

Summary Report on the 2003 and 2004 Exploration Program  
and Resource Estimate on the Comet-Davenport Property

Located in the Afton Area  
Kamloops Mining District, British Columbia, Canada

NTS 92I/9  
50° 38' North Latitude  
120° 28' West Longitude

Abacus Mining & Exploration Corporation.  
Vancouver, B.C.

-prepared by-

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## 1.0 Summary

The Comet-Davenport property consists of 20 mineral claims, one mining lease and 20 Crown Granted mineral claims for a total property area of approximately 3975.31 hectares. It is located within and adjacent to the southwestern corner of the city of Kamloops, British Columbia, Canada and straddles Highway 5 (Coquihalla Highway) in the central portion of the claims and Highway 1 (Trans Canada Highway) to the north. The property can be accessed from the north via the Afton Mine road off Highway 1, or from the east via a network of roads connecting to the Lac Le Jeune road. The claims cover an area of mostly gently rolling, but locally rugged topography, with elevations ranging from approximately 600 to 1100 metres above sea level. The climate is dry with cool to cold winters and warm to hot summers.

Subject to a work schedule amounting to an aggregate expenditure of \$250,000.00 over four years and a transfer of 100,000 company shares, Abacus Mining & Exploration Corporation (Abacus) has earned 100% of Teck-Cominco Limited's (Teck-Cominco) interest in the property. In May 2005, Abacus signed a letter of intent to purchase some of the mine buildings, stockpile areas and tailings facilities situated at the Afton mine site.

Regionally, the geology is dominated by the northwest trending, Lower-Jurassic Iron Mask batholith, an alkaline intrusive body, 20 kilometres long by 5 kilometres wide that has intruded Upper Triassic Nicola Group rocks. The Iron Mask batholith has been subdivided by Snyder and Russell (1993) into the Pothook, Cherry Creek, and Sugarloaf phases. They also considered a fourth unit, the Hybrid Unit, to represent zones of variable assimilation of country rocks by the Pothook phase. Texturally distinct diorites, monzonites and monzodiorites make up the majority of the intrusive phases. Near the batholith, the Nicola rocks are dominantly represented by basaltic to andesitic flows and flow breccias, light green massive tuffs and bedded ash to lapilli tuffs that are often foliated near the contact. Stratigraphically above the Nicola Group rocks is a restricted sequence of ultramafic volcanic rocks that outcrop west of the Iron Mask batholith near Jacko Lake and north of Kamloops Lake (Snyder and Russell, 1994). These rocks have been correlated with serpentized picritic basalts that occur as wedges caught up in fault zones within the batholith.

All significant mineralization in the Afton area is hosted in younger phases of the batholith (Sugarloaf and Cherry Creek) where they are in contact with the older Pothook phase. Higher-grade copper-gold mineralization is associated with fault and or intrusive breccias near the contact of the older and younger phases. The most common ore mineral is chalcopyrite with locally significant bornite. Copper carbonates, native copper and chalcocite are important minerals found in supergene zones developed over some of the deposits, such as the Afton deposit. Minor molybdenite is found in fractures in most of the deposits. Gold and platinum group elements (PGE's) are present in minor amounts, but their mode of occurrence is not fully known. Native gold has been seen to occur in late quartz-carbonate veinlets in drill core at the No. 2/22 Zone on the Rainbow property.

Within the Iron Mask batholith, four models for copper-gold mineralization are currently being explored by Abacus: 1) large tonnage, low-grade open pit (>50 million tonnes); 2) medium to higher grade open pit deposits, such as the Afton deposit (25-50 million tonnes); 3) smaller, medium to higher-grade underground deposits (20-50 million tonnes); and 4) small high grade

open pit or underground precious metal deposits (1-2 million tonnes).

Previous operators have discovered several zones of significant mineralization on the Comet-Davenport property. These include the Iron Mask/Erin, Norma/Larsen, Iron Cap and Crescent deposits from which there is recorded production; and partially developed resources and occurrences such as the DM, Audra, Coquihalla, Copper Queen, Monzo and Supergene zones.

The DM, Audra, Crescent and Coquihalla zones are presently considered to have the most potential and are the focus of this report. Each of these zones was tested in a diamond drill program conducted by Abacus in the late spring and fall of 2004.

The Comet-Davenport property, in the vicinity of the DM and Audra zones, is underlain by the Iron Mask batholith to the south and Nicola Group rocks to the north. The Iron Mask batholith is represented on this portion of the property by the Pothook and Cherry Creek phases; the latter of which has intruded along a recurring east-west trending structural zone and separates Nicola Group rocks from Pothook phase rocks. This structural corridor is continuous at least from the Afton mine for five kilometers east to the Big Onion deposit. Moderate to strong K-feldspar alteration is common near mineralization within the structural corridor.

The Coquihalla zone lies within the northwest trending Leamac fault zone which hosts several mineralized zones on the Rainbow property two kilometers to the southeast and the Pothook deposit 0.75 kilometres to the northwest. The mineralization lies within a northwest trending, steeply dipping sequence of Sugarloaf dikes and stocks within Nicola volcanics and picrites that lie along the southwest boundary of earlier Pothook and Hybrid diorites. A strong IP chargeability anomaly underlies the Coquihalla zone. The area was tested with four diamond drill holes during 2004, identifying areas of anomalous gold +/- copper mineralization.

Drilling at the DM and Audra zones has shown there is an excellent possibility for the development of an economic, open pit copper-gold resource. Drilling was conducted intermittently over an 800 metre strike length spanning the two occurrences, and indicates there is a continuous zone of copper-gold mineralization varying in width from 20 to 200 metres and a depth of at least 300 metres. The mineralized zone remains open both along strike and at depth.

To the east of DM-Audra, four holes were drilled beneath the previously mined Crescent pit. They intersected copper mineralization to a depth of 250 metres and it is still open down dip. Abacus geologists, as well as previous workers, believe that the Crescent zone may represent the faulted eastward extension of the DM-Audra mineralization. However, this explanation however, requires a substantial horizontal fault offset of about 250 metres southeast.

A resource estimate for the DM, Audra and Crescent Zones completed in 2005 at a 0.25% copper cutoff classified 16.2 million tonnes averaging 0.35% Cu and 0.19 g Au/t as indicated and an additional 9.4 million tonnes averaging 0.32% Cu and 0.15 g Au/t as inferred.

An exploration program consisting of 10,000 metres of further diamond drilling is recommended for the Comet-Davenport property at an estimated cost of \$975,203. This program will consist mainly of further delineation and exploration of the DM-Audra-Crescent and Coquihalla zones.

## 2.0 Introduction and Terms of Reference

In the fall of 2004, Pamicon Developments Ltd. (Pamicon) was retained by Abacus to carry out a diamond drill program in several mineralized areas of the Comet-Davenport property, and produce a resource estimate for the DM-Audra-Crescent zones. Both Abacus and Pamicon have a common management team; with Pamicon providing consulting/contracting services to Abacus. R. Darney, P.Geo. and R. Friesen, P.Geo. with the assistance of R. Falls, geologist and C. Russell, P. Geo. carried out the program. R. Friesen is an Abacus director. The results of the drill program were used to prepare a Technical Report with recommendations for further exploration that would be in compliance with the requirements set out in National Instrument 43-101 and Form 43-101F1. Gary Giroux, P.Eng. of Giroux Consultants Ltd. was retained to determine a resource estimate for the DM-Audra-Crescent zones. The report, titled *2004 Drilling Summary and Resource Estimate on the Comet-Davenport Property with Recommendations for Exploration*, May 2005 by R. Darney, P.Geo., R. Friesen, P.Geo. and Gary Giroux, P.Eng is filed with SEDAR and is available for review on their website.

During the 2004 drill program, thirty-seven diamond drill holes, totaling 12,641.83 metres were drilled in four different zones. Twenty-nine holes were drilled in an 800 metre long corridor spanning the DM and Audra zones. Four holes were drilled beneath the previously mined Crescent pit and four holes were drilled in the Coquihalla zone.

Three holes, DA-04-001 to DA-04-003, are not included in the above totals as they were drilled in the DM zone in an earlier program during late June 2004 and have already been described in *Darney 2004*. However, the holes are included in some of the tables and sections of this report for the sake of completeness.

In addition to the data gathered during the drill program, this report is based in part on information derived from the historical reports of previous owners, operators and interested parties. A complete list of sources of available data is provided in the References section of this report.

## 3.0 Disclaimer

At least one of the authors was present during the entire 2004 drill program, and they consider it to have been carried out in a professional manner. All sample collection, handling and shipping to an accredited laboratory was secure and strictly monitored. Sample blanks and standards were submitted to the laboratory which also carried out their own in-house QA-QC program.

Mr. Giroux visited the property on February 28 – March 1, 2005 to view the general setting of the DM-Audra-Crescent and Coquihalla deposits and to inspect the core logging, processing and storage facilities used by Pamicon.

In addition to data gathered during the 2004 drill program, this report is also based on a summary of all known previous exploration activity conducted on the property. This historical information was obtained from company reports supplied to Abacus by Teck-Cominco, government reports

and personal communications with previous workers. **Much of the original data from these sources, such as assay sheets, drill logs, resource calculations etc., was not available to either Pamicon/Abacus or the authors and therefore its accuracy cannot be verified.**

The authors are unaware of any outstanding environmental or other liabilities on the property, which could be inherited by Abacus.

#### 4.0 Property Description and Location

The Comet-Davenport property is located in south-central British Columbia, Canada approximately ten kilometres southwest of the center of the city of Kamloops (Figure 1). The property, which lies partially inside and borders the western edge of the Kamloops city limits, consists of twenty mineral claims, twenty Crown Granted mineral claims and one Mining lease for a total property size of approximately 3975.31 hectares (Figure 2). The legal corner post for the Cid 1-4 claims in the northern portion of the property lies at approximately 5615150 North and 678250 East, UTM zone 10, on mineral titles reference map M092I068 ( NTS 92I/9) in the Kamloops Mining Division. Table 4.1 lists the claims that comprise the Comet-Davenport property. Some claims have been converted to amalgamated cell claims according to the new tenure rules effective in 2005. In these cases both the old and new tenure numbers are shown in Table 4.1. The claim information contained in the table is available in the Mineral Titles Online website of the Government of British Columbia.

