# **TECHNICAL REPORT**

# OF THE

# SOMBRERO BUTTE PROJECT

# PINAL COUNTY, ARIZONA, USA

**Prepared For:** 

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# SUMMARY

The Sombrero Butte Project represents a consolidation of patented, unpatented and state mining claims in the Bunker Hill mining district, Pinal County, Arizona. Bell Copper Corporation acquired the patented claims in 2006 from a local rancher and is leasing the unpatented claims from Silver Nickel Mining Company. Production from the Sombrero Butte area is historically recognized, primarily for its copper production along with molybdenum and minor amounts of silver and gold. Hillsides surrounding the project area are composed of Glory Hole and Galiuro volcanics, which were intruded by the Copper Creek granodiorite. The granodiorite is host to a cluster of mineralized breccia pipes scattered throughout the property, which constitute the basis for further exploration. Bell Copper has explored the property since 2006 and has drilled 34 diamond core drill holes to date. Field work following drilling includes a magnetic survey, field mapping, and acquisition of addition claims. It is the opinion of the author that the exploration work completed to date has proven relatively high-grade copper mineralization in breccia pipes related to a porphyry copper-type setting and warrants continued exploration to further delineate the mineral potential of the property.



Figure 1: Location map of Arizona showing the principal porphyry copper mines in relation to the Sombrero Butte project. Map by R. Blakestad, 2010.

# INTRODUCTION

Bell Copper Corporation commissioned the writer (Blakestad) to undertake an independent review of the Sombrero Butte Project located in Pinal County, southern Arizona, USA, evaluate the property's mineral potential, and prepare a qualifying report pursuant to the standards inherent to Canadian National Instrument 43-101.

This document presents a combined historical account and data review, which relies heavily on detailed work of Amy Eichenlaub Snyder and other persons working on behalf of Bell Copper. Ms. Snyder has extensive field experience with the project spanning a period in excess of four years. This report relies on historical reports, maps, assay records, Bell Copper progress reports, and compiled digital data from Bell Copper, and third party documents, as cited in the text and referenced at the end of the report. Important features relating to the geology, alteration and mineralization of the project were verified by direct observations of the writer made during a visit to the property on March 27, 2010.

# **RELIANCE ON OTHER EXPERTS**

This report has been prepared by Rodney Blakestad an Independent Qualified Person, on behalf of Bell Copper Corporation. The information, conclusions, and opinions contained herein are based on:

- Information available to the writer at the time of preparation of this report, including data, reports, and other information supplied by Bell Copper Corporation and other third party sources, whom are considered to be reliable;
- For the title and claim ownership purpose of this report, the writer relied on ownership information provided by Bell Copper Corporation and limited verification available through US Bureau of Land Management and State of Arizona web sites pertaining to mining claims;
- As to environmental matters, the writer relied on personal experience, field observations, and a basic knowledge of what may be required for this project according to general industry standards; and
- Reasonable assumptions, conditions, and qualifications as set forth in this report.

# **PROPERTY DESCRIPTION AND LOCATION**

The Sombrero Butte project is located 44 miles (71 km) northeast of Tucson, near Mammoth, Arizona (Figure 1) in Sections 14, 15, 22, 23, 24, 25, 26, and 36 of Township 8 South, Range 18 East, Gila and Salt River Meridian (see Figure 2).

Bell Copper Corporation has a purchase option on two patented mining claims, the Grand Duke and Gulch Copper claims, comprising 38.1 acres (which includes surface and mineral rights) and 17 unpatented federal mining claims (mineral rights only) covering approximately 320 acres in the Bunker Hill mining district, Pinal County,

Arizona. The claims were optioned from Silver Nickel Mining Company of Glendale, Arizona, and are subject to a 2% NSR royalty. Access to these claims is held under a contract with the Mercer family, dated April 6, 2006, which calls for annual payments of \$30,000 USD, escalating to \$50,000/year while in commercial production.

Bell Copper staked an additional 38 unpatented federal mining claims (approximately 760 acres) and three Arizona State mineral exploration permits (covering 1,760 acres) as listed in Appendix 1. The Company purchased one patented mining claim (9.05 acres in the "Audacious" claim) from the Mercer Trust (US Mineral Survey 3602, Patent #845725), in which a retained 3% NSR royalty was retained by the Trust. The total area of patented and unpatented claims and State exploration permits aggregate approximately 2,887 acres (1,168 ha.). A map showing the land area controlled by Bell Copper is set forth in Figure 2, and Figure 3 shows the mining claims comprising the core area of drilling, including the three patented claims.

The claims are centered over a multiphase intrusive complex of Laramide age, which is the same era when most of Arizona's other large porphyry copper deposits were formed. At the heart of the property is a Laramide "dark porphyry" intrusion, measuring 600 meters by 400 meters. Outcropping within this dark porphyry intrusion is a cluster of 25 breccia pipes, some of which exhibit interstitial fillings of chalcocite, with lesser bornite, chalcopyrite, pyrite and copper oxides. Gangue minerals in the breccia pipes include quartz, specular hematite, tourmaline, and adularia. The breccia pipes and the dark porphyry constitute the focus of on-going exploration of the Sombrero Butte area, and are described in greater detail below.

Access to the area is good and the desert location is amenable to year round operations. There are some historical workings and small waste dumps on the property (estimated to be less than 6,000 tonnes) but no significant environmental liabilities were observed.

Past work on the property was conducted primarily by the Sunset Mining Company in 1917-1919, when 810 feet of subsurface workings were developed. Development work was allegedly interrupted because of a legal dispute with the adjoining Magma Chief Mine, and no production was ever recorded. The ground east of the property was explored in the 1970's by Phelps Dodge Corporation, which was searching for a large porphyry copper deposit.

In the late 1990's, AMT International (AMT) conducted detailed geological, geochemical, and geophysical studies on the property. During this investigation of the property it collected 125 surface rock chip and breccia samples yielding up to 3% Cu and 270 ppb Au (Marsh, 2001). A gamma ray spectrometry survey of the property (Marsh, 2001) comprised 861 stations and showed two regions of highly elevated radioactivity correlating with high rare earth elements in the rock chip samples. Rare earth mineralization and elevated radioactivity are common to other high grade copper-molybdenum breccia pipes in the Bunker Hill mining district (Marsh, 2001).



