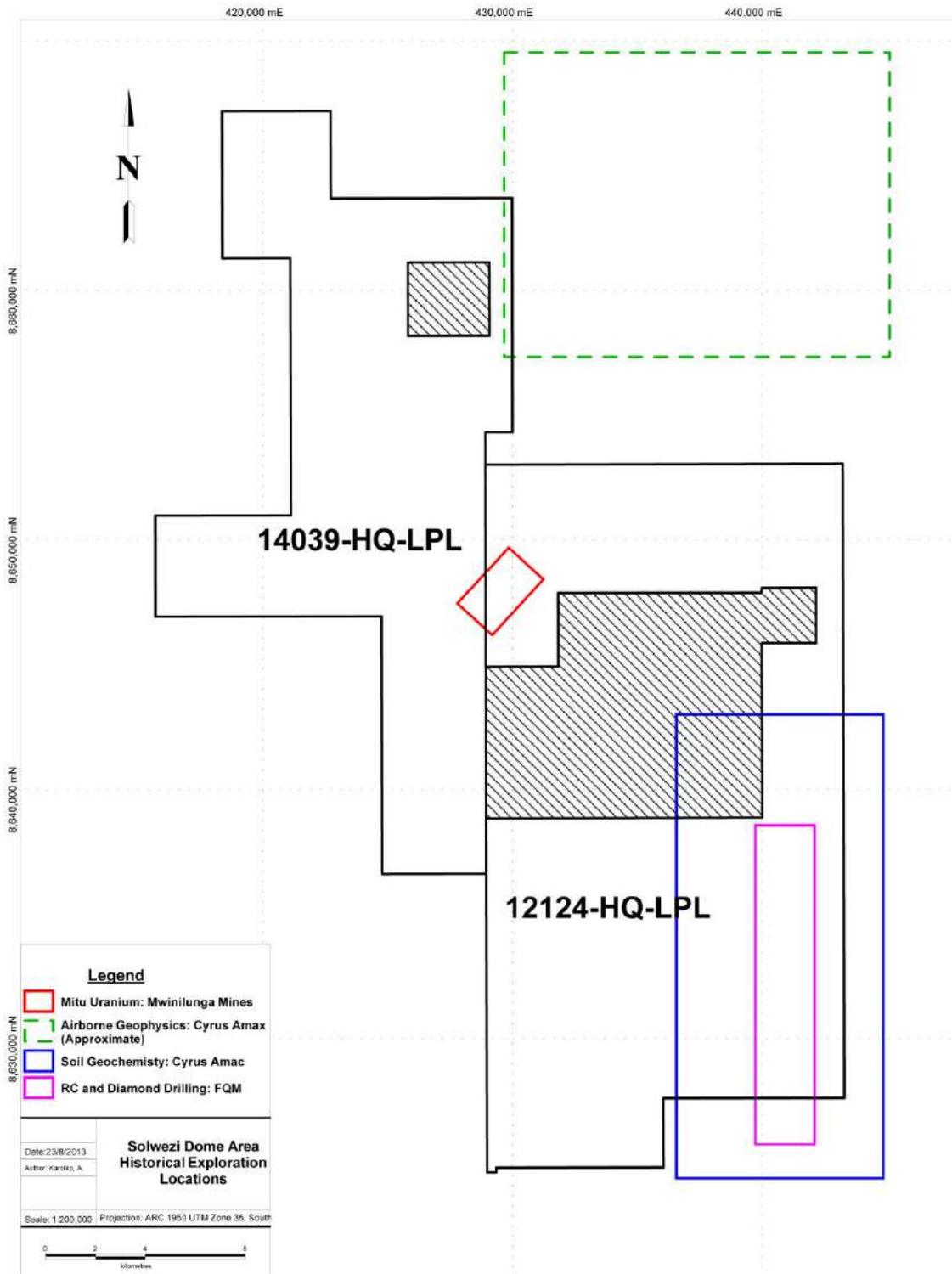


Figure 3: Plan map illustrating the locations of historical exploration programs within the Solwezi Group of Prospecting Licences

From 2005 to 2008 the Solwezi Group of properties was explored by First Quantum Mining & Operations Ltd. (FQM). Much of their work was focused on the Kansanshi Mine

area, however FQM did follow up the Solwezi Dome anomaly. The licences were dropped in 2008 after a revision in the Zambian mining law which restricted the total landmass one company may hold at one particular time. The Solwezi Dome anomaly originally found by Cyprus Amax was subsequently tested with 6 diamond drill holes totalling 1304.5m and 17 reverse circulation drill holes totalling 2252m in 2005 and 2006 (Hugh, 2006). During the writing of this report two (2) Diamond drillholes totalling 362.5m and twelve (12) RC drillholes totalling 1327m were complete outside of the current property boundaries and are denoted in red in Table 2. Mineralization was intersected as patchy centimetre to decimetre zones of disseminated to clotty bornite +/- chalcopyrite and occasionally malachite in the upper oxidized zone and quartz carbonate veins sometimes showed coarse clotty bornite +/- chalcopyrite mineralization (Hugh, 2006). A table of drill locations and results is shown in Table 2 . No estimate of reserves was completed for the Solwezi Dome area.

In 2006, dipole-dipole IP survey was also conducted over the Solwezi Dome area. A total of 28.5 line km at 50m spacing's was completed to further delineate mineralization. The results of the survey were inconclusive, likely due to the quantity of sulphides.

Hole ID	Type	Easting	Northing	EOH (m)	Az	Dip	Intersection
SDDD01	Diamond	441214	8630883	211.5	270	-60	No Significant Mineralization
SDDD02	Diamond	440708	8638087	193.5	270	-60	183-189m: 6m @ 0.39% Cu
SDDD03B	Diamond	440588	8628086	203	270	-60	0-11m: 11m @ 0.50% Cu, 84-117m: 33m @ 0.44% Cu
SDDD04	Diamond	440633	8626200	162.5	0	-60	31.5-37.85m: 6.35m @ 0.69% Cu
SDDD05	Diamond	440740	8626184	200	270	-60	102.5-119m: 16.5m @ 0.69% Cu
SDDD06	Diamond	441150	8638080	215.5	270	-60	5-18.5m: 13.5m @ 0.77% Cu
SDRC01	RC	440500	8628092	102	270	-60	No Significant Mineralization
SDRC02	RC	440454	8628090	114	270	-60	No Significant Mineralization
SDRC03	RC	440402	8628088	140	270	-60	No Significant Mineralization
SDRC04	RC	440345	8628098	120	270	-60	No Significant Mineralization
SDRC05	RC	440629	8626202	144	270	-60	34-49m: 15m @ 0.71% Cu, 61-66m 5m @ 0.40% Cu
SDRC06	RC	440784	8626180	186	270	-60	88-94m: 15m @ 0.71% Cu, 131-139m: 8m @ 0.63% Cu, 168-178m: 10m @ 0.75% Cu
SDRC07	RC	440836	8626174	120	265	-60	2-11m: 9m @ 0.45% Cu, 27-37m: 10m @ 0.38% Cu, 42-49m: 7m @ 0.43% Cu
SDRC08	RC	440863	8626174	120	260	-60	No Significant Mineralization
SDRC09	RC	440416	8627432	162	260	-60	59-80m: 21m @ 0.40% Cu, 122-127m: 5m @ 0.34% Cu
SDRC10	RC	440480	8627402	120	260	-60	No Significant Mineralization
SDRC11	RC	440522	8627410	84	260	-60	No Significant Mineralization
SDRC12	RC	440535	8626196	120	260	-60	No Significant Mineralization
SDRC13	RC	440342	8627424	180	260	-60	50-55m: 5m @ 0.98% Cu, 19-147m: 8m @ 0.23% Cu, 164-180m: 16m @ 1.24% Cu
SDRC14	RC	440275	8627426	174	260	-60	139-145m: 6m @ 0.92% Cu, 154-165m: 11m @ 0.65% Cu

SDRC15	RC	440202	8627428	126	260	-60	No Significant Mineralization
SDRC16	RC	440203	8628106	120	260	-60	No Significant Mineralization
SDRC17	RC	441237	8638080	120	260	-60	No Significant Mineralization

Table 2: FQM diamond drilling and RC drilling locations and results. Note Intersection cut-off grade of 0.25% Cu with minimum width of 5m (Hugh, 2006). Hole information denoted in red are holes completed outside the current property boundaries. Projection ARC 1950, Zone 35S

Between Dec 23, 2009 to March 25, 2010 Afromi Investments Ltd. acquired the previously un-staked Prospecting License 14039-HQ-LPL, 12124-HQ-LPL, and 8594-HQ-LPL from the Zambian Ministry of Mines, Energy and Water Development

To the extent known, there is no significant mineral resource or mineral reserve estimates on the Licence, and, to the extent known to the author, no production of any kind has occurred on the license.

## 7. Geological Setting and Mineralization

The Solwezi Group of properties encompasses the central and western portion of the Solwezi Dome along with the unconformably overlying Mines Series and subsequent Kundelungu Series which flanks the perimeter of the dome. The following description of the Geology of the Solwezi Dome area is largely derived from a scientific paper entitled "The Geology of the Solwezi Area. Explanation of Degree Sheets 1226 NW. Quarter, and 1126 Part of SW. Quarter, Republic of Zambia" published by Arthurs, J.W. and Legg, C.A.

Due to the large scale of the Solwezi Group of Prospecting Licences, the regional geology serves as an accurate representation of the property geology as described below.

### Regional and Property Geology:

#### The Basement Complex

The majority of the basement complex is unconformably overlain by rocks of the Katanga System; however, the Basement Complex is exposed in the cores of the Solwezi Dome and the Mwombezhi Dome.

The Basement complex is simply divided into two groups: the older Gneiss Group comprised mainly of biotite gneisses, schisted gneisses and minor amphibolites and younger Granite Group comprised of potash granites, gneissic granites, pegmatites and migmatites.

## **Gneiss Group**

### ***Biotite Gneisses and Schisted Gneisses***

The quartz-biotite-albite gneisses and their schisted derivatives are the dominant rock seen in outcrop and exhibit multiple stages of intense deformation. They are typically dark grey-green, mesocratic to sub-melanocratic, fine to medium grained, banded or streaky gneisses. Schistose with rodded to lenticular quartzo-feldspathic leucosomes are also common.

Compositionally, quartz and feldspar make up more than 30% of the rock. Most of the quartz occurs as lenticular aggregates parallel to foliation, while the remaining individual quartz grains are strained and have sutured edges. The plagioclase is sodium rich ranging from albite to oligoclase. Biotite is found ubiquitously in the gneisses dominantly as green idiomorphic flakes or inter-grown with muscovite. Biotite may also be concentrated into microscopic or mesoscopic bands, which often contain granular epidote. Muscovite is most abundant in the schisted gneisses. Apatite occurs throughout the gneissic group but in trace amounts and chlorite and epidote are rare.

### ***Amphibolites***

The amphibolite is characterized as a dark green, melanocratic, medium grained, foliated rock, grading with increasing content of hornblende eventually turning into Hornblendite.

Compositionally, the Amphibolites have roughly equal portions of hornblende, plagioclase, and biotite with minor to trace amounts of quartz and epidote. Hornblende content increases as the Amphibolites grade into the Hornblendites.

## **Granite Group**

### ***Metagranites***

The metagranites are coarse, grey rocks having a granitoid texture and composed of quartz, potash feldspar, plagioclase, muscovite and biotite. Quartz occurs as variably sized single grains, blebs, and interstitially when associated with albite, and as myrmekite. The dominant feldspar is microcline, and albite is the common plagioclase. Muscovite and biotite typically form subhedral flakes surrounding the larger quartz and feldspars.

Foliated rocks of similar composition occur marginally to the meta-granites and are typically called gneissose granite. These gneissose granites differ slightly in composition; garnets are present and there is more plagioclase than microcline.

### ***Migmatites***

Migmatites are partially granitised rocks of the Gneiss Group. The migmatites are pink, fine to medium grained, weakly foliated granitoid rock composed dominantly of quartz, microcline, and muscovite. Biotite is absent from the migmatites. Generally, the leucosomatic portion of the migmatites are plagioclase-poor and microcline-rich, which melanosomatic portions are microcline-poor and plagioclase-rich.

### ***Pegmatites***

Late stage quartz, microcline pegmatites cut both granites and migmatites. These intrusive pegmatites probably represent a late stage of the granitisation process. When a pegmatite dyke intrudes a porphyroblastic granite-gneiss, the microcline porphyroblasts show displacement from their normal alignment near the dyke contact.

## **The Kanaga System**

The Katanga System unconformably overlies the Basement Complex. The Katanga System consists of the Mine Series and the Kundelungu Series. The Mine Series encompasses the flanks of the Solwezi Dome. It is divided in the three Groups: the lower Roan, Upper Roan, and the Mwashia. Mineralization is dominantly confined to the Lower Roan Group, the basal unit unconformably overlying the Basement Complex. For the purpose of this report, the Kundelungu Series will not be explained in detail as most of the unit has been eroded away.

## **The Mine Series**

### ***Lower Roan Group***

The unconformable contact between the Basement System and the overlying Lower Roan is not clearly defined but a zone of kyanite schist serves as a rough contact between the Basement and overlying Katanga. The lower Roan is subdivided into four formations overlying the kyanite zone. Overall the Lower Roan has a true thickness of roughly 300m and its exposed outcrop surrounding the rim varies from 200m to 1.5km.

The lowermost formation contains pebble and cobble lenses within a schistose matrix. The pebbles are well-rounded and composed of quartzite and granite. The matrix is a medium to coarse grit of quartzite and granite as well.

Cross bedding sets on the order of 1.5m and the dip of foresets occurs in excess of 30 degrees (Mendelsohn, 1961).

The overlying formation is similar to the basal formation except that heavy minerals including hematite and ilmenite frequently occur in horizontal layers and along bedding. The cross bedding angle has lessened to roughly 20 degrees.

Similar schists and quartzites comprise the third formation. Heavy mineral banding still occurs, however no sedimentary structures remain. The rocks are generally more coarsely crystalline and large crystals of specularite are common.

The final formation of the Lower Roan Group is characterized by a fine grained, dark grey to black, lenticular quartz-biotite schist followed by greenish quartz-muscovite-chlorite schists.

### ***Upper Roan Group***

The Upper Roan Group conformably overlies the Lower Roan Group rocks and occurs as a gradual change from the quartz-muscovite-chlorite schists of the uppermost Lower Roan, to the light grey and grey-green dolomitic, muscovite-chlorite-talc schists of the lowermost Upper Roan Group. The Upper Roan then grades into a light grey dolomite-talc-muscovite schist and a light coloured micaceous and dolomitic quartzite. The top of the Upper Roan Group is identified as a calcareous quartz-biotite schist.

Exposure of the Upper Roan is poor, but can be exposed up to widths of 1.5kms in some areas and has an estimated true thickness of 140m. Due to the irregularly-shaped outcrop patterns and variable thickness, the Upper Roan Group rocks are considered to be fairly incompetent.

### **Mwashia Group**

The Mwashia Group is divided into two formations: a Lower Unit comprising calcareous biotite schists, carbonaceous slates and phyllites, with minor quartzites and marbles; and an Upper Unit, called the Chafugoma Marble Formation, which consists of calcitic to dolomitic marbles.

#### ***Lower Unit***

The Mwashia group conformably overlies the Upper Roan Group rocks. It is estimated at 340m in thickness based on boreholes logging. A dark red to black, fine- to medium grained iron banded quartzite marks the transition from the Upper Roan Group quartz-biotite schists from the grey to black medium-grained calcareous quartz-biotite schists with thin intercalations of fine-grained white-yellow to grey calcareous quartzite and quartzose marbles. In some areas, dark grey carbonaceous banded phyllites with localized zones of graphitic phyllites are also seen.

#### ***Chafugoma Marble Formation***

The Chafugoma Marble Formation consists of calcite marbles, calcite-dolomite marbles and dolomite-calcite marbles. The marbles vary in colour texture and composition thus making it difficult to subdivide or differentiate. Colours include dark grey, grey, white, cream, light grey-blue, pink and red. Streaks and bands within the marbles are common. The marbles may be foliated or unfoliated. Quartz within marbles is usually fine grained and occurs in streaks. Scapolite is porphyroblastic. Overall the Chafugoma Marble Formation is poorly exposed, however from borehole logging the formation is estimated at 360m thick.

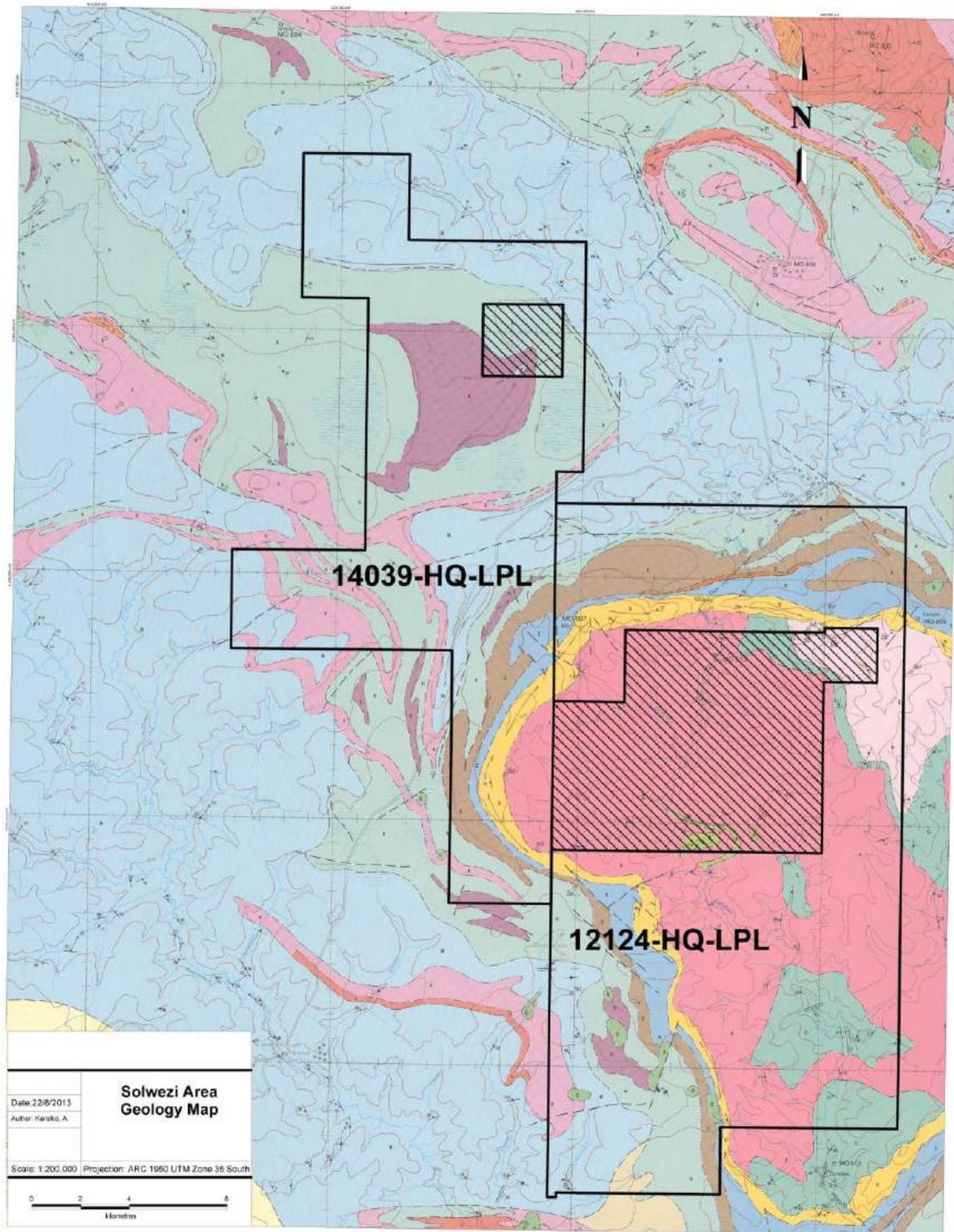


Figure 4a: Geology Map of the Solwezi Group of Prospecting Licences. (Arthurs, 1992)

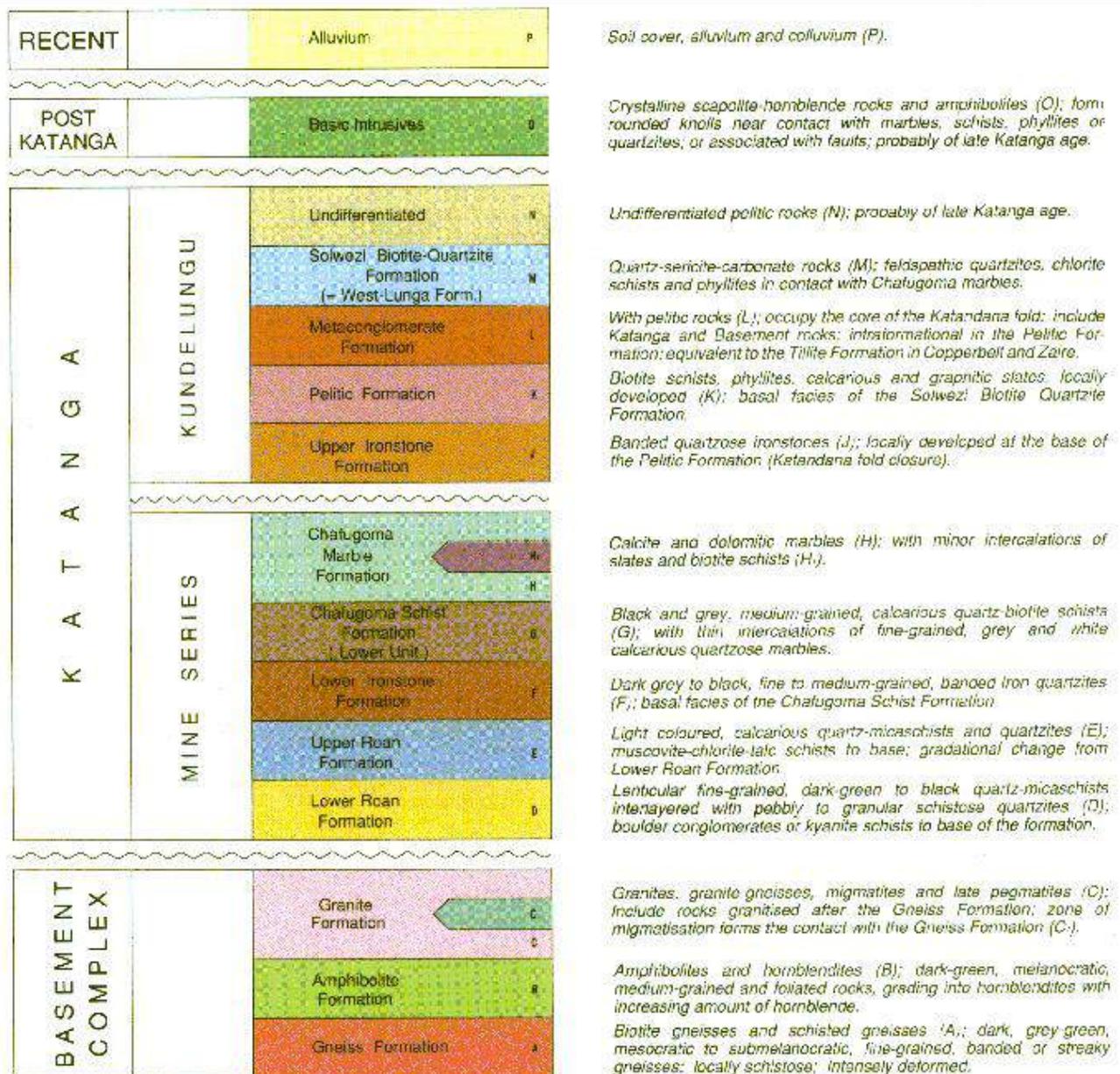


Figure 4b: Geological Legend and Stratigraphic Section for Geology Map in Figure 4a.

### Mineralization:

The Solwezi Group of Prospecting Licences hosts three mineralized zones: the Dumbwa Cu mineralized zone, located in the southern portion of prospecting licence 12124-HQ-LPL and the Mitu uranium prospect, and the NW Cu prospect.

### **Dumbwa Cu Mineralization**

The Dumbwa mineralization is located within the Pre-Katanga Basement rock of the Solwezi Dome within 12124-HQ-LPL. The following information is derived from an unpublished exploration report from First Quantum Mining in 2007.

The dominant lithology of the mineralized zone are fine to medium grained quartz biotite muscovite garnet "basement" gneisses that become schistose in localized areas. Surface mineralization is associated with intense potassic alteration of the basement gneisses. Mineralization appears to be structurally controlled and occurs as multiple zones of disseminated and veinlet hosted Cu of hydrothermal origin. Cu mineralization occurs as malachite within the oxidized zone, and chalcopyrite and bornite within the sulphidized zone.

Typical grades range from 0.1 to 0.5 % Cu, and mineralization as high as 1.61% has been intercepted. Higher grade mineralization is commonly associated with potassic alteration of biotite and feldspars. The mineralized zone is estimated at 14kms long and roughly 150-300m thick. The extent of mineralization at depth is yet unknown. The continuity of mineralization has yet to be determined or understood due to widely spaced drill holes.

### **Mitu Uranium Prospect**

The Mitu uranium prospect is located along the NW flank of the Solwezi Dome. The following information is derived from a unpublished technical report by Searston (1990) which summarizes the historical exploration and geology of the Mitu uranium prospect. The Mitu uranium prospect was originally identified by scintillometer prospecting in 1968 by Mwinilunga Mines Ltd., where two mineralized areas were identified. Both areas were subsequently. Uranium mineralization is concordant to bedding and hosted within quartz mica schists, fine grained mica schists and coarse grained schists with kyanite however mineralization is preferentially found within the fine grained mica schists. Mineralization occurs as sklodowskite, uraninite, torbernite, uraconite, and autunite. The mineralized area covers roughly 1200m x 700m and is open to the south. The extent of mineralization at depth is unknown and the lack of marker beds and repeating fault zones have made understanding the continuity of mineralization impossible. No further work has been completed on the Mitu area since 1970.

## **NW Zone**

In recent exploration conducted by Afromi Investments Ltd, Cu mineralization was identified in the northwest portion of Prospecting Licence 14039-HQ-LPL. Mineralization occurs in the uppermost portion of highly hematized Lower Kundelungu metasediments. The area was discovered by a soil sampling survey and subsequently drilled. Drill highlights included 8.5% Cu over 21.1m. A detailed description of the soil sampling program and drilling results is found in the Exploration and Drilling Sections of this report.

## **8. Deposit Types**

The two main types of deposits being explored for on the Solwezi Group of Prospecting Licenses are Stratiform-type, a common model for many copper deposits within the Lufilian Arc system of Zambia and the D.R.Congo, and Hydrothermal-type copper mineralization as found in the nearby Kansanshi Mine.

### **Stratiform-type Cu mineralization**

The following description on Stratiform-type copper mineralization was derived from a scientific publication "Some Constraints on the Formation of Zambian Copperbelt deposits" written by Sweeny and Binda.

The Zambian Copperbelt orebodies are stratiform deposits and are dominantly confined to the lowermost 150m of siliciclastic meta-sediments of the Lower Roan subdivision of the Katangan System which unconformably overlies the Pre-Katangan basement Complex. The entire region has undergone metamorphism between 656 and 456 Ma up to greenschist facies during the Lufilian orogeny (Cahen et al, 1984). Mineralization dominantly forms in either single layers and lenses or in a stacked sequence. The Cu mineralization formed roughly 950-1050 Ma ago and mineralization averages 2.5-3.0% Cu and is commonly associated with Cobalt in the form of carrolite with grades up to 0.2%. Chalcocite, chalcopyrite, and bornite and carrolite are the principal economic Cu

minerals. The most likely source of the metals is the pre-Katangan basement which still contains remnants of larger deposits.

The main mineralizing event took place during early diagenesis, however a portion of the mineralization along the Zambia Copperbelt occurs syngenetically. Evidence for syngenetic mineralization is shown by sulphides along foresets of cross-bedding, in troughs of ripples, and along shale laminae, and soft sediment deformation of sulphide-bearing sediments, where the size of the sulphide grains and the sediments is the same (Garlick 1961). Furthermore, most mineralization occurs along a mineral zoning parallel to palaeo-shorelines and the appropriate shifting of Cu mineralization due to marine transgressions and regressions. Lastly, the lateral continuity of mineralization occurs along a strike length in excess of 100kms as seen between deposits as well as minor Cu occurrences (Binda and Mulgrew, 1974). When factoring in the amount of metal involved, a purely syngenetic model would unlikely be able to attest to the size and scale of mineralization.

An early-diagenetic model for Cu mineralization allows a larger time period for the introduction of sulphide minerals and provides a greater variety of metal sources. The best evidence for diagenetic mineralization is seen in Cu-rich authigenic overgrowths on feldspars and early carbonate cement is Co-rich. The main mineralizing event took place where bacteria fixation of sea water sulphates was the primary mode of sulphide formation which likely occurred around 20-60° Celsius.

### **Hydrothermal Cu mineralization**

Directly adjacent to the Solwezi Group of properties is the Kansanshi Mine, owned by First Quantum Minerals. The mineralization at Kansanshi is defined as structurally controlled, vein hosted, hydrothermal copper mineralization. The following description of hydrothermal hosted Cu mineralization is taken from First Quantum Minerals 43-101 Technical Report entitled "Technical Report for the Update of Mineral Resources and Reserves of the Kansanshi Mine" written by Gregory *et al.*,

Mineralization at Kansanshi occurred in two discrete mineralization pulses at ca. 512 Ma and ca. 502 Ma after the Lufilian Orogeny (Torrealdy et al, 2000).

Oxidized copper enriched hydrothermal fluids, magmatic in origin, migrated upwards from depth acquiring a significant copper content through leaching and scavenging of elemental copper and gold from the basement and/or the overlying sedimentary host rocks.

Mineralization at the Kansanshi Mine is divided into three main types: stratiform (as described above), vein, and breccia-type mineralization. Vein mineralization is hosted within quartz-carbonate veins varying in size from <1 cm to >1m in width. Chalcopyrite is the dominant sulphide mineral and Malachite and Chrysocolla are the dominant oxidized minerals. Albite alteration halos and bleaching commonly occurs surrounding veins. These holes vary in size from mm to several meters in size, mainly depending on the lithology hosting the vein. The alteration halos are typically larger within carbonaceous units and more constrained within the garnetiferous and knotted schists. Disseminated Cu mineralization also occurs within alteration halos. Brecciated mineralization is very similar to vein hosted mineralization, the only difference being intensity of veining. Brecciated mineralization has no preferred host lithology and the structure is inferred as the major conduit for basement mineral rich fluids allowing fluids to flow and precipitate in overlying strata.

Deposition of copper mineralization at Kansanshi is dependent on both dome shaped trap structures and a redox interface where the oxidized copper enriched fluids intersected reducing carbonaceous sediments / carbonaceous phyllites. Interaction between graphitised organic matter and hydrothermal fluid is likely to have controlled the oxidation state of the ore fluid and could have been the controlling factor leading to ore precipitation at Kansanshi (Kribek et al.,2005).