**Table 4.1**  
**List of Comet-Davenport Claims**

Legacy Claim Tenure Number	Legacy Claim Name	Good To Date	Area (Ha)	Amalgamated Cell Claim Number with Area (Ha)
217108	Cid-1	2010/Oct/31	500.0	510019 (1659.012 Ha)
217109	Cid-2	2010/Oct/31	500.0	
217110	Cid-3	2010/Oct/31	500.0	
217111	Cid-4	2010/Oct/31	225.0	
217112	Cid-5	2010/Oct/31	300.0	
216738	OR 11	2006/Feb/28	75.0	
216739	OR 13	2006/Feb/28	25.0	
216740	OR 14	2006/Feb/28	25.0	
216745	Bonnie Jean Fr.	2006/Apr/22	25.0	
216761	Delta 1061	2005/Jul/22	25.0	
219961	ML 118	2006/Mar/02	20.05	
216741	Karen 1	2010/Oct/31	500.0	507097 (1106.881 Ha)
216742	Karen 2	2010/Oct/31	150.0	
216743	Karen 3	2010/Oct/31	100.0	.
216744	Karen 4	2010/Oct/31	150.0	
216672	Rod 4 Fr	2010/Oct/31	25.0	.
216693	Ned 1	2010/Oct/31	75.0	507852 (430.265 Ha)
216694	Ned 2	2010/Oct/31	75.0	
216695	Ned 3	2010/Oct/31	25.0	
216917	Ned 4	2010/Oct/31	100.0	
217422	Amy 2	2010/Oct/31	300.0	

Crown Grants		Tax Due Date	Total area all of crown grants = 255.26 Ha
L 878	Iron Mask	2005/July/02	
L 879	Sunrise	2005/July/02	
L 880	Copper Queen	2005/July/02	
L 1036	Lucky Strike	2005/July/02	
L 1050	Emory	2005/July/02	
L 1066	Erin Fraction	2005/July/02	
L 1067	Jumbo Fraction	2005/July/02	
L 1068	Civil Fraction	2005/July/02	
L 1301	Earnscliff Fraction	2005/July/02	
L 1311	May Fraction	2005/July/02	
L 4666	Sodium Fraction	2005/July/02	
L 4667	Winty	2005/July/02	
L 5622	Champion No. 1	2005/July/02	
L 5623	Champion No. 2	2005/July/02	
L 5624	LS 6	2005/July/02	
L 5625	LS 7	2005/July/02	
L 5626	LS 11	2005/July/02	
L 5627	LS 10	2005/July/02	
L 5628	LS 8	2005/July/02	
L 5629	LS 9	2005/July/02	

On January 17, 2002, Abacus entered into an option agreement to acquire 100% of Teck-Cominco's interest in the Comet-Davenport property by issuing 100,000 shares of capital stock in Abacus and meeting the following expenditure schedule.

\$50,000.00 on or before the first anniversary date  
 \$150,000.00 in aggregate on or before the second anniversary date  
 \$250,000.00 in aggregate on or before the third anniversary date  
 \$500,000.00 in aggregate on or before the fourth anniversary date

By an amending agreement dated March 3, 2004 the expenditure schedule was reduced to a minimum aggregate of \$250,000.00.

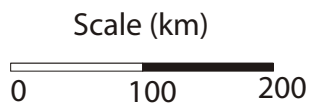
At July 28, 2004 Abacus had expended \$379,673.32 on the Comet-Davenport property and by Teck-Cominco letter dated August 19, 2004 Abacus had earned a 100% interest in the property and the claim titles were transferred to Abacus.

Teck-Cominco retained the right to back into the project for up to a 65% interest, by bringing any deposit on the property to production. However, in May 2005, Abacus signed a Letter of Intent to Purchase some of the surface mine buildings, tailings and rock stockpile areas plus the entire aforementioned back-in right from Teck-Cominco; This transaction is subject to a period of due diligence expiring July 31, 2005<sup>1</sup>.

All claims with the exception of Karen 1-4, Ned 1-4 and Amy 2 are also subject to a 25% Net Profits Interest pursuant to an Underlying Agreement dated August 27, 1987 among Afton

<sup>1</sup> Press release *Abacus signs letter of intent to acquire Teck-Cominco's Afton Mill and Infrastructure & preliminary resource estimates received on Rainbow and DM/Audra Zones*; 17 May, 2005.





### Comet-Davenport Property Location Map

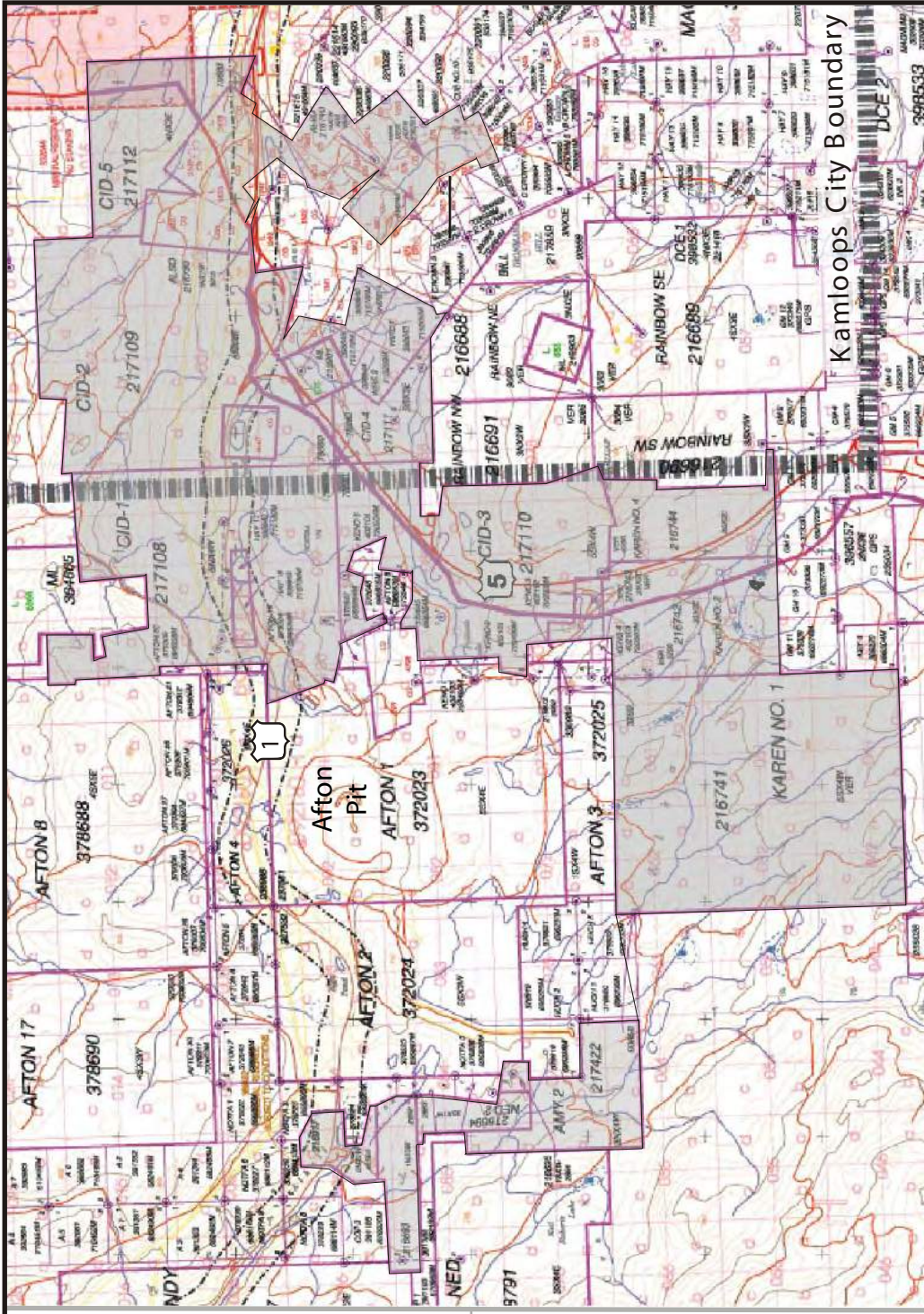
Prepared by:  
Pamicon Developments Ltd.

Figure 1

NTS: 921/068

Date: June 2005

Drawn by: s.weekes/b. friesen



561400N

675000E



# Comet-Davenport Property Claim Map

Prepared by:  
Pamicon Developments Ltd.

Figure 2 NTS: Date: Feb 2004

Drawn by: b. friesen

Operating Corporation, Comet Industries Ltd, Davenport Industries Ltd. and Initial Developers Limited.

The Comet-Davenport claims cover an area of private land and surface rights controlled by the Sugarloaf Ranch, which is currently owned by Teck-Cominco.

In 2004, Abacus was granted permits from the British Columbia Ministry of Energy and Mines for a limited ground disturbance, surface exploration program of diamond drilling. A reclamation bond of \$2000 was established in conjunction with the granting of this permit. Reclamation of disturbed areas was initiated throughout the program.

## **5.0 Accessibility, Climate, Local Resources, Infrastructure and Physiography**

Main access to the Comet-Davenport property from the city of Kamloops is via the Trans Canada Highway to the Afton Mine site access road approximately three kilometres west of the junction of Highways 1 and 5. The Lac Le Jeune road also provides access to the property by turning west onto Sugarloaf road at a point approximately 2.5 kilometres from the junction of Lac Le Jeune road and Highway 1. Sugarloaf road leads to a network of logging and ranch roads that traverse the property. Permission to use Afton Mine site roads is necessary from Teck-Cominco.

The claims cover an area of mostly gently rolling but locally rugged topography, typical of the Interior Plateau of British Columbia. Elevations on the property vary from approximately 600 metres above sea level in the north, 750 metres in the southeast and south portions of the claims and up to approximately 1100 metres on Sugarloaf Hill, the most prominent landform that lies on the eastern boundary of the property.

The area is typically semi-arid, similar to much of the lower elevation regions of south central British Columbia. Vegetation is predominantly sagebrush and bunch grass with locally moderate to heavy stands of jack pine, ponderosa pine and douglas fir trees, especially along the southern and eastern slopes of Sugarloaf Hill. Winters can last from mid-November to April, with temperatures generally averaging just below freezing, but occasionally dipping to the minus 20's C. Snowfall is normally light. Summers are commonly warm to hot (+30° C) and dry.

Due to the property's close proximity to the city of Kamloops, there is an abundance of favorable infrastructure nearby. Paved roads and highways and hydro lines pass through the claims. Even though several small lakes and ponds occur within the property boundaries, they are typically reserved for local ranching needs and/or recreational fishing and it is more acceptable to haul water for drilling. Water for any future mining use would probably have to be pumped from Kamloops Lake, similar to the operation of the old Afton Mine. Kamloops and neighbouring towns are host to a significant mining and related-trades workforce.

## 6.0 History

The Comet-Davenport property covers an area that hosts many zones of mineralization that have been explored by numerous individuals and exploration companies. Its history therefore, is quite complex but has been summarized by several authors and described in excellent detail by the Geological Survey Branch of the Ministry of Energy and Mines under Minfile numbers 092INE010, 092INE018, 092INE030, 092INE120 and 092INE026. The following historical facts are taken from the above Minfile reports.