Figure 2: Bell Copper Corporation claim area, showing the distribution of principal breccia pipes. Map by R. Blakestad (2010) from Bell Copper data



Figure 3: Core claims in Section 22, T8S, R18E. Map by Bell Copper (2008).

Bell Resources Corporation believes that the Sombrero Butte property constitutes a significant opportunity to delineate high grade copper-silver-gold breccia resources. The intrusive complex and breccia pipe cluster are believed to be shallow expressions of a porphyry copper-molybdenum system. A transition with depth from the high grade breccia environment to a larger tonnage porphyry copper system has been tested in phase II drilling – indicating the potential for a deeper seated system. Based on field observations and review of the accumulated exploration data, the author agrees that further exploration of the properties is warranted.

On April 15, 2005, the patented Audacious Lode Claim was purchased from a local rancher. The Audacious Claim is the center of historical mining activities for the Sombrero Butte property. Mining interest in the Audacious claim dates back to 1863 in the Sombrero Butte area (Kuhn, 1941). Surrounding mining claims are held by Silver Nickel Mining Co. and include 2 patented mining claims covering 38.1 acres (the Grand Duke and Gulch Copper mining claims) and 17 unpatented mining claims covering the NW1/4 of Section 23 and portions of Sections 14, 15, 22 of T. 8 S R. 18 E in the southern part of the Copper Creek district. Purchase option agreements were secured on the Silver Nickel claims in October 2005.

In January of 2008, Bell expanded its land holdings to include 38 federal claims and three Arizona exploration permits covering portions of Sections 24, 25 and 36 due to new data discovered during field exploration. The "AMY" claims occur in this new claim area and are of interest because of the breccia pipes they contain. These particular breccia pipes contain a matrix with the mineral dickite, which is monoclinic clay commonly associated with advanced argillic alteration (a favourable alteration product for large, porphyry-type copper deposits).

A list of the claims associated with this project can be found in Appendix 1.

# ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

#### Accessibility

The Sombrero Butte Project is in the Copper Creek district, which is located approximately 40 miles northeast of Tucson, Arizona (Figure 2), and is accessed by car or truck via good gravel roads from Mammoth, Arizona. The drive from Mammoth to the property is approximately 30 minutes. Mammoth is a city of approximately 2,500 people, located along Highway 70. The city has several restaurants and small businesses. The city of Tucson, 45 minutes south of Mammoth, provides access to conveniences of a modern city including the University of Arizona.

# Climate

The climate is typical of the Sonoran desert with dry periods from February to June and September to December. Seasonal temperatures vary from 60-70°F in the winter to 90-105°F in the summer. Increased rainfall during the summer monsoons cause localized flooding in stream beds and washes. The climate is amenable to field work year round.

### **Local Resources**

The property is located 12 miles east of the town of Mammoth. Due to the rural location of the project there is no electricity, and water is limited to local flow in streams and washes on the property. Water for increased drilling activity can be accessed from the town of Mammoth and transported to the project site. During higher periods of rainfall, water could potentially be accessed from the local rancher, who has several pumps in the area. Local resources and land surface are sufficient for future development.

The town of Winkleman is 30 miles to the north of the property. Winkleman is home to the Asarco Smelter and processing complex.

#### Infrastructure

There is currently no infrastructure at the Sombrero Butte project, except for local ranch roads that allow access through and around the project area.

#### Physiography

The property is located on the western front of the Galiuro Mountains, adjacent to the Gila River valley. Elevations on the project site are roughly 4000 ft. in the lower front-range of the mountains. Vegetation consists of cactus, mesquite trees, and low-lying scrubs. The property is easy to navigate on foot due to the open semi-scarce vegetation.

### HISTORY

The Sombrero Butte area has a history dating back to 1863 (Kuhn, 1941) with later mining activity from 1903 to 1920, when Sunset Copper Company ran operations on the Audacious claim. Arizona Mining Journal (1919) reports "low-grade" ore assaying 3-5%, with higher grade ore from along open cuts and tunnels assaying 20-33%, and low-grade dump material assaying 6-8% at the Magma Chief mine, which is now called Sombrero Butte. It is evident from this historic data that there was potentially economic grade copper mineralization present within the breccia pipes at Sombrero Butte.

In the late 1950's, Bear Creek, Magma, Newmont, Phelps Dodge, Siskon Mining, Occidental Minerals, and Humble Oil-Exxon Minerals conducted exploration for porphyry copper deposits in the Copper Creek district (Marsh, 2001). During the 1970's, Ranchers Exploration recovered cement copper from the Old Reliable breccia pipe, located 1.5 miles (2.4 km) in a northerly direction from the Sombrero Butte property, and a large tonnage porphyry-type copper deposit was identified on that property by Newmont and Humble Oil (Guthrie and Moore, 1978; Creasey, et al., 1981).

In 1995, AMT did extensive exploration in the Copper Creek area (two miles north of Sombrero Butte), which led to the discovery of 3 billion pounds of copper occurring in breccia pipes and in related deeper mineralization (Marsh, 2001). AMT was interested in the high-grade ore in breccia pipes and the deeper, large tonnage deposits (Marsh, 2001).

Work was focused on eight of the main breccia pipes, among the more than 500 pipes that occur across the Copper Creek district (Marsh, 2001). AMT had received permits to install a conveyor decline for ore production, but was unable to follow through with actual production.

The last known activity on the Sombrero Butte property was in 1920, so there has been virtually no modern exploration or mining. Bell Resources Corporation now holds the patented Audacious claim and controls other patented and unpatented mining claims surrounding the Audacious. Drilling of several targets was commenced by Bell Copper in August 2006 and continued through January 2008. Bell plans to continue drilling additional diamond core drill holes to test the various breccia pipes for economic mineralization, and to search for a link between the breccia pipes and possible larger scale porphyry copper deposits at depth. Exploration results to date are encouraging and provide indications that porphyry copper style mineralization may exist at depth - below the breccia pipes.