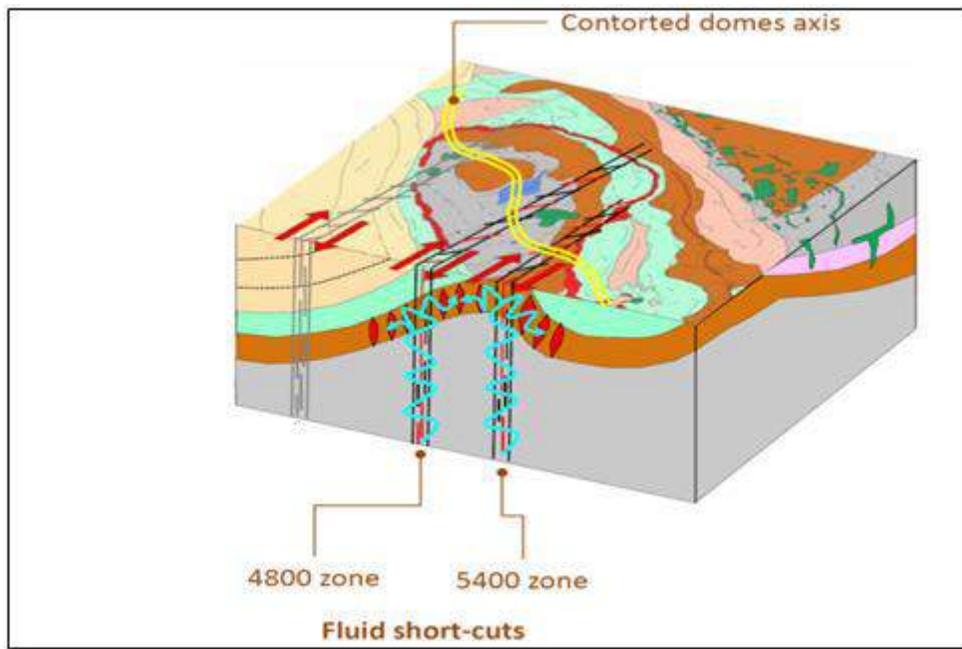


Figure 5: Model for hydrothermal fluid migration at Kansanshi Mine (Gregory et al., 2012).

## 9. Exploration

Since 2009, Afrimi has conducted exploration ranging from soil sampling surveys, trenching and ground geophysics, to advanced diamond drilling throughout the Solwezi Group of Prospecting Licenses. The following information was obtained from Afrimi and has been digitized by the author. All information pertaining to historical exploration is described in the History section and details about diamond drilling is included in the Drilling Section below.

### Soil Sampling Surveys

The Solwezi Group of Prospecting Licenses has very little outcrop exposure, and is largely covered by vegetation, proving surface mapping and prospecting to be an inefficient exploration tool for the area. Soil sampling surveys have proven a useful geochemical exploration technique to locate anomalous areas of interest. Afrimi Investments Limited completed two phases of soil geochemistry: Phase 1 soil geochemistry was completed in 2010 and Phase 2 in 2012. In total, 418.2 km<sup>2</sup> was covered with 6039 samples collected. Additional soil surveys were completed within

8594-HQ-LPL, the prospecting license to the east of 12124-HQ-LPL; however, this property is not a part of the option agreement, therefore details have been omitted. A detailed summary of soil sampling grids are shown in Table 3 and grid areas are illustrated in Figure 6

Table 3: Summary of soil sampling Surveys completed by Afromi Investments Ltd, from 2010 to 2012.

<b>Phase</b>	<b>Year Completed</b>	<b>Area Name</b>	<b>Size (km<sup>2</sup>)</b>	<b>Total Samples</b>	<b>Sample Density (m)</b>	<b>Analysis Type</b>
1	2010	Mitu	124.6	1413	1200 x 100	Niton XRF
1	2010	NW	71.4	218	3400 x 100	Niton XRF
1	2010	Mitu West	111	994	1600 x 100	Niton XRF
1	2010	Dumbwa	32.9	1567	800 x 20	Niton XRF
1	2010	Square	5.4	123	1000 x 40	Niton XRF
2	2012	Kifubwa	69.3	1224	500 x 50	ICP Lab Analysis
2	2012	Kimale	3.6	500	320 x 50	ICP Lab Analysis

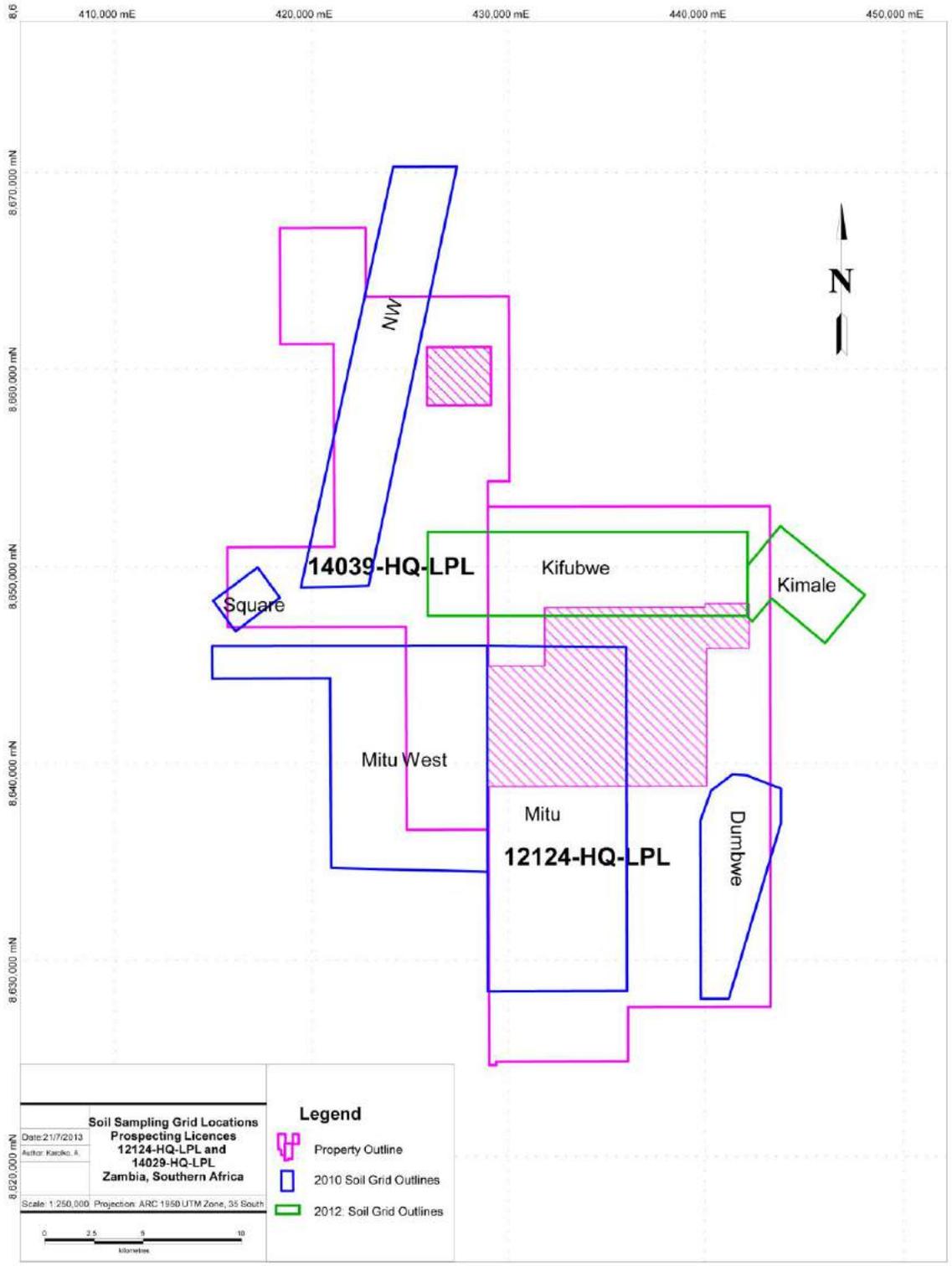


Figure 6: Plan map showing Soil Survey locations and corresponding year of completion. Note: area with pink hash marks is not a part of the Group of Prospecting Licences.

Prior to the commencement of the 2010 soil sampling program, a sample study was completed in 3 different areas to determine the proper depth at which to obtain soil

samples. Samples at each location were taken in 10 cm intervals and individually analyzed. The results of the study determined that Cu is stable at depths of 30-60cm depth, within the "C" soil horizon.

At each soil location, 3 individual samples are taken within a 3-5m diameter of the station location, described, collected in one sample bag, and labeled appropriately. Samples were taken 30-60cm in depth, within the "C" soil horizon, which was determined to be the proper depth for sample collection from a initial sample study completed before sampling of grids was undertaken. If a location lacked soil (i.e. outcrop, nearby village, or manmade structure) the sample location was skipped.

Samples taken during the 2010 exploration program were analyzed in-house by a Thermo Scientific Niton XL3t-900s XRF portable analyzer. Samples were tested for Cu, Co, Ag, Au, Ni, Zn, and Pb. Samples taken during the 2012 exploration program were analyzed by Inner Mongolia Minerals Experiment Research Institute (IMME), an independent third party lab located in Kitwe, Zambia. IMME is not a certified lab in Zambia, however standards and blanks were inserted every 20 samples in the sequence for internal verification. An ICP multi-element suite was completed on each sample including Cu, Co, Ni, Zn, Mo, Ag, U, Sn, Sb, Pb, Bi, As, Hg, and Au.

In addition, in-house verification and due-diligence was completed on each soil sampling grid: a random line was chosen in each grid and a different team of samplers resampled each location, digging new holes and following the same sampling techniques. The results of these samples were then compared with the original results to verify the absence of human error or a biased sampler. The author compared the results of the soil test survey and found no errors in the results.

All samples returning results of >100ppm Cu from the XRF analysis were sent out to an independent laboratory for chemical analysis and compared to XRF results. The Cu results from chemical analysis were comparable to that of the Niton Portable XRF values. Samples with anomalous Co values were also sent out for chemical analysis. The Co results from chemical analysis did not correlate with the anomalous values received by the Niton, and it was determined that the level of accuracy for Co using the

Niton Portable XRF gun was poor and using only Co as an indicator mineral with the Niton is not an appropriate exploration technique. The Niton however did return very accurate results for Cu when results were > 100 ppm and the results were considered a valid tool for soil exploration.

After reviewing the sampling techniques along with reviewing the results of the soil data, duplicate results, along with XRF and chemical assay comparisons the author feels that the sampling is representative for the area and no sampling biases exist.

Details on sampling preparation and analysis are discussed in the Sample Preparation, Analyses, and Security Section.

### **Dumbwa Soil Grid**

The Dumbwa area is historically known to be anomalous in copper mineralization. First Quantum Minerals completed a soil program over the Dumbwa area, (previously named Solwezi Dome Area) and ultimately drilled 17 RC holes and 6 diamond core holes. The results of the historical drilling are shown in Table 2 in the History section of this report.

In 2010, Afromi completed a new soil survey program covering much of the original soil area and extending it to the north. Line spacing was set at 800m and sample spacing at 20m totaling 1567 samples within an area of 32.9km<sup>2</sup>. The results clearly verified the historical soil anomaly and the subsurface mineralization reported by Anglo American. The anomalous zone returned values up to 2400ppm Cu (Figure 7). Afromi subsequently drilled the Dumbwa area in 2010 with 7 diamond drill holes and again in 2012 with a shallow diamond drill program totaling 69 holes. Drilling information, figures, and results are discussed in detail in the Drilling section and results are listed in Appendix II.

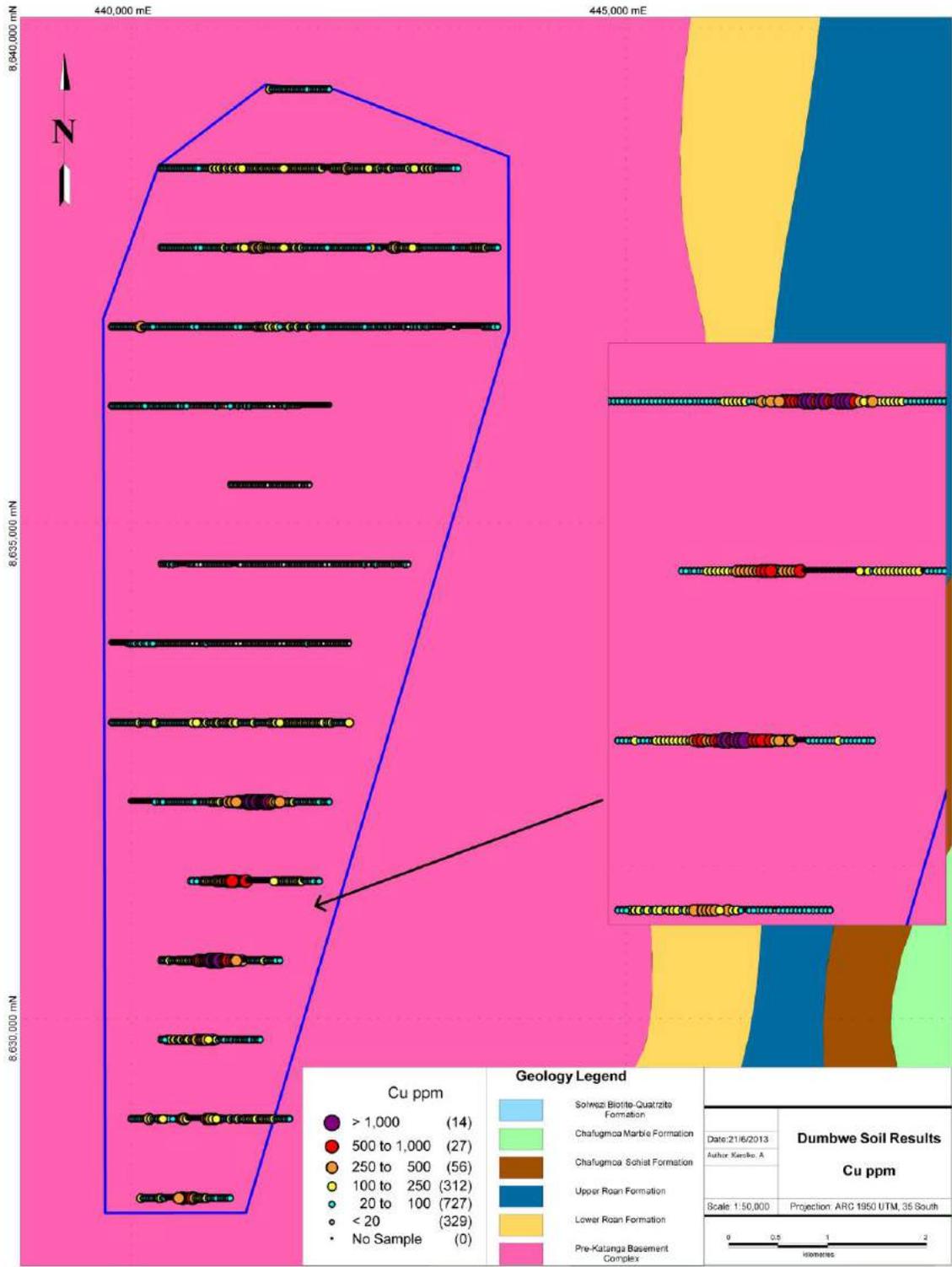


Figure 7: 2010 Soil sampling showing Cu results for the Dumbwa area. Image shows the highly anomalous results in the southern portion of the map, which is also shown zoomed in at right side of map.

## **Mitu Soil Grid**

In 2010, Afrimi completed a soil survey which encompassed the SW portion of the unconformably overlying Mine Series including the basal Lower Roan Formation, known for hosting Cu, Co mineralization throughout Zambia. The grid also covered the west-central portion of the Pre-Katanga basement complex of the Solwezi dome. Line spacing for the southern portion of the Mitu soil grid was set at 1200m and the northern portion was set at 1600m and sample spacing at 100m for the entire grid. A total of 1413 samples within an area of 124.6km<sup>2</sup> were collected.

Results show an anomalous Cu and Co zone in the southern portion of the grid area. The main anomaly is located in the SE corner of the grid area. The anomaly is located within the Upper Roan Formation and the Chafugoma Schist Formation, and not the typical Lower Roan Formation. Both Cu and Co are anomalous and correlate well with each other in the SE anomaly. A second anomaly occurs in the SW corner of the Mitu soil grid. The Cu anomalies are significantly weaker than the SE portion of the grid. Some minor anomalous zones were also identified in the central portion of the grid, within the Mine Series Meta-sediments. Although these anomalies are weaker and smaller in size they should still be investigated further.

In 2012, Afrimi completed a 53 shallow diamond drill program over the SE Cu anomaly. Drilling information, figures, and results are discussed in detail in the Drilling section.

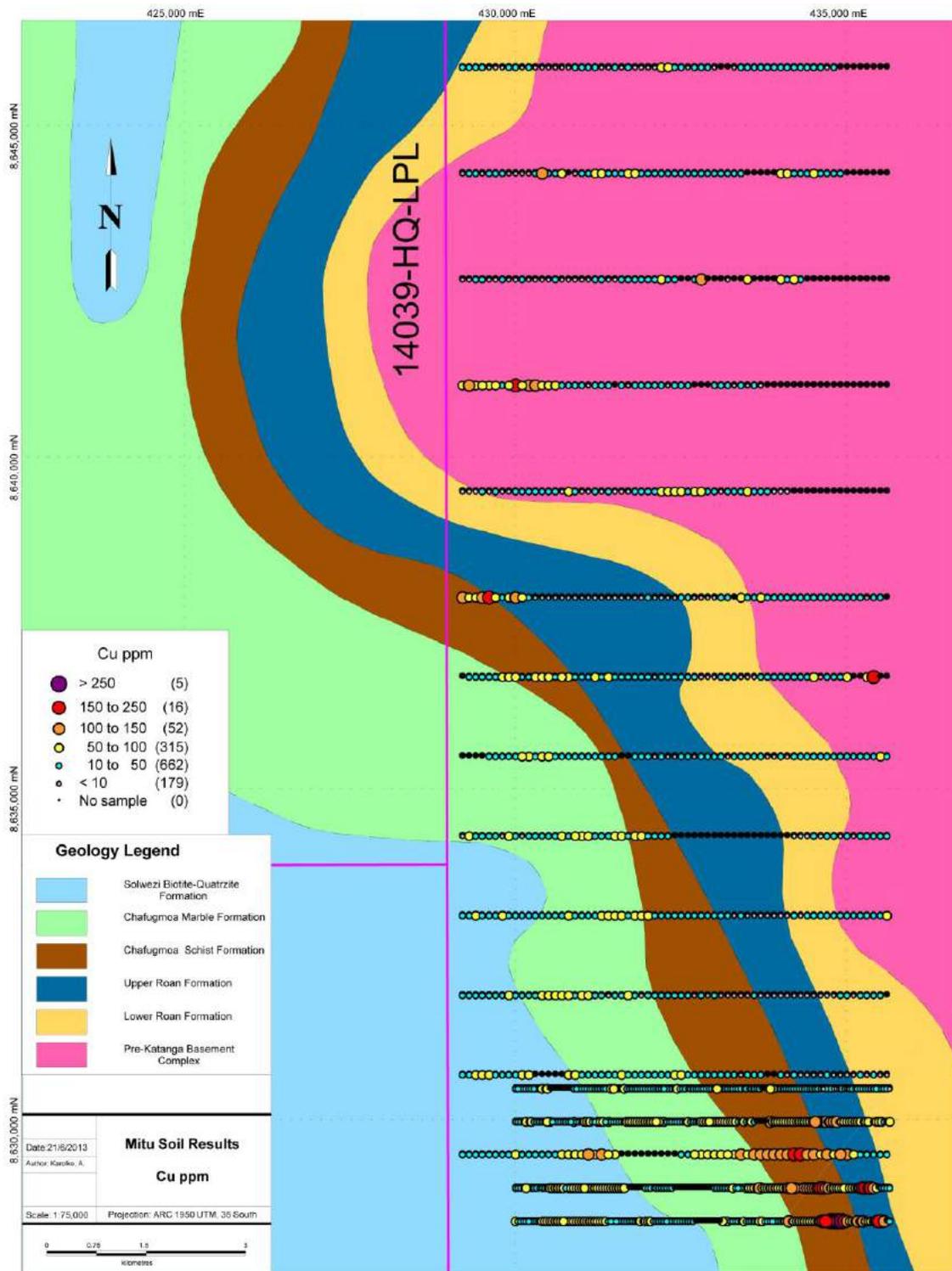


Figure 8: 2010 Soil sampling showing Cu results for the Mitu area. Map shows one dominantly anomalous area in the SE portion of the grid area along one a weaker anomalous area in the SW portion of the grid area.

## **Mitu West Soil Grid**

The Mitu West grid is a western extension of Mitu grid area and was also completed in 2010. The grid encompasses the western most portion of the flanking Mine Series Meta-sediments and the remainder of the grid area dominantly covers the Chafugoma Marble formation of the upper Mine Series and the Solwezi Quartz-Biotite Formation Lower Kundelungu Series. Line spacing for the grid was set at 1600m and sample spacing at 100m. A total of 994 samples within an area of 111.0km<sup>2</sup> were collected.

A weak Cu anomaly area exists in the SE portion of the grid area. This Cu anomaly is a continuation of a weak anomaly in the central portion of the Mitu grid area (line 800).

In 2012, Afromi completed a 43 hole shallow diamond drill program over the weak Cu anomaly in the SE portion of the grid. Drilling information, figures, and results are discussed in detail in the Drilling section.

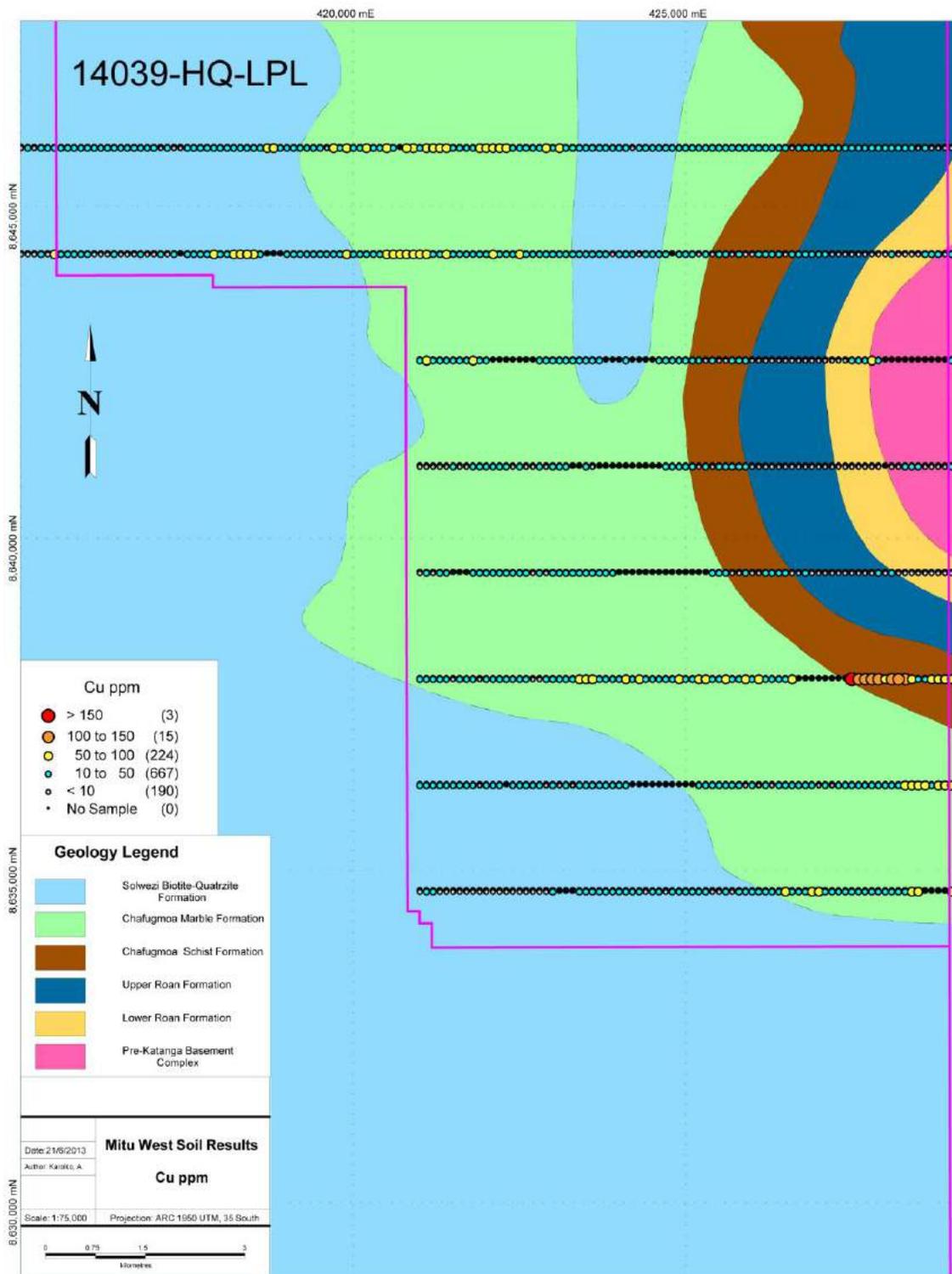


Figure 9: 2010 Soil sampling showing Cu results for the Mitu West area. A weakly anomalous area exists in the SE portion of the grid area. This anomaly is a continuation of a weak anomaly in the central portion of the Mitu grid area.

## **NW Soil Grid**

The NW soil grid area is in fact a pair of 22km long lines running parallel to each other. The focus of the "grid" was to determine if the area held any similarity to the nearby Kansanshi mine as the local lithology was similar. The two lines were 3400m apart and sample intervals are spaced at 100m. A total of 218 samples within an area of 71.4km<sup>2</sup> were collected.

Results from XRF analysis revealed a weak Cu anomaly on the central portion of the western line with the highest value returning 195 ppm Cu. The Cu anomaly appears to coincide directly with the underlying Chafugoma Marble Formation of the Upper portion of the Mine Series. The eastern line also shows consistent elevated Cu values within the Chafugoma Marble Formation compared to the overlying Lower Kundelungu Series rock.

In 2012 Afromi conducted a 25 hole shallow diamond drill program to test the weak Cu anomaly on the western line. Drilling information, figures, and results are discussed in detail in the Drilling section.

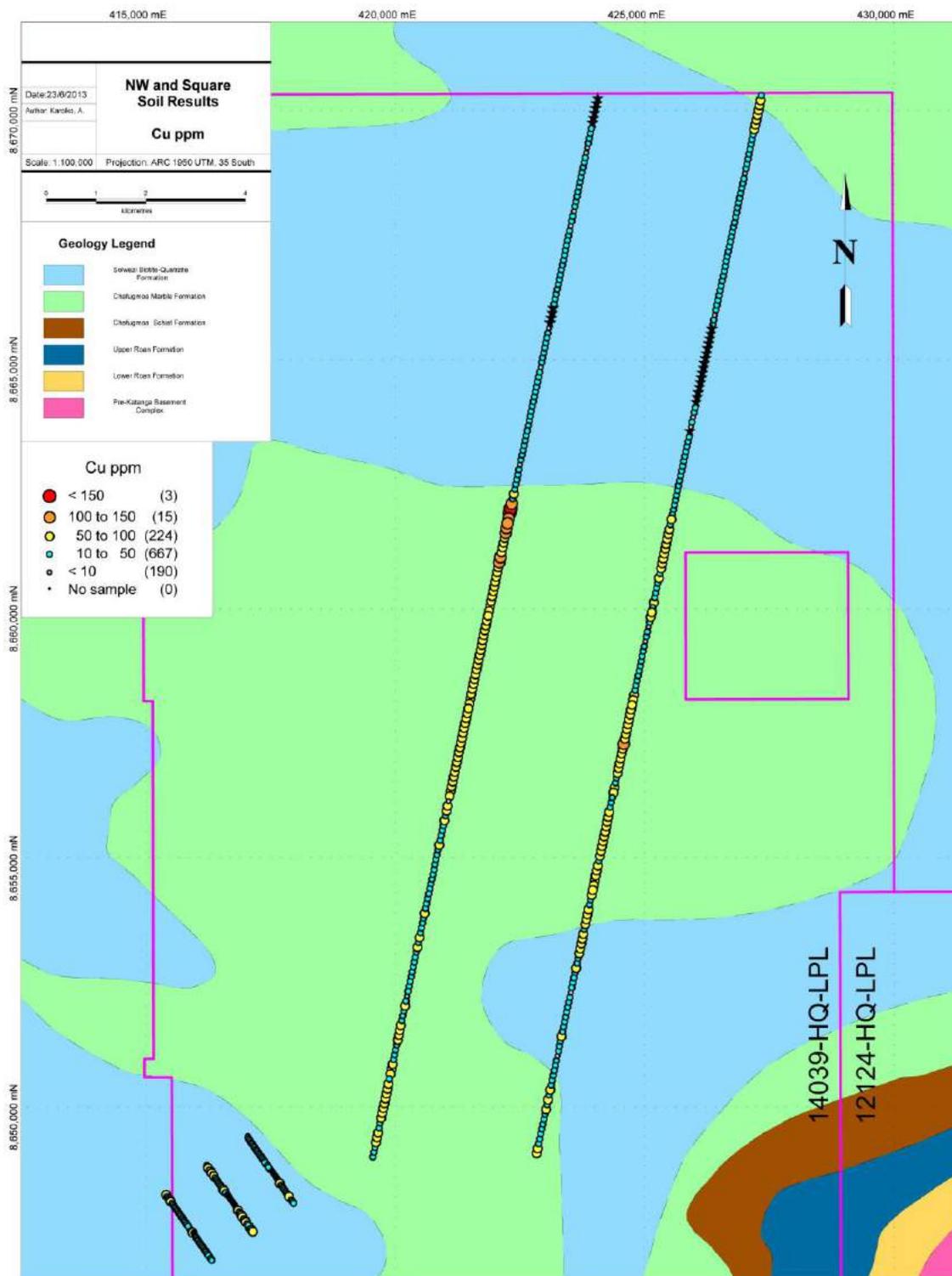


Figure 10: 2010 Soil sampling showing Cu results for the NW and Square grid area. Note the weak Cu anomaly on the western line of the NW grid.

## **Square Soil Grid**

Roughly 3km southwest of the NW soil grid is a historical small open pit which was likely worked by illegal small scale miners. A small soil grid measuring 5.4km<sup>2</sup> in size was conducted to test for possible subsurface mineralization (Figure 10). A total of 123 samples were collected in a 1000m x 40 m spaced grid.

The Square grid did not return any anomalous Cu values and the area was abandoned.

## **Kifubwa and Kimale Soil Grid**

The Kifubwa and the western portion of the Kimale soil grid lie directly south of the city of Solwezi. The Kifubwa Grid area was chosen due to historical reports stating anomalous Cu and Ni mineralization occurred in the area. A total of 1224 samples were collected within 69.3km<sup>2</sup>. Line spacing for the grid was set at 500m and sample spacing at 50m. A portion of the soil grid could not be completed due to the Kifubwa River and the Kifubwa George National Monument. The Kimale grid lies largely within Prospecting License 8594-HQ-LPL, which is not apart of this technical report. Only 20% of the soil grid lies within Prospecting License 12124-HQ-LPL totaling approximately 500 samples within 3.6km<sup>2</sup>. Line spacing for the grid was set at 320m and sample spacing at 50m.