The earliest recorded history begins with the Iron Mask showing that was staked in 1896 by G. Breedsen, W.H. Ford and R.H. Loyn. Soon after, a Mr. Beattie and associates staked the Erin showing. By 1898, shafts had been sunk on the Iron Mask and Erin showings. Later, shafts were sunk on the Norma, 548 metres north of Iron Mask, and Larson, 244 metres north of Norma. The Iron Mask, Erin and Norma workings are interconnected. The Iron Mask was bonded to The B.C. Exploring Syndicate, of London, England, and subsequently disposed of to the Cole Hill Gold, Silver and Copper Mining Company, Limited. First recorded production was in 1901. Development continued and in 1903 construction of a 100 ton concentrator was completed. The company was reorganized in 1904 under the name Kamloops Mines, Limited. The concentrator was enlarged to 200 tons and production continued until 1908. E.G. Wallinder and associates of Duluth purchased the claims in 1909 and formed the Kamloops Copper Company. They reopened the mine in 1910 and eventually built a new 150 ton concentrator in 1917 that was subsequently expanded to 300 tons. The operation became unprofitable and was shut down in 1920. In 1922 the mine reopened but was again forced to close in 1924 due to financial difficulties. The company reorganized under the name Continental Copper Co., Limited with offices in Chicago. Exploration and development continued with limited production until the mine finally closed in November 1928. In the period 1904-1928 some 182,494 tons grading 1.47% copper plus gold and silver values were mined (Blanchflower, 1978). The Iron Mask and Erin properties were acquired by W.A. Urquart, G.F. Dickson and associates in 1946. In 1951 the Kamloops Copper Company, Ltd. was formed and a package of some 40 claims, including most of the original Iron Mask property, was acquired.

While the early development of the Iron Mask area deposits was underway, exploration and development on adjoining claims was being done by other operators. In the area lying west of Iron Mask Lake for 1.5 kilometres to the DM zone work was being done in the vicinity of the Crescent deposit and the Iron Cap showing on the Truth property. The Truth group, comprising the Truth, Dakota, Hope, Jennie and Pearl claims was owned by A.G. McDonald and Joseph McGee. Development work between 1899 and 1906 consisted of two shallow shafts with a number of short drifts (Crescent and DM areas). In 1906 the mined ore was sold to the Iron Mask concentrator for fluxing purposes. The Iron Cap claim was staked in 1897 and a 21 metre inclined shaft was sunk. The claim subsequently reverted to the Crown for taxes. G.C. Scatchard then leased the claim and staked the surrounding claims. D.B. Sterritt, of Kamloops, then leased the claims and conducted exploration and production during 1939 and 1940. At this time, the shaft was deepened to 38 metres and two levels were driven. Two hundred and thirty-four tons of ore were mined that produced 13,499 grams silver, 6501 grams gold and 4800 kilograms copper.

In 1952, Berens River Mines Limited, a subsidiary of Newmont Mining Corporation, optioned

the Iron Mask property and other claim blocks to the west that covered the DM, Audra, Crescent and Iron Cap zones. They conducted electromagnetic surveys over the known zones of mineralization and drilled 5 diamond drill holes on the Iron Cap and adjoining claims. Further electromagnetic surveys covering the area north of the Iron Mask mine were completed in 1956. In 1956, DM, Audra and Crescent area was then acquired by Graham Bousquet Mines Limited during a re-staking of the Truth group and surrounding claims. The company joined several other companies in 1958 to form Cadamet Mines Limited. Noranda Exploration Company, Limited optioned the property and carried out geophysical and geochemical surveys. They dropped the option later that year. The Iron Mask mine was dewatered in 1961 and 3352.8 metres of diamond drilling was completed in the old workings. In 1964 Kamloops Copper Company changed its name to Kamloops Copper Consolidated Ltd. Also in 1964, Comet Mining Corporation Ltd. was formed and acquired the claims covering the DM, Audra, Crescent and Iron Cap (the western property). During the period 1965-1966, the Iron Mask and western properties were under option to Vanco Explorations Limited. Vanco did geophysical work on the Iron Mask property and completed 15 diamond drill holes on the Crescent zone. Comet Mining and Krain Copper Resources Ltd. amalgamated in 1966 to form Comet Krain Mining Corp. Ltd. They acquired the May fraction, Sodium fraction and Winty Crown grants from Isabelle Wintemute. In 1971 the name was changed to Comet Industries Ltd. In 1972, an associated company, Initial Developers Corporation Limited optioned the property. Initial Developers program consisted of 48 line kilometers of magnetic, electromagnetic and induced polarization surveys, 25 diamond drill holes (2286 metres), and 22 percussion drill holes (2011.6 metres). This work “indicated some 2,267,750 tonnes minable reserves assaying 0.5 per cent copper in the Crescent zone” (Western Miner, October 1972, page 85).<sup>2</sup> Also in 1972, Kamloops Copper amalgamated with Midland Petroleums Ltd. and Consolidated Prudential Mines Ltd. to form Davenport Oil & Mining Ltd. In March of that year the Iron Mask property was optioned to Comet Industries Ltd.

In 1972 Getty Pacific Mining optioned 120 contiguous claims from Comet, Initial and Davenport. These claims with the exception of 5 Crown grants that cover the Big Onion deposit cover a very similar area as that of the Comet-Davenport property of today. The work program by Getty in 1973 included 93 line kilometers of induced polarization, 86.9 line kilometres of magnetometer surveying, 2084.5 metres of rotary drilling in 8 holes, 2 diamond drill holes for 564.4 metres and 15,513.4 metres of percussion drilling in 159 holes. Much of this drilling was done on the Big Onion deposit, but 25 of the holes were drilled over an area of some 3 by 4.8 kilometres and included the DM and Crescent areas. Getty dropped the option in 1974. In 1973 Davenport Oil & Mining changed its name to Davenport Industries Ltd. and in 1974 Initial Developers Corporation amalgamated with North Pacific Mines Ltd. to form Initial Developers Ltd. The combined properties were then optioned to Canadian Superior Exploration Limited in 1975. From 1976 to 1978 work consisted of an 89 line kilometre magnetometer survey, 8064 metres of diamond drilling in 47 holes, 4211 metres of percussion drilling in 48 holes. Again, much of this drilling was directed at the Big Onion deposit. In 1981 Craigmont Mines Limited optioned the combined properties plus the adjacent Rainbow property. Craigmont continued to delineate the Big Onion deposit and also drilled at the Rainbow No. 2 zone. Due to insufficient

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<sup>2</sup>Due to a lack of original data and therefore, the inability to reliably verify the data, it is not known whether the Western Miner reserve estimates would conform to the current definitions of resources/ore reserves used in NI 43-101.

tonnage they allowed their option to lapse later in 1981. In 1983 Comet continued to explore on its own and reported possible tonnage at Crescent to be 1,300,000 tonnes at 0.51 per cent copper (Initial Developers Limited, Filing Statement 165/86).<sup>3</sup> Additional drilling of 400 metres was reported in 1986 in the Tailings zone, which lays between the Iron Mask mine and the Big Onion deposit. As of 1986 the combined properties were owned by Comet Industries Ltd. (40 per cent), Davenport Industries Ltd. (30 per cent) and Initial Developers Limited (30 per cent). In 1987 Afton Operating Corporation optioned the properties and during 1987 and 1988 carried out 1968 metres of diamond drilling on the DM and Crescent zones. Reserves at the Crescent deposit were now reported as 1,070,000 tonnes at 0.46 per cent copper and 0.206 grams per tonne gold (Mineral Exploration Review, 1988, page 29)<sup>4</sup>. Afton began open pit production in October 1988 and shipped ore to its Afton mine operation until March 1989. The mine yielded 1,448,000 tonnes of ore with an average grade of 0.44 per cent copper and 0.18 grams per tonne gold. The most recent work on the Comet-Davenport property was Teck Exploration Ltd. in 1996 who completed induced polarization surveys over the DM, Audra and Coquihalla zones and drilled 1927.56 metres (11 holes) at DM-Audra and 1002.2 metres (5 holes) at Coquihalla. A preliminary resource for the DM zone was reported to be 2,685,000 tonnes grading 0.38 per cent copper and 0.27 grams per tonne gold (CIM Special Volume 46, page 579)<sup>5</sup>. Abacus optioned the property in 2002. Between the time of acquisition and the spring of 2004 Abacus carried out limited surface sampling, IP geophysical surveys on the DM-Audra and Coquihalla zones, and drilled 3 diamond drill holes (960.43 metres) on the DM zone (Darney 2004).

## 7.0 Geological Setting

### 7.1 Regional Geology

The following summary of the regional geology is based on the work by Snyder and Russell (1993) and incorporates work by Kwong (1987), Northcote (1977), Preto (1967), Cockfield (1948) and Mathews (1941).

The map area is dominated by the northwest-southeast trending, Lower Jurassic Iron Mask batholith (Figure 3). The oldest recognized rocks in the map area are Upper Triassic Nicola Group rocks. This package consists of an extensive, thick sequence of mafic to intermediate volcanics, volcanoclastics and related sedimentary rocks. Adjacent to the Iron Mask batholith, the Nicola Group rocks are characterized by basaltic to andesitic clinopyroxene phyric flows and flow breccias, light green massive tuffs and bedded ash to lapilli tuffs. Nicola Group rocks are often foliated near the contact with the Iron Mask batholith and may contain minor copper mineralization.

Situated stratigraphically above the Nicola Group rocks is a restricted sequence of ultramafic volcanic rocks that outcrop west of the Iron Mask batholith near Jacko Lake and north of Kamloops Lake (Snyder and Russell, 1994). These rocks have been

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<sup>3</sup> Due to a lack of original data and therefore, the inability to reliably verify the data, it is not known whether the Western Miner reserve estimates would conform to the current definitions of resources/ore reserves used in NI 43-101.

<sup>4</sup> ditto

<sup>5</sup> ditto

correlated with serpentinized picritic basalts that occur as wedges caught up in major fault-related structural corridors within the batholith. The most recent interpretation is that the serpentinite occurrences within the Iron Mask batholith represent post Nicola Group, pre-Iron Mask crustal rocks, which were incorporated during emplacement of the batholith (Snyder and Russell, 1995).

The Lower Jurassic Iron Mask batholith is a northwest trending, 5 km by 20 km body, which intrudes the aforementioned Nicola Group volcanic rocks and picritic basalts. The 5 km by 5 km Cherry Creek pluton is located to the north of the batholith and is part of the same intrusive complex. Recent mapping and interpretations by Snyder and Russell (1993) subdivide the Iron Mask batholith into three mappable phases described in the following paragraphs. A fourth mappable unit, the Hybrid unit, represents variable assimilation of Nicola Group rocks by the Pothook phase.