# **GEOLOGICAL SETTING**

# **Geologic Overview**

The Copper Creek mining district is underlain by Cretaceous sedimentary rocks which have been covered by a series of volcanic tuffs and flows, which were then intruded by a series of granitic to dioritic plutons. The Copper Creek Granodiorite intruded the Cretaceous rocks and is the main host rock for the breccia pipes and related porphyries at Sombrero Butte. Tertiary andesitic dikes and basaltic lava flows are intersected in drill core and outcrop in the field area.

The Precambrian basement that underlies the Galiuro Mountains and the San Pedro basin to the west is composed of Pinal Schist. The Pinal Schist is overlain by sedimentary strata of the Precambrian Apache Group, which includes the Drippings Springs Quartzite and Mescal Formation. The Apache Group is overlain by folded Paleozoic sedimentary rocks of the Bolsa Quartzite, Martin Formation, and Escabrosa Limestone and Mesozoic rocks of the Pinkard Formation (Guthrie and Moore, 1978).

The Cretaceous Glory Hole Volcanics cover the area to the west and comprise a heterogeneous pile of andesite to latitic tuffs, welded tuffs, breccias, lavas, and flow breccias (Guthrie and Moore, 1978). The Glory Hole Volcanics host several breccia pipes.

The Copper Creek granodiorite is the most widespread Laramide intrusion in the Sombrero Butte area and serves as the dominant host rock for the breccia pipes. The rock has been dated by K-Ar and  $^{40}$ Ar/<sup>39</sup>Ar methods, yielding ages between ~60 and 68 Ma (Creasey and Kistler, 1962; Guthrie and Moore, 1978; Anderson et al., 2003). Mineralization in the breccia pipes, which are situated above cogenetic intrusive porphyry bodies, has been dated by K-Ar, Re-Os, and  $^{40}$ Ar/<sup>39</sup>Ar methods, yielding ages from ~57-60 Ma (McCandless and Ruiz, 1993; Anderson et al., 2003).

The post-mineralization Tertiary Galiuro Volcanics are to the west of the principal area of investigation and form the tops of the Galiuro Mountains and the range-front knob of Sombrero Butte (see Figure 4).



Figure 4: General geology of the Sombrero Butte area showing breccia pipes (dots) and the Bell Copper area of interest (red outline). Map redrawn by R. Blakestad, 2010.

# **Structural Setting**

The Copper Creek district lies along a northwest to southeast trend of Laramide porphyry copper centers in Arizona. The district lies to the east of the San Pedro trough. The San Pedro trough is an elongate structural depression flanked on the southwest by the Catalina core complex and bounded on the northeast by the faulted range fronts of the relatively un-deformed Galiuro and Dripping Spring Mountains (Dickinson, 1991).

The range-front fault lies to the west of the Sombrero Butte system, dipping steeply to the west. The Copper Creek, Childs-Aldwinkle, American Eagle, and Sombrero Butte breccia pipes all lay within three parallel belts that trend N30W. A strong N50W fault zone hosting quartz - sericite - tournaline alteration cuts Glory Hole Volcanics along the

southwestern edge of the district and apparently predates emplacement of the Copper Creek Granodiorite, which locally intrudes it (Guthrie, 1994; Marsh, 2001). The Copper Creek Granodiorite and the Glory Hole Volcanics are strongly fractured along directions of N50- 85E and N-S to N25W (Walker, 1979). These fracture directions are consistent with ENE and NNW fracture directions observed in other Laramide porphyries in the southwestern U.S. and most likely reflect a regional Laramide tectonic event (Rehrig and Heidrick, 1972; Heidrick and Titley, 1982; Walker, 1979).

There are several oxidized siliceous outcrops that strike E-W across the Sombrero Butte area, with dominant joint and fracture sets striking N20W. Marsh (2001) and others have conducted extensive work with stereographs and histograms of vein attitudes in the Copper Creek area. Results show that there is no evidence of fault-controlled dilation or fracture set intersections that control mineralization in the central part of the district (Marsh, 2001). The data sets show a random distribution of vein wall orientations, which might be expected for irregular, open-space fillings, surrounding angular breccia rock clasts similar to those observed in the Copper Creek (Marsh, 2001) and Sombrero Butte areas.

The main structures of significance are thought to be syn-formation ring fractures that form a "halo" around the breccia pipes. These ring fractures, which also are observed in association with other breccia pipes (e.g., Sillitoe, 1985), act as traps for fluids circulating through the pipe and contribute to the localization of ore-grade mineralization.

### Local Geology- The Audacious Area

The Audacious claim is at the center of the Sombrero Butte area. Twenty-five known hematite-stained breccia pipes crop out across this area of rocky, rolling hills, and steeper volcanic bluffs that are surrounded by granodiorite (see Figure 5). Of the known outcropping breccia pipes, two exhibit strong copper mineralization in drill core to depths in excess of 300 m (the Magna and Campstool pipes).



Figure 5: Simplified geology map of the area around Audacious claim showing the breccia pipes drill in Phase I drilling. Map by Eichenlaub, (2007).

At the surface, the pipes show a variety of mineralization. Pipes dominantly exhibit various degrees of oxidation as hematite or goethite, but other pipes show strong chrysocolla or moderate bornite  $\pm$  chalcopyrite at the surface. The differences in mineralization at the surface appear to be a result of varying depths of the paleo-water table. To date, the majority of the pipes explored that were visible at the surface as hematitic outcrops do extend to depths of 300-645 m and contain chalcopyrite - chalcocite  $\pm$  bornite mineralization varying from 0.58 - 2.06% Cu. Detailed descriptions of the pipes will be discussed in following sections.

# Laramide volcanic rocks

The Cretaceous Glory Hole Volcanics (Krieger, 1968) is a prominent geologic unit in the Copper Creek district and at Sombrero Butte. This unit includes rhyodacites, quartz latites, vitric tuffs, tuffs, and breccias, which tend to be converted to hornfels adjacent to the Copper Creek granodiorite. The Glory Hole Volcanics host several breccia pipes at Sombrero Butte, which indicates that pipe formation must have occurred after the extrusion of these volcanic rocks.