A weak anomalous zone occurs, roughly 0.75 km<sup>2</sup>, was identified in the center of the eastern portion of the Kifubwa Grid. Maximum Cu assay results of 477ppm were recorded and the anomalous zone lies within the favorable Lower Roan formation and overlying Upper Roan Formation. The remainder of the Kifubwa soil grid and the entire Kimale soil grid located in 12124-HQ-LPL returned no anomalous Cu results.

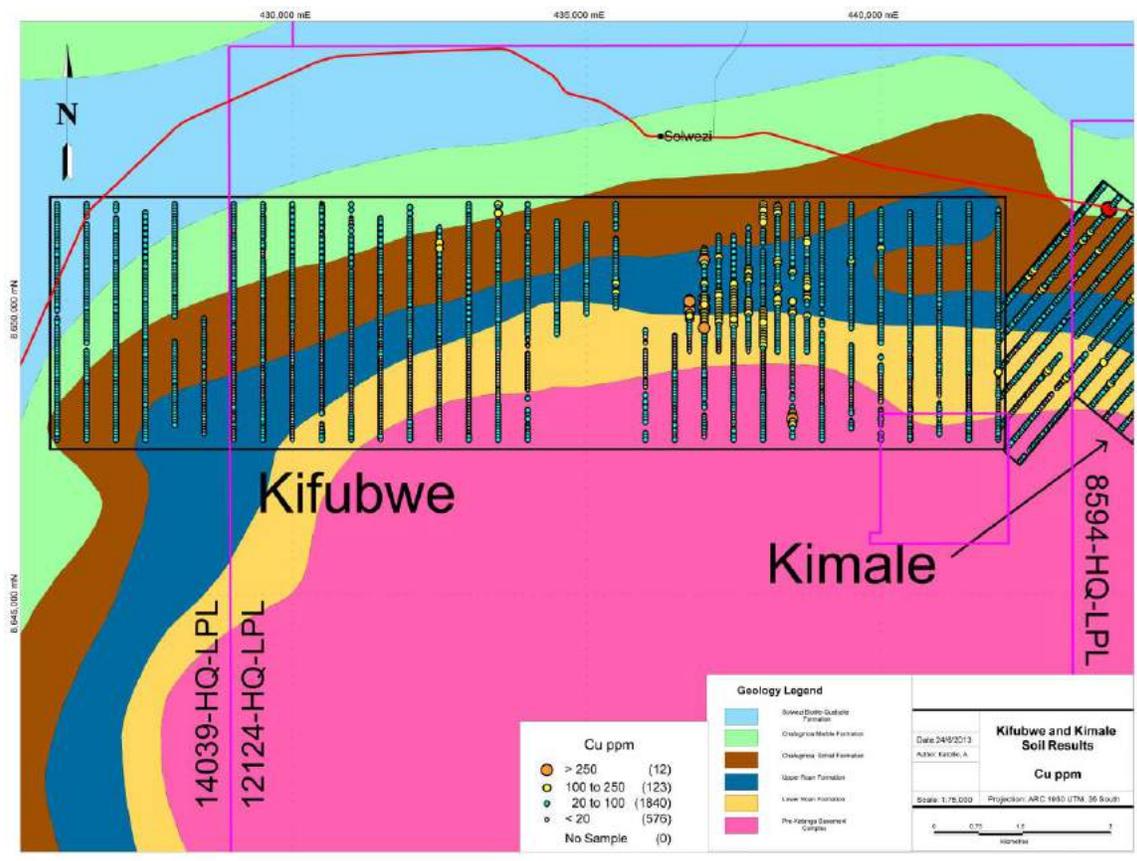


Figure 11: 2012 Soil sampling showing Cu results for the Kifubwa and the western portion of the Kimale grid area. Note the weak anomaly located in the east-central portion of the Kifubwa grid.

Historical reports mentioning Ni mineralization in the Kifubwa area were verified in the Kifubwa soil grid. A distinct Ni anomaly striking east-west occurs almost entirely within the Lower Roan Formation. The anomaly measures 6km in length and similar anomalous Ni values within the Lower Roan Formation are seen in the western portion of the Kimale soil grid. Ni anomalies correlate well with the Cu anomaly area mentioned above.

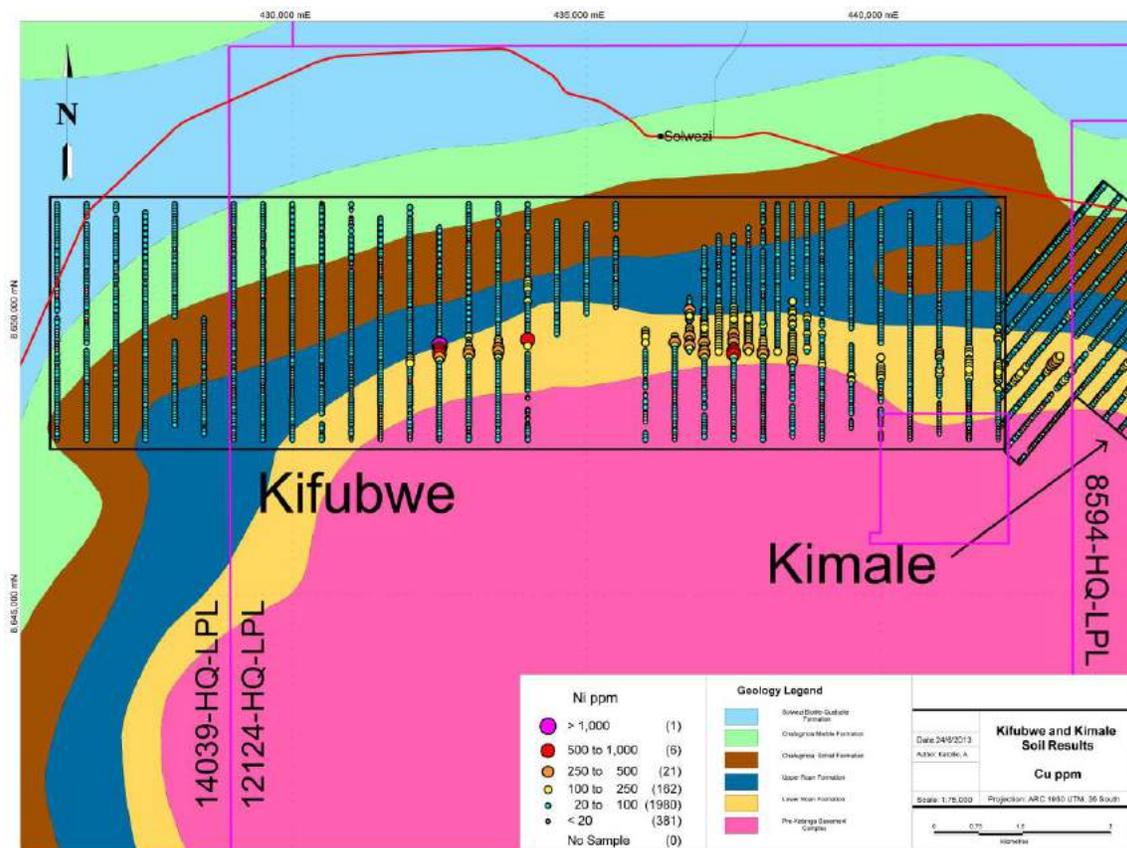


Figure 12: 2012 Soil sampling showing Ni results for the Kifubwa and the western portion of the Kimale grid area. Note the linear East-West trending Ni anomaly hosted primarily within the Lower Roan Formation. An extension of the Ni anomaly can be seen on the western portion of the Kimale soil grid.

## Trenching

Afromi conducted two programs of trench pit sampling to further investigate soil anomalies within the Solwezi Group of Prospecting Licenses. A total of 99 trenches were dug: 28 trenches in 2009 and 71 trenches in 2012. Figure 13 shows the location of all trenches completed in 2009 and 2012. Most trenches averages 10m in length, but trenches up to 70m were dug.

Trench samples were collected continuously within set intervals depending on lithology, alteration, or if visible mineralization was observed. Both sides of each trench were

sampled and the depth of sample was maintained and recorded. Sample descriptions were then recorded, label and bagged and sent for analysis to IMME in Kitwe, Zambia.

Overall the trenching program was unsuccessful due to the depth of overburden encountered. The majority of trenches could not reach bedrock and were only sampled at the lowest possible point within the trench. The overall low Cu values are likely a function of this.

No anomalous results were encountered during the 2009 trenching program. Table 4 lists the highlighted results from the 2012 trench program and trench locations are shown in Figure 13.

Table 4: Summary of 2012 Trench results: Trench results with Cu values > 500ppm are shown. Note no 2009 Soil sampling results returned > 500 ppm Cu

<b>Year</b>	<b>ID</b>	<b>From (m)</b>	<b>To (m)</b>	<b>Interval (m)</b>	<b>Depth (m)</b>	<b>Co (ppm)</b>	<b>Cu (ppm)</b>	<b>Au (ppb)</b>
2012	TC212-2	0	3	3	0.7	46.9	579	5.57
2012	TC212-2	3	8	5	0.7	46	513	50.8
2012	TC212-2	8	9	1	2.3	51.2	1144	21.9
2012	TC62-1	2.5	20	17.5	1.5	18.3	735	3.52
2012	TC62-1	20	26	6	2	17.7	587	2.67
2012	QJ212-1	0	2.5	2.5	3.5	135	771	3.26
2012	TC60-5	0	15	15	0.6	34.5	569	1.22

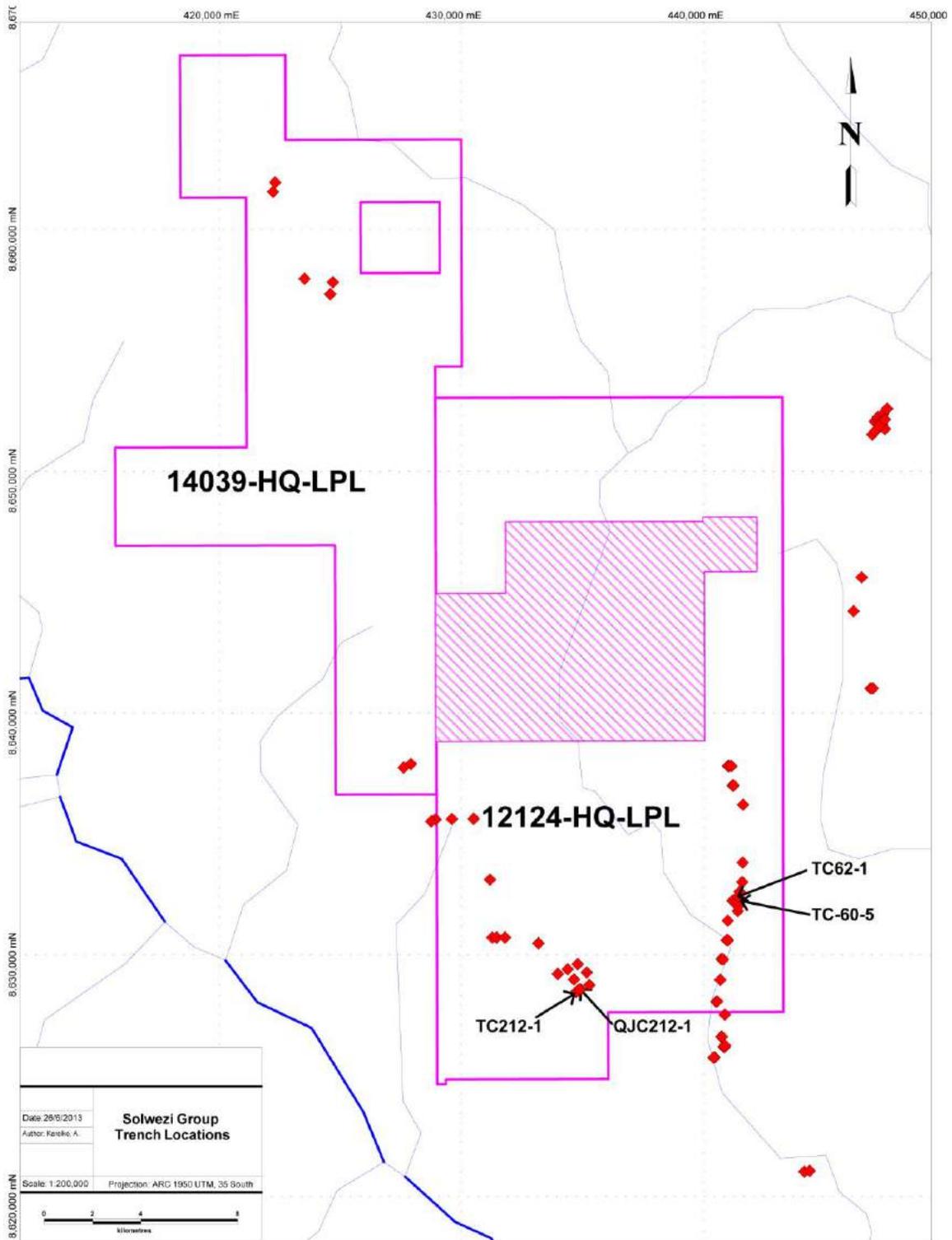


Figure 13: 2009 and 2012 Trench locations shown as red diamonds. Note pink hashed area does a part of the property license.

It is the author's opinion that the poor results from trenching are not representative, as they more resemble soil samples than proper rock samples; therefore, areas of interest from the initial soil sampling programs should still be considered worthy of further investigation.

## **Geophysics**

Afromi conducted a series of ground geophysical surveys to help further identify potential targets. A radiometric survey was completed over the Mitu uranium prospect and an IP and Magnetics survey was completed over the Mitu area. In addition, downhole geophysics were completed in diamond drill holes ZK28-1 and ZK-60-1 and are discussed in the Drilling Section. All surveys were completed by Afromi Investments and compilation and interpretation was done in-house.

## **Mitu Uranium Prospect**

In 2010 Afromi Investments conducted a ground radiometric survey within the known and surrounding area of the Mitu uranium prospect. Historically, a ground scintillometer mapping program was conducted by Mwinilunga Mines Ltd. in 1968 to identify radiometric signatures at surface. The author was unable to obtain specific details in regards to the procedures and parameters relating to the ground radiometric survey. The results of the ground radiometric survey completed by Afromi verified the surface anomalies found by Mwinilunga Mines Ltd. No additional anomalies were found.

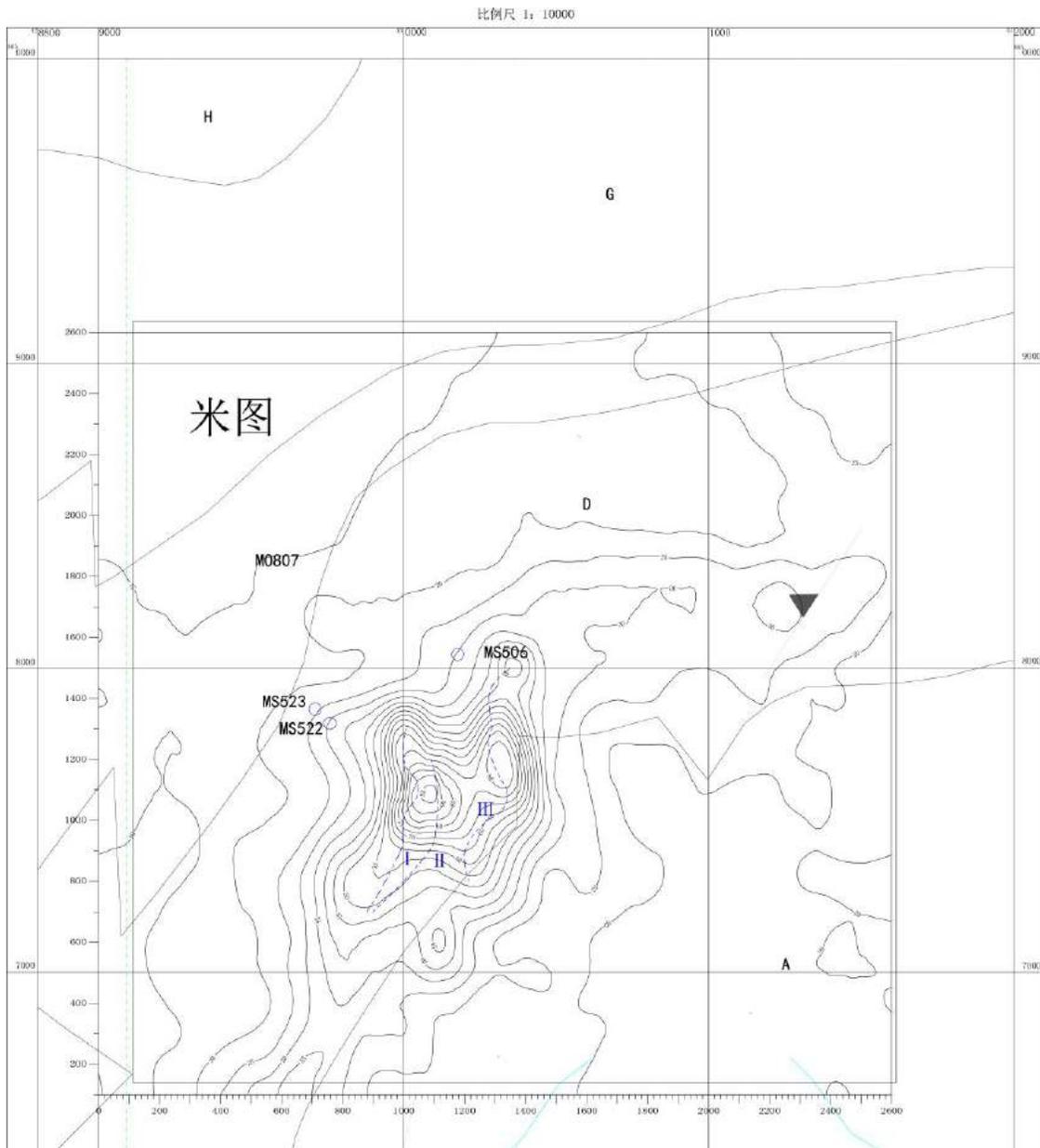


Figure 14: Radiometric Isopac map of the Mitu uranium prospect. Note: radiometric values increase towards center of map.

## Mitu

Afromi also conducted a ground IP and Magnetics survey over the Mitu area where soil geochemistry returned anomalous copper results. The grid was oriented east/west, roughly perpendicular to the strike of sediments totaling 85 line km. The author was

unable to obtain any additional specific details in regards to the procedures and parameters relating to the ground IP and Magnetics survey. The results of the IP survey were fairly inconclusive and no correlation could be made between mineralization and resistivity and chargeability. The magnetic survey revealed a large magnetic response between lines 4 and 5. The magnetic anomaly does not correlate with any soil geochemistry anomaly and has yet to be drill tested.

# Zambia North West Province Solwezi District coppercross sectional geophysical survey of Mitu South Scale 1:1000

0 100 200 300 400 500

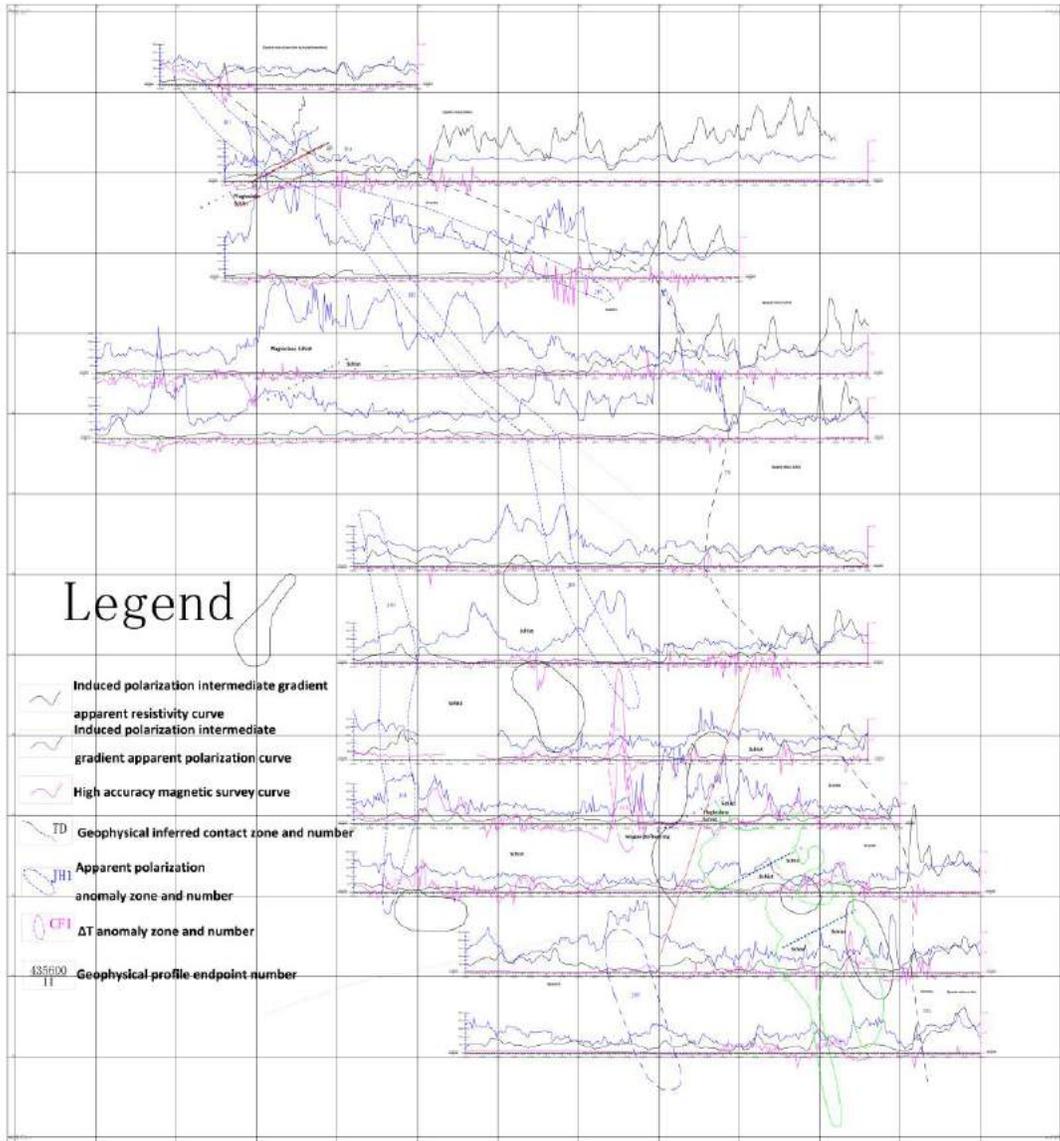


Figure 15: Mitu area IP and Magnetics results. Black lines represent resistivity, blue lines represent chargeability, and pink lines represent magnetic signature. Note: the magnetic anomaly between line 4 and 5 outlines by a dashed pink line.

# 10. Drilling

## Diamond Drilling

Afromi conducted a short diamond drilling program in 2010 totaling 7 holes, however only 2 were drilled on the current Prospecting Licenses discussed in this report. Holes ZK60-1 and ZK28-1 were drilled in the historical Dumbwa area to further test and expand previously known mineralization discovered by Anglo (See History Section). Each diamond drill hole was drilled with HQ size core until competent bedrock was reached, then reduced to NQ for the remainder of the hole. A total of 580.2m was drilled and drill location information is included in Table 5 and shown in Figure 16. Core was logged on site by an Afromi geologist and details on lithology, mineralization, and core loss were recorded. Core was not logged for alteration or any structures. A downhole survey was also completed on each hole. Surveys were collected every 50 meters and at the end of each hole. No record pertaining to the type of downhole surveying equipment was found and results are listed in Appendix II.

Samples collected during diamond drilling were done when visible mineralization was observed with additional samples taken above and below mineralized intervals. Interval widths were random and no explanation was given as to the methodology of sample intervals. Sample locations were marked on core and core cut in half using a diamond saw, the left half was taken for analysis, and sample intervals recorded in drill log. Prior to cutting, core was photographed. Samples were then sent to IMME in Kitwe, Zambia for chemical analysis using ICP-MS method.

Due to the low density of holes completed, it is the authors opinion that no accurate relationship between sample length and true thickness of mineralization can be made at this time. It is also the authors opinion that there are no drilling, sampling, or recovery factors that could materially impact the accuracy and reliability of the results.

Table 5: Locations of 2010 Diamond Drill Holes ZK-60-1 and ZK28-1. Projection: ARC 1950, Zone 35 South.

Hole ID	Northing	Easting	Elevation (m)	Strike	Dip	EOH (m)
ZK60-1	8632196	441451	1291	270	-75	230.2
ZK28-1	8628994	440919	1252	270	-75	350

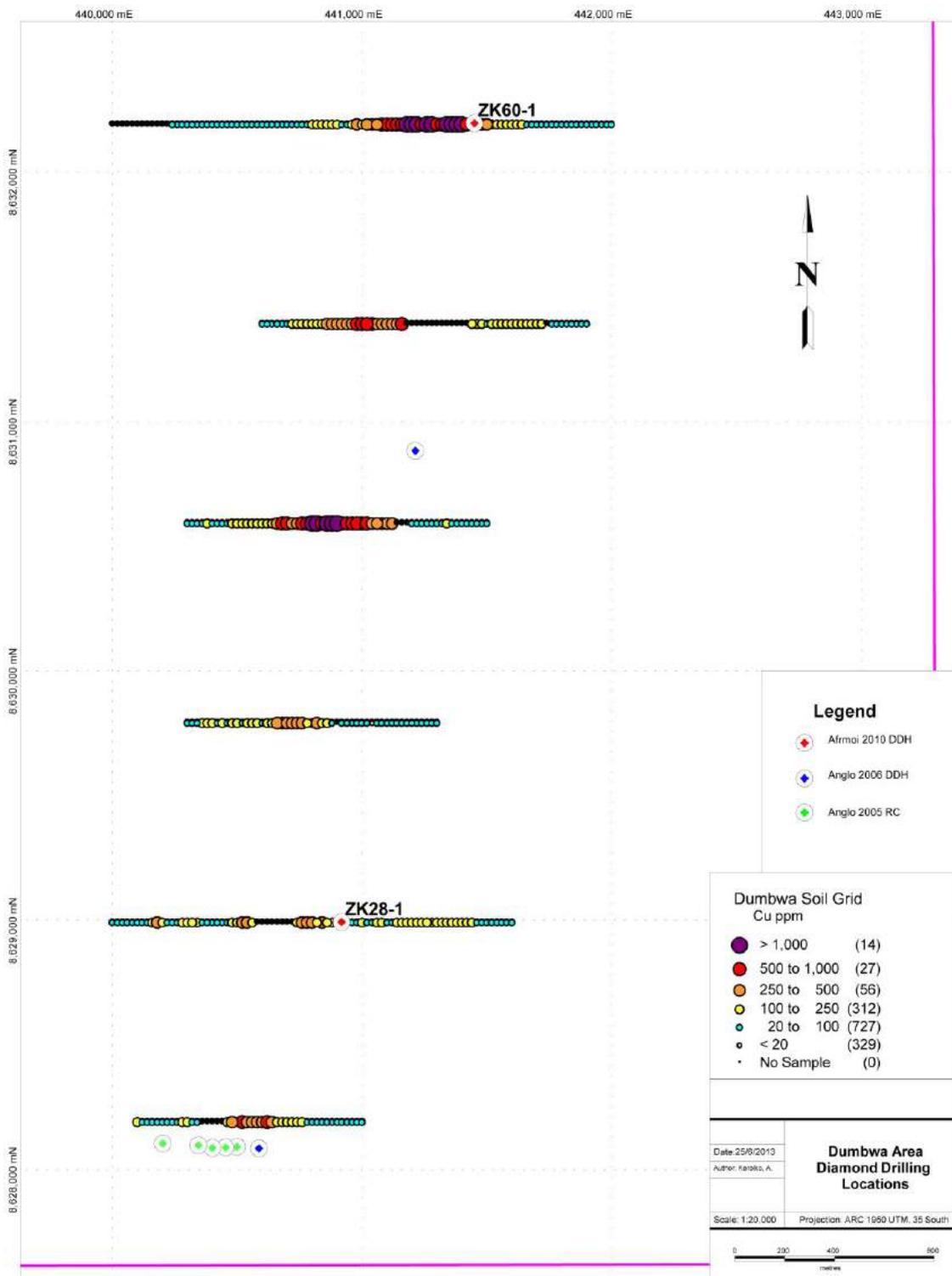


Figure 16: Plan map of 2010 drilling locations in the Dumbwa area superimposed on soil sampling results. Map also shows previous diamond drilling and Reverse Circulation drilling completed by Anglo American in 2005 and 2006.

ZK60-1 was drilled to test the numerous >1000ppm Cu anomalies on Line 60 from the 2009 soil sampling program. ZK60-1 was drilled at 270°/-75° to a depth of 230.2m. Cu mineralization was intercepted in three distinct intervals. The first interval returned 0.63 % Cu from 7.1 to 26.2 m including 0.92% Cu from 18.8 to 24.2m within a biotite schist. The second mineralized zone also occurred in a biotite schist, however minor malachite was noted. The interval occurred from 35.6 to 39.3m and returned 0.27 % Cu within a biotite schist. Malachite coating fracture surfaces was observed at 36.5m (Image 1). The last mineralized interval returned 0.36 % Cu from 48.1 to 50.4m and was also hosted within a biotite schist. Chalcopyrite in minor quantities is observed along foliation planes of the biotite schist. Mineralization prefers but is not limited to the quartz/carbonate felsic intervals over the more mafic. Overall the mineralization is very weak and too few examples were seen to determine the origin of mineralization.