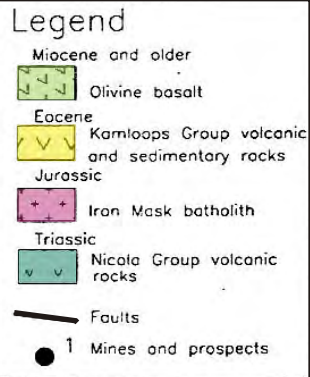
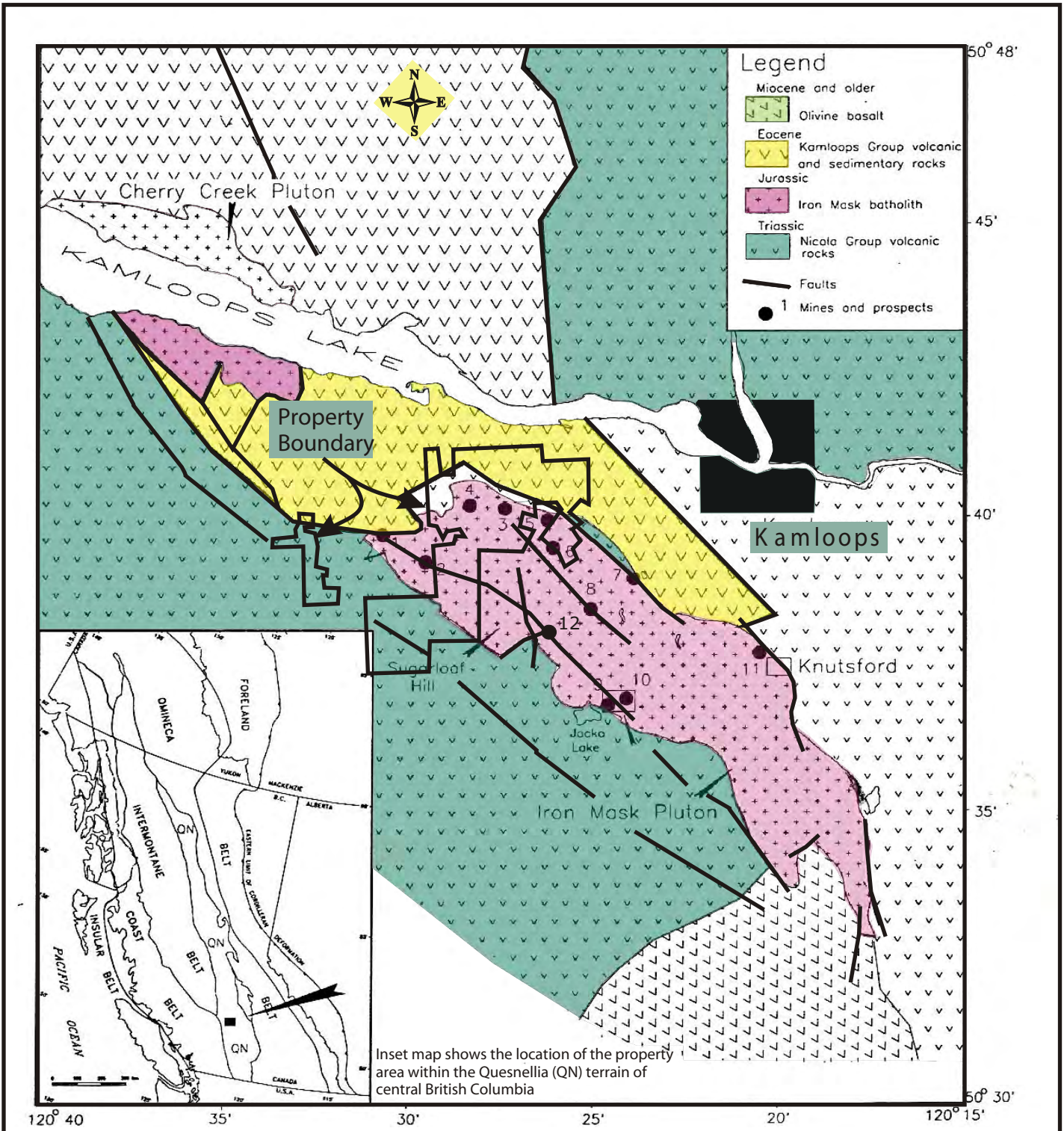
The oldest recognized phase in the batholith is the Pothook diorite. It is typically a medium to coarse-grained, equigranular biotite pyroxene diorite. The unit contains 15-25% euhedral to subhedral clinopyroxene, 5-15% biotite and 5-15% magnetite. Plagioclase is often altered to sericite and K-feldspar veinlets are common where the Pothook is in contact with the Cherry Creek phase. The Hybrid unit is an extremely diverse unit both mineralogically and texturally, and is defined by the incorporation of Nicola Group rocks by the Pothook phase. The Hybrid unit can contain up to 80% angular Nicola Group fragments within an intrusive breccia.

The Cherry Creek phase postdates the Pothook phase and dominates the northern and eastern margins of the batholith (Snyder and Russell, 1995). It has been classified as a monzonite to monzodiorite, but can be mineralogically and texturally very similar to the Pothook phase. In the field, the Cherry Creek rocks generally have a distinct pinkish color due to variable K-feldspar alteration.

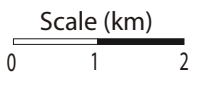
The Sugarloaf phase also postdates the Pothook phase and is located along the western margin of the batholith; however, the age relationship between the Sugarloaf and Cherry Creek phases is uncertain. The Sugarloaf phase has been classified as a diorite and is typically fine-grained and porphyritic with abundant hornblende phenocrysts. Albitization is common and can be extremely intense near mineralized zones (Lang and Stanley, 1995).

The youngest rocks in the region are a Tertiary sequence of tuffaceous sandstone, siltstone and shale with flows and agglomerates of basalt and andesite belonging to the Kamloops Group.


Copper-gold mineralization associated with the Cherry Creek and Sugarloaf phases is located throughout the batholith. It is often associated with albitization and/or K-feldspar alteration with original textures and mineralogy often obliterated.



Deposit	Name
1	Afton
2	Poohook
3	Crescent
4	DM
5	Big Onion
6	Iron Mask
7	Python
8	Galaxy
9	Ajax West
10	Ajax East
11	Kimberly
12	Rainbow 1,2, 17,22



**Note:**  
 Map after Ross K. V., Godwin C. I., Bond L., Dawson K. M., 1995



## Comet-Davenport Property Regional Geology

Prepared by:  
Pamicon Developments Ltd.

Figure 3	NTS: 921/068	Modified June 2005
Drawn by: s.weekes		File: regional geologyccr



## 7.2 Property Geology

The Comet-Davenport property covers a large area underlain by Nicola Group volcanic rocks intruded by all three phases of the Iron Mask batholith and partially overlain by Tertiary Kamloops Group volcanic and sedimentary rocks and Pleistocene glacial overburden (Figure 4).

The northern portion of the property covers the northern contact of the Iron Mask batholith and is dominated by an east west belt of pervasive K-spar altered Cherry Creek monzonite lying between Pothook diorite to the south and Nicola volcanic rocks to the north. This east-west belt of younger intrusive rock is believed to have been emplaced along a recurring structural corridor that extends at least from the Afton mine on the west, for five kilometers eastwards to the Big Onion deposit. Numerous other zones of copper mineralization including the Crescent, DM and Audra deposits lie along this trend. Kamloops Group volcanic and sedimentary rocks overly Nicola volcanics in the extreme north portion of the claims.

The central portion of the property covers the southern contact of the Iron Mask batholith. Here, Sugarloaf diorite and Pothook diorite are in contact with Nicola volcanic rocks. Similar to the structural corridor along the northern margin of the batholith, Carr (1956) and Preto (1967) discuss this corridor along the southern margin. This recurring structural zone locally referred to as the Leemac Fault, hosts copper mineralization on adjacent properties such as the Pothook deposit to the northwest and the Rainbow No. 2/22, 1 and 17 zones to the southeast, also owned by Abacus. Further discussion of structural corridors is in the following section of this report.

Between the two converging structural corridors, the ground is underlain by Pothook diorite. No economic sulfide mineralization is known to occur within this unit in this area of the property; however, it is characterized by the occurrence of numerous massive magnetite +/- apatite veins/dykes to several metres in thickness, which can be traced over lengths of hundreds of metres.

The extreme southwestern portion of the claim group is extensively overburden covered and is most likely underlain by Nicola volcanics.

For more detailed descriptions of local rock types and structure the reader is referred to the bibliography where numerous government and company reports are listed.

## 8.0 Deposit Types

Over the past number of years an exploration model has been developed by previous workers and Abacus for copper-gold mineralization within the Iron Mask batholith. Within this broad model for mineralization, four separate deposit types are being explored for by Abacus. They are similar in genesis but vary in grade and tonnage and therefore, potential mining method.

(>50 million tonnes) A large tonnage, low-grade, open pit deposit has not yet been found within

the Iron Mask batholith but with numerous scattered deposits and showings, remains a viable exploration target. Ideal ore types would be disseminated, +/- semi-massive sulphides, breccia pipe ores.

(25-50 million tonnes) Medium size, higher-grade, open pit deposits have a proven exploration potential within the Iron Mask batholith with the discovery and successful mining of the Afton deposit (approximately 30 million tons of 1% copper and 0.6 g/t gold) in the 1970's. Ideal ore types would be disseminated, semi-massive sulphides and breccia pipe ores.

(20 -50 million tonnes) Medium to high-grade, underground bulk minable deposits similar to New Gold Inc.'s (formerly DRC Resources Ltd) Afton deposit extension. The No. 2/22 zone on the Rainbow property has a number of drill intersections with greater than one percent copper over minable widths and fits this model target. Further work is needed to determine the potential of the target. Ideal ore types would be stockwork, semi-massive sulphides and breccia pipe ores.