# **DEPOSIT TYPES**

# **Porphyry Environment**

Porphyry deposits of the southwest U.S. have similar characteristics that allow them to be grouped as porphyry copper deposits. Several significant features of porphyry copper deposits as outlined by Creasey (1966) are: (1) their close relation to stocks, dikes, and sills of porphyries with a composition that ranges from granodioritic to quartz monzonitic, (2) a geologic age of Late Cretaceous to early Tertiary (55-70 Ma), (3) they contain characteristic sulfide minerals such as chalcopyrite, pyrite, and molybdenite, (4) hydrothermal alteration has affected the ore zone and surrounding rocks for large extents (hundreds to thousands of meters), (5) large volumes of the porphyry and wall rocks have been uniformly altered. Although these are general features of many of the deposits in the southwest, they are also apparent at Sombrero Butte. The host rock is granodiorite dated at 60 – 68 Ma with breccia pipes containing chalcopyrite-chalcocite-bornite mineralization having moderate to strong potassic K-feldspar alteration of breccia and host rock that extend to 645 m (2110 ft) depth. These general characteristics qualify Sombrero Butte as a porphyry copper system. These aspects along with the detailed descriptions suggest that the breccia pipes may be linked to an underlying porphyry deposit.

#### Breccia pipes and porphyry copper deposits

The deep seated porphyry copper environment, that is of interest at Sombrero Butte exhibits strong similarities to other porphyry deposits in southwestern Arizona. The granodiorite that has been observed beyond the extent of breccia shows pervasive K-feldspar alteration associated with stockwork style quartz – chalcopyrite – pyrite veins. The intense K-feldspar alteration continues downward from the breccia pipe into the porphyry environment indicating that the same fluids may have traveled through both rock types.

At the San Manuel- Kalamazoo deposit located 8 km to the south of Sombrero Butte, Lowell and Gilbert (1970) give detailed accounts of the potassic alteration in the porphyry environment. In Copper Creek to the north of Sombrero Butte, Marsh (2001) also refers to stockwork style mineralization in deeper portions of the system. In looking at mineralized breccia pipes at Copper Basin, Arizona, located 250 km to the northwest, Johnston and Lowell (1961) state that 'overall mineralization is remarkably similar to the porphyry copper type in the southwest.' Their observations of sulfides deposited in cracks and voids within quartz and as disseminations are typical characteristics of a porphyry deposit. This is similar to what has been observed at Sombrero Butte and gives credence to the pipes relation to porphyry deposits.

#### MINERALIZATION

#### Grade distribution

The copper grade within breccia pipes is variable vertically and horizontally. The pipes at Sombrero Butte show relatively high concentrations of copper in the form of bornite, chalcocite, chalcopyrite, chrysocolla, and a yellow Ca-Cu-As hydroxide named "conichalcite". Pipes mineralized with chrysocolla and conichalcite typically occur near the surface and extend to depths of ~80m and are indicative of the oxidized portion of the supergene environment (e.g., Anderson, 1982). Disseminated chalcocite is present at greater depths in the supergene sulfide environment, but commonly in association with hypogene sulfides. Though the copper grades are locally enriched in chalcocite-bearing rocks, the lateral and vertical extent of enrichment is more limited than in most porphyry copper settings (e.g., Anderson, 1982; Sillitoe, 2005). From 272-294 m, grades of 0.58% Cu occur as a mixture of chalcocite + bornite + chrysocolla  $\pm$  cuprite. From the oxidized portion of the supergene zone, the mineralization proceeds downward into a zone where supergene chalcocite occurs with the hypogene minerals bornite+chalcopyrite+chalcocite +pyrite. The highest grade mineralization in the Campstool pipe occurs at 470-492 m as 1.31% Cu in the form of bornite+chalcopyrite in clast-supported breccia. This interval also contains a smaller high-grade interval from 480- 492 m of 2.06% Cu as bornite+ chalcopyrite. In this 22 m-wide zone, the majority of the bornite+chalcopyrite occurs disseminated in the cement between clasts, but also occurs in the clast matrix to a limited extent.

There is limited data concerning the lateral distribution of mineralization due to the predominance of evidence coming from steep to vertical drill holes. From observations of outcrops, it appears that mineralization along the edges of the pipes tends to be higher grade than within the core of the pipe. It appears in some cases, where ring fractures are exposed, that mineralization is strongly concentrated along the vertical ring fractures parallel to the pipe walls. At Victor's pipe, where the ring fractures contain tourmaline+ bornite+chalcopyrite, mineralization within the breccia pipes dominantly occurs as cement in the interstices between clasts. In extreme cases, the combined matrix + cement can be entirely composed of sulfides  $\pm$  quartz or calcite. There is minor mineralization observed in the clasts themselves although it is not uncommon to find sulfide veins crosscutting clasts. This observation suggests that mineralization is closely associated with the cement that precipitated between the clasts. Figure 6 is a generalized mineralogic column for drill hole SB-03 in the Campstool pipe showing the progression of mineralization with depth.

The deepest drilled zone of mineralization, was encountered in drill hole SB-03 from 492-645 m. The interval is composed of strong to moderate amounts of chalcopyrite with associated weak bournite, grading approximately 886.5 ppm Cu. This deep zone of mineralization transitions from the breccia pipe environment into the underlying granodiorite.

The underlying granodiorite shows mineralization in similar form to some of the chalcopyrite observed in the breccia pipes with notable alteration differences. At depths

of ~500 m, the granodiorite exhibits stockwork style veins of quartz + K-feldspar + chalcopyrite, which extends to a depth of 610 m in drill hole SB-23. From 610-645 m quartz + K-feldspar veins continue as thin, hairline veinlets containing minor chalcopyrite. Field observations by the writer indicate that many veins and veinlets in the granodiorite are commonly associated with pervasive K-feldspar flooding and locally with selvages of advanced argillic alteration to phyllic alteration.



Figure 6: Generalized vertical representation of mineralization associated with breccia pipes at Sombrero Butte. (Illustration by Snyder, 2008)

# **EXPLORATION**

The Copper Creek district has been explored for copper for numerous years. Modern drilling and geological concepts have only recently been used to explore the district. Red Hawk Resources worked the main portion of the district, located one mile north of the Sombrero Butte Project.