## Geological Prospecting Line Profile Section 60

Scale 1: 1000

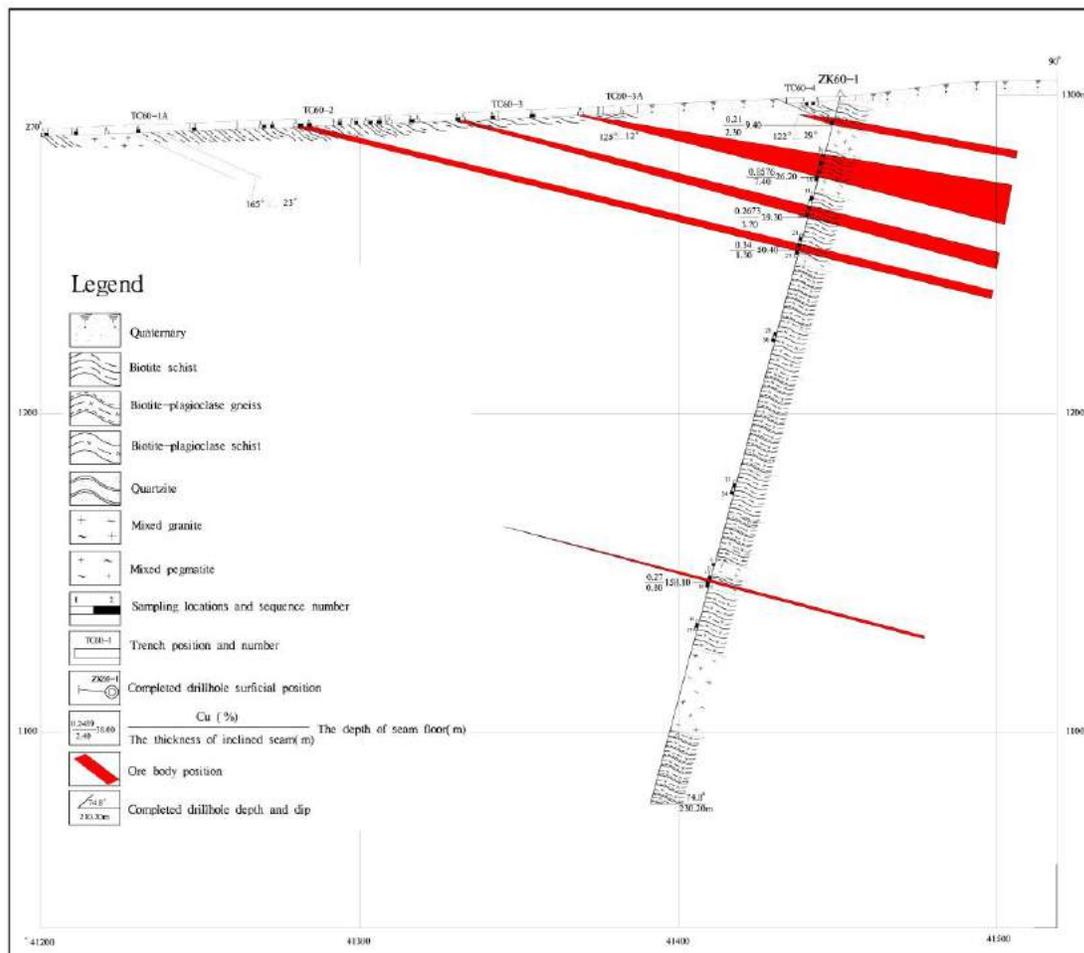


Figure 17: Cross Section map of drill hole ZK-60-1. Note: red area indicate mineralized zones and their interpreted trend.



Image 1: Minor Malachite staining along fracture surface within biotite schist. Hole ZK60-1: 36.5m



Image 2: Minor chalcopyrite mineralization seen along foliation planes within biotite schist. Hole ZK60-1: 48.2m

ZK28-1 was drilled 3.25 km south of ZK60-1 along Line 28 from the 2009 Dumbwa Soil grid. ZK28-1 was drilled at 270°/-75° to a depth of 350.0m. Weak Copper mineralization was encountered in two individual zones. The upper mineralized interval occurred from 47.4m to 48.6m and returned 0.27% Cu within a garnet, plagioclase, biotite schist. Minor chalcopyrite was noted within the interval. The second interval occurs within a biotite schist from 211.7 to 212.4m, which returned 0.36 % Cu. Minor bornite was also noted in the core. Due to time constraints while visiting the core storage location, ZK-28-1 was not located and viewed, however the author viewed photos of the drill hole which were provided by provided by Afromi.

## Geological Prospecting Line Profile Section 28

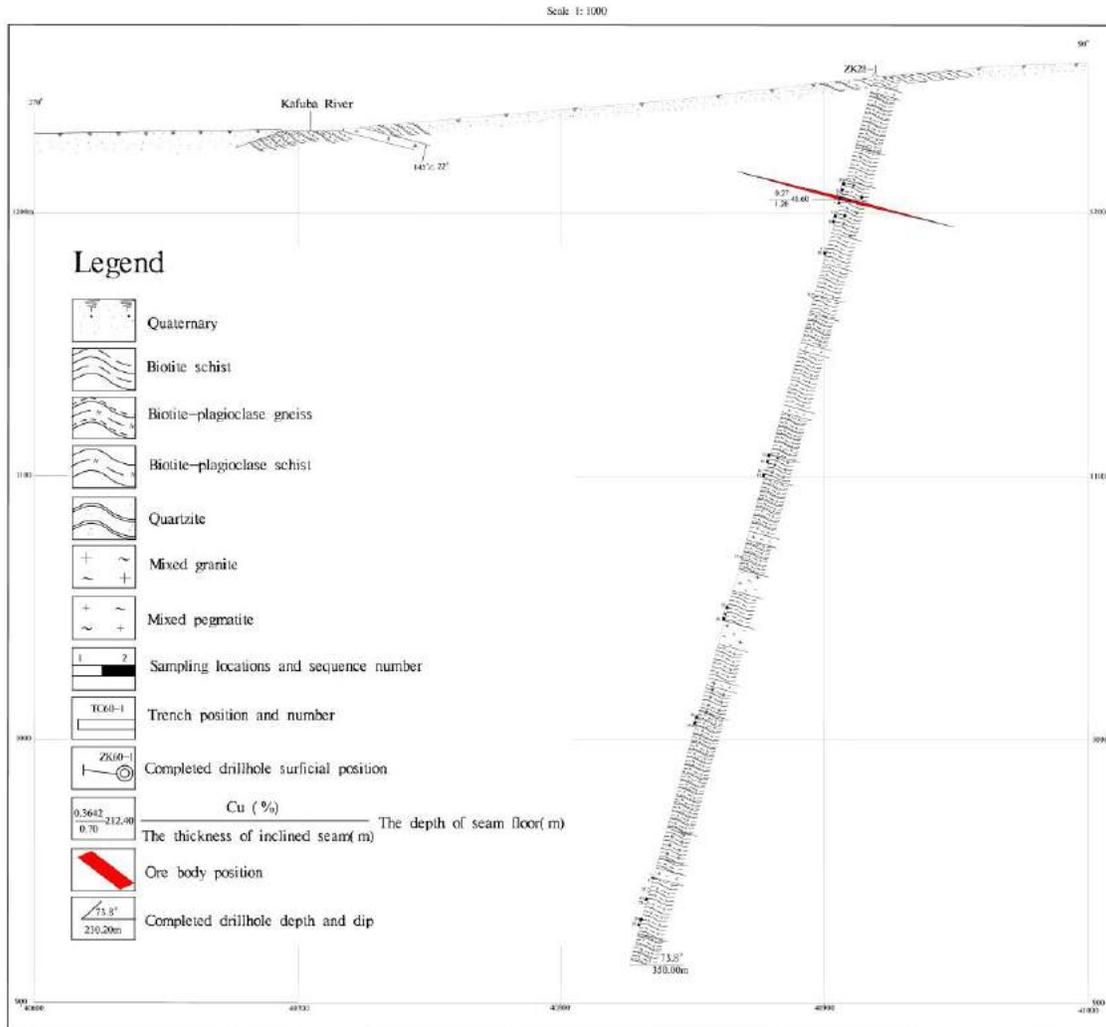


Figure 18: Cross Section map of drill hole ZK-28-1. Note: red area indicate mineralized zones and their interpreted trend.

The overall trend of the mineralization in the Dumbwa area is north-south; however, due to the limited amount of drilling completed and the lack of surface exposure in the area, it is difficult to ascertain the relationship between apparent and true thickness of mineralized intersects.

Afromi also conducted downhole IP and radiometric geophysical surveys on both ZK28-1 and ZK60-1. Interpretations of the IP signature for ZK28-1 identified potential mineralization at 120-130m, 145-150m, 160-170m, 255-285m, and 305-310m although

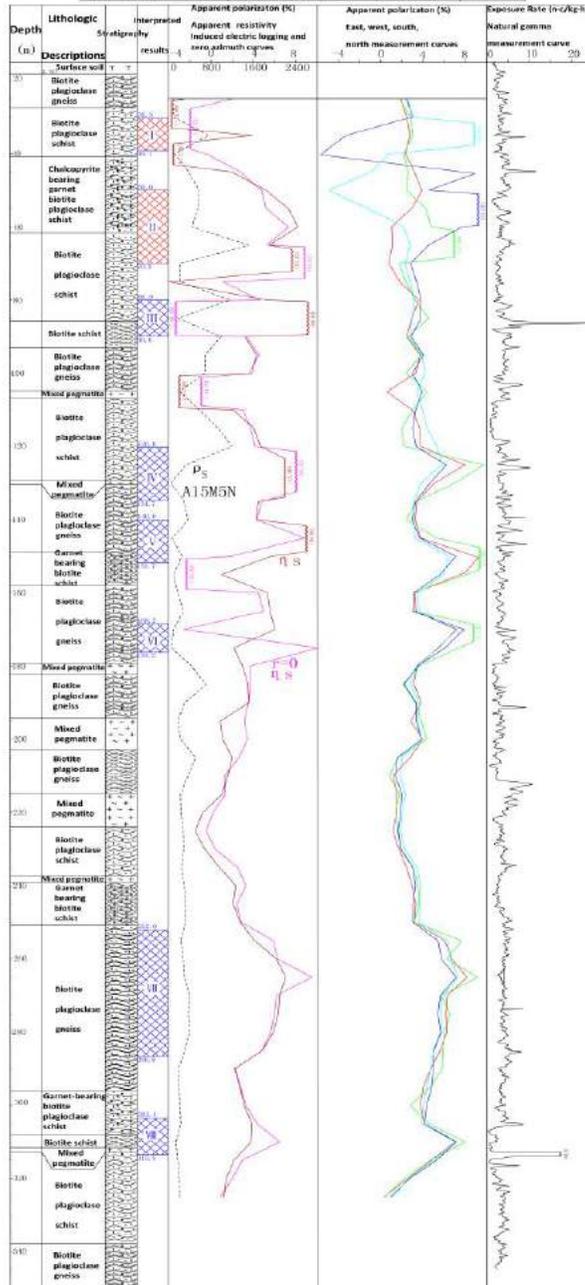
none of these intervals returned any Cu mineralization. Two radiometric anomalies were identified as well, one at 86.09-86.49m and 312.89 to 313.89m. The radiometric signatures likely represent potassic altered zones, or potential uranium mineralization although drill core was not analyzed for uranium at the lab. ZK60-1 returned a small IP response from 175.1 to 177.7m however the area was not sampled by Afromi. A narrow radiometric response occurs at 150.39-151.69m but was not verified with assay.

Table 6: Summary of mineralized intercepts from 2010 Diamond Drilling.

Hole ID	From (m)	To (m)	Length (m)	Summary of Results
ZK60-1	7.1	26.2	11.3	0.63 % Cu over 11.3m including 0.92% Cu over 5.4m
ZK60-1	35.6	39.3	3.7	0.27 % Cu over 3.7m
ZK60-1	48.1	50.4	2.3	0.36 % Cu over 2.3m
ZK28-1	47.4	48.6	1.2	0.27 % Cu over 1.2m
ZK28-1	211.7	212.4	0.7	0.36 % Cu over 0.7m

**Borehole ZK28-1 Geophysical Measurement Graph**  
Scale 1:500

Drillhole ID	ZK28-1	Equipment model	VJDS-2	Supply time	4h
Location	Dorbara Hill	Starting depth	25m	Delay time	100ms
Depth	350.0m	Final depth	325m	Electrode array	A-MI
Sleeve length	4.51m	Sampling interval	5m	Log date	2010-08-19



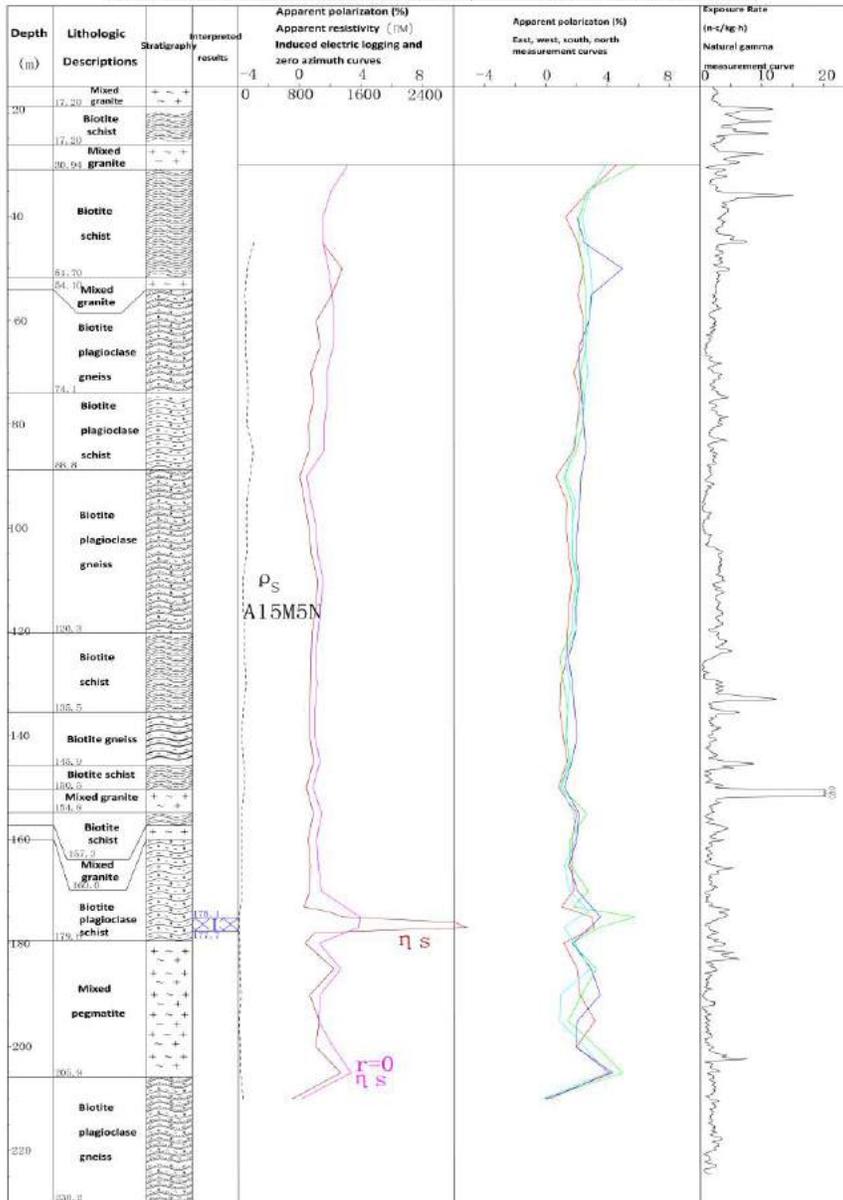
**Legend**

- Low resistivity, high polarization stratum
- High resistivity and polarization stratum
- Exposure rate curve
- Induced polarization  $\rho_s$  logging curve
- Induced polarization  $\eta_s$  logging curve
- Zero azimuth  $\eta_s$  curve
- 0° azimuth  $\eta_s$  curve
- 90° azimuth  $\eta_s$  curve
- 180° azimuth  $\eta_s$  curve
- 270° azimuth  $\eta_s$  curve

Figure 19: ZK28-1 downhole geophysical strip-log of IP resistivity, chargeability, and radiometrics.

**Borehole ZK60-1 Geophysical Measurement Graph**  
Scale : 1:500

DrillHole ID	ZK60-1		WJDS-2	Supply Time	4s
Location	Dombwa Hill	Start Depth	30m	Delay Time	100ms
Depth	230.2m	Final Depth	210m	Electrode Array	A-MN
Sleeve length	35.30m	Sampling Interval	5m	Logging Date	2010-7-29



## Legend

- |   |                                   |
|---|-----------------------------------|
| Low resistivity, high polarization stratum        | Zero azimuth η <sub>s</sub> curve |
| Exposure rate curve                               | 0° azimuth η <sub>s</sub> curve   |
| Induced polarization ρ <sub>s</sub> logging curve | 90° azimuth η <sub>s</sub> curve  |
| Induced polarization η <sub>s</sub> logging curve | 180° azimuth η <sub>s</sub> curve |
|   | 270° azimuth η <sub>s</sub> curve |

Figure 20: ZK60-1 downhole geophysical strip-log of IP resistivity, chargeability, and radiometrics.

## Shallow Technical Diamond Drilling

In 2012 Afromi conducted a shallow technical diamond drill program. The aim of the program was to test anomalous areas discovered by previous soil sampling grids since trenching was unable to reach bedrock in nearly all of the trench pits. The technical diamond drilling involves using a regular diamond drilling rig to drill through overburden down to fresh rock. The technical drilling was conducted using HQ sized core barrels and drilling rods to obtain the largest sample possible. Drilling was conducted until the drill reached resistive rock and was then continued for up to 2 meters in order to obtain a proper sample of fresh bedrock. During the drilling, the geologist on site would determine if drilling should continue further after bedrock was intercepted. 156 holes were drilled totaling 4450m. All holes were drilled at -90°. An additional 81 shallow technical diamond drill holes totaling 3180m were also drilled by Afromi in 2012, however they are located outside the current Prospecting Licenses discussed in this report. Drill collar information is shown in Table 7 and holes returning anomalous results are identified in Figure 21. Table 8 summarizes mineralized intercepts from 2012 technical drilling.

During the technical shallow diamond drilling program, sampling was completed over the entire length of each hole. Sample intervals ranged from < 1m to 4m in length. Samples within the altered and incompetent rock were hand selected and half of the recovered core was sampled. Fresh rock was broken in half and also sampled. All samples were sent out for analysis to IMME in Kitwe, Zambia.

Table 7: Locations of 2012 Diamond Drill Holes. Projection: ARC 1950, Zone 35 South.

Hole ID	Northing	Easting	Elev. (m)	Strike	Dip	EOH (m)
QZ400-1	8660957	422083	1396	360	-90	23.5
QZ400-2	8661006	422093	1400	360	-90	23.1
QZ400-3	8661054	422103	1398	360	-90	23.5
QZ400-4	8661103	422114	1399	360	-90	28.2
QZ400-5	8661152	422124	1399	360	-90	27.4
QZ400-6	8661201	422135	1399	360	-90	28.2
QZ400-7	8661250	422145	1399	360	-90	37.6
QZ400-8	8661299	422155	1399	360	-90	27.4
QZ400-9	8661348	422166	1398	360	-90	37.6

QZ400-10	8661397	422176	1398	360	-90	30.2
QZ400-11	8661446	422187	1402	360	-90	25.8
QZ400-12	8661493	422197	1403	360	-90	25.8
QZ400-13	8661543	422207	1405	360	-90	39.9
QZ400-14	8661592	422218	1404	360	-90	60.6
QZ400-15	8661641	422228	1404	360	-90	29.5
QZ400-16	8661690	422239	1403	360	-90	32.9
QZ400-17	8661739	422249	1403	360	-90	25.8
QZ400-18	8661788	422259	1402	360	-90	30.5
QZ400-19	8661837	422270	1403	360	-90	37.6
QZ400-20	8661886	422280	1402	360	-90	21.1
QZ400-21	8661933	422291	1399	360	-90	29.5
QZ400-22	8661984	422301	1402	360	-90	39.9
QZ400-23	8662032	422311	1402	360	-90	37.6
QZ400-24	8662081	422322	1402	360	-90	16.4
QZ400-25	8662130	422332	1402	360	-90	25.8
QZ200-1	8629086	433776	1315	360	-90	50.6
QZ200-2	8629109	433821	1316	360	-90	51.7
QZ200-3	8629132	433865	1317	360	-90	32.9
QZ200-4	8629155	433909	1318	360	-90	21.1
QZ200-5	8629178	433954	1318	360	-90	25.1
QZ200-6	8629201	433998	1319	360	-90	21.1
QZ200-7	8629224	434043	1319	360	-90	30.5
QZ200-8	8629246	434087	1320	360	-90	23
QZ200-9	8629269	434132	1320	360	-90	30.5
QZ200-10	8629292	434176	1320	360	-90	35.2
QZ200-11	8629315	434221	1321	360	-90	42.3
QZ200-12	8629338	434265	1321	360	-90	37.6
QZ200-13	8629361	434309	1321	360	-90	40.9
QZ200-14	8629384	434354	1322	360	-90	35.2
QZ200-15	8629405	434398	1322	360	-90	21.1
QZ200-16	8629429	434443	1323	360	-90	23
QZ200-17	8629452	434487	1323	360	-90	36.8
QZ200-18	8629475	434532	1324	360	-90	23
QZ200-19	8629498	434576	1325	360	-90	23.1
QZ200-20	8629521	434621	1326	360	-90	25.8
QZ200-21	8629544	434665	1327	360	-90	24.9
QZ211-1	8629717	432817	1331	360	-90	37.2
QZ211-3	8629763	432905	1331	360	-90	32.5
QZ211-5	8629809	432995	1332	360	-90	29.4
QZ211-7	8629854	433084	1332	360	-90	23.1
QZ211-9	8629900	433172	1332	360	-90	30.5
QZ211-11	8629946	433261	1332	360	-90	7
QZ211-13	8629992	433350	1332	360	-90	23.2
QZ211-15	8630037	433439	1332	360	-90	25.8
QZ211-17	8630083	433528	1332	360	-90	21.1
QZ211-19	8630129	433617	1332	360	-90	13.6
QZ211-21	8630175	433706	1333	360	-90	12.7
QZ211-23	8630220	433794	1330	360	-90	4.7
QZ212-1	8628362	434555	1332	360	-90	30.5
QZ212-2	8628385	434599	1332	360	-90	32.9
QZ212-3	8628408	434643	1332	360	-90	42.3

QZ212-4	8628431	434688	1332	360	-90	49.3
QZ212-5	8628454	434732	1333	360	-90	51.2
QZ212-6	8628477	434777	1333	360	-90	51.2
QZ212-7	8628500	434821	1333	360	-90	34.2
QZ212-8	8628522	434866	1334	360	-90	32.4
QZ212-9	8628545	434910	1334	360	-90	34.2
QZ212-10	8628568	434955	1334	360	-90	27.1
QZ212-11	8628591	434999	1334	360	-90	21.1
QZ212-12	8628614	435043	1334	360	-90	24.5
QZ212-13	8628637	435088	1335	360	-90	21.1
QZ212-14	8628660	435132	1335	360	-90	23.5
QZ212-15	8628683	435177	1335	360	-90	21.1
QZ212-16	8628706	435221	1335	360	-90	22.8
QZ212-17	8628728	435266	1335	360	-90	41.7
QZ212-18	8628751	435310	1335	360	-90	20.1
QZ212-19	8628774	435355	1335	360	-90	21.1
QZ212-20	8628797	435399	1335	360	-90	21.6
QZ212-21	8628820	435444	1333	360	-90	23.5
QZ295-21	8635638	429045	1330	360	-90	23.5
QZ295-23	8635684	429114	1331	360	-90	21.1
QZ325-1	8637753	427627	1347	360	-90	52.6
QZ325-3	8637799	427760	1348	360	-90	18.8
QZ325-5	8637845	427849	1348	360	-90	51.1
QZ325-7	8637891	427938	1349	360	-90	39.6
QZ325-9	8637936	428027	1349	360	-90	51.1
QZ325-11	8637982	428116	1350	360	-90	22.8
QZ325-13	8638028	428205	1350	360	-90	32.2
QZ325-15	8638074	428294	1351	360	-90	37.5
QZ325-17	8638120	428383	1351	360	-90	49
QZ325-19	8638165	428472	1352	360	-90	25.8
QZ325-21	8638211	428561	1352	360	-90	23.5
QZ325-23	8638257	428649	1353	360	-90	14.1
QZ108-1	8636996	440000	1354	360	-90	20.8
QZ108-2	8636996	440050	1354	360	-90	17.7
QZ108-3	8636996	440100	1355	360	-90	18.8
QZ108-5	8636996	441080	1357	360	-90	27.8
QZ108-6	8636996	441130	1357	360	-90	29.8
QZ108-7	8636996	441180	1356	360	-90	25.8
QZ108-8	8636996	441230	1356	360	-90	17.8
QZ108-9	8636996	441280	1356	360	-90	22.3
QZ108-10	8636996	441330	1356	360	-90	21.8
QZ116-1	8637796	441080	1362	360	-90	34.2
QZ116-2	8637796	441130	1362	360	-90	30
QZ116-3	8637796	441180	1362	360	-90	18.8
QZ116-4	8637796	441230	1362	360	-90	32.9
QZ116-5	8637796	441280	1362	360	-90	22.8
QZ116-6	8637796	441330	1362	360	-90	18.1
QZ116-7	8637796	441380	1362	360	-90	27.6
QZ116-8	8637796	441430	1362	360	-90	27.9
QZ116-9	8637796	441480	1362	360	-90	27.3
QZ116-10	8637796	441530	1361	360	-90	33.6
QZ116-11	8637796	441580	1361	360	-90	27.1

QZ116-12	8637796	441630	1361	360	-90	25.3
QZ116-13	8637796	442050	1356	360	-90	18.5
QZ116-15	8637796	442150	1356	360	-90	25.8
QZ116-17	8637796	442250	1355	360	-90	30.5
QZ116-19	8637796	442350	1354	360	-90	25.3
QZ116-21	8637796	442450	1351	360	-90	18
QZ116-23	8637796	442550	1348	360	-90	11.7
QZ124-1	8638596	440800	1365	360	-90	14.1
QZ124-2	8638596	440850	1365	360	-90	28.2
QZ124-3	8638596	440900	1366	360	-90	18.8
QZ124-4	8638596	440950	1366	360	-90	30.5
QZ124-5	8638596	441000	1366	360	-90	21.1
QZ124-6	8638596	441050	1366	360	-90	18.8
QZ124-7	8638596	441100	1365	360	-90	25.8
QZ124-8	8638596	441150	1365	360	-90	21.1
QZ124-9	8638596	441200	1365	360	-90	44.1
QZ124-10	8638596	441250	1365	360	-90	32.9
QZ124-11	8638596	441300	1365	360	-90	34.3
QZ124-12	8638596	441350	1364	360	-90	37.6
QZ124-13	8638596	441400	1364	360	-90	30.2
QZ124-14	8638596	441450	1364	360	-90	38.5
QZ124-15	8638596	441500	1364	360	-90	27.7
QZ124-16	8638596	441550	1364	360	-90	35.2
QZ124-17	8638596	441600	1364	360	-90	41.2
QZ124-18	8638596	441650	1363	360	-90	40.5
QZ124-19	8638596	441700	1363	360	-90	34.2
QZ124-20	8638596	441750	1363	360	-90	32.9
QZ124-21	8638596	441800	1363	360	-90	36.4
QZ124-22	8638596	441850	1362	360	-90	28.2
QZ124-23	8638596	441900	1361	360	-90	31.8
QZ124-24	8638596	441950	1359	360	-90	31.9
QZ124-25	8638596	442028	1360	360	-90	13.1
QZ124-27	8638596	442100	1362	360	-90	21.1
QZ124-29	8638596	442200	1363	360	-90	26.7
QZ124-31	8638596	442300	1364	360	-90	19.8
QZ124-33	8638596	442400	1364	360	-90	25.8
QZ124-35	8638596	442500	1364	360	-90	22.1
QZ124-37	8638596	442600	1364	360	-90	21.1
QZ124-39	8638596	442700	1364	360	-90	21.1
QZ124-41	8638596	442800	1364	360	-90	22.9
QZ124-43	8638596	442900	1364	360	-90	22.8
QZ124-45	8638596	443000	1364	360	-90	23.6
QZ124-47	8638596	443100	1364	360	-90	23.4

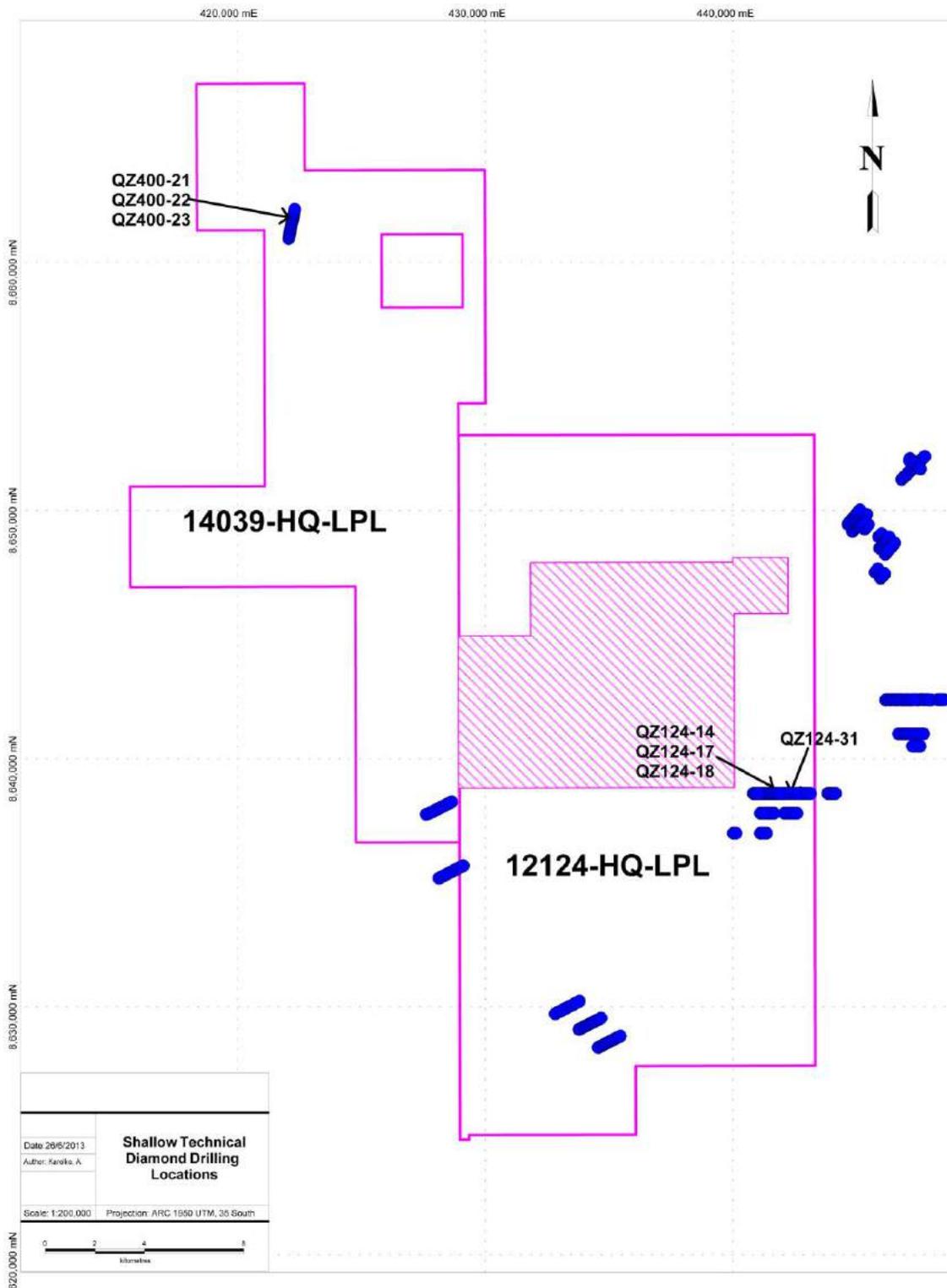


Figure 21: Location Map of 2012 Technical Diamond Drilling shown as blue dot and holes with anomalous results are labeled accordingly. Note pink hashed area does a part of the property license. Holes identified returned anomalous results.