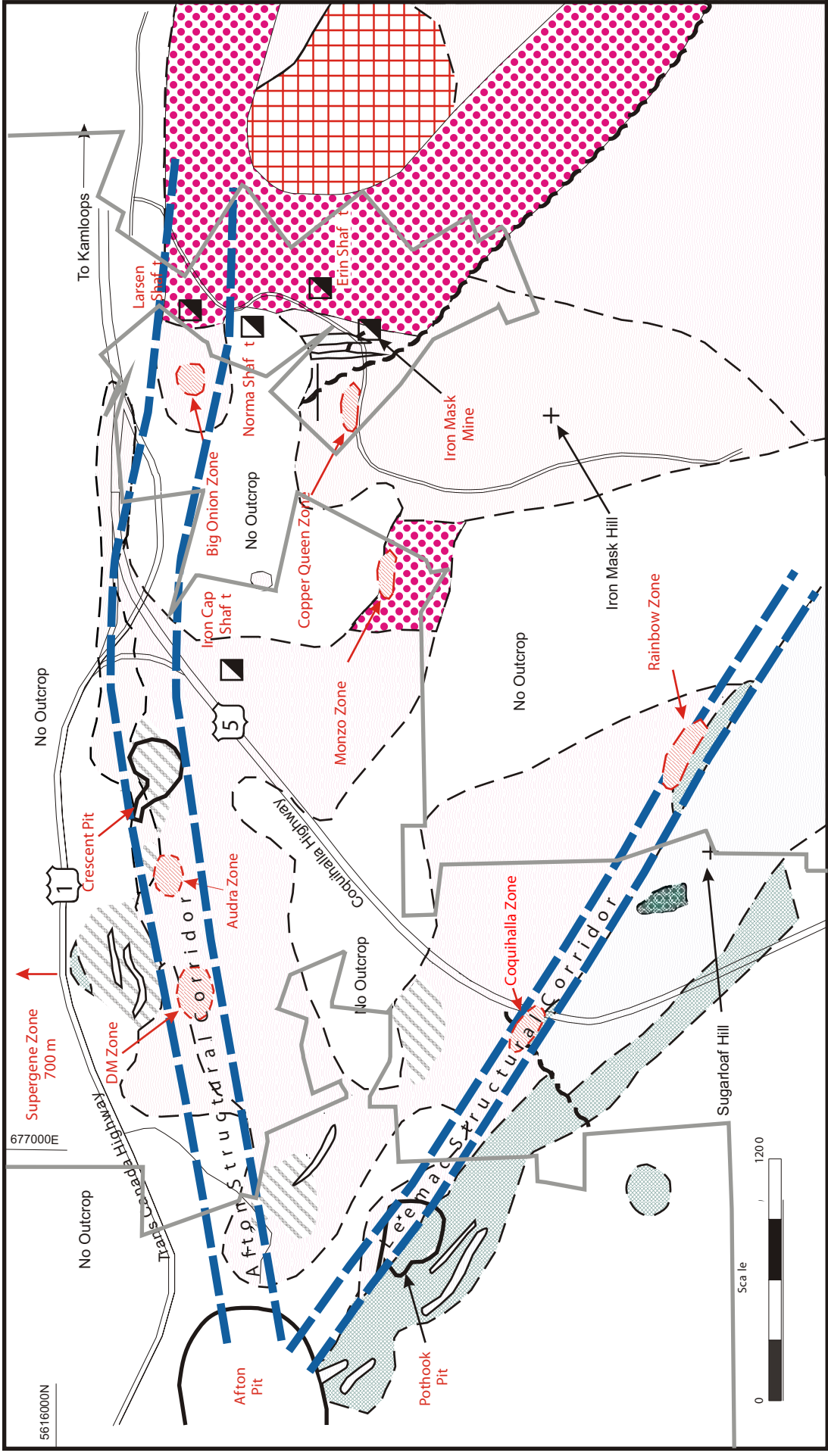
(1-2 million tonnes) High-grade underground and/or open pit precious metal deposits. To date, no significant deposits of this type have been found in the Afton Camp; however, numerous showings were historically explored for their precious metal content and recent sampling by Abacus indicates that exploration targets for this type of occurrence do occur within the area.

A total of four deposits have been mined within the Iron Mask batholith since the mid- 1970's (Afton, Pothook, Ajax and Crescent). The study of these deposits, along with research conducted by Teck Corporation in the mid-1990's, provides much of the data for the geological model being applied on the Comet-Davenport property.

All of the above deposits were mined by Afton Operating Corporation (a Teck-Cominco company) using open pit mining methods, with the ore processed at the Afton mill complex. Although there are some differences in the geology and styles of mineralization between the deposits, there are also many similarities. The following discussion outlines the current geological model for mineralization within the Iron Mask batholith.

All significant mineralization is hosted in the younger phases (Cherry Creek and Sugarloaf) of the batholith where they are in contact with the older Pothook or Hybrid phases. Higher grade mineralization is associated with fault breccias spatial to that contact. The most common ore minerals are chalcopyrite with lesser bornite. Chalcocite, copper carbonates and native copper are common in supergene zones developed over some of the deposits (eg. Afton). Minor molybdenite can also be found along fractures in most of the deposits. Recently, native gold has been found in drill core on the Rainbow No. 2 zone. Gold and possibly palladium will quite probably be critical elements needed for a positive evaluation of any future discoveries. The mode of palladium mineralization is unknown but there is a definite association with copper mineralization in mafic rocks (especially picrites).

Alteration assemblages have been defined for each of the deposits and are somewhat variable. In general, mineralization is contained within a broad propylitic assemblage characterized by pyrite chlorite and epidote. Potassic alteration, involving the replacement of plagioclase by K-feldspar, is common in all deposits. It is a dominant alteration in Cherry Creek rocks and also in Pothook rocks where they are in contact with Cherry Creek. Intense albite alteration is also present in most of the deposits and appears to predate the chalcopyrite mineralization. Later movement



**Abacus**  
MINING & EXPLORATION CORP.

**Comet-Davenport Property  
Geology Map & Deposit Locations**

Prepared by:  
Pamicon Developments Ltd.

Figure 4	NTS: 921/068	Date: June 2005
Drawn by: b. friesen		

Modified from Stanley Lang and Snyder, Geological Fieldwork 1993, Paper 1994-1

5616000N  
677000E

0 1200  
Scale

W E  
N S

**Legend**

- Sugarloaf diorite
- Potassic alteration
- Cherry Creek intrusion breccia
- Cherry Creek monzonite
- Pothook agmatite
- Pothook diorite
- Nicola volcanics
- Fault
- Mineralized Zone on Comet-Davenport property
- Claim outline

within structural corridors may have preferentially fractured and brecciated brittle, albite-altered rocks, focusing hydrothermal fluids. However, in local zones of early intense albite alteration, subsequent fracturing appears to have by-passed the core of the zones and provided channels for fluids on their margins.

Preto (1967) recognized the importance of structure in localizing copper mineralization within the Iron Mask batholith. It was noted that major fault-related structures controlled the emplacement of younger phases of the intrusive and the localization of subsequent sulphide deposits. Teck continued to refine the structural interpretation and defined a number of structural corridors that host all significant mineralization in the batholith. The structural corridors were defined as brittle deformation zones up to 500 metres wide that often contain slices or wedges of entrained Nicola Group rocks and/or picritic basalts.

Surface mapping, airborne magnetic and radiometric data and alignment of mineral deposits have also helped define the structural corridors. Mapping within the existing open pits has also been particularly useful, but further work is needed to more fully define them and locate possible new ones. Stacked profile data from a 1993 regional airborne radiometric survey indicated all deposits are associated with Th/K lows with corresponding U/Th highs.

From the available data, the following are considered key guidelines for locating copper-gold mineralization within the Iron Mask batholith:

- Mineralization is hosted within structural corridors at the contact between older and younger phases of the intrusives that make up the batholith.
- Higher-grade mineralization within these structural corridors is associated with fault and hydrothermal breccias and is known to form pipe-like bodies.
- Mineralization is associated with albitization and potassic alteration.
- Airborne radiometric surveys are effective in defining alteration associated with mineralization.

## **9.0 Mineralization**

Numerous copper-gold +/- palladium deposits and occurrences lie within the boundaries of the Comet-Davenport property. These include the Iron Mask/Erin, Norma/Larsen, Iron Cap and Crescent deposits from which there is recorded production. Partially developed resources and occurrences include the DM, Audra, Coquihalla, Copper Queen, Monzo and Supergene zones (Figure 4). Previous authors have adequately described most of the deposits and occurrences on the property, therefore, the following descriptions of the more important zones have been excerpted from their work.

### **9.1 Iron Mask/Erin Mines**

Blanchflower (March 1978) describes the Iron Mask/Erin zone as follows:

According to the Minister of Mines Annual Reports (1916 and 1926) and unpublished field notes by Carr (1956), the Iron Mask ore body is situated within a fault zone striking

065° and dipping vertically. The ore shoots are approximately 175 feet long, varied from 5 to 30 feet in width and pitched towards the east. Various owners mined the deposit via a working shaft sunk to a depth of 750 feet on an incline of -68°. Most of the ore from surface to the 600-foot level was mined.

Copper mineralization consisted primarily of chalcopyrite with minor amounts of cuprite, chalcocite and native copper. Pyrite is associated with the chalcopyrite. Copper values within the ore zone range from less than 1 to 9% copper with tonnages averaging 3 to 5% copper being mined. Cut-off grade for the underground operation was 3% copper. Gold and silver values are associated with the copper mineralization.

The sulphide mineralization is situated within a 065° /-90° fault zone with a well defined foot-wall and vague, intensely sheared hanging-wall. On the foot-wall side poorly fractured diorites of the Iron Mask unit (Pothook agmatite- Snyder and Russell 1993) are in fault contact with the ore. On the hanging-wall side of the ore zone are intensely sheared and serpentinized basaltic rocks of the Picrite unit. Copper mineralization is disseminated within the picrite but was not mined due to its lower grade.

At the 690-foot level a horizontal post-ore fault was encountered with considerable “sooty” chalcocite. At that level the gypsum gangue changed to calcite and the copper mineralization terminated. Considerable exploration was undertaken to find displaced sections of the ore body but only minor copper mineralization was found.

The Erin ore body, as at the Iron Mask, is situated within a fault zone striking 060 and dipping -65° SE. The ore shoots are at least 300 feet long (80-foot level) and vary from 5 to 50 feet wide but average 10 feet. Two shafts were sunk to the 300-foot level with one extending to a depth of 750 feet. The 600 and 750-foot levels were developed for exploration and production but were not mined.

Above the 130-foot level the ore body is oxidized to cuprite, malachite and azurite. Below this level the copper mineralization consists primarily of chalcopyrite. Some supergene enrichment in well-sheared areas has resulted in minor amounts of chalcocite and native copper. Cut-off grade was 3% copper with most of the hand-sorted ore shipped to the smelter averaging up to 6% copper plus gold and silver values.

The Erin ore body occurs in a very similar setting as the Iron Mask. The ore body has a well defined and solid foot-wall contact with fine-grained diorite probably of the Iron Mask unit. The hanging-wall is poorly defined, intensely sheared and hosted by basaltic rocks of the picrite unit. Chalcopyrite impregnates the picrite but was not mined. No terminating fault has been mentioned in the reports indicating that the ore body extends below the 750-foot level.

## 9.2 Iron Cap Mine

The Iron Cap mine is located approximately 750 metres northwest of the Iron Mask mine. The following excerpts are taken from the Annual Report of the Minister of Mines (1956) and various authors:

Production was 263 tons of material containing: Gold, 0.8 oz. per ton; silver 1.7 oz. per ton; copper, 2.0 per cent. A sample of material collected from the dump assayed: gold, 0.68 oz. per ton; silver, 0.7 oz. per ton; copper, 1.7 per cent. The mineralization occurs in a monzonitic rock, which is probably altered diorite. The Iron Cap vein is 6 feet wide at the shaft.

Cockfield (1948) reported that the shaft follows the dip of the zone to a depth of 125 feet. Levels have been driven at 60 and 120 feet. The 120-foot level is stated to be 35 feet long southeast of the shaft and 60 feet long northwest of it. It did not disclose much ore. A wedge of ore was followed up with a small stope but lost in a fault zone above the level. The 60-foot level extends about 25 feet southeast of the shaft and 85 feet northwest, and was driven as far as the fault referred to. The ore above the level was stoped to the surface. The gold content of the ore from this property is considerably higher than that of many properties associated with the Iron Mask batholith.