Bell Copper Corporation has drilled 34 diamond drill holes on the Sombrero Butte property during 2007- 2008 with encouraging results. Field exploration in 2008 revealed additional breccia pipes to the south-southeast of the Audacious claim area, exhibiting evidence of advanced argillic alteration.

The newly discovered group of breccia pipes is of particular interest because of the distribution of advanced argillic alteration occurring within the breccia matrix. Advanced argillic alteration of five of the breccias is indicated by the presence of translucent bluegreen dickite (Al<sub>2</sub>Si<sub>2</sub>O<sub>5</sub>(OH)<sub>4</sub>) forming the breccia matrix. Dickite is an alumino-silicate clay that forms at temperatures of 150°-270°C under very acidic conditions. Positive identification of the dickite was made using a PIMA infrared spectrometer as well as a Thermo Nikolet Almega microRaman spectrometer at the University of Arizona RRUFF laboratory.

Dickite and other minerals characteristic of advanced argillic alteration have been found in several other high grade, major porphyry copper systems, including Resolution, Bisbee, and San Manuel; these are well known copper deposits located in the Laramide porphyry copper belt in Arizona (San Manuel is 19 kilometers west of Sombrero Butte). In addition to these localities, dickite has also been recognized elsewhere in the world associated with other major copper deposits such as Oyu Tolgoi in Mongolia, Butte, Montana, Cananea, Mexico, and El Salvador, Chile. In these deposits, dickite is associated with high grade copper minerals such as digenite, chalcocite, and bornite.

X-ray fluorescence analyses of iron oxide minerals in the dickite-bearing breccias show anomalous copper, molybdenum, and arsenic. The dickite-bearing area also contains younger porphyry intrusions, abundant tourmaline, and sericitic alteration of the porphyry intrusions.

No evidence has been found of previous drilling in any of the dickite altered breccia pipes. Fieldwork will continue in order to develop a better understanding of these new breccia pipes and to formulate the next phase of drilling at Sombrero Butte, which will focus on this area of advanced argillic alteration.

The results of exploration work conducted by Bell Copper Corporation reviewed by the writer and reported here is consistent with the geological model for breccia pipes in a porphyry copper setting.

# DRILLING

Twenty-three drill holes have been completed on the project in the Phase I drill program, exploring eight of the more than twenty five known breccias. Highlights of the Phase I program are shown in Table 1 below:

BRECCIA	DRILL				
TARGET	HOLE	FROM	ТО	METERS	% CU
Magna & Sunset	SB-01	Leached breccia, no significant intercepts			
Magna	SB-02	286m	334m	48m	1.06%
	incl.	318m	328m	10m	2.04%
Campstool	SB-03	272m	294m	22m	0.58%
	SB-03	470m	492m	22m	1.31%
	incl.	480m	492m	12m	2.06%
Magna	SB-04	Leached b	<u>reccia, no sig</u>	nificant interc	epts
Sunset	SB-05	18m	40m	22m	4.74%
Magna	SB-06	330m	342m	12m	1.34%
Sunset	SB-07	38m	47.56m	9.56m	5.57%
Sunset	SB-08	44m	48m	4m	5.62%
Rattler	SB-09	96m	110m	14m	0.83%
Rattler	SB-10	no signific	ant intercepts	s, leached bre	ccia
Rattler	SB-11	312m	342m	30m	0.37%
Audacious	SB-12	12m	26m	14m	2.90%
Audacious	SB-13	22m	24m	2m	5.85%
Audacious	SB-14	20m	86m	66m	1.45%
Audacious	SB-14	34m	46m	12m	2.33%
Audacious	SB-15	16m	36m	20m	3.07%
	including	22m	28m	6m	5.69%
Audacious	SB-16	0m	14m	14m	1.71%
	SB-16	22m	46m	24m	2.12%
	including	22m	26m	4m	4.75%
Audacious	SB-17	0m	8m	8m	3.23%
Audacious	SB-18	0m	12m	12m	2.32%
	SB-18	22m	38m	16m	1.95%
Audacious	SB-19	20m	42m	22m	2.97%
	including	20m	24m	4m	5.91%
	including	34m	38m	4m	4.76%
Sunset	SB-20	4m	16m	12m	2.50%
	including	8m	12m	4m	4.03%
Saguaro	SB-21	no significant intercepts			
Victors	SB-22	no significant intercepts			

Table 1: Phase I drill results for the Sombrero Butte project.

The initial Phase I drilling explored seven breccia pipes located in and around the Audacious claim (see Figure 5). The Saguaro and Victors pipes were the only pipes without significant copper intercepts during this initial phase. Drilling to date indicates that the vertical extent of mineralization may extend to depths of 300 to 500 meters within the breccia pipes.

Phase II drilling focused more on the Victors breccia and also returned significant copper mineralized intervals. Phase II drilling included 12 additional core holes testing the Magna and Victor's breccia pipes. Diamond drill hole SB-23 was the deepest drill hole to date at a total depth of 1230 meters. SB-23 was drilled in order to test the deeper portions of the system.

BRECCIA	DRILL HOLE	DIP	FROM	ТО	METERS	% CU
TARGET						
Magna	SB-23	90	282	354	72	0.88%
Magna	SB-23	90	458	484	26	2.03%
Victor's	SB-24	80	0	20	20	1.27%
Victor's	SB-25	90	0	12	12	2.05%
Victor's	SB-26	85	0	12	12	2.25%
Victor's	SB-27	75	14	30	16	1.22%
Victor's	SB-28	90	14	20	6	1.36%
Victor's	SB-29	75	4	70	66	0.61%
Victor's	SB-30	82	10	40	30	0.86%
Victor's	SB-31	74	2.6	8	5.4	2.07%
Victor's	SB-32	81	2	8	6	2.47%
Victor's	SB-33	75	6	24	18	1.80%
Victor's	SB-34	85	8	24	16	1.77%

Table 2: Results of Phase II drilling at Sombrero Butte project.

The location of the drill hole collars for Phase I and Phase II are shown on Figure 7.



Figure 7: Drill site collar locations for drill holes SB-01 through SB-34, showing the location of breccia pipes tested by the respective drill holes. Map by R. Blakestad, 2010.