The most significant results obtain from the property to date occurred from Technical Drill hole QZ400-22. QZ400-22 was drilled as a part of a 25 hole line that was established to test the weakly anomalous soil Cu anomalies located in the NW grid. QZ400-22 was drilled at -90° to a total depth of 39.9m and intercepted an intensely hematized biotite schist 0 to 39.75m, followed by a fresh, white-grey, unaltered marble from 39.75 to 39.9m. Significant mineralization was intercepted within the lowermost portion of highly hematized meta-sediments. An intercept of 8.5% Cu over 21.1m was reported including 12.1% Cu from 23.5 to 30.5m and 11.6 % Cu from 30.5 to 37.6m. The mineralization occurs within intensely hematized clay/rock and is presumed to be a biotite schist in origin due to its strongly hematized state and also through previous 1:100,000 Geological mapping of the Solwezi Dome.

Poor core recoveries were generally obtained during the shallow technical diamond drilling program. Nearly all holes experience core loss ranging from 70-85%. The large amount of core loss results in inaccurate depth marking on core which ultimately makes the sampling intervals questionable. Interpretation of the results from QZ400-22, where 21.1m of mineralization at 8.5% Cu was reported, should incorporate the core recovery issue. Due to the fact that all shallow technical drillholes were completed in high- to - intensely altered rock which was devoid of any structures it is the authors opinion that no accurate relationship between sample length and true thickness of mineralization can be made at this time.



Image 3: Technical diamond drill hole QZ400-22 from 0-39.9 m (EOH) and amount of overall core loss.



Image 4: Malachite mineralization at 37.2 m. hosted in intensely hematized clay. In some areas malachite mineralization is crystalline.

Table 8: Summary of mineralized intercepts from 2012 Technical Shallow Diamond Drilling

Hole ID	From (m)	To (m)	Length (m)	Summary of Results
QZ400-21	18.8	28.2	9.4	0.48 % Cu over 9.4m
QZ400-22	18.8	39.9	21.1	8.5 % Cu over 21.1m
QZ124-14	18.8	23.4	4.6	0.40 % Cu over 4.6m
QZ124-14	34	36.4	2.4	0.65 % Cu over 2.4m
QZ124-17	23.5	36.6	13.1	0.35 % Cu over 13.1m
QZ124-18	30.1	37.2	7.1	0.18 % Cu over 7.1m
QZ124-31	18.8	19.8	1	1.8 % Cu over 1m

## 11. Sample Preparation, Analyses, and Security

The following descriptions on sample preparation, analysis and security were obtained by personal communication with Mr. Lucas Lai, Project Geologist for Afromi Investments Ltd.

During the 2010 soil sampling program, samples were analyzed in-house by Afromi personnel using a Thermo Scientific Niton XL3t-900s XRF portable analyzer. Once samples have been collected they were dried, crushed, sieved to 60µm, homogenized, weights recorded. Samples were then split to 150g then re-label and re-bagged. Each sample was tested for a period of 90 seconds to obtain readings. All samples returning >100 ppm Cu were then sieved to 200 µm by Afromi personnel and then sent for chemical analysis to an independent laboratory in China for in house verification. The name of the laboratory or the type of chemical analysis was not documented, nor was it mentioned if blanks and standards were inserted during analysis. The author did compare the assay results from the Laboratory to the original values and found that the values from the XRF gun were consistent with the anomalous results obtained from chemical analysis.

Analysis completed in all exploration programs after the 2010 soil sampling including 2012 soils sampling programs, trench sampling, technical and diamond drilling was completed by chemical analysis. All samples were analyzed by Inner Mongolia Minerals

Experiment Research Institute (IMME), a non-certified independent laboratory located in Kitwe, Zambia. Samples were dried in ovens, crushed and sieved to 200µm and homogenized. A 0.25g pulp is taken and digested in a four acid mix and subsequently analyzed using inductively coupled plasma mass spectrometry (ICP-MS). For all samples sent out for chemical analysis to IMME, Afromi did not employ any QA/QC protocols for insertion of standards, blanks and duplicates; however, IMME did insert standards every 20 samples for in house QA/QC. The list of standards is as follows: GSD-20, GSD-22, GSD 3a, GSD 5a. The baseline data for the standards was not available, however the author compared all the standards to each other and found them to be consistent.

All sampling was documented and conducted only by Afromi personnel and remained under the supervision of Afromi personnel until delivered to IMME laboratory in Kitwe, Zambia for analysis. Transportation of samples was also conducted exclusively by Afromi personnel.

The sampling method employed by the author was to obtain samples of mineralization intervals from drill core. Two holes with more notable mineralization were chosen: diamond drillhole ZK-60-1 and shallow technical drillhole QZ400-22. The author verified the drillholes and depth markers to the best of his ability prior to sampling. For diamond drill core, intervals selected by the author were cut by Afromi personnel under the supervision of the author and then sampled. All samples were taken from the right half of the cut core, placed into new fabric bags, zip-tied and labeled with a felt marker. For samples taken from shallow technical drilling, the entire sample interval was rubble thus the author hand selected and half of the remaining core was collected for sample. Careful attention was paid by the author to maintain an unbiased sample. The samples then remained under the supervision of the author until his arrival in Calgary, Alberta where the samples were then hand delivered by the author to Loring Laboratories an independent laboratory located in Calgary, Alberta. Loring is an accredited lab which conforms with requirements of ISO 9001:2008.

Upon receipt at the lab the procedure was to dry the sample then crush the entire sample to 70% passing 10 mesh (1.70 mm), homogenize then riffle split 250-275 gram portion, and pulverize so approximately 90% passing 150 mesh (106 µm). All samples were analyzed using ICP-AES analysis and a total of 30 elements were analyzed.

A 0.5 gram sample was dissolved in a four acid digest consisting of HNO<sub>3</sub>( nitric acid), HF(Hydrofluoric Acid), HClO<sub>4</sub>(Perchloric Acid), HCl (Hydrochloric Acid). The sample is first digested with HNO<sub>3</sub> and HF, taken to dryness, then digested again with HClO<sub>4</sub> and HCl and taken to dryness again. A last digestion of HCl is completed and the solution is bulked to 10ml using distilled water. This results in a near total digestion of sample which is then analysed by Inductively Coupled Plasma -Atomic Emission Spectroscopy (ICP-AES). The detection limit of Copper is 1ppm.

The author has relied on the Quality Assurance procedures employed by Loring Laboratories. One blank was analysed along with the submitted samples and values returned were acceptable to the lab.

It is the author's opinion that the results obtained from analysis are accurate and all sample preparation and sample security procedures were performed properly to maintain proper quality control and quality assurance.

## **12. Data Verification**

During the property visit conducted by the author, both prospecting licenses were visited and assessed for accessibility, sources of water for drilling, and field camp locations. The author visited the NW area and verified the recent 2012 drilling locations including QZ400-22 where assay results returned 8.5% Cu over 21.1 m. The author also visited the Dumbwa area where he visited the 2010 drill locations of ZK60-1 and ZK28-1. The nearby trenches TC62-1 and TC60-1 were also visited however the author did not collect any trench sample as the author had already collected samples from drill hole ZK-60-1.

In Lusaka, Afromi Investments Ltd. operates a modern office where a digital database and hard copy files of all exploration activities and permitting is maintained.

The author also visited the company's Core storage facility in Lusaka on June 27<sup>th</sup>, 2013 where all drilling core is stored. Independent data verification was undertaken on mineralized intervals in diamond core and sample descriptions are shown in Table 9 and

assay certificates are shown in Appendix III. The authors independent results correlate well with the reported results obtained from Afromi and verifies the presence of Cu mineralization.



Image 5: Core storage facility located in Lusaka, Zambia.

Sample No.	Hole ID	Depth From:	Depth To:	Description	Cu %
1	QZ400-22	28.2	30.5	Intensely hematized Biotite Schist	4.359
2	QZ400-22	30.5	32.9	Intensely hematized Biotite Schist	14.23
3	QZ400-22	32.9	35.2	Intensely hematized Biotite Schist with malachite mineralization	8.541
4	QZ400-22	35.2	37.6	Intensely hematized Biotite Schist with malachite mineralization	7.054
5	ZK60-1	19.7	21.4	Tan grey argilized schist. Incompetent, fabric and foliation absent. Only qtz and micas grains remaining.	0.697
6	ZK60-1	22.6	24.2	Tan grey schist. Strongly argilized throughout. Weak fabric seems on slightly more competent rock.	0.8511

7	ZK60-1	35.6	36.7	Black/white biotite schist. Fresh and competent. Fabric 70 to 90 degrees TCA. Minor malachite mineralization found along fabric planes.	0.8581
8	ZK60-1	49.1	50.4	Black/white biotite schist. Fresh and competent. Fabric 70 to 90 degrees TCA. Minor malachite mineralization found along fabric planes.	0.037

Table 9: Sample description of selected re-sampling of mineralized intervals in ZK60-1 and QZ400-22.

Data pertaining to Licensing was verified at Mining Cadastre Unit of the Ministry of Mines and Minerals Development in Lusaka, Zambia which the author visited on June 20<sup>th</sup>, 2013

In the author's professional opinion, the data used and described in the report is adequate for the usage of this technical report.

### 13. Adjacent Properties

One nearby property worthy of noting is the Kansanshi Mine owned and operated by First Quantum Minerals Limited (FQML). The following information pertaining to mineral resource and mineral reserve calculations was obtained from a 43-101 compliant report entitled " Technical Report for the Update of Mineral Resources and Reserves of the Kansanshi Mine" written December 31, 2012 by Gregory, J. (QP) BSc (Hons) Min.Eng., IMMM, CEng., MAusIMM, ARSM *et. al.*

The Kansanshi Mine is located 15 km north of the northern boundary of Prospecting Licence 12124-HQ-LPL (Figure 2). It was first discovered by George Grey in 1897. Following this, discontinuous and sporadic mining activities took place which focused on the exploitation of the high grade copper bearing veins through underground mining techniques. In 2001, FQML obtained the rights to Kansanshi Mine. The Kansanshi Mine, is 80% owned by KMPL and 20% is owned by a subsidiary of Zambia Consolidated Copper Mines Ltd.

The deposit is believed to be hosted within the metasediments of the Nguba (previously referred to as the Lower Kundulungu), Grand Conglomerate, and Mwashya Groups and mineralization occurs in three main styles: vein-hosted, strata-bound, and breccia. Mineralization is divided into three zones within the Kansanshi Mine: the Main, North-West, and SE Dome.

As of November 30, 2012 the Mineral Resource for the combined Main and North West regions includes a total of 690.0 Mt @ 0.86% Cu and 0.15ppm Au defined by a cut-off grade of 0.3% Cu in the Measured and Indicated classification plus an additional 344.4 Mt @ 0.70% Cu and 0.11ppm Au in the Inferred classification. The Mineral Resource for the SE Dome includes a total of 54.2 Mt @ 0.90% Cu and 0.15ppm Au defined at a cut-off grade of 0.3% Cu in the Indicated classification plus an additional 20.8 Mt @ 0.91% Cu and 0.16ppm Au in the Inferred classification. The author has been unable to verify the Mineral Resource described above and that the information described above is not necessarily indicative of the mineralization within the Solwezi Group of Prospecting Licences.

The Mineral Reserve for the combined Main and North West regions includes a total of 757.7 Mt @ 0.77% TCu and 0.13ppm Au defined by a cut-off grade of 0.25% TCu in the Proven and Probable classification. This Measured calculation includes the sum of leached, mixed and sulphide ores.

## **14. Mineral Processing and Metallurgical Testing**

During the writing of the report, there has been no mineral processing or metallurgical testing conducted on any of the mineralized zones within the Solwezi Group of Prospecting Licenses.

## **15. Mineral Resource and Mineral Reserve Estimates**

During the writing of the report, there has been no mineral resource or reserve calculated for any of the Solwezi Group of Prospecting Licenses.

## 16. Other Relevant Data and Information

During the writing of the report, there is no other relevant data or information for any of the Solwezi Group of Prospecting Licenses.

## 17. Interpretations and Conclusions

The Solwezi Group of Prospecting Licenses is strategically located within the prolific Zambian/Congo Copperbelt region of northwestern Zambia and is located roughly 20km from First Quantum Minerals Kansanshi Mine and with good road access, source of electricity, and infrastructure.

The properties encompass the central and western portion of the Solwezi dome along with the flanking meta-sediments of the Lower Roan Formation, where the majority of Cu mineralization in Zambia occurs within. From the exploration data supplied the properties possess a potential to host Cu mineralization similar most stratabound-type as seen in the Kifubwa and Mitu areas, along with Hydrothermal-type as seen in the Dumbwa and NW areas. Soil sampling programs completed by Afromi have identified numerous Cu anomalies, of which only a few have been drill tested, some with very encouraging results. In addition, historical exploration has identified numerous Cu showings that warrant additional work.

Much of the technical shallow core drilling returned very high core loss including hole QZ400-22 where 21.1m of Cu mineralization at 8.5% was reported. Core loss averaged 70-85% throughout the area, and thus created an uncertainty in regards to the true interval and grade of mineralization in the area. Supergene Cu enrichment is unlikely since the mineralization occurs deep within the intensely hematized rocks. Although the reported results should not be interpreted quantitatively, they do verify subsurface mineralization of a surface soil anomaly. The model of Cu mineralization for this particular area is a hydrothermal-type, where major structures transport Cu bearing fluids and deposit them in sediments conducive for precipitation of Cu and in areas of higher porosity. The mineralization encountered in QZ400-22 could be a zone of mineralization proximal to a major fault where favorable sediments allowed Cu to precipitate out of solution. Additional mineralization can occur in underlying sediments

that are also favorable in precipitation of Cu bearing fluids.

Drilling in the Dumbwa Hill area has identified subsurface Cu mineralization. Hole ZK28-1 intersected two low grade narrow bands of Cu mineralization and ZK60-1 intersected multiple bands of Cu mineralization, the majority being low grade; however one interval returned 0.63 % Cu over 11.3m including 0.92% Cu over 5.4m. The area was historically drilled by First Quantum Minerals in 2005-2006 and drilling returned results grading up to 1.24% Cu over 16m. Although the majority of drilling results are low grade, the anomalous zone totals 14kms in length from soil sampling results, and has yet to be properly tested throughout it's entire strike length and to depth. Overall, the Dumbwa Hill area has potential to host low grade hydrothermal Cu and further drilling is warranted after a thorough desktop study is completed.

A risk and uncertainty that may affect the reliability or confidence of the exploration data in this technical report are the grade and interval widths of the majority of samples taken during the shallow technical drilling program including QZ400-22 which is reported to return 8.5% Cu over 21.1m. Due to the 70-85% core loss obtained during drilling, the reported grade and interval of samples may not be fully representative of subsurface conditions. The author did observe large amounts of visible Cu mineralization during his viewing of core at Afromi's core storage facility, and the results of the author's independent sampling of the mineralized intervals of QZ400-22 are comparable to that which is reported, Re-drilling may return results significantly lower than previously reported and reduce the potential economic viability for this portion of the property.

Based on a thorough review of the existing data, property visit, and examination of drilling core where samples were taken, it is the author's professional opinion that the Solwezi Group of Prospecting Licenses constitutes a property of merit with the appropriate geological characteristics to potentially host economic concentrations of copper-cobalt mineralization.

## **18. Recommendations**

In order to advance the Solwezi Group of Prospecting Licenses, a two phase exploration

program is suggested. Phase One would comprise of a desktop study and a field exploration program. Phase Two would be contingent of the results of Phase One and consist of diamond drilling to further test mineralized zones.

For the Phase One desktop study, a complete database compilation and interpretation of all historical and recent exploration completed within the properties should be completed. The field exploration program would consist of a 30km<sup>2</sup> ground EM geophysical survey surrounding the anomalous NW area. In addition, a 30km<sup>2</sup> soil geochemical survey around the anomalous area within the NW grid should be completed to help identify additional targets and a potential mineralization trend. The original grid was more regional in nature with line spacing at 3400m. Line spacing should be set at 200m and sample spacing set a 50m. A 2000m RC drilling program would then be conducted to test anomalous zones. The estimated cost for Phase One would be \$296,000.

**Phase One Budget**

Data Compilation.....	\$30,000
Soil Sampling Survey (all in cost).....	\$26,000
Ground Geophysical EM Survey.....	\$18,000
2000m RC Drilling Program.....	\$130,000
Sr. Geologist 30 days @700 per day.....	\$21,000
2 Geo techs for 30 days @350 per man per day.....	\$21,000
Food and Accommodations for field crew for 30 days .....	\$30,000
Trucks and travel.....	\$20,000
 Phase One Total.....	 \$296,000

Phase Two would be contingent on the return of positive results from RC drilling during Phase One. If RC drilling intercepts mineralized zones, a diamond drill program is recommended in order to more accurately verify and expand mineralized zones to determine if they have the potential of hosting mineralization in economic quantities. Phase Two would consist of 4000m diamond drill program to verify and expand on the previously encountered mineralization in QZ400-22 in addition to testing any addition anomalous results discovered during RC Drilling. The estimated cost for Phase Two would be \$751,250.

**Phase Two Budget**

Diamond drilling 4000 meters @165 per meter (all in cost).....	\$660,000
Geologist 45 days @700 per day .....	\$31,500
Geotech 45 days @350 per day .....	\$15,750
Food and Accommodations for field crew for 45 days .....	\$19,000
Trucks and travel.....	\$25,000
Phase Two Total.....	\$751,250

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Unknown Author (2012): Environmental Project Brief for Mineral Exploration Activities in the Solwezi District, Exploration No. 12124-HQ-LPL, Afrimi Investments Limited, 58 pp.

Unknown Author (2012): Environmental Project Brief for Mineral Exploration Activities in the Solwezi District, Exploration No. 14039-HQ-LPL, Afrimi Investments Limited, 57 pp.

## 20. Date

### 21.1 Signature Page and Date:

The undersigned prepared this technical report titled “Technical Report on the Geology of the Solwezi Group of Prospecting Licenses, Republic of Zambia, Southern Africa”

The effective date of this Technical report is July 27, 2013.

Dated this 27th Day of July 2013

Signed

*Adrian Karolko*

Adrian Karolko, P.Geol.



## **21. Certificate of Qualified Person:**

## CERTIFICATE

To accompany the report entitled  
"Technical Report on the Geology of the Solwezi Group of Prospecting Licenses,  
Republic of Zambia, Southern Africa"  
Dated July 27<sup>th</sup>, 2013

I, Adrian Karolko, do hereby certify that:

- a) I am a Geologist residing at 4 Berkley Rise N.W., Calgary, Alberta. T3K-1A4
- b) I graduated from the University of Calgary with a Bachelor of Science Honours degree in Geology in 2007, and I have practiced my profession continuously since that time. I have conducted Uranium exploration programs in Canada and Guyana, South America; gold exploration in Burkina Faso; and Copper exploration in Namibia.
- c) I have been a Professional Member of the Association of Professional Engineers and Geoscientists of Alberta registration number 92070, since May 2012, and a Member-in-Training since June 2007.
- d) That by reason of my education, affiliation with a professional association and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI43-101.
- e) I personally visited the property from June 18-30, 2013.
- f) I am responsible for the preparation of all items of the technical report entitled "Technical Report on the Geology of the Solwezi Group of Prospecting Licenses, Republic of Zambia, Southern Africa" dated July 27<sup>th</sup>, 2013 relating to the Solwezi Group of Prospecting Licenses in the Republic of Zambia, Southern Africa.
- g) I am independent of the issuer as described in section 1.5 of National instrument 43-101.
- h) I have had no prior involvement with the Solwezi Group of Prospecting Licenses.
- i) I have read National Instrument 43-101 and Form 43-101F1, and the Technical report has been prepared in compliance with that instrument and form.
- j) As of the effective date of the technical report 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.

Dated this 27th Day of July, 2013



*Adrian Karolko*  
Adrian Karolko, P.Geol.

# Appendix I

1.1.1: 12124-HQ-LPL Prospecting Licence

Form XVI  
(Regulation 23)

  
REPUBLIC OF ZAMBIA

The Mines and Minerals Development Act, 2008  
(Act No. 7 of 2008)  
The Mines and Minerals Development (General) Regulations, 2008

LICENCE No. **12124-HQ-LPL**

**PROSPECTING LICENCE**  
*(Section 16 of the Mines and Minerals Development Act, No. 7 of 2008)*

Holder's Name **AFROMI INVESTMENTS LIMITED**

Address **P.O. BOX 38100, LUSAKA**

The prospecting area shall be the area described in the Schedule and annexed hereto and bordered **BLUE** on the Plan.

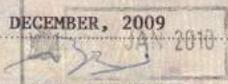
The licence relates to the following minerals **COBALT, COPPER, GOLD, NICKEL, IRON AND URANIUM**

The licence is granted for a period of **TWO (2) YEARS** commencing on the **23RD** day of **DECEMBER, 2009**

The conditions of grant of the licence are as shown in the Annexures attached hereto.

Issued at **LUSAKA** this **30TH** day of **DECEMBER, 2009**

**ANNEXURE 1-6**

  
**K.A. LIYUNGU**  
Director of Geological Survey

ENDORSEMENT OF REGISTRATION

This Prospecting Licence has this **30TH** day of **DECEMBER, 2009** been registered in the Register.

  
**K.A. LIYUNGU**  
Director of Geological Survey

## 1.1.2: Renewal Letter for Prospecting Licence 12124-HQ-LPL

Communications should be addressed to  
The Director

Telephone: 21 1 251655 / 21 1 250174  
Telefax: 21 1 251557  
Telegram: GEOCENTRAL  
Telex: ZA 40107



In reply please quote:

No. GS/ \_\_\_\_\_

MINISTRY OF MINES AND MINERALS DEVELOPMENT  
**GEOLOGICAL SURVEY DEPARTMENT**

P.O. BOX 50135  
LUSAKA

12124-HQ-LPL

3<sup>rd</sup> July 2013

Afromi Investment Limited  
Plot 5777, Great North Road  
LUSAKA

Dear Sir,

**RE: APPLICATION FOR RENEWAL OF LARGE SCALE PROSPECTING LICENCE – 12124-HQ-LPL**

Reference is made to the subject above.

This is to inform you that your application for renewal for a Large Scale Prospecting Licence number **12124-HQ-LPL** with respect to resources **Copper, Cobalt, Iron, Nickel, Gold and Uranium** in **Solwezi District of North Western Province** has been approved by the Director of Geological Survey subject to the following Terms and Conditions of grant of licence as contained under Regulation 23 (3) of the Mines and Minerals Development (General) Regulations of 2008:

1. The holder shall-

- (a) pay the relevant taxes under the Income Tax Act, Cap. 323;
- (b) promote local business development;
- (c) execute the environmental management plan;
- (d) employ and train Zambians;
- (e) execute the programme of prospecting;
- (f) commence the prospecting operations within ninety days of grant of the licence;
- (g) give notification of any discovered minerals or commercial deposits within thirty days of the discovery;
- (h) give preference to Zambian products and services;
- (i) permanently preserve or make safe any water boreholes and surrender water rights on expiry of licence;
- (j) surrender to Government the drill cores and other mineral samples;
- (k) remove, within sixty days of the expiry, cancellation or termination of the prospecting licence, any camp, temporary buildings or machinery and repair or make good any damage as required under the Mines and Minerals Development Act, 2008;
- (l) keep and preserve such records as the Minister may prescribe in relation to the environment;
- (m) submit quarterly reports to the Director of Geological Survey, Director of Mines and Director of Mines Safety in both hard and electronic copies;
- (n) keep full and accurate records of the prospecting operations, at the holder's office;
- (o) contribute to the Environmental Protection Fund as required under the Mines and Minerals Development Act, 2008;
- (p) obtain appropriate insurance for all phases of its operations;
- (q) submit a Pegging Certificate for approval within three months of grant of the licence; and
- (r) comply with the provisions of the Mines and Minerals Development Act, 2008 and other relevant laws of Zambia

2. The holder of a prospecting licence or prospecting permit for uranium or other radioactive minerals shall not conduct any prospecting work or other related activity unless the holder submits to the Minister and the Radiation Protection Authority, for approval, the following plans:
  - (a) a Radiation Operation Management Protection Plan in accordance with the Law;
  - (b) a Radioactive Waste Management Plan in accordance with the Law; and
  - (c) a Plan to Transport and Store Radioactive Ores and Products in accordance the Law.
3. The holder shall be liable for any harm or damage caused by the prospecting operations and shall compensate any person to whom any harm or damage is caused.
4. The holder shall not exercise any rights under the licence without prior consent of legal occupiers of land or local chiefs.
5. Other terms and conditions are as follows: the holder shall -
  - (i) apply for renewal Large Scale Prospecting Licence 90 days before expiry of Licence
  - (ii) ensure that within three (3) months of grant the licenced area is surveyed and a Pegging Certificate is obtained.
  - (iii) pay annual area charges on or before the anniversary of grant of the licence or risk cancellation of the licence.

In terms of the Mines and Minerals Development Regulations of 2008 you will be required to pay **K1,800.00** licence fee and **K62,132.10** area charges to Mines Development Department within 30 days from the date of this letter as acknowledgement of acceptance of the above conditions. Upon payment of the stated fees the licence shall be released.

The mode of payment should be by **cash** or **Bank Certified Cheque** to avoid surcharge/penalty charge for a bouncing company/individual cheque.

Failure to comply with the conditions stated in this letter shall render your offer **null and void**.

Yours faithfully,



Dickson Banda  
Ag. Registrar of Mining Rights  
For/Director  
**GEOLOGICAL SURVEY DEPARTMENT**

- cc. Director of Mines, Mines Development Department, **LUSAKA**
- cc. Director, Geological Survey Department, **LUSAKA**
- cc. Director, Mines Safety Department, **KITWE**
- cc. The Director, Zambia Environmental Management Agency, **LUSAKA**

## 1.1.2: Renewal Letter for Prospecting Licence 12124-HQ-LPL

Communications should be addressed to  
The Director

Telephone: 21 1 251655 / 21 1 250174  
Telefax: 21 1 251557  
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Telex: ZA 40107



In reply please quote:

No. GS/ \_\_\_\_\_

MINISTRY OF MINES AND MINERALS DEVELOPMENT  
**GEOLOGICAL SURVEY DEPARTMENT**

P.O. BOX 50135  
LUSAKA

12124-HQ-LPL

3<sup>rd</sup> July 2013

Afromi Investment Limited  
Plot 5777, Great North Road  
LUSAKA

Dear Sir,

**RE: APPLICATION FOR RENEWAL OF LARGE SCALE PROSPECTING LICENCE – 12124-HQ-LPL**

Reference is made to the subject above.

This is to inform you that your application for renewal for a Large Scale Prospecting Licence number **12124-HQ-LPL** with respect to resources **Copper, Cobalt, Iron, Nickel, Gold and Uranium** in **Solwezi District of North Western Province** has been approved by the Director of Geological Survey subject to the following Terms and Conditions of grant of licence as contained under Regulation 23 (3) of the Mines and Minerals Development (General) Regulations of 2008:

1. The holder shall-

- (a) pay the relevant taxes under the Income Tax Act, Cap. 323;
- (b) promote local business development;
- (c) execute the environmental management plan;
- (d) employ and train Zambians;
- (e) execute the programme of prospecting;
- (f) commence the prospecting operations within ninety days of grant of the licence;
- (g) give notification of any discovered minerals or commercial deposits within thirty days of the discovery;
- (h) give preference to Zambian products and services;
- (i) permanently preserve or make safe any water boreholes and surrender water rights on expiry of licence;
- (j) surrender to Government the drill cores and other mineral samples;
- (k) remove, within sixty days of the expiry, cancellation or termination of the prospecting licence, any camp, temporary buildings or machinery and repair or make good any damage as required under the Mines and Minerals Development Act, 2008;
- (l) keep and preserve such records as the Minister may prescribe in relation to the environment;
- (m) submit quarterly reports to the Director of Geological Survey, Director of Mines and Director of Mines Safety in both hard and electronic copies;
- (n) keep full and accurate records of the prospecting operations, at the holder's office;
- (o) contribute to the Environmental Protection Fund as required under the Mines and Minerals Development Act, 2008;
- (p) obtain appropriate insurance for all phases of its operations;
- (q) submit a Pegging Certificate for approval within three months of grant of the licence; and
- (r) comply with the provisions of the Mines and Minerals Development Act, 2008 and other relevant laws of Zambia

2. The holder of a prospecting licence or prospecting permit for uranium or other radioactive minerals shall not conduct any prospecting work or other related activity unless the holder submits to the Minister and the Radiation Protection Authority, for approval, the following plans:
  - (a) a Radiation Operation Management Protection Plan in accordance with the Law;
  - (b) a Radioactive Waste Management Plan in accordance with the Law; and
  - (c) a Plan to Transport and Store Radioactive Ores and Products in accordance the Law.
3. The holder shall be liable for any harm or damage caused by the prospecting operations and shall compensate any person to whom any harm or damage is caused.
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  - (i) apply for renewal Large Scale Prospecting Licence 90 days before expiry of Licence
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Failure to comply with the conditions stated in this letter shall render your offer **null and void**.

Yours faithfully,



Dickson Banda  
Ag. Registrar of Mining Rights  
For/Director  
**GEOLOGICAL SURVEY DEPARTMENT**

- cc. Director of Mines, Mines Development Department, **LUSAKA**
- cc. Director, Geological Survey Department, **LUSAKA**
- cc. Director, Mines Safety Department, **KITWE**
- cc. The Director, Zambia Environmental Management Agency, **LUSAKA**

### 1.1.3: Environmental Approval for Prospecting Licence 12124-HQ-LPL



## ZAMBIA ENVIRONMENTAL MANAGEMENT AGENCY

**Head Office**  
Corner of Church & Suez Roads  
P.O. Box 35131  
Lusaka, Zambia  
Tel: +260-211-254130/254023/254059  
Fax: +260-211-254164/258658

**Northern Regional Office**  
Jacaranda Road  
P.O. Box 71302  
Nolola, Zambia  
Tel: +260-212-621048/610407  
Fax: +260-212-610246

**Livingstone Office**  
Plot No. 555  
Junction Oboto / Neru Roads  
Livingstone, Zambia  
Tel / Fax: +280-213-321297

**Chirundu Border Office**  
Lusaka Road  
P.O. Box CRU31  
Chirundu, Zambia  
Tel/Fax: +280-211-51526

*In reply please quote*

No:

**ZEMA/INS/101/04/1**

April 8, 2013

The Managing Director  
Afromi Investments Limited  
P.O.Box 445, Manda Hill Centre,  
**LUSAKA**

Dear Sir

**RE: PROPOSED MINERAL EXPLORATION ACTIVITIES ON LICENSE NO. 12124  
– HQ-LPL IN SOLWEZI DISTRICT BY AFROMI INVESTMENTS LIMITED.**

Reference is made to the above captioned project report submitted to the Zambia Environmental Management Agency (ZEMA) on **January 15, 2013** for consideration in accordance with the requirements of the Environmental Impact Assessment (EIA) Regulations, Statutory Instrument No. 28 of 1997.

ZEMA has since reviewed the Environmental Project Brief (EPB) and based on the information provided by yourselves and from written and verbal comments from interested and affected parties and our site verification inspection findings; the said EPB has been **Approved**.