Blanchflower (March 1978) reported that according to unpublished field notes by Carr (1956) the Iron Cap owners drifted along an intensely-sheared and vertically dipping zone containing chalcopyrite-pyrite mineralization. This sulphide mineralization was hosted by potassically-feldspathized, medium-grained diorite. Chalcopyrite occurred as fine-grained disseminations within albitized diorite and as fracture-fillings with albite and/or calcite gangue. Epidote and some calcite fracture-fillings pre-dated the sulphide mineralization. Post-ore shearing cut the sulphide mineralization and was in turn mended by carbonate infilling. Pure magnetite veins were common within the workings but were not associated with the sulphide mineralization.

Very limited diamond drilling has been done to explore for the faulted extension to the zone. Surface sampling by Abacus has confirmed the high-grade nature of the gold mineralization.

## 9.3 Crescent Zone

During the period 1989-1990 Afton Operating Corporation open pit mined 1.448 Mt of copper-gold ore from the Crescent deposit (Lang and Stanley 1995). Lang and Stanley (1995) and Bond and Tsang (1988) have adequately described the geology of the deposit. The following excerpts are taken from the 1988 report by Bond and Tsang for Afton Operating Corporation:

The deposit is centered in and around a tabular body of Cherry Creek breccia. The intrusive breccia body straddles the northeast striking contact between Cherry Creek monzonites and diorites on the southeast and latite porphyries on the northwest. It is in fault contact with older Pothook diorites to the south.

The Crescent deposit is elongate in a northeast direction and has average horizontal dimensions of 152 metres by 46 metres. Better grade mineralization is confined to the intrusive breccia and dips 60° to the southeast. Steeply dipping normal faults with westerly to northwesterly strikes controlled emplacement of the intrusive breccia unit.

Chalcopyrite is the only copper mineral of economic significance. It occurs as blebs and disseminations, in fractures, veinlets and microveinlets, and occasionally in breccia and vugs with accompanying calcite. Pyrite occurs with chalcopyrite as well as forming a halo peripheral to copper mineralization.

Bornite and molybdenite are present only in trace amounts. Magnetite is associated with the breccia intrusions as disseminations and veinlets.

Gold mineralization is closely associated with the chalcopyrite mineralization.

Four diamond drill holes totaling 1314.6 metres were drilled by Abacus in 2004 to test the dip extension of the mineralized zone below the pit bottom.

#### **9.4 DM and Audra Zones**

Copper mineralization in the DM-Audra zone is hosted within a northeast trending band of potassically altered monzonite intrusive breccias and fine grained equigranular to porphyritic monzonites and monzodiorites of the Cherry Creek phase.

The Cherry Creek rocks are bounded to the south by a steep, south dipping, northeast trending fault. To the south of this fault lie medium-grained equigranular diorites of the Pothook phase. The Pothook rocks show propylitic to potassic alteration and are generally unmineralized. Both sub-parallel and crosscutting faults occur to the north of the bounding fault within the Cherry Creek unit causing local displacement of the mineralized zone.

The zone has been intersected in drilling by Abacus and historical operators over a strike length of approximately 800 metres. It appears to vary in width from 20 to 200 metres and has been traced to a vertical depth of 300 metres in drilling. Copper mineralization is typically strongest near the bounding fault, particularly within the monzonite intrusive breccias. Sulphide mineralization consists of pyrite, chalcopyrite and bornite, as fine disseminations and as coarser blebs within irregular calcite-epidote-chlorite veinlets and fracture fillings. In thin section bornite is seen to rim chalcopyrite suggesting secondary replacement. Minor molybdenite is a local occurrence. Gold mineralization appears to show a partial correlation with copper.

In 2004, Abacus diamond drilled 32 holes, totaling 10,024.72 metres into the two zones.

## 9.5 Coquihalla Zone

The Coquihalla zone, which has a potential strike length of 1000 metres, straddles the Coquihalla Highway on the Cid 3 claim. The zone lies within the northwest trending Leemac fault zone, which hosts the Rainbow mineralization 2 kilometres to the southeast, and the Pothook deposit .75 kilometres to the northwest. The mineralization lies within a northwest trending, steeply dipping sequence of Sugarloaf dikes and stocks within Nicola volcanics and picrites along the southwest boundary of earlier intrusives consisting of Pothook and Hybrid diorite.

The Sugarloaf diorite displays several styles of alteration, which range from pervasive weak to intense albite alteration, weak to intense potassic (biotite and K- feldspar) and pervasive chlorite and epidote alteration. Chalcopyrite mineralization appears spatially associated with the northwest trending Sugarloaf dikes and stocks. Gold mineralization appears to correlate with pyritic, albitized zones within the Sugarloaf diorites.

Four holes totaling 1302.51 metres were drilled into this zone by Abacus in 2004.

## 10.0 Exploration

Since optioning the property from Teck-Cominco in 2002, Abacus has conducted surface sampling of known showings on the Iron Cap claim and the Coquihalla East zone, geophysical ground magnetic and induced polarization surveys and diamond drilling.

In the fall of 2003, a grid was established over Abacus' adjoining Rainbow claims that extended over portions of the Cid 3 and Karen 4 claims of the Comet-Davenport property. A 3-dimensional induced polarization survey was conducted over this grid area by SJV Geophysics Ltd. of Delta, B.C. In 2003, a similar grid and IP survey was also completed over the DM, Audra and Crescent zones. Both surveys show broad areas of high chargeability values. Figures 5 and 6 are plan maps that present the IP chargeability results. In the spring of 2004 an initial diamond drilling program was completed which consisted of three holes for a total of 960.43 metres.

A second phase of diamond drilling, the subject of this report, was conducted by Abacus in the fall of 2004. The program consisted of 37 holes, totaling 12641.83 metres.

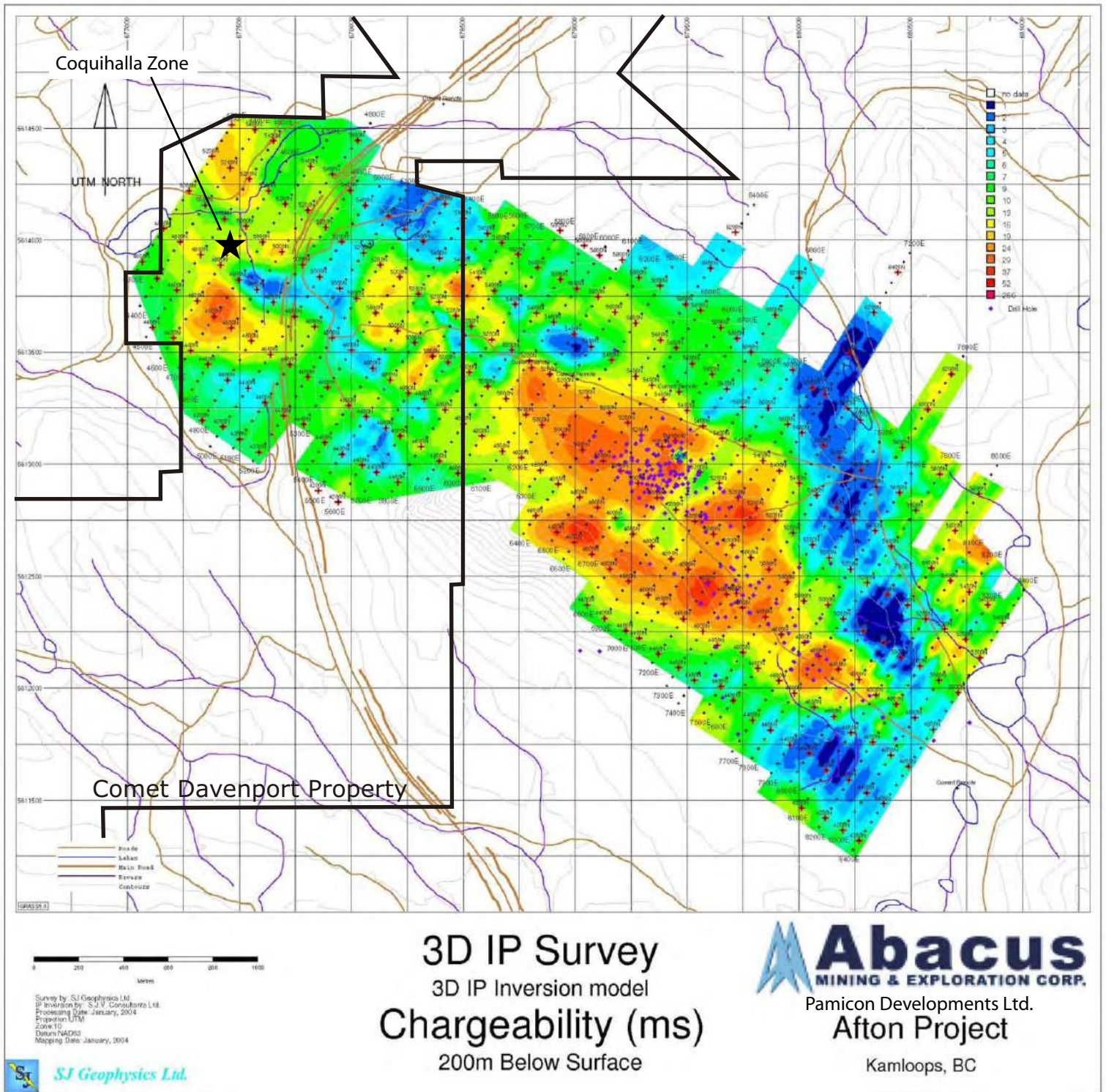
## 11.0 Drilling

Between September and December of 2004, Abacus drilled 33 NQ diamond drill holes (11,339.32 metres) in the east-west trending corridor encompassing the DM, Audra and Crescent zones. An additional 4 holes (1302.51 metres) were drilled in the Coquihalla zone. LDS Diamond Drilling of Kamloops, B.C. was contracted to carry out the drilling.