Two significant zones of mineralization were intercepted in SB-23, the first at 282-354m (72 m with 0.88% Cu) and the second at 458-484m (26 m of 2.03% Cu). Results from the Magna breccia were similar to assays from drill hole SB-03, drilled into the Campstool breccia pipe, which returned good copper values from intervals in the ~280 meters and ~490 meters depths. The upper portion of the Magna breccia in SB-23 showed oxidation to 502 meters, which included various mineralized zones containing chrysocolla – chalcocite – native copper. Near 500 meters depth the oxide mineralization transitioned downward into primary mineralization in the form of bornite – chalcopyrite – chalcocite – pyrite as veinlets and disseminations.

The Campstool breccia in SB-03 showed these same mineralogical transitions at similar depths. The strong correlation of copper grades and mineralogy between SB-23 and SB-03 lead the writer to conclude that at these depths of copper mineralization, the Magna and Campstool breccias have merged to form a single mineralized body between 80 and 100 meters in diameter. The likely origin of the oxide copper mineralization as a supergene blanket together with the steep inclination of the drill hole lead the Company to believe that the intersection thicknesses reported for SB-23 in the above table are approximately true thicknesses. Additional drilling would be needed to confirm this conclusion.

The lower half of SB-23 intersected variably mineralized granodiorite to 1231 meters. Local bornite-chalcopyrite veinlets, quartz-molybdenite veinlets, and spotty scheelite (tungsten) mineralization associated with both potassic and sericitic alteration were observed as 1- to 2-meter-wide zones in the deeper portions of the drill hole, though the sought-after porphyry body was not intersected. However, copper-bearing Grey Porphyry was intersected throughout the shallower breccia interval as matrix and as dikes. Grey Porphyry was also previously observed in a different breccia pipe in drill holes SB-02 and SB-06. In each case the Grey Porphyry contains disseminated chalcopyrite – pyrite mineralization and is believed to be a possible mineralizing source for the pipes. This observation of Grey Porphyry in a second pipe indicates that it is more widespread in this system than previously known.

Although the granodiorite deep in the hole exhibited the expected porphyry copper indicators such as potassic and sericitic alteration and copper and molybdenum sulfide mineralization, the extent and intensity of mineralization observed was not consistent with a porphyry source directly beneath the breccia pipe cluster. Geological features in drill hole SB-23 support the concept of a deeper-seated porphyry system feeding the mineralized pipes at Sombrero Butte, though the apex of the porphyry system may be offset substantially from the surface location of the Magna breccia pipe.

Drill holes SB-24 through SB-34 targeted the Victor's breccia, situated 700 meters northeast of the Magna breccia. Hole SB-24 was drilled at an -80° vertical angle to a depth of 67.5 meters to test the downward continuation of outcropping tourmaline breccia carrying bornite and chalcopyrite. SB-24 cut 20.0 meters averaging 1.28% copper starting from the surface. The upper 9.5 meters of this interval was tourmaline breccia

and last 11.5 m was hosted in ring fractures and veins dominated by chalcopyrite. The plunge of the Victor's breccia is not defined by current drilling, but it is believed to be steep. Ten additional core holes have been completed to date to determine some defining dimensions of Victor's breccia.

Drill hole SB-25 was drilled at 90° and SB-26 was drilled at 85° in a northwesterly direction, defining what is thought to be the eastern wall of the Victor's pipe. Drill holes SB-26 (85°) and SB-27 (75°) were collared just north of the breccia outcrop. Drill holes SB-28 through SB-30 were drilled at an azimuth of 200° to the southwest from a common collar point. Drill holes SB-28 (90°), SB-29 (75°), and SB-30 (82°) defined the southwestern wall of the breccia and resulted in the longest mineralized breccia intersection at 66 meters. SB-29 intersected breccia from 2.7m to 72m and SB-30 intercepted breccia from 9.63m to 41m. These drill holes indicate that the Victor's breccia may be plunging steeply to the southwest.

Drill holes SB-31 and SB-32 were drilled to the west-southwest at -74° and -81°, respectively. Both drill holes resulted in shorter mineralized intervals with total copper of 2.07% from 2.6-8m in SB-31 and 2.47% total copper from 2-8m in SB-32. Two additional holes were drilled in a northwesterly direction from the southeast side of the breccia, with hole SB-33 at -75° and hole SB-34 at -85°. SB-33 resulted in an 18 meter intercept of 1.80% total copper from 6-24m and SB-34 returned 16 meters of 1.77% total copper from 8-24m; both of these mineralized intervals were in breccia.

Preliminary modeling indicates the Victor's breccia plunges steeply to the southwest. Estimated dimensions of the breccia near surface are approximately 21meters in a North-South direction by 18 meters in an East-West direction. The breccia extends from surface at least 70 meters in depth, and is open at depth.

The Company is plans to conduct additional geological exploration across the Sombrero Butte property to determine if other breccia pipes may occur within a few hundred meters of the Magna breccia and other breccias that may lead to discovery of the apex of a deeper mineralized porphyry system.

# SAMPLING METHOD AND APPROACH

All drill core was sampled by a Bell Copper geologist. Samples were taken on three meter intervals, and field blanks and certified standards were inserted into the sample sequence on a regular basis.

The core logging procedures included one geologist and two technicians. The geologist was responsible for the logging and sampling and sample delivery to the lab, while the technicians were responsible for footage to metric conversions of core, rock quality data (RQD) measurements, photography, and core splitting with the saw. The footage to metric conversions were checked and verified by the geologist throughout the

program. Rock quality data and photography were collected for all the drill holes. Drilling of core included HQ (2.5in) and NQ (1.87in) core diameters.

The footage to metric conversions was completed first, followed by photographing of each box of core, and then measurement of RQD. While these steps were being completed the geologist conducted an initial "quick" log of the major geology and mineralization zones. Detailed logging commenced after the major parameters for handling the drill core were determined.