Find attached to this Decision Letter, conditions governing the approval.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Joseph Sakala', is written over a horizontal line.

Joseph Sakala  
Acting Director General

**ZAMBIA ENVIRONMENTAL MANAGEMENT AGENCY**

**Cc:** The Town Clerk Secretary – Solwezi Municipal Council, **SOLWEZI**  
The Director, Mine safety Department, **KITWE**

---

All correspondence to be addressed to the Director General - Head Office  
Email: info@zema.org.zm, Website: www.zema.org.zm  
Emergency Toll Free No. on Zamtel Lines: 953.



## Zambia Environmental Management Agency

### DECISION LETTER

#### 1.0 PROJECT BACKGROUND

##### 1.1 PROJECT TITLE:

Proposed mineral exploration activities on license no. 12124 – HQ-LPL in Solwezi district by Afroni investments limited

##### 1.2 PROJECT PROPONENTS:

Afroni Investments Limited  
Plot 5777, Great East Road  
P.O Box 445, Manda Hill Centre,  
**Lusaka**

##### Contact Person:

Name: Mr. Chen Feng  
Designation: Company Mining Rights Administrator  
Tel No.: +260 0973 399 687  
Email: [chenfeng4554@126.com](mailto:chenfeng4554@126.com)

##### 1.3 PROJECT LOCATION:

The proposed project area is located about 1km to the south and about 5km to the east of Solwezi Boma. It lies in Chief Kapijimpanga and Mujimanzovu's Chiefdoms. It is centered on geographical coordinates 12°C, 15" 10" south and 26°C 25" 20" East.

##### 1.4 DATE OF SUBMISSION BY PROPONENT:

15/01/2013

##### 1.5 DATE OF CONSIDERATION BY AGENCY:

27/03/2013

#### 2.0 DETAILS OF THE PROJECT:

Afroni Investments Limited is registered as a mining and exploration company. The Company acquired prospecting rights in Solwezi District under License number 12124-HQ-LPL from the Ministry of Mines and minerals Development for the purpose of conducting mineral exploration activities.





The purpose of the project is exploration activities for copper, Iron ore, cobalt, uranium, gold, and nickel. The company intends to conduct the following exploration activities;

- i. Geochemical sampling
- ii. Geophysical exploration
- iii. Reverse Circulation
- iv. Diamond Drilling

Field work will be conducted from base camps that will be set up in suitable locations in the exploration license area. The camp sites will be located at least 300 meters from the nearest surface water bodies.

### 3.0 DECISION BY AGENCY

3.1 The project is **approved** with the following conditions:

- 3.1.1 Afroni Investments Limited shall implement the project and all the environmental management commitments as proposed in the Environmental Project Brief (EPB) **with changes** as proposed by Zambia Environmental Management Agency (ZEMA) in the Decision Letter and any other conditions that may be issued thereafter.
- 3.1.2 Afroni Investments Limited shall consult and comply in full with the specifications and conditions of the Mines Safety Department and Solwezi Municipal Council prior to the implementation of the project.
- 3.1.3 Afroni Investments Limited shall employ some local people in the project area throughout the project cycle.
- 3.1.4 All compensation issues that may arise during the course of the project shall be implemented in consultation with the Ministry of Agriculture and the Ministry of Community Development and Social Welfare.
- 3.1.5 Afroni Investments Limited shall ensure that adequate measures are put in place for handling drilling fluids to avoid contaminating soils, surface and ground water courses which could eventually affect life in the area.
- 3.1.6 Afroni Investments Limited shall ensure that there is no contamination to soils, underground and surface water resources throughout the project cycle.
- 3.1.7 Afroni Investments Limited shall decontaminate and dispose of in an environmentally sound and acceptable manner all hazardous waste.





- 3.1.8 Noise levels throughout the project cycle shall be maintained within acceptable limits.
- 3.1.9 Afroni Investments Limited shall employ dust suppression measures in all areas with potential to generate dust throughout the project cycle.
- 3.1.10 Afroni Investments Limited shall maintain the speed limit in all access roads that shall not endanger life or cause dust.
- 3.1.11 Afroni Investments Limited shall avoid indiscriminate clearing of vegetation. In order to avert soil erosion, where possible, stumping as opposed to uprooting shall be used to clear vegetation and the Developer shall conduct progressive rehabilitation and re-vegetation of disturbed areas throughout the project cycle. The clearing of forests shall be done in full consultation with the Forestry Department.
- 3.1.12 Afroni Investments Limited shall put in place an Emergency Response Plan, and shall submit the same to ZEMA for approval within three months following this approval.
- 3.1.13 All emergencies with potential to pollute the environment shall be reported to ZEMA **Immediately**.
- 3.1.14 Firefighting equipment shall be placed where it can be easily accessed and it shall always be kept in good working condition. Reflective material shall be used to facilitate visibility at night.
- 3.1.15 Afroni Investments Limited shall set up camps and sanitary facilities away from surface water bodies to avoid contaminating them. Afroni Investments Limited shall employ modern conventional methods for disposal of sewage.
- 3.1.16 Afroni Investments Limited shall undertake an environmental audit of the project within a period of not less than twelve months and not more than thirty six months after completion of the project or commencement of operations, whichever shall come first.
- 3.1.17 Afroni Investments Limited shall prepare a closure report outlining implementation of all the environmental management commitments presented in the Environmental Project Brief at the end of the project for verification by the Zambia Environmental Management Agency.





3.1.18 Afrumi Investments Limited shall obtain permits from ZEMA and comply in full with the following regulations throughout the project cycle:

- a) The Waste Management (Licensing of Transporters of Wastes and Waste Disposal Site) Regulations, 1993;
- b) The Hazardous Waste Management Regulations, 2001;
- c) The Air Pollution Control (Licensing and Emission Standards) Regulations, 1996; and,
- d) The Water Pollution Control (Effluent and Waste Water) Regulations, 1993, for the following parameters:

PARAMETER	STATUTORY LIMIT
pH	6-9
Total Dissolved Solids	3000mg/l
Total Suspended Solids	100mg/l
Sulphates	1500mg/l
Total Hydrocarbons	10mg/l
Mineral Oils	5mg/l
Total Copper	1.5mg/l
Total Cobalt	1.0mg/l
Total Iron	2.0mg/l
Total Manganese	1.0mg/l

3.2 The Agency **recommends** that Afrumi Investments Limited to:

3.2.1 Obtain other relevant authorities such as those stipulated in the following :

- a) The Mines and Minerals Development Act
- b) The Workers Compensation Act;
- c) The Employment Act;
- d) The Energy Regulation Act;
- e) The Petroleum Act;
- f) The Water Resources Management Act;
- g) The Public Health Act;
- h) The Forestry Act;
- i) The Local Government Act; and,
- j) The Town and Country Planning Act.

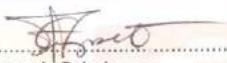
3.2.2 Make available information on hygiene, malaria control and HIV/AIDS to employees.





- 3.2.3 Provide workers with appropriate personal protective equipment, firefighting equipment and train all workers in firefighting and emergency response.
- 3.3 Afromi Investments Limited shall comply with environmental standards and/or specific limits of particular pollutants. Thus, compliance with Zambia Environmental Management Agency recommended measures **does not** absolve Afromi Investments Limited from its responsibility if such measures do not achieve compliance with environmental control standards.
- 3.4 Afromi Investments Limited shall in accordance with section 15 of the Environmental Management Act, No. 12 of 2011, allow ZEMA Inspectors **unrestricted entry** to the project site at any reasonable time without giving prior notice throughout the project cycle.
- 3.5 The implementation of the project shall commence within **three years** from the date of approval. Failure to commence the project within the stated period shall render this decision letter invalid and Afromi Investments Limited shall be required to re-submit the EPB for consideration.
- 3.6 The Zambia Environmental Management Agency may suspend or cancel this Decision Letter **without notice** should Afromi Investments Limited fail to comply with any of these conditions.



  
.....  
Joseph Sakala  
Acting Director General  
**Zambia Environmental Management Agency**

1.2.1: 14039-HQ-LPL Prospecting Licence

SOLWEZI

Form XVI  
(Regulation 23)



REPUBLIC OF ZAMBIA

The Mines and Minerals Development Act, 2008  
(Act No. 7 of 2008)  
The Mines and Minerals Development (General) Regulations, 2008

LICENCE No. **14039-HQ-1p1**

**PROSPECTING LICENCE**  
(Section 16 of the Mines and Minerals Development Act, No. 7 of 2008)

Holder's Name... **AFROMI INVESTMENTS LIMITED**

Address... **NO. 22 MWAMBULA ROAD JESMONDINE**

The prospecting area shall be the area described in the Schedule and annexed hereto and bordered... **BLUE** ...on the Plan

The licence relates to the following minerals... **COPPER, COBALT, URANIUM, GOLD, NICKEL, IRON**

The licence is granted for a period of **TWO (2) YEARS** commencing on the **25TH** day of **MARCH, 2010**

The conditions of grant of the licence are as shown in the Annexures attached hereto.

Issued at **LUSAKA** this **1ST** day of **JULY, 2010**

**KENNEDY A. LIYUNGU**  
Director of Geological Survey

ENDORSEMENT OF REGISTRATION

This Prospecting Licence has this **1ST** day of **JULY, 2010** been registered in the Register.

**KENNEDY A. LIYUNGU**  
Director of Geological Survey

## 1.2.2: Renewal Letter for Prospecting Licence 14039-HQ-LPL

Communications should be addressed to  
The Director

Telephone: 21 1 251655 / 21 1 250174  
Telefax: 21 1 251557  
Telegram: GEOCENTRAL  
Telex: ZA 40107



MINISTRY OF MINES AND MINERALS DEVELOPMENT  
**GEOLOGICAL SURVEY DEPARTMENT**

In reply please quote:

No. GS/ \_\_\_\_\_

P.O. BOX 50135  
LUSAKA

14039-HQ-LPL

7<sup>th</sup> May 2013

Afromi Investments Limited  
No. 22 Mwambula Road Jesmodine  
LUSAKA

Dear Sir,

**RE: APPLICATION FOR RENEWAL OF LARGE SCALE PROSPECTING LICENCE – 14039-HQ-LPL**

Reference is made to the subject above.

This is to inform you that your application for renewal for a Large Scale Prospecting Licence number **14039-HQ-LPL** with respect to resources **Copper, Cobalt, Uranium, Gold, Nickel and Iron** in **Solwezi District of North Western Province** has been approved by the Director of Geological Survey subject to the following Terms and Conditions of grant of licence as contained under Regulation 23 (3) of the Mines and Minerals Development (General) Regulations of 2008:

1. The holder shall-
  - (a) pay the relevant taxes under the Income Tax Act, Cap. 323;
  - (b) promote local business development;
  - (c) execute the environmental management plan;
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  - (l) keep and preserve such records as the Minister may prescribe in relation to the environment;
  - (m) submit quarterly reports to the Director of Geological Survey, Director of Mines and Director of Mines Safety in both hard and electronic copies;
  - (n) keep full and accurate records of the prospecting operations, at the holder's office;
  - (o) contribute to the Environmental Protection Fund as required under the Mines and Minerals Development Act, 2008;
  - (p) obtain appropriate insurance for all phases of its operations;
  - (q) submit a Pegging Certificate for approval within three months of grant of the licence; and
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  - (b) a Radioactive Waste Management Plan in accordance with the Law; and
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  - (i) apply for renewal Large Scale Prospecting Licence 90 days before expiry of Licence
  - (ii) ensure that within three (3) months of grant the licenced area is surveyed and a Pegging Certificate is obtained.
  - (iii) pay annual area charges on or before the anniversary of grant of the licence or risk cancellation of the licence.

In terms of the Mines and Minerals Development Regulations of 2008 you will be required to pay **KR1,800.00 (K1,800,000.00)** licence fee and **KR47,137.59 (K47,137,059.00)** area charges to Mines Development Department within 30 days from the date of this letter as acknowledgement of acceptance of the above conditions. Upon payment of the stated fees the licence shall be released.

The mode of payment should be by **cash** or **Bank Certified Cheque** to avoid surcharge/penalty charge for a bouncing company/individual cheque.

Failure to comply with the conditions stated in this letter shall render your offer **null** and **void**.

Yours faithfully,

P.P. 

Dickson Banda  
Ag. Registrar of Mining Rights  
For/Director  
**GEOLOGICAL SURVEY DEPARTMENT**

- cc. Director of Mines, Mines Development Department, **LUSAKA**
- cc. Director, Geological Survey Department, **LUSAKA**
- cc. Director, Mines Safety Department, **KITWE**
- cc. The Director, Zambia Environmental Management Agency, **LUSAKA**

### 1.2.3: Environmental Approval for Prospecting Licence 14039-HQ-LPL



## ZAMBIA ENVIRONMENTAL MANAGEMENT AGENCY

**Head Office**  
Corner of Church & Suez Roads  
P.O. Box 35131  
Lusaka, Zambia  
Tel: +260-211-254130/254023/254059  
Fax: +260-211-254184/256658

**Northern Regional Office**  
Jacaranda Road  
P.O. Box 71302  
Ndola, Zambia  
Tel: +260-212-621048/610407  
Fax: +260-212-610248

**Livingstone Office**  
Plot No. 555  
Junction Obola / Nuru Roads  
Livingstone, Zambia  
Tel / Fax: +260-213-321297

**Chirundu Border Office**  
Lusaka Road  
P.O. Box CRUJ31  
Chirundu, Zambia  
Tel/Fax: +260-211-615261

*In reply please quote*

No:

**ZEMA/INS/101/04/1**

April 5, 2013

The Director  
Afromi Investments Limited  
Plot 5777, Great East Road  
P.O Box 445, Manda Hill Centre,  
**LUSAKA**

Dear Sir

**REF: PROPOSED MINERAL EXPLORATION ACTIVITIES ON LICENSE NO. 14039 – HQ-LPL IN SOLWEZI DISTRICT BY AFROMI INVESTMENTS LIMITED**

Reference is made to the above captioned project report submitted to the Zambia Environmental Management Agency (ZEMA) on **September 18, 2012** for consideration in accordance with the requirements of the Environmental Impact Assessment (EIA) Regulations, Statutory Instrument No. 28 of 1997.

ZEMA has since reviewed the Environmental Project Brief (EPB) and based on the information provided by yourselves and from written and verbal comments from interested and affected parties and our site verification inspection findings; the said EPB has been **Approved**.

Find attached to this Decision Letter, conditions governing the approval

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Joseph Sakala', is written over a horizontal line.

Joseph Sakala  
Acting Director

**ZAMBIA ENVIRONMENTAL MANAGEMENT AGENCY**

**Cc:** The Town Clerk Secretary – Solwezi Municipal Council, **SOLWEZI**  
The Director, Mine safety Department, **KITWE**

All correspondence to be addressed to the Director General - Head Office  
Email: [info@zema.org.zm](mailto:info@zema.org.zm), Website: [www.zema.org.zm](http://www.zema.org.zm)  
Emergency Toll Free No. on Zamtel Lines: 953



## Zambia Environmental Management Agency

### DECISION LETTER

#### 1.0 PROJECT BACKGROUND

#### 1.1 PROJECT TITLE:

Proposed Mineral Exploration Activities on License No. 14039 – HQ-LPL in Solwezi District by Afroni Investments Limited

#### 1.2 PROJECT PROPONENTS:

Afroni Investments Limited  
Plot 5777, Great East Road  
P.O Box 445, Manda Hill Centre,  
**Lusaka**

#### Contact Person:

Name: Mr. Chen Feng  
Designation: Company Mining Rights Administrator  
Tel No.: +260 0973 399 687  
Email: [chenfeng4554@126.com](mailto:chenfeng4554@126.com)

#### 1.3 PROJECT LOCATION:

The proposed project area is located about 1km to the west of Solwezi Boma in Chief Kapijimpanga's Chiefdom. It is centered on geographical coordinates 12° 10' 20" south and 26° 20' 32" East.

#### 1.4 DATE OF SUBMISSION BY PROPONENT:

18/09/2012

#### 1.5 DATE OF CONSIDERATION BY AGENCY:

27/03/2013





## 2.0 DETAILS OF THE PROJECT:

The purpose of the project is exploration activities for copper, Iron ore, cobalt, uranium, gold, and nickel. The company intends to conduct the following exploration activities;

- i. Geochemical sampling
- ii. Geophysical exploration
- iii. Reverse Circulation
- iv. Diamond Drilling

Field work will be conducted from base camps that will be set up in suitable locations in the exploration license area. The camp sites will be located at least 300 metres from the nearest surface water bodies.

## 3.0 DECISION BY AGENCY

3.1 The project is **approved** with the following conditions.

- 3.1.1 Afroni Investments Limited shall implement the project and all the environmental management commitments as proposed in the Environmental Project Brief (EPB) **with changes** as proposed by Zambia Environmental Management Agency (ZEMA) in the Decision Letter and any other conditions that may be issued thereafter.
- 3.1.2 Afroni Investments Limited shall consult and comply in full with the specifications and conditions of the Mines Safety Department and Solwezi Municipal Council prior to the implementation of the project.
- 3.1.3 Afroni Investments Limited shall employ some local people in the project area throughout the project cycle.
- 3.1.4 All compensation issues that may arise during the course of the project shall be implemented in consultation with ZEMA, the Ministry of Agriculture and the Ministry of Community Development and Social Welfare.
- 3.1.5 Afroni Investments Limited shall ensure that adequate measures are put in place for handling drilling fluids to avoid contaminating soils, surface and ground water courses which could eventually affect life in the area.
- 3.1.6 Afroni Investments Limited shall ensure that there is no contamination to soils, underground and surface water resources throughout the project cycle.





- 3.1.7 Afromi Investments Limited shall decontaminate and dispose of in an environmentally sound and acceptable manner all hazardous waste.
- 3.1.8 Noise levels throughout the project cycle shall be maintained within acceptable limits.
- 3.1.9 Afromi Investments Limited shall employ dust suppression measures in all areas with potential to generate dust throughout the project cycle.
- 3.1.10 Afromi Investments Limited shall maintain the speed limit in all access roads that shall not endanger life or cause dust.
- 3.1.11 Afromi Investments Limited shall avoid indiscriminate clearing of vegetation. In order to avert soil erosion, where possible, stumping as opposed to uprooting shall be used to clear vegetation and the Developer shall conduct progressive rehabilitation and re-vegetation of disturbed areas throughout the project cycle. The clearing of forests shall be done in full consultation with the Forestry Department.
- 3.1.12 Afromi Investments Limited shall put in place an Emergency Response Plan, and shall submit the same to ZEMA for approval within three months following this approval.
- 3.1.13 All emergencies with potential to pollute the environment shall be reported to ZEMA **Immediately**.
- 3.1.14 Firefighting equipment shall be placed where it can be easily accessed and it shall always be kept in good working condition. Reflective material shall be used to facilitate visibility at night.
- 3.1.15 Afromi Investments Limited shall set up camps and sanitary facilities away from surface water bodies to avoid contaminating them. Afromi Investments Limited shall employ modern conventional methods for disposal of sewage.
- 3.1.16 Afromi Investments Limited shall undertake an environmental audit of the project within a period of not less than twelve months and not more than thirty six months after completion of the project or commencement of operations, whichever shall come first.
- 3.1.17 Afromi Investments Limited shall prepare a closure report outlining implementation of all the environmental management commitments presented in the Environmental Project Brief at the end of the project for verification by the Zambia Environmental Management Agency.





3.1.18 Afrimi Investments Limited shall obtain permits from ZEMA and comply in full with the following regulations throughout the project cycle:

- a) The Waste Management (Licensing of Transporters of Wastes and Waste Disposal Site) Regulations, 1993;
- b) The Hazardous Waste Management Regulations, 2001;
- c) The Air Pollution Control (Licensing and Emission Standards) Regulations, 1996; and,
- d) The Water Pollution Control (Effluent and Waste Water) Regulations, 1993, for the following parameters:

PARAMETER	STATUTORY LIMIT
pH	6-9
Total Dissolved Solids	3000mg/l
Total Suspended Solids	100mg/l
Sulphates	1500mg/l
Total Hydrocarbons	10mg/l
Mineral Oils	5mg/l
Total Copper	1.5mg/l
Total Cobalt	1.0mg/l
Total Iron	2.0mg/l
Total Manganese	1.0mg/l

3.2 The Agency **recommends** that Afrimi Investments Limited to:

3.2.1 Obtain other relevant authorities such as those stipulated in the following:

- a) The Mines and Minerals Development Act
- b) The Workers Compensation Act;
- c) The Employment Act;
- d) The Energy Regulation Act;
- e) The Petroleum Act;
- f) The Water Resources Management Act;
- g) The Public Health Act;
- h) The Forestry Act;
- i) The Local Government Act; and,
- j) The Town and Country Planning Act.

3.2.2 Make available information on hygiene, malaria control and HIV/AIDS to employees.

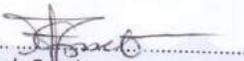




Provide workers with appropriate personal protective equipment, firefighting equipment and train all workers in firefighting and emergency response.

- 3.3 Afromi Investments Limited shall comply with environmental standards and/or specific limits of particular pollutants. Thus, compliance with Zambia Environmental Management Agency recommended measures **does not** absolve Afromi Investments Limited from its responsibility if such measures do not achieve compliance with environmental control standards.
- 3.4 Afromi Investments Limited shall in accordance with section 15 of the Environmental Management Act, No. 12 of 2011, allow ZEMA Inspectors **unrestricted entry** to the project site at any reasonable time without giving prior notice throughout the project cycle.
- 3.5 The implementation of the project shall commence within **three years** from the date of approval. Failure to implement the project within the said period shall render the Decision Letter invalid and Afromi Investments Limited shall re-submit the Environmental Project Brief.
- 3.6 The Zambia Environmental Management Agency may suspend or cancel this Decision Letter **without notice** should Afromi Investments Limited fail to comply with any of these conditions.

Date: .....

  
Joseph Sakala  
**Acting Director**  
**Zambia Environmental Management Agency**

1.3: Title Opinion for Prospecting Licence 12124-HQ-LPL and 14039-HQ-LPL

# OMM BANDA & COMPANY

Advocates • Notaries • Commissioners for Oaths

Tel: +260 211 291285/6, Fax: +260 211 291287, Off. Cell: 0955 834373, 0966 745350, 0975 616500,  
Email: ommbandaandco@yahoo.com

**"CLIENT ATTORNEY PRIVILEGE AND CONFIDENTIAL INFORMATION"**

18<sup>th</sup> July, 2013

The Managing Director/President,  
Midnight Sun Mining Corporation,  
Suite 750 – 580 Hornby Street,  
VANCOUVER, BRITISH COLUMBIA,  
CANADA, V6C 3B6

Dear Sirs,

As per instructions of Mr. Adrian Karolko, P. GEO of the Company, this firm issues a TITLE OPINION regarding the Mining Concessions granted by the Republic of Zambia under the Mines and Minerals Development Act, 2008 (Act No. 7 of 2008) as read with the Mines and Minerals Development (General) Regulations, 2008 and in accordance with Section 16 of the Mines and Minerals Development Act, No. 7 of 2008.

We further wish to confirm that the licences relate to the following Minerals: Cobalt, Copper, Gold, Iron, Nickel and Uranium.

Map Code	Parties	Jurisdiction	Type Resources	Status	Application	Grant Date
12124 - HQ - LPL	Afromi Investments Ltd 100%	MM Act 2008 Regs (2008)	Au, Co, Cu, Fe, Ni, U	Active	05/05/2008 15.48.00	23/12/2009
14039 - HQ - LPL	Afromi Investments Ltd 100%	MM Act 2008 Regs (2008)	Au, Co, Cu, Fe, Ni, U	Active	30/09/2009 10.19.19	25/03/2010



Plot No. 18942, Off Katima Mulilo Road, Opposite Cosmic Executive Lodge, Olympia Park, P.O. Box 32272, Lusaka10101, Zambia  
Dr. Overs M.M. Banda LLB, MIP, PHD (Zambian) Notary Public

Registry date	Renewal date	Expiry	Area	Map reference
11/7/2013	18 <sup>th</sup> July, 2013	22/12/2015	287.6486 Square Km	North Western Solwezi
_____	_____	24/01/2015	218.2296 Square Km	North Western Solwezi

**PRELIMINARY CONCLUSIONS**

The above mentioned concessions were reviewed and compared with the files and records contained in the Government of Zambia geological Survey Department and the Cadastre Registry of the Mines Development Department and all information contained in them, concurs with the registries issued by such registry which copies can be obtained or delivered under request.

I therefore confirm that **AFROMI INVESTMENTS LIMITED** is the holder of the Mining concessions' rights before the Mining Registries of the Government of the Republic of Zambia.

This opinion is issued by **Dr. OVERS MASOZI MUFWAKAWIRI BANDA**, Senior Lawyer and Notary Public under the name and style of OMM Banda and Company as Legal Advisors authorised under the Zambian Laws to issue legal opinions related with or on any legal matter within the Republic of Zambia.

Dr. O.M.M Banda  
**SENIOR LAWYER**



## Appendix II

2.1: Assay Results from samples taken from diamond drill core.



**Loring Laboratories ( Alberta ) Ltd.**

629 Beaverdam Road N.E.,  
 Calgary Alberta T2K 4W7  
 Tel: 403-274-2777 Fax: 403-275-0541  
 loringlabs@telus.net

FILE: 5 6 5 9 9

DATE: July 15, 2013

Sample: Rocks

TO: ADRIAN KAROLKO  
 4 Berkley Rise NW  
 Calgary AB T3K 1A4

**30 ELEMENT ICP ANALYSIS**

Sample No.	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sb ppm	Sr ppm	Th ppm	Ti %	U ppm	V ppm	W ppm	Zn ppm	Zr ppm
ZK60-1 19.7-21.4m	<0.5	7.06	<1	1705	403	21	0.19	5	86	225	6970	6.00	2.10	13	3.01	399	5	0.27	24	0.01	14	7	17	52	0.43	<1	168	22	26	36
ZK60-1 22.6-24.2m	<0.5	6.84	<1	2429	375	24	0.15	6	93	234	8511	6.83	1.80	6	2.92	481	3	0.27	24	0.01	16	5	14	56	0.46	<1	184	11	22	42
ZK60-1 35.6-36.7m	<0.5	8.45	<1	3488	569	21	1.72	6	77	228	8581	6.93	2.45	5	3.00	672	2	1.29	8	0.06	21	6	97	65	0.53	<1	191	1	15	58
ZK60-1 49.1-50.4M	<0.5	8.89	<1	2463	631	8	1.81	2	15	203	370	2.89	1.85	<1	1.46	221	2	3.27	17	0.06	10	3	314	34	0.21	<1	56	1	3	76
QZ400-22 28.2-30.5m	<0.5	7.71	269	1393	370	17	0.07	5	32	244	43590	5.63	0.43	36	0.23	1998	5	0.15	20	0.56	61	9	22	56	0.46	<1	210	3	98	106
QZ400-22 30.6-32.9m	<0.5	5.66	179	950	405	15	0.05	5	41	232	142300	5.71	0.40	28	0.23	2818	4	0.10	26	0.81	6	17	17	49	0.32	<1	178	3	108	78
QZ400-22 32.9-35.2m	<0.5	7.10	80	1218	397	20	0.06	5	39	239	85410	5.46	0.42	34	0.22	2560	4	0.13	24	0.51	45	12	21	53	0.40	<1	170	5	102	99
QZ400-22 35.2-37.6m	<0.5	7.08	85	1299	373	20	0.74	5	34	219	70540	5.79	0.44	26	0.75	2329	4	0.14	23	0.59	53	10	22	54	0.41	<1	172	3	102	97
Blank	<0.5	<0.01	<1	<1	<1	<1	<0.01	<1	<1	<1	<1	<0.01	<0.01	<1	<0.01	<1	<1	<0.01	<1	<0.01	<1	<1	<1	<1	<0.01	<1	<1	<1	<1	<1

\* 0.500 Gram sample is total digested with multi acid and ICP finish.

\* Sample received on July 09, 2013

Certified by: *JastC.*

## Appendix III

### 3.1: National Instruments 43-101 Technical Report Guidelines

#### Form 43-101F1 Technical Report

#### Table of Contents

#### TITLE

#### CONTENTS OF THE TECHNICAL REPORT

Title Page  
Date and Signature Page  
Table of Contents  
Illustrations

- Item 1: Summary
- Item 2: Introduction
- Item 3: Reliance on Other Experts
- Item 4: Property Description and Location
- Item 5: Accessibility, Climate, Local Resources, Infrastructure and Physiography
- Item 6: History
- Item 7: Geological Setting and Mineralization
- Item 8: Deposit Types
- Item 9: Exploration
- Item 10: Drilling
- Item 11: Sample Preparation, Analyses and Security
- Item 12: Data Verification
- Item 13: Mineral Processing and Metallurgical Testing
- Item 14: Mineral Resource Estimates
- Item 15: Mineral Reserve Estimates
- Item 16: Mining Methods
- Item 17: Recovery Methods
- Item 18: Project Infrastructure
- Item 19: Market Studies and Contracts
- Item 20: Environmental Studies, Permitting and Social or Community Impact
- Item 21: Capital and Operating Costs
- Item 22: Economic Analysis
- Item 23: Adjacent Properties
- Item 24: Other Relevant Data and Information
- Item 25: Interpretation and Conclusions
- Item 26: Recommendations
- Item 27: References

**Form 43-101F1**  
**Technical Report**

**INSTRUCTIONS:**

- (1) *The objective of the technical report is to provide a summary of material scientific and technical information concerning mineral exploration, development, and production activities on a mineral property that is material to an issuer. This Form sets out the requirements for the preparation and content of a technical report.*
- (2) *Terms used in this Form that are defined or interpreted in National Instrument 43-101 Standards of Disclosure for Mineral Projects (the “Instrument”) will have that definition or interpretation. In addition, a general definition instrument has been adopted as National Instrument 14-101 Definitions that contains definitions of certain terms used in more than one national instrument. Readers of this Form should review both these national instruments for defined terms.*
- (3) *The qualified person preparing the technical report should keep in mind that the intended audience is the investing public and their advisors who, in most cases, will not be mining experts. Therefore, to the extent possible, technical reports should be simplified and understandable to a reasonable investor. However, the technical report should include sufficient context and cautionary language to allow a reasonable investor to understand the nature, importance, and limitations of the data, interpretations and conclusions summarized in the technical report.*
- (4) *The qualified person preparing the technical report must use all of the headings of Items 1 to 14 and 23 to 27 in this Form and provide the information specified under each heading. For advanced properties, the qualified person must also use the headings of Items 15 to 22 and include the information required under each of these headings. The qualified person may create sub-headings. Disclosure included under one heading is not required to be repeated under another heading.*
- (5) *The qualified person preparing the technical report may refer to information in a technical report previously filed by the issuer for the subject property if the information is still current and the technical report identifies the title, date and author of the previously filed technical report. However, the qualified person must still summarize or quote the referenced information in the current technical report and may not disclaim responsibility for the referenced information. Except as permitted by subsection 4.2 (3) of the Instrument, an issuer may not update or revise a previously filed technical report by filing an addendum.*
- (6) *While the Form mandates the headings and general format of the technical report, the qualified person preparing the technical report is responsible for determining the level of detail required under each Item based on the qualified person’s assessment of the relevance and significance of the information.*

- (7) *The technical report may only contain disclaimers that are in accordance with section 6.4 of the Instrument and Item 3 of this Form.*
- (8) *Since a technical report is a summary document the inclusion and filing of comprehensive appendices is not generally necessary to comply with the requirements of the Form.*
- (9) *The Instrument requires certificates and consents of qualified persons, prepared in accordance with sections 8.1 and 8.3 respectively, to be filed at the same time as the technical report. The Instrument does not specifically require the issuer to file the certificate of qualified person as a separate document. It is generally acceptable for the qualified person to include the certificate in the technical report and to use the certificate as the date and signature page.*

## **CONTENTS OF THE TECHNICAL REPORT**

**Title Page - Include a title page setting out the title of the technical report, the general location of the mineral project, the name and professional designation of each qualified person and the effective date of the technical report.**

**Date and Signature Page – The technical report must have a signature page, at either the beginning or end of the technical report, signed in accordance with section 5.2 of the Instrument. The effective date of the technical report and date of signing must be on the signature page.**

**Table of Contents - Provide a table of contents listing the contents of the technical report, including figures and tables.**

**Illustrations – Technical reports must be illustrated by legible maps, plans and sections, all prepared at an appropriate scale to distinguish important features. Maps must be dated and include a legend, author or information source, a scale in bar or grid form, and an arrow indicating north. All technical reports must be accompanied by a location or index map and a compilation map outlining the general geology of the property. In addition, all technical reports must include more detailed maps showing all important features described in the text, relative to the property boundaries, including but not limited to for exploration projects, areas of previous or historical exploration, and the location of known mineralization, geochemical or geophysical anomalies, drilling, and mineral deposits;**

**for advanced properties other than properties under development or in production, the location and surficial outline of mineral resources, mineral reserves and, to the extent known, areas for potential access and infrastructure; and**

**for properties under development or in production, the location of pit limits or underground development, plant sites, tailings storage areas, waste disposal areas and all other significant infrastructure features.**

*If information is used from other sources in preparing maps, drawings, or diagrams, disclose the source of the information. If adjacent or nearby properties have an important bearing on the potential of the subject property, the location of the properties and any relevant mineralized structures discussed in the report must be shown in relationship to the subject property.*

**INSTRUCTION:** Summarize and simplify the illustrations so that they are legible and suitable for electronic filing. For ease of reference, consider inserting the illustrations in the text of the report in relative proximity to the text they illustrate.