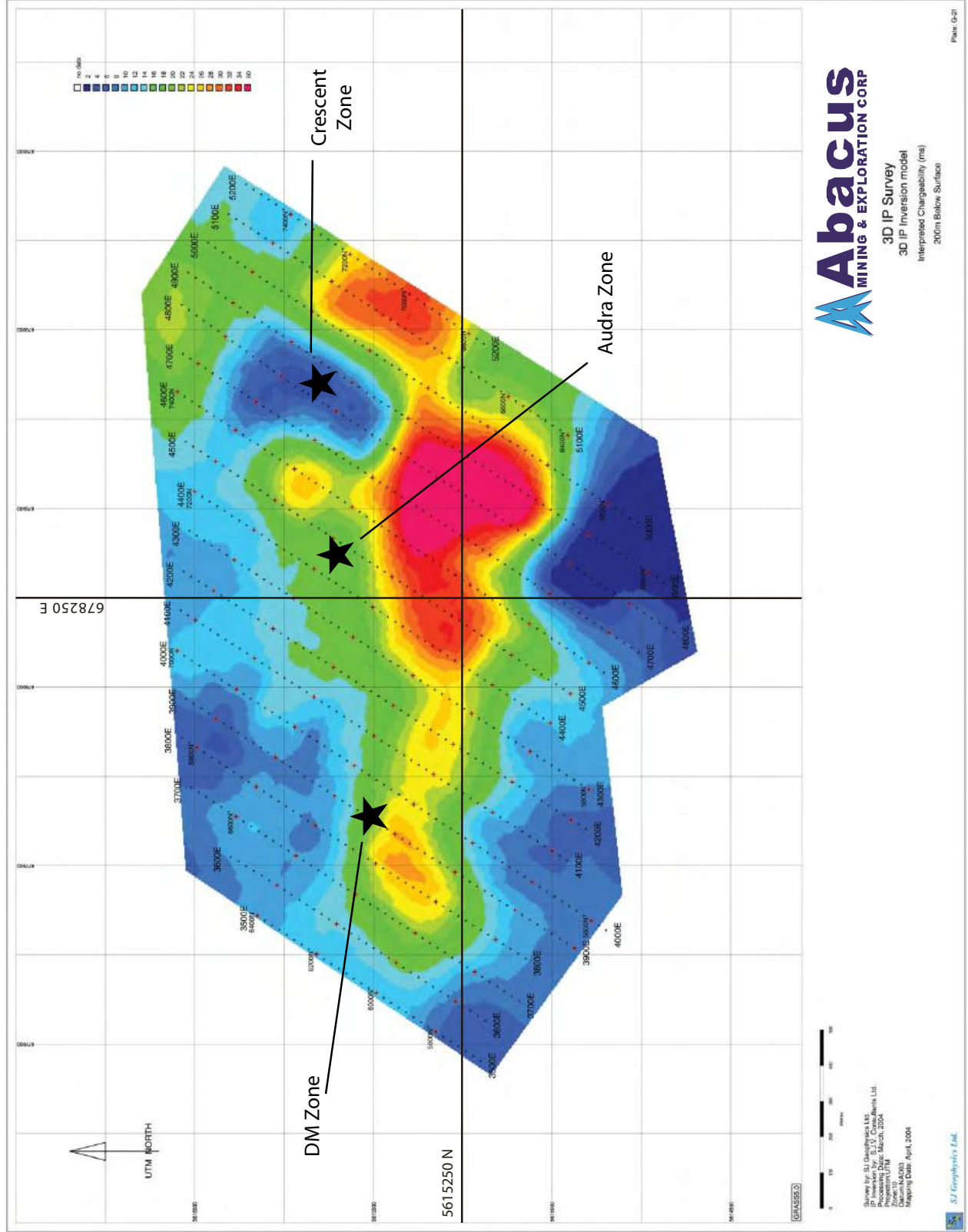
Holes DA-04-001 to DA-04-003, which are included in the tables and cross sections, were drilled by Abacus in the DM zone in the spring of 2004. The results from these holes, as well as



**Figure 5: Chargeability Plan, Rainbow/Coquihalla Grid**



**Figure 6: Chargeability Plan, DM Audra Grid**



the results from historical drill programs conducted by previous operators on the Comet-Davenport property, are fully described in Darney, 2004.

Table 11.1 gives the location data, lengths, dips and azimuths of the various holes drilled by Abacus in 2004 and Table 11.2 shows the most significant mineralized intersections. The intersections given in the table are down hole intercepts and do not necessarily reflect the true width of mineralization. The individual drill logs and analytical results are not included in this report but have been reviewed by the authors. The logs and assay results are housed at Abacus' offices in Vancouver, B.C.

**Table 11.1**  
**2004 Comet-Davenport Drill Hole Details**

Hole Number	Northing*	Easting*	Collar Elevation (m)	Length (m)	Azimuth (deg)**	Dip (deg)	Area
DA-04-001	5615377	677851.7	742.0	258.17	311.6	-50.8	DM
DA-04-002	5615377	677852.1	742.0	328.27	312.0	-62.1	DM
DA-04-003	5615322	677865.2	742.1	373.99	312.0	-49.3	DM
DA-04-004	5615448	677699.6	730.8	319.13	133.0	-49.2	DM
DA-04-005	5615491	677652	719.5	311.65	132.3	-54.2	DM
DA-04-006	5615448	677744.3	732.8	404.47	133.0	-79.0	DM
DA-04-007	5615437	677622	726.8	216.71	134.0	-44.3	DM
DA-04-008	5615521	677572.9	711.6	373.99	132.3	-44.5	DM
DA-04-009	5615504	677546.8	712.3	434.95	133.2	-50.8	DM
DA-04-010	5615502	677549.3	712.8	201.78	317.4	-66.6	DM
DA-04-011	5615646	678288.3	718.8	255.12	132.4	-45.4	Audra
DA-04-012	5615647	678287.5	718.8	178.92	132.4	-70.0	Audra
DA-04-013	5615436	677937.3	738.2	315.16	313.7	-59.0	DM
DA-04-014	5615437	677936.7	738.2	35.66	310.5	-45.5	DM
DA-04-015	5615424	678042.2	740.0	288.65	311.7	-46.1	DM
DA-04-016	5615491	678052.2	740.0	248.41	312.0	-59.2	DM
DA-04-017	5615533	678279.7	747.4	392.28	310.5	-50.6	Audra
DA-04-018	5615532	678279.9	747.3	428.55	311.6	-63.0	Audra
DA-04-019	5615625	678846.2	699.0	470.00	85.3	-44.2	Crescent
DA-04-020	5615648	679005.7	674.3	343.51	132.0	-60.3	Crescent
DA-04-021	5615645	679010.9	674.2	209.40	311.4	-46.1	Crescent
DA-04-022	5615649	679006.1	674.2	291.69	147.2	-63.0	Crescent
DA-04-023	5615598	678567.6	747.0	294.13	311.5	-52.0	Audra
DA-04-024	5615598	678568	747.0	270.36	315.1	-70.0	Audra
DA-04-025	5615559	678476.1	747.8	282.55	310.3	-45.5	Audra
DA-04-026	5615559	678476.4	747.7	314.25	310.5	-59.4	Audra
DA-04-027	5615600	677754.3	714.0	370.94	133.1	-52.0	DM
DA-04-028	5615601	677753.3	714.3	160.63	309.2	-45.3	DM
DA-04-029	5615477	677486.9	709.6	413.61	130.8	-50.2	DM
DA-04-030	5615386	677586.4	727.9	233.78	133.0	-58.6	DM
DA-04-031	5615505	677668	720.2	495.91	132.2	-72.5	DM
DA-04-032	5615584	677684	711.0	352.65	134.0	-44.2	DM
DA-04-033	5615584	677683.8	710.7	483.72	133.0	-55.1	DM
DA-04-034	5615463	677952.6	735.7	321.26	311.0	-45.5	DM
DA-04-035	5615550	678304.4	746.8	309.37	310.5	-45.1	Audra
DA-04-036	5615511	678258.5	746.6	355.70	312.0	-48.0	Audra

CO-04-001	5613706	677072	760.5	325.22	53.4	-45.0	Coquihalla
CO-04-002	5613922	677496	785.0	288.65	232.2	-58.9	Coquihalla
CO-04-003	5613927	677498.8	784.7	282.55	10.1	-52.2	Coquihalla
CO-04-004	5613585	677563.7	821.3	406.09	316.3	-45.1	Coquihalla

\* UTM zone 10, NAD 83

\*\* Azimuths are given relative to UTM grid North rather than true North.

In the DM and Audra zones, the northeast trending mineralized zone, described in Section 9.4, was tested intermittently over a strike length of approximately 800 metres. Holes in the DM and Audra zones were drilled on 30 metre spaced sections with ideal azimuths of 312° (grid north) or 132° (grid south). Although an undrilled gap of approximately 150 metres exists between DM and Audra, the authors believe that they likely form one continuous zone.

The majority of holes drilled in the DM and Audra zones intersected copper-gold mineralization. Mineralization occurs within Cherry Creek monzonite and monzonite intrusive breccia to the north of the bounding fault which separates Cherry Creek intrusives from unmineralized Pothook diorite to the south. The most significant drill intersections in the DM, Audra, Crescent and Coquihalla zones are listed in Table 11.2.

The Cherry Creek rocks show strong potassic alteration with late carbonate and gypsum veining. Sulphide mineralization consists of disseminated pyrite with varying amounts of disseminated, blebby and stringer chalcopyrite with lesser bornite. Minor molybdenite was observed locally. The mineralized zone appears to vary in width from 20 to 200 metres and is typically strongest within 50 metres of the bounding fault. The zone, which is considered to be open at depth, has presently been tested to a depth of approximately 300 metres below surface.

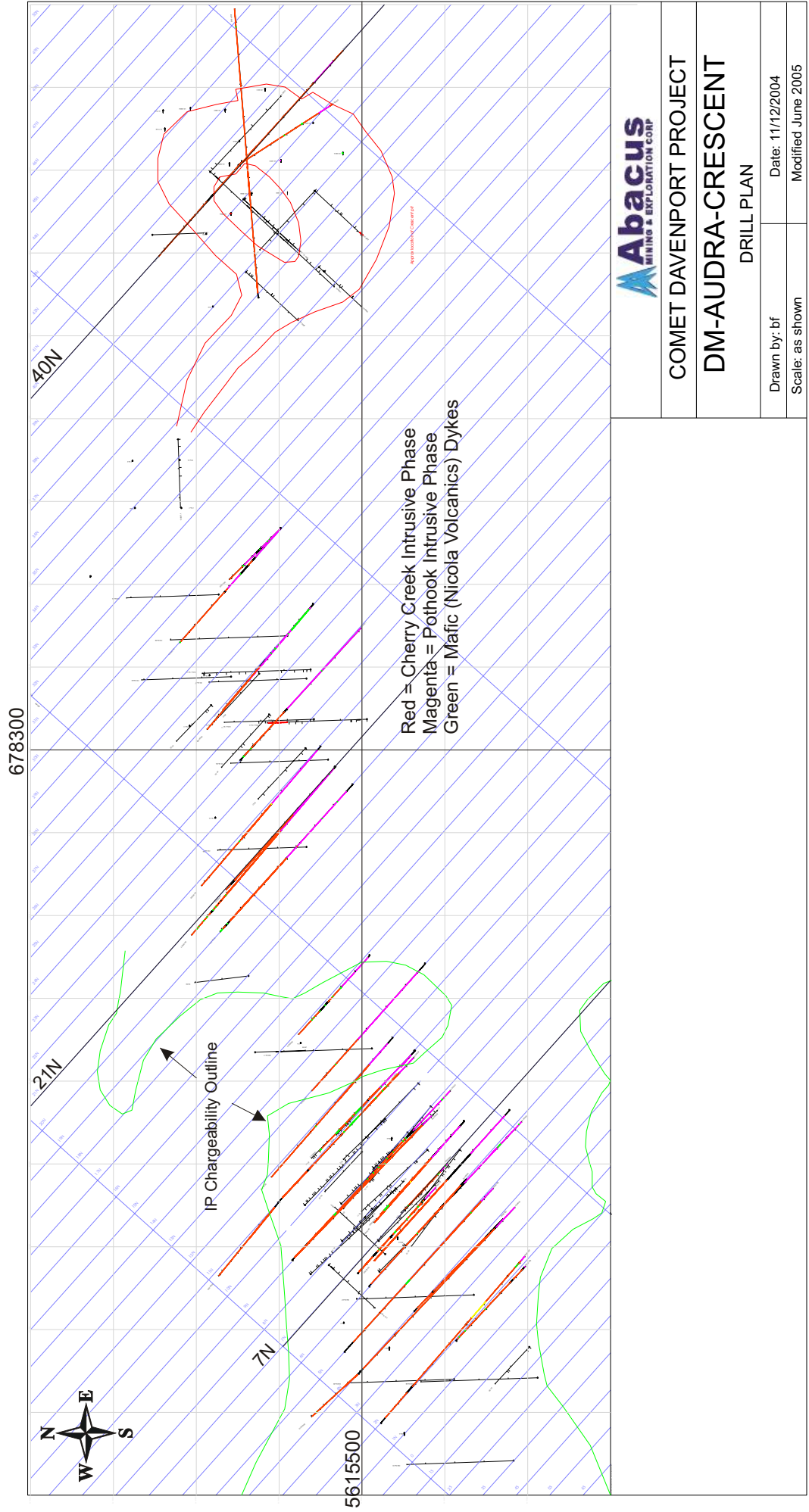
A drill plan with the drill hole locations in the DM, Audra, Crescent and Coquihalla zones is shown in Figure 7. Figure 8 is a typical cross section through the DM zone, illustrating holes DA-04-003, DA-04-006 and DA-04-031 as well as several historical holes drilled by previous operators. Hole DA-04-006 intersected 308.9 metres grading 0.42% copper and 0.20 grams per tonne gold.