Once photographs were taken, the geologist marked sample intervals and saw lines on the core. Saw lines were scribed along the core axis in order to divide the mineralization in equal amounts between the two halves of the core. Technicians sawed the core and replaced it in the box for the geologist to sample. When ready the geologist would sample the core in two-meter or three-meter intervals, insert blanks and standards, and select intervals for duplicates, while giving each sample a unique sample number. For duplicate samples, the technicians would quarter one half of the core remaining from the original sample. Sampling occurred along with detailed geologic logging, while in some cases sampling occurred before detailed logging. All core was sampled, bagged on site, stored in a secure area until it was sent to the lab for assay.

# SAMPLE PREPARATION, ANALYSES AND SECURITY

Samples remained in the possession of Bell Copper employees at the project site until shipped to Skyline Laboratories in Tucson, Arizona. Samples were hand-delivered by the geologist from Mammoth, AZ to Skyline labs in Tucson. Trace-element abundances were measured by inductively coupled plasma (ICP) mass spectrometry at Actlabs, Inc., in British Columbia, Canada (see www.actlabs.com/gg\_rock\_trace\_can.htm for analytical procedures). ICP was used to analyze for Au, Ag, Cd, Cu, Mn, Mo, Ni, Pd, Zn, S, As, Ba, Hg, Sb, and W. Samples with copper values in excess of the analytical limit for ICP (10,000 ppm Cu) were automatically re-analyzed by assay techniques. Other samples returning elevated ICP analytical results were also re-analyzed by standard assay procedures of Skyline Labs and/or Actlabs, Inc.

All samples were collected and prepared for submittal to independent analytical labs in accordance with Bell Copper Corporation protocols, as previously described.

It is the opinion of the writer that the sample preparation, analysis, and security of the samples are acceptable, were supervised by professional persons, and meet generally accepted industry standards.

# **DATA VERIFICATION**

Analytical data received from Skyline Laboratories and Actlabs, Inc. underwent quality assurance/quality control (QA/QC) procedures as required by Bell Copper Corporation. The QA/QC procedures included the insertion of field blanks, duplicate samples and certified standards. The field blank consisted of volcanic tuff, which went

through previous testing to verify negative mineralization content. Certified standards were obtained thru WCM Minerals and represented values ranging from 0.47-2.60% Cu, 0.023-0.083% Mo, 1.04-43 g/t Ag, and 38 g/t Au. Certified standards, field blanks, and duplicate samples were utilized every 20 meters or every 25th sample. The writer reviewed the tables of assay data for the drill core and associated standards, duplicates and blank samples. The working database of drill sample results was compared against photocopies of laboratory assay sheets, with no errors or alterations detected.

The writer's review of the sample standard assay results for copper indicates that all but two of 66 standard samples resulted in assay values within 5% of the stated standard value. Of the two sample assays outside the 5% range, one was 6% high and other was 6% low of the certified standard value. Of the 112 field blanks submitted with the core samples, six returned values in excess of 100 ppm Cu, with the highest blank value being 290 ppm Cu. With "ore-grade" values expected to be in the range of 5,000 ppm (~0.5%) Cu for this project, the few aberrant values in the field blank suite of samples are considered to be insignificant. Based on a review of the assay data for this project, the analytical results for copper are deemed to be acceptable.

A review of the analytical results for other elements, including gold, silver, molybdenum, lead and zinc, and a scan of the other elements reported in the analytical suite, did not indicate any other metals of significant economic potential or environmental concern.

# ADJACENT PROPERTIES

Sombrero Butte and the Bunker Hill mining district lie along a north-northeast to south-southwest trending copper belt that is well known throughout Arizona. The porphyry copper belt contains many productive copper deposits such as San Manuel-Kalamazoo, Asarco's Ray deposit, Morenci, Resolution, and the Miami-Globe district (see Figure 1).

The Sombrero Butte project is the southern portion of the Bunker Hill mining district. The northern part of the district is controlled by Red Hawk Resources and comprises the main portion of the district with the most significant historical copper production. The writer has not undertaken a review of published or unpublished reports concerning these adjacent properties. The writer did observe several outcrops of mineralized and altered rocks from the Red Hawk area during the field examination, but no opinion is offered here as to any similarities or differences in the geology or mineralization.

# MINERAL PROCESSING AND METALLURGICAL TESTING

To the writer's knowledge, no metallurgical testing has been performed on samples from the property. As of this date, the Sombrero Butte property constitutes an exploration target which merits additional attention and further exploration. Metallurgical testing and mineral processing concepts should be considered in the future, when larger volumes of mineralized rock for potential development are defined. Core from the mineralized sections of all drill holes should be retained in secure storage for future considerations regarding metallurgical testing.

# MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

No mineral resources or mineral reserve estimates have been determined for the property. Continued exploration and drilling of the Sombrero Butte property is necessary to determine the potential resource.

# **OTHER RELEVANT DATA AND INFORMATION**

There currently are no environmental concerns recognized on the property. Under current U.S. mining laws, an environmental assessment report is required for exploration permitting. This report requires a plan of operations and reclamation plan. These reports should be prepared, reviewed and updated on a periodical basis to maintain an on-going sensitivity to changing conditions at the project site.

# INTERPRETATION AND CONCLUSIONS

It is the opinion of the writer that Bell Copper has completed sufficient early stage exploration, sampling, and core drilling to indicate that further geological exploration and testing of the property are warranted. Relatively high-grade copper intercepts obtained from breccia intercepts in the drilling reported here suggests that the breccia pipes have grades worthy of further evaluation for mining by open pit, underground, or a combination of the two mining methods. An objective review of the location of the drill holes in relation to the local topography, utilizing perspectives available with Google Earth, indicate that open pit mining could be considered for some portions of currently identified zones of mineralization. The deeper intercepts of copper mineralization, however, may be partly or largely restricted to underground mining constraints.

# RECOMMENDATIONS

Additional drilling and geological testing is required to delineate the extent of mineralization in-, adjacent to-, and beneath the system of breccia pipes on the property. Continued exploration is also necessary in order to determine the mineral potential of the property to the south-southeast. Current data indicates a partially delineated footprint of a potentially large, relatively high-grade copper system and more work on the property is warranted and recommended.

It is recommended that an Induced Potential survey be completed over the project area with a "deep-looking" array to evaluate the area for concentrations of disseminated and veinlet sulfide concentrations, and porphyry style alteration at depth.