#### Requirements for All Technical Reports

Summary – **Briefly summarize important information in the technical report, including property description and ownership, geology and mineralization, the status of exploration, development and operations, mineral resource and mineral reserve estimates, and the qualified person’s conclusions and recommendations.**

Introduction - **Include a description of**

*the issuer for whom the technical report is prepared;*

*the terms of reference and purpose for which the technical report was prepared;*

*the sources of information and data contained in the technical report or used in its preparation, with citations if applicable; and*

*the details of the personal inspection on the property by each qualified person or, if applicable, the reason why a personal inspection has not been completed.*

Reliance on Other Experts - **A qualified person who prepares or supervises the preparation of all or part of a technical report may include a limited disclaimer of responsibility if:**

The qualified person is relying on a report, opinion or statement of another expert who is not a qualified person, or on information provided by the issuer, concerning legal, political, environmental or tax matters relevant to the technical report, and the qualified person identifies

the source of the information relied upon, including the date, title, and author of any report, opinion, or statement;

the extent of reliance; and

the portions of the technical report to which the disclaimer applies.

The qualified person is relying on a report, opinion or statement of another expert who is not a qualified person, concerning diamond or other gemstone valuations, or the pricing of commodities for which pricing is not publicly available, and the qualified person discloses

the date, title and author of the report, opinion or statement;

the qualifications of the other expert and why it is reasonable for the qualified person to rely on the other expert;

any significant risks associated with the valuation or pricing; and

any steps the qualified person took to verify the information provided.

**Property Description and Location - To the extent applicable, describe**

*the area of the property in hectares or other appropriate units;*

*the location, reported by an easily recognizable geographic and grid location system;*

*the type of mineral tenure (claim, licence, lease, etc.) and the identifying name or number of each;*

*the nature and extent of the issuer's title to, or interest in, the property including surface rights, legal access, the obligations that must be met to retain the property, and the expiration date of claims, licences or other property tenure rights;*

*to the extent known, the terms of any royalties, back-in rights, payments, or other agreements and encumbrances to which the property is subject;*

*to the extent known, all environmental liabilities to which the property is subject;*

*to the extent known, the permits that must be acquired to conduct the work proposed for the property, and if the permits have been obtained; and*

*to the extent known, any other significant factors and risks that may affect access, title, or the right or ability to perform work on the property.*

Accessibility, Climate, Local Resources, Infrastructure and Physiography - **Describe topography, elevation and vegetation;**

*the means of access to the property;*

*the proximity of the property to a population centre, and the nature of transport;*

*to the extent relevant to the mineral project, the climate and the length of the operating season; and*

*to the extent relevant to the mineral project, the sufficiency of surface rights for mining operations, the availability and sources of power, water, mining personnel, potential tailings storage areas, potential waste disposal areas, heap leach pad areas, and potential processing plant sites.*

History - **To the extent known, describe**

*the prior ownership of the property and ownership changes;*

*the type, amount, quantity and general results of exploration and development work undertaken by any previous owners or operators;*

*any significant historical mineral resource and mineral reserve estimates in accordance with section 2.4 of the Instrument; and*

*any production from the property.*

**INSTRUCTION:** If the technical report includes work that was conducted outside the current property boundaries, clearly distinguish this work from the work conducted on the property that is the subject of the technical report.

Geological Setting and Mineralization - **Describe**

*the regional, local and property geology; and*

*the significant mineralized zones encountered on the property, including a summary of the surrounding rock types, relevant geological controls, and the length, width, depth and continuity of the mineralization, together with a description of the type, character and distribution of the mineralization.*

Deposit Types - **Describe the mineral deposit type(s) being investigated or being explored for and the geological model or concepts being applied in the investigation and on the basis of which the exploration program is planned.**

Exploration – **Briefly describe the nature and extent of all relevant exploration work other than drilling, conducted by or on behalf of, the issuer, including**

*the procedures and parameters relating to the surveys and investigations;*

*the sampling methods and sample quality, including whether the samples are representative, and any factors that may have resulted in sample biases;*

*relevant information of location, number, type, nature, and spacing or density of samples collected, and the size of the area covered; and*

*the significant results and interpretation of the exploration information.*

**INSTRUCTION:** If exploration results from previous operators are included, clearly identify the work conducted by or on behalf of the issuer.

Drilling - **Describe**

*the type and extent of drilling, including the procedures followed and a summary and interpretation of all relevant results;*

*any drilling, sampling or recovery factors that could materially impact the accuracy and reliability of the results;*

*for a property other than an advanced property*

the location, azimuth and dip of any drill hole, and the depth of the relevant sample intervals; the relationship between the sample length and the true thickness of the mineralization, if known, and if the orientation of the mineralization is unknown, state this; and the results of any significantly higher grade intervals within a lower grade intersection.

**INSTRUCTIONS:**

*For properties with mineral resource estimates, the qualified person may meet the requirements under Item 10 (c) by providing a drill plan and representative examples of drill sections through the mineral deposit.*

*If drill results from previous operators are included, clearly identify the results of drilling conducted by or on behalf of the issuer.*

**Sample Preparation, Analyses and Security – Describe**

*sample preparation methods and quality control measures employed before dispatch of samples to an analytical or testing laboratory, the method or process of sample splitting and reduction, and the security measures taken to ensure the validity and integrity of samples taken;*

*relevant information regarding sample preparation, assaying and analytical procedures used, the name and location of the analytical or testing laboratories, the relationship of the laboratory to the issuer, and whether the laboratories are certified by any standards association and the particulars of any certification;*

*a summary of the nature, extent, and results of quality control procedures employed and quality assurance actions taken or recommended to provide adequate confidence in the data collection and processing; and*

*the author's opinion on the adequacy of sample preparation, security, and analytical procedures.*

**Data Verification – Describe the steps taken by the qualified person to verify the data in the technical report, including**

*the data verification procedures applied by the qualified person;*

*any limitations on or failure to conduct such verification, and the reasons for any such limitations or failure; and*

*the qualified person's opinion on the adequacy of the data for the purposes used in the technical report.*

**Mineral Processing and Metallurgical Testing - If mineral processing or metallurgical testing analyses have been carried out, discuss**

*the nature and extent of the testing and analytical procedures, and provide a summary of the relevant results;*

*the basis for any assumptions or predictions regarding recovery estimates;*

*to the extent known, the degree to which the test samples are representative of the various types and styles of mineralization and the mineral deposit as a whole; and*

*to the extent known, any processing factors or deleterious elements that could have a significant effect on potential economic extraction.*

**Mineral Resource Estimates – A technical report disclosing mineral resources must provide sufficient discussion of the key assumptions, parameters and methods used to estimate the mineral resources for a reasonably informed reader to understand the basis for the estimate and how it was generated;**

**comply with all disclosure requirements for mineral resources set out in the Instrument, including sections 2.2, 2.3 and 3.4;**

*when the grade for a multiple commodity mineral resource is reported as metal or mineral equivalent, report the individual grade of each metal or mineral and the metal prices, recoveries, and any other relevant conversion factors used to estimate the metal or mineral equivalent grade; and*

*include a general discussion on the extent to which the mineral resource estimates could be materially affected by any known environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant factors.*

**INSTRUCTIONS:**

*A statement of quantity and grade or quality is an estimate and should be rounded to reflect the fact that it is an approximation.*

*Where multiple cut-off grade scenarios are presented, the qualified person must identify and highlight the base case, or preferred scenario. All estimates resulting from each of the cut-off grade scenarios must meet the test of reasonable prospect of economic extraction.*

Additional Requirements for Advanced Property Technical Reports

**Mineral Reserve Estimates - A technical report disclosing mineral reserves must provide sufficient discussion and detail of the key assumptions, parameters and methods used for a reasonably informed reader to understand how the qualified person converted the mineral resources to mineral reserves;**

**comply with all disclosure requirements for mineral reserves set out in the Instrument, including sections 2.2, 2.3, and 3.4;**

***when the grade for a multiple commodity mineral reserve is reported as metal or mineral equivalent, report the individual grade of each metal or mineral and the metal prices, recoveries, and any other relevant conversion factors used to estimate the metal or mineral equivalent grade; and***

***discuss the extent to which the mineral reserve estimates could be materially affected by mining, metallurgical, infrastructure, permitting and other relevant factors.***

**Mining Methods – Discuss the current or proposed mining methods and provide a summary of the relevant information used to establish the amenability or potential amenability of the mineral resources or mineral reserves to the proposed mining methods. Consider and, where relevant, include**

***geotechnical, hydrological and other parameters relevant to mine or pit designs and plans; production rates, expected mine life, mining unit dimensions and mining dilution factors used; requirements for stripping, underground development and backfilling; and required mining fleet and machinery.***

***INSTRUCTION: Preliminary economic assessments, pre-feasibility studies, and feasibility studies generally analyse and assess the same geological, engineering, and economic factors with increasing detail and precision. Therefore, the criteria for Items 16 to 22 can be used as a framework for reporting the results of all three studies.***

**Recovery Methods – Discuss reasonably available information on test or operating results relating to the recoverability of the valuable component or commodity and amenability of the mineralization to the proposed processing methods. Consider and, where relevant, include**

***a description or flow sheet of any current or proposed process plant; plant design, equipment characteristics and specifications, as applicable; and current or projected requirements for energy, water and process materials.***

Project Infrastructure – **Provide a summary of infrastructure and logistic requirements for the project, which could include roads, rail, port facilities, dams, dumps, stockpiles, leach pads, tailings disposal, power and pipelines, as applicable.**

Market Studies and Contracts

*Provide a summary of reasonably available information concerning markets for the issuer's production, including the nature and material terms of any agency relationships. Discuss the nature of any studies or analyses completed by the issuer, including any relevant market studies, commodity price projections, product valuations, market entry strategies, or product specification requirements. Confirm that the qualified person has reviewed these studies and analyses and that the results support the assumptions in the technical report.*

*Identify any contracts material to the issuer that are required for property development, including mining, concentrating, smelting, refining, transportation, handling, sales and hedging, and forward sales contracts or arrangements. State which contracts are in place and which are still under negotiation. For contracts that are in place, discuss whether the terms, rates or charges are within industry norms.*

Environmental Studies, Permitting and Social or Community Impact - **Discuss reasonably available information on environmental, permitting and social or community factors related to the project. Consider and, where relevant, include**

- (a) a summary of the results of any environmental studies and a discussion of any known environmental issues that could materially impact the issuer's ability to extract the mineral resources or mineral reserves;
- (b) requirements and plans for waste and tailings disposal, site monitoring and water management both during operations and post mine closure;
- (c) project permitting requirements, the status of any permit applications and any known requirements to post performance or reclamation bonds;
- (d) a discussion of any potential social or community related requirements and plans for the project and the status of any negotiations or agreements with local communities; and
- (e) a discussion of mine closure (remediation and reclamation) requirements and costs.

Capital and Operating Costs – **Provide a summary of capital and operating cost estimates, with the major components set out in tabular form. Explain and justify the basis for the cost estimates.**

Economic Analysis – **Provide an economic analysis for the project that includes**

*a clear statement of and justification for the principal assumptions;*

*cash flow forecasts on an annual basis using mineral reserves or mineral resources and an annual production schedule for the life of the project;*

*a discussion of net present value (NPV), internal rate of return (IRR), and payback period of capital with imputed or actual interest;*

*a summary of the taxes, royalties and other government levies or interests applicable to the mineral project or to production, and to revenue or income from the mineral project; and sensitivity or other analysis using variants in commodity price, grade, capital and operating costs, or other significant parameters, as appropriate, and discuss the impact of the results.*

**INSTRUCTIONS:**

- (1) Producing issuers may exclude the information required under Item 22 for technical reports on properties currently in production unless the technical report includes a material expansion of current production.

*The economic analysis in technical reports must comply with paragraphs 2.3 (1) (b) and (c), subsections 2.3 (3) and (4), and paragraph 3.4 (e), of the Instrument, including any required cautionary language.*

#### Requirements for All Technical Reports

**Adjacent Properties - A technical report may include relevant information concerning an adjacent property if**

*such information was publicly disclosed by the owner or operator of the adjacent property; the source of the information is identified;*

*the technical report states that its qualified person has been unable to verify the information and that the information is not necessarily indicative of the mineralization on the property that is the subject of the technical report;*

*the technical report clearly distinguishes between the information from the adjacent property and the information from the property that is the subject of the technical report; and any historical estimates of mineral resources or mineral reserves are disclosed in accordance with paragraph 2.4 (a) of the Instrument.*

**Other Relevant Data and Information - Include any additional information or explanation necessary to make the technical report understandable and not misleading.**

**Interpretation and Conclusions - Summarize the relevant results and interpretations of the information and analysis being reported on. Discuss any significant risks and uncertainties that could reasonably be expected to affect the reliability or confidence in the exploration information, mineral resource or mineral reserve estimates, or projected economic outcomes. Discuss any reasonably foreseeable impacts of these risks and uncertainties on the project's potential economic viability or continued viability. A technical report concerning exploration information must include the conclusions of the qualified person.**

**Recommendations - Provide particulars of recommended work programs and a breakdown of costs for each phase. If successive phases of work are recommended, each phase must culminate in a decision point. The recommendations must not apply to more than two phases of work. The recommendations must state whether advancing to a subsequent phase is contingent on positive results in the previous phase.**

*INSTRUCTION: In some specific cases, the qualified person may not be in a position to make meaningful recommendations for further work. Generally, these situations will be limited to properties under development or in production where material exploration activities and engineering studies have largely concluded. In such cases, the qualified person should explain why they are not making further recommendations.*

**References - Include a detailed list of all references cited in the technical report.**

## 3.2: National Instruments 43-101 Companion Document

### **Companion Policy 43-101CP to National Instrument 43-101**

#### *Standards of Disclosure for Mineral Projects*

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### **Companion Policy 43-101CP to National Instrument 43-101**

#### *Standards of Disclosure for Mineral Projects*

This companion policy (the “Policy”) sets out the views of the Canadian securities regulatory authorities (the “securities regulatory authorities” or “we”) as to how we interpret and apply certain provisions of National Instrument 43-101 and Form 43-101F1 (the “Instrument”).

## **GENERAL GUIDANCE**

(1) **Application of the Instrument** – The definition of “disclosure” in the Instrument includes oral and written disclosure. The Instrument establishes standards for disclosure of scientific and technical information regarding mineral projects and requires that the disclosure be based on a technical report or other information prepared by or under the supervision of a qualified person. The Instrument does not apply to disclosure concerning petroleum, natural gas, bituminous sands or shales, groundwater, coal bed methane, or other substances that do not fall within the meaning of the term “mineral project” in section 1.1 of the Instrument.

(2) **Supplements Other Requirements** – The Instrument supplements other continuous disclosure requirements of securities legislation that apply to reporting issuers in all business sectors.

(3) **Forward-Looking Information** – Part 4 of National Instrument 51-102 *Continuous Disclosure Obligations* (NI 51-102) sets out the requirements for disclosing forward-looking information. Frequently, scientific and technical information about a mineral project includes or is based on forward-looking information. A mining issuer must comply with the requirements of Part 4A of NI 51-102, including identifying forward-looking information, stating material factors and assumptions used, and providing the required cautions. Examples of forward-looking information include metal price assumptions, cash flow forecasts, projected capital and operating costs, metal or mineral recoveries, mine life and production rates, and other assumptions used in preliminary economic assessments, pre-feasibility studies, and feasibility studies.

(4) **Materiality** – An issuer should determine materiality in the context of the issuer's overall business and financial condition taking into account qualitative and quantitative factors, assessed in respect of the issuer as a whole.

In making materiality judgements, an issuer should consider a number of factors that cannot be captured in a simple bright-line standard or test, including the potential effect on both the market price and value of the issuer’s securities in light of the current market activity. An assessment of materiality depends on the context. Information that is immaterial today could be material tomorrow; an item of information that is immaterial alone could be material if it is aggregated with other items.

(5) **Property Material to the Issuer** – An actively trading mining issuer, in most circumstances, will have at least one material property. We will generally assess an issuer’s view of the materiality of a property based on the issuer’s disclosure record, its deployment of resources, and other indicators. For example, we will likely conclude that a property is material if

- (a) the issuer’s disclosure record is focused on the property;
- (b) the issuer’s disclosure indicates or suggests the results are significant or important;
- (c) the cumulative and projected acquisition costs or proposed exploration expenditures are significant compared to the issuer’s other material properties; or
- (d) the issuer is raising significant money or devoting significant resources to the exploration and development of the property.

In determining if a property is material, the issuer should consider how important or significant the property is to the issuer’s overall business and in comparison to its

other properties. For example

- (e) more advanced stage properties will, in most cases, be more material than earlier stage properties;
- (f) historical expenditures or book value might not be a good indicator of materiality for an inactive property if the issuer is focussing its resources on new properties;
- (g) a small interest in a sizeable property might, in the circumstances, not be material to the issuer;
- (h) a royalty or similar interest in an advanced property could be material to the issuer in comparison to its active projects; or
- (i) several non-material properties in an area or region, when taken as a whole, could be material to the issuer.

**(6) Industry Best Practices Guidelines** – While the Instrument sets standards for disclosure of scientific and technical information about a mineral project, the standards and methodologies for collecting, analysing, and verifying this information are the responsibility of the qualified person. The Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) has published and adopted several industry best practice guidelines to assist qualified persons and other industry practitioners. These guidelines, as amended and supplemented, are posted on [www.cim.org](http://www.cim.org), and include

- (a) Exploration Best Practice Guidelines – adopted August 20, 2000;
- (b) Guidelines for Reporting of Diamond Exploration Results – adopted March 9, 2003;  
and
- (c) Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines – adopted November 23, 2003, and related commodity- specific appendices.

The Instrument does not specifically require the qualified person to follow the CIM best practices guidelines. However, we think that a qualified person, acting in compliance with the professional standards of competence and ethics established by their professional association, will generally use procedures and methodologies that are consistent with industry standard practices, as established by CIM or similar organizations in other jurisdictions. Issuers that disclose scientific and technical information that does not conform to industry standard practices could be making misleading disclosure, which is an offence under securities legislation.

**(7) Objective Standard of Reasonableness** – Where a determination about the definitions or application of a requirement in the Instrument turns on reasonableness, the test is objective, not subjective. It is not sufficient for an officer of an issuer or a qualified person to determine that they personally believe the matter under consideration. The individual must form an opinion as to what a reasonable person would believe in the circumstances.

**(8) Improper Use of Terms in the French Language** – For an issuer preparing its disclosure using the French language, the words “gisement” and “gîte” have different meanings and using them interchangeably or in the wrong context may be misleading. The word “gisement” means a mineral deposit that is a continuous, well-defined mass of material containing a sufficient volume of mineralized material that can be or has been mined legally and economically. The word “gîte” means a mineral deposit that is a continuous, defined mass of material, containing a volume of mineralized material that has had no demonstration of economic viability.

## **PART 1 DEFINITIONS AND INTERPRETATION**

## 1.1 Definitions

(1) **“acceptable foreign code”** – The definition of “acceptable foreign code” in the Instrument lists five internationally recognized foreign codes that govern the estimation and disclosure of mineral resources and mineral reserves. The JORC Code, PERC Code, SAMREC Code, and Certification Code use mineral resource and mineral reserve definitions and categories that are substantially the same as the CIM definitions mandated in the Instrument. These codes also use mineral resource and mineral reserve categories that are based on or consistent with the International Reporting Template, published by the Committee for Mineral Reserves International Reporting Standards (“the CRIRSCO Template”), as amended.

We think other foreign codes will generally meet the test in the definition if they

(a) have been adopted or recognized by appropriate government authorities or professional organizations in the foreign jurisdiction; and

(b) use mineral resource and mineral reserve categories that are based on the CRIRSCO Template, and are substantially the same as the CIM definitions mandated in the Instrument, the JORC Code, the PERC Code, the SAMREC Code, and the Certification Code, as amended and supplemented.

We will publish CSA Staff Notices periodically listing the codes that CSA members’ staff think satisfy the definition of “acceptable foreign code”. We will also consider submissions from market participants regarding the proposed addition of foreign codes to the list. Submissions should explain the basis for concluding that the proposed foreign code meets the test in the definition and include appropriate supporting documentation.

(2) **“effective date”** – This is the cut-off date for the scientific and technical information included in the technical report. Under section 8.1 of the Instrument, the qualified person must provide their certificate as at the effective date of the technical report and specify this date in their certificate. The effective date can precede the date of signing the technical report but if there is too long a period between these dates, the issuer is exposed to the risk that new material information could become available and the technical report would then not be current.

(3) **“mineral project”** – The definition of “mineral project” in the Instrument includes a royalty or similar interest. Scientific and technical disclosure regarding all types of royalty interests in a mineral project is subject to the Instrument.

(4) **“preliminary economic assessment”** – The term “preliminary economic assessment”, which can include a study commonly referred to as a scoping study, is defined in the Instrument. A preliminary economic assessment might be based on measured, indicated, or inferred mineral resources, or a combination of any of these. We consider these types of economic analyses to include disclosure of forecast mine production rates that might contain capital costs to develop and sustain the mining operation, operating costs, and projected cash flows.

(5) **“professional association”** – Paragraph (a)(ii) of the definition of “professional association” in the Instrument includes a test for determining what constitutes an acceptable foreign association. In assessing whether we think a foreign professional association meets

this test, we will consider the reputation of the association and whether it is substantially similar to a professional association in a jurisdiction of Canada.

Appendix A to the Policy provides a list of the foreign associations that we think meet all the tests in the definition as of the effective date of the Instrument. We will publish updates to the list periodically. An issuer that wishes to rely on a qualified person that is a member of a professional association not included in Appendix A but which the issuer believes meets the tests in the Instrument, may make submissions to have the association added to Appendix A. Submissions should include appropriate supporting documentation. The issuer should allow sufficient time for its submissions to be considered before naming the qualified person in connection with its disclosure or filing any technical report signed by the qualified person.

The listing of a professional association on Appendix A is only for purposes of the Instrument and does not supersede or alter local requirements where geoscience or engineering is a regulated profession.

(6) **definitions that include “property”** – The Instrument defines two different types of properties (early stage exploration, advanced) and requires a technical report to summarize material information about the subject property. We consider a property, in the context of the Instrument, to include multiple mineral claims or other documents of title that are contiguous or in such close proximity that any underlying mineral deposits would likely be developed using common infrastructure.

(7) **“qualified person”** – The definition of “qualified person” in the Instrument does not include engineering and geoscience technicians, engineers and geoscientists in training, and equivalent designations that restrict the individual’s scope of practice or require the individual to practise under the supervision of another professional engineer, professional geoscientist, or equivalent.

Paragraph (d) of the definition requires a qualified person to be “in good standing with a professional association”. We interpret this to include satisfying any related registration, licensing, or similar requirements. Canadian provincial and territorial legislation requires a qualified person to be registered if practising in a jurisdiction of Canada. It is the responsibility of the qualified person, in compliance with their professional association’s code of ethics, to comply with laws requiring licensure of geoscientists and engineers.

Paragraph (e) of the definition includes a test for what constitutes an acceptable membership designation in a foreign professional association. Appendix A to the Policy provides a list of the membership designations that we think meet this test as of the effective date of the Instrument. We will update the list periodically. In assessing whether we think a membership designation meets the test, we will consider whether it is substantially similar to a membership designation in a professional association in a jurisdiction of Canada.

Subparagraph (e)(ii)(B) includes the concept of “demonstrated expertise in the field of mineral exploration or mining”. We generally interpret this to mean having at least five years of professional experience and satisfying an additional entrance requirement relating to level of responsibility. Some examples of such a requirement are:

- (a) at least three years in a position of responsibility where the person was depended on for significant participation and decision-making;
- (b) experience of a responsible nature and involving the exercise of independent judgment in at least three of those years;

(c) at least five years in a position of major responsibility, or a senior technical position of responsibility.

(8) **“technical report”** – A report may constitute a “technical report” as defined in the Instrument, even if prepared considerably before the date the technical report is required to be filed, provided the information in the technical report remains accurate and complete as at the required filing date. However, a report that an issuer files that is not required under the Instrument will not be considered a technical report until the Instrument requires the issuer to file it and the issuer has filed the required certificates and consents of qualified persons.

The definition requires the technical report to include a summary of all material information about the subject property. The qualified person is responsible for preparing the technical report. Therefore, it is the qualified person, not the issuer, who has the responsibility of determining the materiality of the scientific or technical information to be included in the technical report.

### **1.5 Independence**

(1) **Guidance on Independence** – Section 1.5 of the Instrument provides the test an issuer and a qualified person must apply to determine whether a qualified person is independent of the issuer. When an independent qualified person is required, an issuer must always apply the test in section 1.5 to confirm that the requirement is met.

Applying this test, the following are examples of when we would consider that a qualified person is not independent. These examples are not a complete list of non-independence situations.

We consider a qualified person is not independent when the qualified person

(a) is an employee, insider, or director of the issuer;

(b) is an employee, insider, or director of a related party of the issuer;

(c) is a partner of any person or company in paragraph (a) or (b);

(d) holds or expects to hold securities, either directly or indirectly, of the issuer or a related party of the issuer;

(e) holds or expects to hold securities, either directly or indirectly, in another issuer that has a direct or indirect interest in the property that is the subject of the technical report or in an adjacent property;

(f) is an employee, insider, or director of another issuer that has a direct or indirect interest in the property that is the subject of the technical report or in an adjacent property;

(g) has or expects to have, directly or indirectly, an ownership, royalty, or other interest in the property that is the subject of the technical report or an adjacent property; or

(h) has received the majority of their income, either directly or indirectly, in the three years preceding the date of the technical report from the issuer or a related party of the issuer.

For the purposes of (d) above, a related party of the issuer means an affiliate, associate, subsidiary, or control person of the issuer as those terms are defined in securities legislation.

(2) **Independence Not Compromised** – In some cases, it might be reasonable to consider the qualified person’s independence is not compromised even though the qualified person holds an interest in the issuer’s securities, the securities of another issuer with an interest in the subject property, or in an adjacent property. The issuer needs to determine whether a

reasonable person would consider such interest would interfere with the qualified person's judgement regarding the preparation of the technical report.

## **PART 2 REQUIREMENTS APPLICABLE TO ALL DISCLOSURE**

### **2.1 Requirements Applicable to All Disclosure**

(1) **Disclosure is the Responsibility of the Issuer** – Primary responsibility for public disclosure remains with the issuer and its directors and officers. The qualified person is responsible for preparing or supervising the preparation of the technical report and providing scientific and technical advice in accordance with applicable professional standards. The proper use, by or on behalf of the issuer, of the technical report and other scientific and technical information provided by the qualified person is the responsibility of the issuer and its directors and officers.

The onus is on the issuer and its directors and officers and, in the case of a document filed with a securities regulatory authority, each signatory to the document, to ensure that disclosure in the document is consistent with the related technical report or advice. An issuer should consider having the qualified person review disclosure that summarizes or restates the technical report or the technical advice or opinion to ensure that the disclosure is accurate.

(2) **Material Information not yet Confirmed by a Qualified Person** – Securities legislation requires an issuer to disclose material facts and to make timely disclosure of material changes. We recognize that there can be circumstances in which an issuer expects that certain information concerning a mineral project may be material notwithstanding the fact that a qualified person has not prepared or supervised the preparation of the information. In this situation, the issuer may file a confidential material change report concerning this information while a qualified person reviews the information. Once a qualified person has confirmed the information, the issuer can issue a news release and the basis of confidentiality will end.

During the period of confidentiality, persons in a special relationship to the issuer are prohibited from tipping or trading until the information is disclosed to the public. National Policy 51-201 *Disclosure Standards* provides further guidance about materiality and timely disclosure obligations.

(3) **Use of Plain Language** – An issuer should apply plain language principles when preparing disclosure regarding mineral projects on its material properties, keeping in mind that the investing public are often not mining experts. An issuer should present written disclosure in an easy to read format using clear and unambiguous language and, wherever possible, should present data in table format. This includes information in the technical report, to the extent possible. We recognize that the technical report does not always lend itself well to plain language and therefore the issuer might want to consult the responsible qualified person when restating the data and conclusions from a technical report in its public disclosure.

### **2.2 All Disclosure of Mineral Resources or Mineral Reserves – Use of GSC Paper 88-21**

A qualified person estimating mineral resources or mineral reserves for coal may follow the guidelines of Paper 88-21 of the Geological Survey of Canada: A Standardized Coal Resource/Reserve Reporting System for Canada, as amended (“Paper 88-21”). However, for all disclosure of mineral resources or mineral reserves for coal, section 2.2 of the Instrument requires an issuer to use the equivalent mineral resource or mineral reserve categories set out in the CIM Definition Standards and not the categories set out in Paper 88-21.

### **2.3 Restricted Disclosure**

(1) **Economic Analysis** – Subject to subsection 2.3(3) of the Instrument, paragraph 2.3(1)(b) of the Instrument prohibits the disclosure of the results of an economic analysis that includes or is based on inferred mineral resources, an historical estimate, or an exploration target.

CIM considers the confidence in inferred mineral resources is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure. The Instrument extends this prohibition to exploration targets because such targets are conceptual and have even less confidence than inferred mineral resources. The Instrument also extends the prohibition to historical estimates because they have not been demonstrated or verified to the standards required for mineral resources or mineral reserves and, therefore, cannot be used in an economic analysis suitable for public disclosure.

(2) **Use of Term “Ore”** – We consider the use of the word “ore” in the context of mineral resource estimates to be potentially misleading because “ore” implies technical feasibility and economic viability that should only be attributed to mineral reserves.

(3) **Exceptions** – The Instrument permits an issuer to disclose the results of an economic analysis that uses inferred mineral resources, provided the issuer complies with the requirements of subsection 2.3(3). The issuer must also include the cautionary statement under paragraph 3.4(e) of the Instrument, which applies to disclosure of all economic analyses of mineral resources, to further alert investors to the limitations of the information. The exception under subsection 2.3(3) does not allow an issuer to disclose the results of an economic analysis using an exploration target or an historical estimate.

(4) **Impact of Preliminary Economic Assessment on Previous Feasibility or Pre- Feasibility Studies** – An issuer may disclose the results of a preliminary economic assessment that includes inferred mineral resources, after it has completed a feasibility study or pre-feasibility study that establishes mineral reserves, if the disclosure complies with subsection 2.3(3) of the Instrument. Under paragraph 2.3(3)(c), the issuer must discuss the impact of the preliminary economic assessment on the mineral reserves and feasibility study or pre-feasibility study. This means considering and disclosing whether the existing mineral reserves and feasibility study or pre-feasibility study are still current and valid in light of the key assumptions and parameters used in the preliminary economic assessment.

For example, if the preliminary economic assessment considers the potential economic viability of developing a satellite deposit in conjunction with the main development project, then the existing mineral reserves, feasibility study, and production scenario could still be current. However, if the preliminary economic assessment significantly modifies the key variables in the feasibility study, including metal prices, mine plan, and costs, the feasibility study and mineral reserves might no longer be current.

(5) **Gross Value of Metal or Mineral** – We interpret gross metal value or gross mineral value to include any representation of the potential monetary value of the metal or mineral in the ground that does not take into consideration the costs, recoveries, and other relevant factors associated with the extraction and recovery of the metal or mineral. We think this type of disclosure is misleading because it overstates the potential value of the mineral deposit.

(6) **Cautionary Language and Explanations** – The requirements of subsections 2.3(2), 2.3(3), and 3.4(e) of the Instrument mean the issuer must include the required cautionary statements and explanations each time it makes the disclosure permitted by these exceptions. These subsections also require the cautionary statements to have equal prominence with the rest of the disclosure. We interpret this to mean equal size type and proximate location. The issuer should consider including the cautionary language and explanations in the same paragraph as, or immediately following, the disclosure permitted by these exceptions.

## 2.4 Disclosure of Historical Estimates

(1) **Required Disclosure** – An issuer may disclose an estimate of resources or reserves made before it entered into an agreement to acquire an interest in the property, provided the issuer complies with the conditions set out in section 2.4 of the Instrument. Under this requirement, the issuer must provide the required disclosure each time it discloses the historical estimate, until the issuer has verified the historical estimate as a current mineral resource or mineral reserve. The required cautionary statements must also have equal prominence (see the discussion in subsection 2.3(6) of the Policy).

(2) **Source and Date** – Under paragraph 2.4(a) of the Instrument, the issuer must disclose the source and date of the historical estimate. This means the original source and date of the estimate, not third party documents, databases or other sources, including government databases, which may also report the historical estimate.

(3) **Suitability for Public Disclosure** – Under paragraph 2.4(b) of the Instrument, an issuer that discloses an historical estimate must comment on its relevance and reliability. In determining whether to disclose an historical estimate, an issuer should consider whether the historical estimate is suitable for public disclosure.

(4) **Historical Estimate Categories** – Under paragraph 2.4(d) of the Instrument, an issuer must explain any differences between the categories used in the historical estimate and those set out in sections 1.2 and 1.3 of the Instrument. If the historical estimate was prepared using an acceptable foreign code, the issuer may satisfy this requirement by identifying the acceptable foreign code.

(5) **Technical Report Trigger** – The disclosure of an historical estimate will not trigger the requirement to file a technical report under paragraph 4.2(1)(j) of the Instrument if the issuer discloses the historical estimate in accordance with section 2.4 of the Instrument, including the cautionary statements required under paragraph 2.4(g).

An issuer could trigger the filing of a technical report under paragraph 4.2(1)(j) if it discloses the historical estimate in a manner that suggests or treats the historical estimate as a current mineral resource or mineral reserve. We will consider an issuer is treating the historical estimate as a current mineral resource or mineral reserve in its disclosure if, for example, it

- (a) uses the historical estimate in an economic analysis or as the basis for a production decision;
- (b) states it will be adding on or building on the historical estimate; or
- (c) adds the historical estimate to current mineral resource or mineral reserve estimates.

## PART 3 ADDITIONAL REQUIREMENTS FOR WRITTEN DISCLOSURE

**3.3 Requirements Applicable to Written Disclosure of Exploration Information – Adjacent Property Information** – It is an offence under securities legislation to make misleading disclosure. An issuer may disclose in writing scientific and technical information about an adjacent property. However, in order for the disclosure not to be misleading, the issuer should clearly distinguish between the information from the adjacent property and its own property and not state or imply the issuer will obtain similar information from its own property.

**3.5 Exception for Written Disclosure Already Filed** – Section 3.5 of the Instrument provides that the disclosure requirements of sections 3.2 and 3.3 and paragraphs 3.4(a), (c) and (d) of the Instrument may be satisfied by referring to a previously filed document that includes the required disclosure. However, the disclosure as a whole must be factual, complete, and balanced and not present or omit information in a manner that is misleading.

## PART 4 OBLIGATION TO FILE A TECHNICAL REPORT

## **4.2 Obligation to File a Technical Report in Connection with Certain Written Disclosure about Mineral Projects on Material Properties**

### **(1) Information Circular Trigger (4.2(1)(c))**

(a) The requirement for “prospectus-level disclosure” in an information circular does not make this document a “prospectus” such that the prospectus trigger applies. The information circular is a separate trigger that applies only in certain situations specified in the Instrument.

(b) Paragraph 4.2(1)(c) of the Instrument requires the issuer to file technical reports for properties that will be material to the resulting issuer. Often the resulting issuer is not the issuer filing the information circular. In determining if it must file a technical report on a particular property, the issuer should consider if the property will be material to the resulting issuer after the completion of the proposed transaction.

(c) Our view is that the issuer filing the information circular does not need to file a technical report on its SEDAR profile if

(i) the other party to the transaction has filed the technical report;

(ii) the information circular refers to the other party’s SEDAR profile; and

(iii) on completion of the transaction, technical reports for all material properties are filed on the resulting issuer’s SEDAR profile or the SEDAR profile of a wholly-owned subsidiary.

(2) **Take-Over Bid Circular Trigger (4.2(1)(i))** – For purposes of the take-over bid circular, the issuer referred to in the introductory language of subsection 4.2(1) of the Instrument and the offeror referred to in paragraph (i) of this subsection are the same entity. Since the offeror is the issuer that files the circular, the technical report trigger applies to properties that are material to the offeror.

(3) **First Time Disclosure Trigger (4.2(1)(j)(i))** – In most cases, we think that first time disclosure of mineral resources, mineral reserves, or the results of a preliminary economic assessment, on a property material to the issuer will constitute a material change in the affairs of the issuer.

(4) **Property Acquisitions – 45-Day Filing Requirement** – Subsection 4.2(5) of the Instrument requires an issuer in certain cases to file a technical report within 45 days to support first time disclosure of mineral resources, mineral reserves, or the results of a preliminary economic assessment, on a property material to the issuer. Property materiality is not contingent on the issuer having acquired an actual interest in the property or having formal agreements in place. In many cases, the property will become material at the letter of intent stage, even if subject to conditions such as the approval of a third party or completion of a due diligence review. In such cases, the 45-day period will begin to run from the time the issuer first discloses the mineral resources, mineral reserves, or results of a preliminary economic assessment.

(5) **Property Acquisitions – Other Alternatives for Disclosure of Previous Estimates** – If an issuer options or agrees to buy a property material to the issuer, any previous estimates of mineral resources or mineral reserves on the property will be in many cases material information that the issuer must disclose.

The issuer has a number of options available for disclosing the previous estimate without triggering a technical report within 45 days. If the previous estimate is not well-documented, the issuer may choose to disclose this information as an exploration target, in compliance with subsection 2.3(2) of the Instrument. Alternatively, the issuer may be able to disclose the previous estimate as an historical estimate, in compliance with section 2.4 of the Instrument. Both these options require the

issuer to include certain cautionary language and prohibit the issuer from using the previous estimates in an economic analysis.

In circumstances where the previous estimate is supported by a technical report prepared for another issuer, the issuer may be able to disclose the previous estimate as a mineral resource or mineral reserve, in compliance with subsection 4.2(7) of the Instrument. In this case, the issuer will still be required to file a technical report. However, it will have up to 180 days to do so.

**(6) Production Decision** – The Instrument does not require an issuer to file a technical report to support a production decision because the decision to put a mineral project into production is the responsibility of the issuer, based on information provided by qualified persons. The development of a mining operation typically involves large capital expenditures and a high degree of risk and uncertainty. To reduce this risk and uncertainty, the issuer typically makes its production decision based on a comprehensive feasibility study of established mineral reserves.

We recognize that there might be situations where the issuer decides to put a mineral project into production without first establishing mineral reserves supported by a technical report and completing a feasibility study. Historically, such projects have a much higher risk of economic or technical failure. To avoid making misleading disclosure, the issuer should disclose that it is not basing its production decision on a feasibility study of mineral reserves demonstrating economic and technical viability and should provide adequate disclosure of the increased uncertainty and the specific economic and technical risks of failure associated with its production decision.

Under paragraph 1.4(e) of Form 51-102F1, an issuer must also disclose in its MD&A whether a production decision or other significant development is based on a technical report.

**(7) Shelf Life of Technical Reports** – Economic analyses in technical reports are based on commodity prices, costs, sales, revenue, and other assumptions and projections that can change significantly over short periods of time. As a result, economic information in a technical report can quickly become outdated. Continued reference to outdated technical reports or economic projections without appropriate context and cautionary language could result in misleading disclosure. Where an issuer has triggered the requirement to file a technical report under subsection 4.2(1), it should consider the current validity of economic assumptions in its existing technical report to determine if the technical report is still current. An issuer might be able to extend the life of a technical report by having a qualified person include appropriate sensitivity analyses of the key economic variables.

**(8) Technical Reports Must be Current and Complete** – A “technical report” as defined in the Instrument must include in summary form all material scientific and technical information about the property. Any time an issuer is required to file a technical report, that report must be complete and current. There should only be one current technical report on a property at any point in time. When an issuer files a new technical report, it will replace any previously filed technical report as the current technical report on that property. This means the new technical report must include any material information documented in a previously filed technical report, to the extent that this information is still current and relevant.

If an issuer gets a new qualified person to update a previously filed technical report prepared by a different qualified person, the new qualified person must take responsibility for the entire technical report, including any information referenced or summarized from a previous technical report.

**(9) Limited Provision for Addendums** – The only exception to the requirement to file a complete technical report is under subsection 4.2(3) of the Instrument. An issuer may file an addendum if it is for a technical report that it originally filed with a preliminary short form prospectus or preliminary long form prospectus and new material scientific or technical information becomes available before the issuance of the final receipt.

**(10) Exception from Requirement to File Technical Report if Information Included in a Previously Filed Technical Report** – Subsection 4.2(8) of the Instrument provides an exemption from the technical report filing requirement if the disclosure document does not contain any new material scientific or technical information about a property that is the subject of a previously filed technical report.

In our view, a change to mineral resources or reserves due to mining depletion from a producing property generally will not constitute new material scientific or technical information as the change should be reasonably predictable based on an issuer's continuous disclosure record.

**(11) Filing on SEDAR** – If an issuer is required under National Instrument 13-101 *System for Electronic Document Analysis and Retrieval (SEDAR)* to be an electronic filer, then all technical reports must be prepared so that the issuer can file them on SEDAR. Figures required in the technical report must be included in the technical report filed on SEDAR and therefore should be prepared in electronic format.

**(12) Reports Not Required by the Instrument** – The securities regulatory authorities in most Canadian jurisdictions require an issuer to file, if not already filed with them, any record or disclosure material that the issuer files with any other securities regulator, including geological reports filed with stock exchanges. In other cases, an issuer might wish to file voluntarily a report in the form of a technical report. The Instrument does not prohibit an issuer from filing such reports in these situations. However, any document purporting to be a technical report must comply with the Instrument.

When an issuer files a report in the form of a technical report that is not required to be filed by the Instrument, the issuer is not required to file a consent of qualified person that complies with subsection 8.3(1) of the Instrument. The issuer should consider filing a cover letter with the report explaining why the issuer is filing the report and indicating that it is not filing the report as a requirement of the Instrument. Alternatively, the issuer should consider filing a modified consent with the report that provides the same information.

**(13) Preliminary Short Form Prospectus** – Under paragraph 4.2(1)(b) of the Instrument, an issuer must file a technical report with a preliminary short form prospectus if the prospectus discloses for the first time mineral resources, mineral reserves, or the results of a preliminary economic assessment that constitute a material change in relation to the issuer, or a change in this information, if the change constitutes a material change in relation to the issuer.

If this information is not disclosed for the first time in the preliminary short form prospectus itself, but is repeated or incorporated by reference into the preliminary short form prospectus, the technical report must still be filed at the same time as the preliminary short form prospectus. Subsections 4.2(5) and (7) of the Instrument, in certain limited circumstances, permit the delayed filing of a technical report. For example, an issuer normally has 45 days, or in some cases 180 days, to file a technical report supporting the first time disclosure of a mineral resource. However, if a preliminary short form prospectus that includes the prescribed disclosure is filed during the period of the delay, subparagraphs 4.2(5)(a)(i) and 4.2(7)(c)(i) require the technical report to be filed on the date of filing the preliminary short form prospectus.

**(14) Triggers with Thresholds** – The technical report triggers in paragraphs 4.2(1)(b), (i) and (j) only apply if the relevant disclosure meets certain thresholds. In these cases, the technical report filing requirement is triggered only for the material property or properties that meet the thresholds.

**(15) Triggers with Permitted Filing Delays** – Subsections 4.2(5), (6) and (7) allow technical reports in certain circumstances to be filed later than the disclosure documents they support. In these cases, once the requirement to file the technical report has been triggered, the issuer remains subject to the requirement irrespective of subsequent developments relating to the property, including, for example, the sale or abandonment of the property.

### 4.3 Required Form of Technical Report

(1) **Review** – Disclosure and technical reports filed under the Instrument may be subject to review by the securities regulatory authorities. If an issuer that is required to file a technical report under the Instrument files a technical report that does not meet the requirements of the Instrument, the issuer has not complied with securities legislation. This includes filing certificates and consents that do not comply with subsections 8.1(2) and 8.3(1) of the Instrument.

(2) **Filing Other Scientific and Technical Reports** – An issuer might have other reports or documents containing scientific or technical information, prepared by or under the supervision of a qualified person, which are not in the form of a technical report. We consider that filing such information on SEDAR as a technical report could be misleading. An issuer wishing to provide public access to these documents should consider posting them on its website.

(3) **Preparation in English or French** – Section 4.3 of the Instrument requires a technical report to be prepared in English or French. Reports prepared in a different language and translated into English or French are not acceptable due to the highly technical nature of the disclosure and the difficulties of ensuring accurate and reliable translations.

## PART 5 AUTHOR OF THE TECHNICAL REPORT

### 5.1 Prepared by a Qualified Person

(1) **Selection of Qualified Person** – It is the responsibility of the issuer and its directors and officers to retain a qualified person who meets the criteria listed under the definition of qualified person in the Instrument, including having the relevant experience and competence for the subject matter of the technical report.

(2) **Assistance of Non-Qualified Persons** – A person who is not a qualified person may work on a project. If a qualified person relies on the work of a non-qualified person to prepare a technical report or to provide information or advice to the issuer, the qualified person must take responsibility for that work, information, or advice. The qualified person must take whatever steps are appropriate, in their professional judgement, to ensure that the work, information, or advice that they rely on is sound.

(3) **Exemption from Qualified Person Requirement** – The securities regulatory authorities will rarely grant requests for exemption from the requirement that the qualified person belong to a professional association.

(4) **More than One Qualified Person** – Section 5.1 of the Instrument provides that one or more qualified persons must prepare or supervise the preparation of a technical report. Some technical reports, particularly for advanced properties, could require the involvement of several qualified persons with different areas of expertise. In that case, each qualified person taking responsibility for a part of the technical report must sign the technical report and provide a certificate and consent under Part 8 of the Instrument.

However, section 5.2 and Part 8 of the Instrument allow qualified persons who supervised the preparation of all or part of the technical report to take overall responsibility for the work conducted under their supervision by other qualified persons. While supervising qualified persons do not need to be experts in all aspects of the work they supervise, they should be

sufficiently knowledgeable about the subject matter to understand the information and opinions for which they are accepting responsibility. Where there are supervising qualified persons, only the supervising qualified persons must sign the technical report and provide their certificates and consents.

**(5) A Qualified Person Must Be Responsible for All Items of Technical Report** – Section 5.1 of the Instrument requires a technical report to be prepared by or under the supervision of one or more qualified persons. By implication, this means that at least one qualified person must take responsibility for each section or item of the technical report, including any information incorporated from previously filed technical reports. If the qualified person, in response to a particular item, refers to the equivalent item in a previously filed technical report, the qualified person is implicitly saying that the information is still reliable and current and there have been no material changes. This would normally involve the qualified person doing a certain amount of background work and validation.

**(6) Previous Mineral Resources or Mineral Reserves** – When a technical report includes a mineral resource or mineral reserve estimate prepared by another qualified person for a previously filed technical report, under section 5.2 and Part 8 of the Instrument, one of the qualified persons preparing the new technical report must take responsibility for those estimates. In doing this, that qualified person should make whatever investigations are necessary to reasonably rely on the estimates.

**5.2 Execution of Technical Report** – Section 5.2 and subsection 8.1(1) of the Instrument require the qualified person to date, sign, and if the qualified person has a seal, seal the technical report and certificate. Section 8.3 of the Instrument requires the qualified person to date and sign the consent. If a person's name appears in an electronic document with (signed by) or (sealed) next to the person's name or there is a similar indication in the document, the securities regulatory authorities will consider that the person has signed and sealed the document. Although not required, the qualified person may sign or seal maps and drawings in the same manner.

### **5.3 Independent Technical Report**

**(1) Independent Qualified Persons** – Subsection 5.3(1) of the Instrument requires that one or more independent qualified persons prepare or supervise the preparation of the independent technical report. This subsection does not preclude non-independent qualified persons from co-authoring or assisting in the preparation of the technical report. However, to meet the independence requirement, the independent qualified persons must assume overall responsibility for all items of the technical report.

**(2) Hundred Percent or Greater Change** – Subparagraph 5.3(1)(c)(ii) of the Instrument requires the issuer to file an independent technical report to support its disclosure of a 100 percent or greater change in total mineral resources or total mineral reserves. We interpret this to mean a 100 percent or greater change in either the total tonnage or volume, or total contained metal or mineral content, of the mineral resource or mineral reserve. We also interpret the 100 percent or greater change to apply to mineral resources and mineral reserves separately. Therefore, a 100 percent or greater change in mineral resources on a material property will require the issuer to file an independent technical report regardless of any changes to mineral reserves, and vice versa.

**(3) Objectivity of Author** – We could question the objectivity of the author based on our

review of a technical report. In order to preserve the requirement for independence of the qualified person, we could ask the issuer to provide further information, additional disclosure, or the opinion or involvement of another qualified person to address concerns about possible bias or partiality on the part of the author of a technical report.

## **PART 6 PREPARATION OF TECHNICAL REPORT**

**6.1 The Technical Report - Summary of Material Information** – Section 1.1 of the Instrument defines a technical report as a report that provides a summary of all material scientific and technical information about a property. Instruction (1) to Form 43-101F1 includes similar language. The target audience for technical reports are members of the investing public, many of whom have limited geological and mining expertise. To avoid misleading disclosure, technical reports must provide sufficient detail for a reasonably knowledgeable person to understand the nature and significance of the results, interpretation, conclusions, and recommendations presented in the technical report. However, we do not think that technical reports need to be a repository of all technical data and information about a property or include extensive geostatistical analysis, charts, data tables, assay certificate, drill logs, appendices, and other supporting technical information.

In addition, SEDAR might not be able to accommodate large technical report files. An issuer could have difficulty filing, and more importantly, the public could have difficulty accessing and downloading, large technical reports. An issuer should consider limiting the size of its technical reports to facilitate filing and public access to the reports.

### **6.2 Current Personal Inspection**

(1) **Meaning** – The current personal inspection referred to in subsection 6.2(1) of the Instrument is the most recent personal inspection of the property, provided there is no new material scientific or technical information about the property since that personal inspection. A personal inspection may constitute a current personal inspection even if the qualified person conducted the personal inspection considerably before the filing date of the technical report, if there is no new material scientific or technical information about the property at the filing date. However, since the qualified person is certifying that the technical report contains all material information about the property, the qualified person should consider taking the necessary steps to verify independently that there has been no material work done on the property since their last site visit.

(2) **Importance of Personal Inspection** – We consider current personal inspections under section 6.2 of the Instrument to be particularly important because they enable qualified persons to become familiar with conditions on the property. Qualified persons can observe the geology and mineralization, verify the work done and, on that basis, design or review and recommend to the issuer an appropriate exploration or development program. A current personal inspection is required even for properties with poor exposure. In such cases, it could be relevant for a qualified person to observe the depth and type of the overburden and cultural effects that could interfere with the results of the geophysics.

It is the responsibility of the issuer to arrange its affairs so that a qualified person can carry out a current personal inspection. A qualified person, or where required, an independent qualified person, must visit the site and cannot delegate the personal inspection requirement.

(3) **More than One Qualified Person** – Subsection 6.2(1) of the Instrument requires at least

one qualified person who is responsible for preparing or supervising the preparation of the technical report to inspect the property. This is the minimum standard for a current personal inspection. There could be cases in advanced mineral projects where the qualified persons consider it necessary for more than one qualified person to conduct current personal inspections of the property, taking into account the nature of the work on the property and the different expertise required to prepare the technical report.

**6.3 Maintenance of Records** – Section 6.3 of the Instrument requires an issuer to keep copies of underlying or supporting exploration information for at least 7 years. In our view, the issuer could satisfy this requirement by keeping records in any accessible format, not necessarily in hard copies.

**6.4 Limitation on Disclaimers** – Paragraph 6.4(1)(a) of the Instrument prohibits certain disclaimers in technical reports.

These disclaimers are also potentially misleading disclosure because, in certain circumstances, securities legislation provides investors with a statutory right of action against a qualified person for a misrepresentation in disclosure that is based upon the qualified person's technical report. That right of action exists despite any disclaimer to the contrary that appears in the technical report. The securities regulatory authorities will generally require the issuer to have its qualified person remove any blanket disclaimers in a technical report that the issuer uses to support its public offering document.

Item 3 of Form 43-101F1 permits a qualified person to insert a limited disclaimer of responsibility in certain specified circumstances.

## **PART 7 USE OF FOREIGN CODE**

**7.1 Use of Foreign Code – Use of Foreign Codes other than Acceptable Foreign Codes** – Section 2.2 and Part 7 of the Instrument require an issuer to disclose mineral resources or mineral reserves using either the CIM Definition Standards or an “acceptable foreign code” as defined in the Instrument. If an issuer wishes to announce an acquisition or proposed acquisition of a property that contains estimates of quantity and grade that are not in accordance with the CIM Definition Standards or an acceptable foreign code, the issuer might be able to disclose the estimate as an historical estimate, in compliance with section 2.4 of the Instrument. However, it might be more appropriate for the issuer to disclose the estimate as an exploration target, in compliance with subsection 2.3(2) of the Instrument, if the supporting information for the estimate is not well-documented or if the estimate is not comparable to a category in the CIM Definition Standards or an acceptable foreign code.

## **PART 8 CERTIFICATES AND CONSENTS OF QUALIFIED PERSONS FOR TECHNICAL REPORTS**

### **8.1 Certificates of Qualified Persons**

(1) **Certificates Apply to the Entire Technical Report** – Section 8.1 of the Instrument requires certificates that apply to the entire technical report, including any sections that refer to information in a previously filed technical report. At least one qualified person must take responsibility for each Item required by Form 43-101F1.

(2) **Deficient Certificates** – Certificates must include all the statements required by subsection 8.1(2) of the Instrument. An issuer that files certificates with required statements that are missing or altered to change the intended meaning has not complied with the

Instrument.

**8.2 Addressed to Issuer** – We consider that the technical report is addressed to the issuer if the issuer’s name appears on the title page as the party for which the qualified person prepared the technical report. We also consider that the technical report is addressed to the issuer filing the technical report if it is addressed to an issuer that is or will become a wholly-owned subsidiary of the issuer filing the technical report.

### **8.3 Consents of Qualified Persons**

(1) **Consent of Experts** – If the technical report supports disclosure in a prospectus, the qualified person will likely have to provide an expert consent under the prospectus rules (section 8.1 of National Instrument 41-101 *General Prospectus Requirements* and section 4.1 of National Instrument 44-101 *Short Form Prospectus Distributions*), in addition to any consent of qualified person required under the Instrument.

(2) **Deficient Consents** – Consents must include all the statements required by subsection 8.3(1) of the Instrument. An issuer that files consents with required statements that are missing or altered to change the intended meaning has not complied with the Instrument. Appendix B to the Policy provides an example of an acceptable consent of a qualified person.

(3) **Modified Consents under Subsection 8.3(2)** – Subsection 8.3(1) of the Instrument requires the qualified person to identify and read the disclosure that the technical report supports and certify that the disclosure accurately represents the information in the technical report. We recognize that an issuer can become a reporting issuer in a jurisdiction of Canada without the requirement to file a disclosure document listed in subsection 4.2(1) of the Instrument. In these cases, the issuer has the option of filing a modified consent under subsection 8.3(2) of the Instrument that excludes the statements in paragraphs 8.3(1)(b), (c) and (d).

(4) **Filing of Full Consent Required** – If an issuer files a modified consent under subsection 8.3(2) of the Instrument, it must still file a full consent the next time it files a disclosure document that would normally trigger the filing of a technical report under subsection 4.2(1) of the Instrument. This requirement is set out in subsection 8.3(3) of the Instrument.

(5) **Filing of Consent for Technical Reports Not Required by the Instrument** – Where an issuer files a technical report voluntarily or as a requirement of a Canadian stock exchange, and the filing is not also required under the Instrument, the report is not a “technical report” subject to the consent requirements under subsection 8.3(1) of the Instrument. Therefore, when the issuer subsequently files a disclosure document that would normally trigger the filing of a technical report under subsection 4.2(1) of the Instrument, the issuer must file the consents of qualified persons in accordance with subsection 8.3(1).

If an issuer files a Filing Statement or other prospectus-level disclosure document with a Canadian stock exchange, and the filing is not also required under the Instrument, the issuer may choose or be required by the stock exchange to file a full consent that includes paragraphs 8.3(1)(b), (c) and (d) of the Instrument as they relate to the Filing Statement or other disclosure document.

## **PART 9 EXEMPTIONS**

## 9.2 Exemptions for Royalty or Similar Interests

(1) **Royalty or Similar Interest** – We consider a “royalty or similar interest” to include a gross overriding royalty, net smelter return, net profit interest, free carried interest, and a product tonnage royalty. We also consider a “royalty or similar interest” to include an interest in a revenue or commodity stream from a proposed or current mining operation, such as the right to purchase certain commodities produced from the operation.

(2) **Limitation on Exemptions** – The term “royalty or similar interest” does not include a participating or carried interest. Therefore, these exemptions do not apply where the issuer also has a participating or carried interest in the property or the mining operation, either direct or indirect.

(3) **Non-Reporting Subsidiaries Included** – Properties indirectly owned by an owner or operator that is a reporting issuer in a jurisdiction of Canada, through a subsidiary that is not a reporting issuer, would satisfy the condition of subparagraph 9.2(1)(a)(i) of the Instrument.

(4) **Consideration of Liability** – Holders of royalty or similar interests relying on the exemption in subsection 9.2(1) of the Instrument should consider, in the absence of a technical report of the royalty holder, who will be liable under applicable securities legislation for any misrepresentations in the royalty holder’s scientific or technical information.

### Appendix A

#### Accepted Foreign Associations and Membership Designations

Foreign Association	Membership Designation
American Institute of Professional Geologists (AIPG)	Certified Professional Geologist (CPG)
The Society for Mining, Metallurgy and Exploration, Inc. (SME)	Registered Member
Mining and Metallurgical Society of America (MMSA)	Qualified Professional (QP)
Any state in the United States of America	Licensed or certified as a professional engineer
European Federation of Geologists (EFG)	European Geologist (EurGeol)
Institute of Geologists of Ireland (IGI)	Professional Member (PGeo)
Institute of Materials, Minerals and Mining (IMMM)	Professional Member (MIMMM), Fellow (FIMMM), Chartered Scientist (CSi MIMMM), or Chartered Engineer (CEng MIMMM)
Geological Society of London (GSL)	Chartered Geologist (CGeol)
Australasian Institute of Mining and Metallurgy (AusIMM)	Fellow (FAusIMM) or Chartered Professional Member or Fellow [MAusIMM (CP), FAusIMM (CP)]
Australian Institute of Geoscientists (AIG)	Member (MAIG), Fellow (FAIG) or Registered Professional Geoscientist Member or Fellow (MAIG RPGeo, FAIG RPGeo)
Southern African Institute of Mining and Metallurgy (SAIMM)	Fellow (FSAIMM)
South African Council for Natural Scientific Professions (SACNASP)	Professional Natural Scientist (Pr.Sci.Nat.)
Engineering Council of South Africa (ECSA)	Professional Engineer (Pr.Eng.) or Professional

	Certificated Engineer (Pr.Cert.Eng.)
Comisión Calificadora de Competencias en Recursos y Reservas Mineras (Chilean Mining Commission)	Registered Member

# Appendix B

## Example of Consent of Qualified Person

[QP's Letterhead] or  
[Insert name of QP]  
[Insert name of QP's company]  
[Insert address of QP or QP's company]

### **CONSENT of QUALIFIED PERSON**

I, [name of QP], consent to the public filing of the technical report titled [insert title of report] and dated [insert date of report] (the "Technical Report") by [insert name of issuer filing the report].

I also consent to any extracts from or a summary of the Technical Report in the [insert date and type of disclosure document (i.e. news release, prospectus, AIF, etc.)] of [insert name of issuer making disclosure].

I certify that I have read [date and type of document (i.e. news release, prospectus, AIF, etc.) that the report supports] being filed by [insert name of issuer] and that it fairly and accurately represents the information in the sections of the technical report for which I am responsible.

Dated this [insert date].

\_\_\_\_\_[Seal or Stamp]  
Signature of Qualified Person

\_\_\_\_\_  
**Print name of Qualified Person**