Additional deep drilling is recommended in two phases. The initial phase of drilling should test the dickite bearing breccia pipes in the southwest part of the project area. A deep drill hole of approximately 1,000 meters is recommended, with two or more angle holes to be whip-stocked off the initial deep drill hole.

A detailed budget for this work has not been compiled, but it is estimated that the IP survey should be in the range of \$75,000 USD and all-in drilling and support costs of \$175,000 per 1,000 meters of drilling. With three whip-stocks of 500 meters each (1,500 meters) and the initial hole at 1,000 meters, the all-in drilling cost of \$437,500 is estimated. Total estimated cost of this recommended phase of exploration is \$512,500. With a 15% contingency (\$76,900), the cost of IP + drilling, should be approximately \$589,400.

It is recommended that a follow-up phase of exploration consist of continued deep drilling with whip-stock angle drilling, similar to above, at locations identified by the results of the work recommended above. Preliminary engineering and metallurgical studies should be implemented during this second phase of work, which should be expected to be in the range of ~\$1,000,000 per year, depending on local market prices.

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# CERTIFICATE OF QUALIFICATIONS AND DECLARATION

I, Rodney A. Blakestad do hereby certify that:

1) I currently reside at 1602 W. Placita Sin Nieve, Sahuarita, Arizona 85629.

2) I am a graduate of the University of Alaska at Fairbanks, 1973 with a B.Sc. in Geology.

3) I have worked as an exploration and mining geologist for more than 35 years with significant experience in exploration and evaluation of porphyry copper systems.

4) I am a Practicing Member in good standing with the American Institute of Professional Geologists (#4899) since 1980.

5) I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101), and past relevant work experience, I fulfill the requirements of a "qualified person" for the purposes of NI 43-101.

6) I am responsible for all sections of the report entitled: Technical report of the Sombrero Butte project, Pinal County, Arizona, USA.

- 7) I have not had prior involvement with the property that is the subject of the Technical Report.
- 8) To the best of my knowledge, I am not aware of any technically related material fact or change with respect to the subject matter of the Technical Report that, if not reflected in the Technical Report, the omission to disclose which would make the Report misleading.
- 9) I am Independent of the issuer applying all of the tests in section 1.5 of NI 43-101.
- 10) 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.
- 11) I consent to the filing of the Technical Report by **Bell Copper Corporation** with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electron publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 12th day of May, 2010.

Johney A. Slokesters

Rodney A. Blakestad, J.D., C.P.G.

# ADDITIONAL REQUIREMENTS FOR TECHNICAL REPORTS ON DEVELOPMENT PROPERTIES AND PRODUCTION PROPERTIES

There are no mining operations currently involved at the Sombrero Butte property and none have been planned to date. Due to the relatively early stage of exploration, no significant metallurgical or recoverability tests have been performed. Matters concerning economic analysis, mining plans and capital costs should be addressed in the future, as warranted.

FEDERAL MINING CLAIMS STAKED BY/FOR BELL RESOURCES CORP.:						
Claim Name	BLM AMC#	Owner	Claim Name	BLM AMC#	Owner	
Max 5	371538	Bell Resources	Max 24	371557	Bell Resources	
Max 6	371539	Bell Resources	Max 25	371558	Bell Resources	
Max 7	371540	Bell Resources	Max 26	371559	Bell Resources	
Max 8	371541	Bell Resources	Max 27	371560	Bell Resources	
Max 9	371542	Bell Resources	Max 28	371561	Bell Resources	
Max 10	371543	Bell Resources	Max 29	371562	Bell Resources	
Max 11	371544	Bell Resources	Max 30	371563	Bell Resources	
Max 12	371545	Bell Resources	Max 31	371564	Bell Resources	
Max 13	371546	Bell Resources	Max F1	371533	Bell Resources	
Max 14	371547	Bell Resources	Max F2	371534	Bell Resources	
Max 15	371548	Bell Resources	Max F3	371535	Bell Resources	
Max 16	371549	Bell Resources	Max F4	371536	Bell Resources	
Max 17	371550	Bell Resources	Max F5	371537	Bell Resources	
Max 18	371551	Bell Resources	AMY 7	396287	Bell Resources	
Max 19	371552	Bell Resources	AMY 9	396288	Bell Resources	
Max 20	371553	Bell Resources	AMY 11	396289	Bell Resources	
Max 21	371554	Bell Resources	AMY 13	396290	Bell Resources	
Max 22	371555	Bell Resources	AMY 15	396291	Bell Resources	
Max 23	371556	Bell Resources	AMY 17	396292	Bell Resources	

# **APPENDIX 1: List of mining claims**

FEDERAL CLAIMS UNDER PURCHASE OPTION:						
Claim Name	BLM AMC#	Owner	Claim Name	BLM AMC#	Owner	
Magma Chief Ext	357560	Silver Nickel Mining	Jewel	357854	Silver Nickel Mining	
Battle Axe	357561	Silver Nickel Mining	Hot Foot Johny	357871	Silver Nickel Mining	
Kin Sabie	357562	Silver Nickel Mining	Bagdad MS3601	357873	Silver Nickel Mining	
Sunset 1	359987	Silver Nickel Mining	Copper Reef No. 2	357874	Silver Nickel Mining	
Sunset 2	359988	Silver Nickel Mining	Copper Ridge	358745	Silver Nickel Mining	
Sunset 3	359989	Silver Nickel Mining	Copper Ridge 1	358746	Silver Nickel Mining	
Red Mountain	359990	Silver Nickel Mining	Lookout MS3601	358032	Silver Nickel Mining	
Sunset	357853	Silver Nickel Mining	Sunday	357875	Silver Nickel Mining	
			Copper Triangle	360058	Silver Nickel Mining	
PATENTED CLAIMS:			STATE MINERAL EXPLORATION LEASES:			
Claim Name	BLM AMC#	Owner	Permit No.	Section	Acres	
Audacious	N/A	Bell Resources	08-113003	24	480	
Grand Duke	N/A	Silver Nickel Mining	08-113002	25	640	
Gulch Copper	N/A	Silver Nickel Mining	08-113027	36	640	