Mineralization in the Audra zone is almost identical in style and geometry to the DM zone. Figure 9 shows a typical cross section through the Audra zone. Hole DA-04-017, shown on this section, intersected 98.0 metres grading 0.45% copper with 0.60 grams per tonne gold.

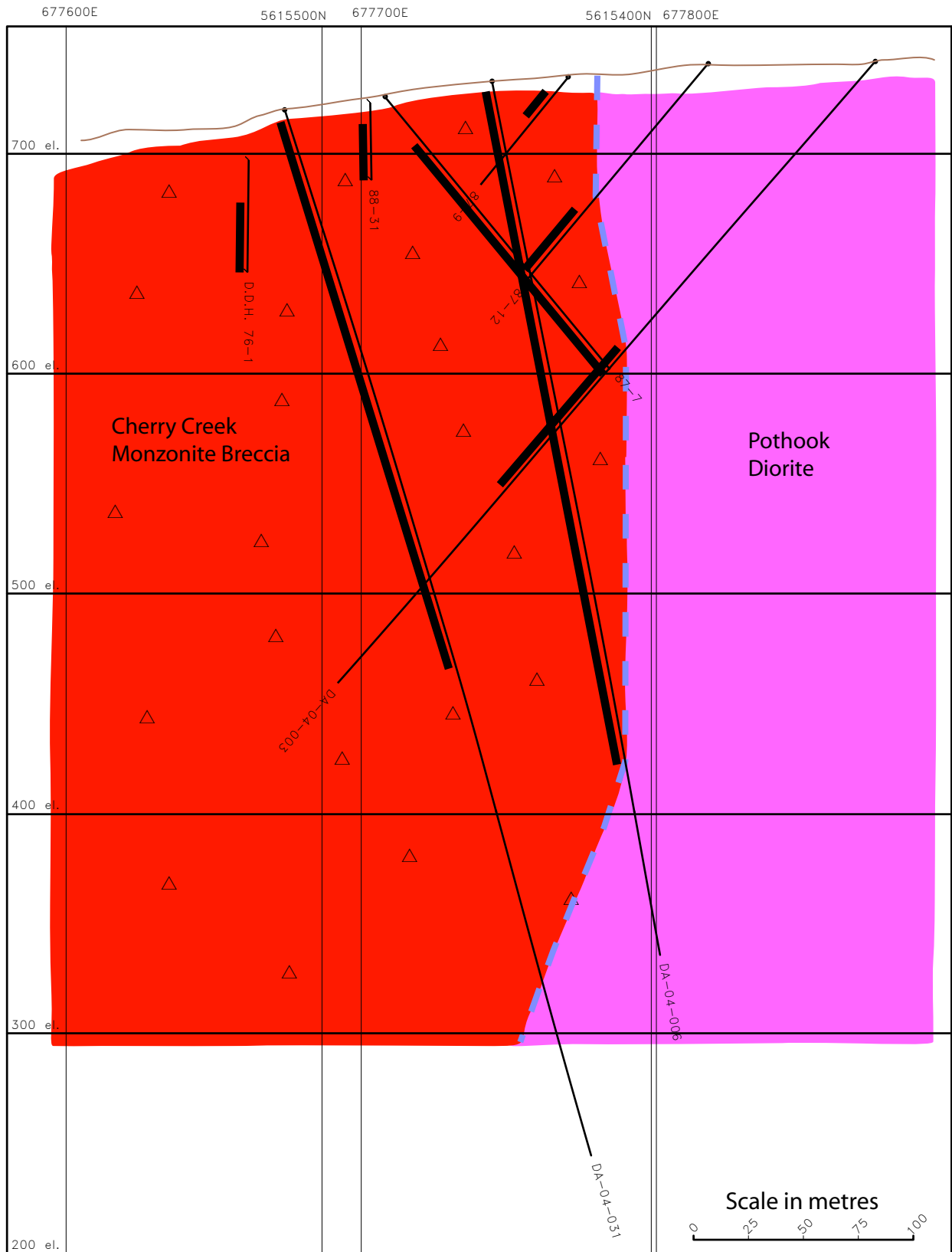
**Table 11.2**  
**Significant Diamond Drill Hole Intercepts in the DM/Audra/Crescent Zones**

Hole No.	From (m)	To (m)	Interval (m)*	Cu %	Au g/t	Zone
DA-04-001	107.0	191.0	84.0	0.44	0.28	DM
Incl.	107.0	122.0	15.0	0.86	0.41	
DA-04-002	129.0	207.0	78.0	0.39	0.22	DM
Incl.	129.0	168.0	39.0	0.51	0.32	
DA-04-003	173.3	255.0	81.7	0.47	0.29	DM
Incl.	173.3	200.3	27.0	0.54	0.05	
And	233.3	249.8	16.5	0.76	0.59	
DA-04-004	6.1	132	125.9	0.25	0.11	DM
Incl.	6.1	24.0	17.9	0.41	0.20	

**Figure 7: DM-Audra-Crescent Drill Plan**



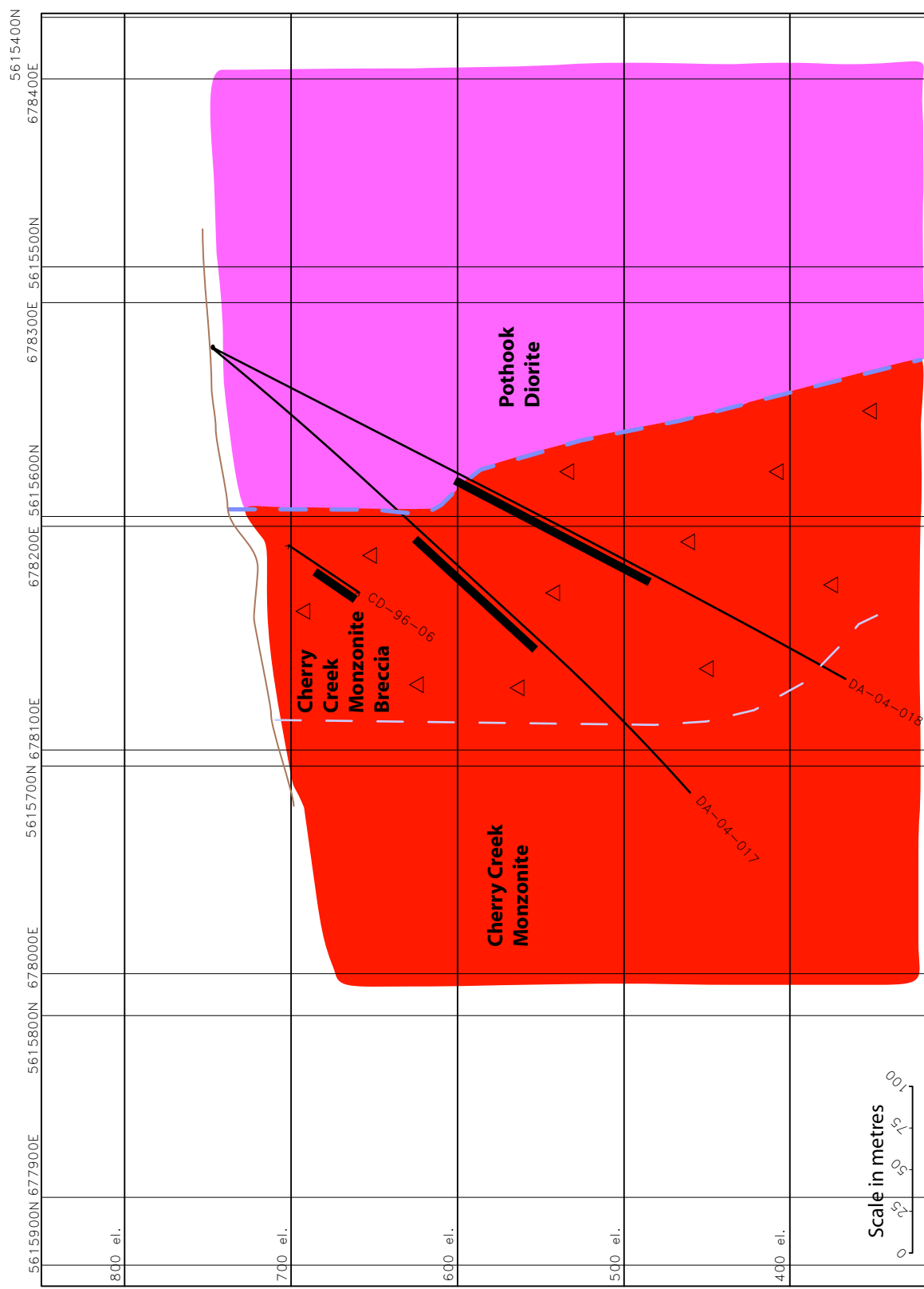
# Figure 8: DM Zone Cross Section



DA-04-003:	0.47% Cu, 0.29 g/t Au / 81.70 m
DA-04-006:	0.42% Cu, 0.20 g/t Au / 308.90 m
DA-04-031:	0.25% Cu, 0.13 g/t Au / 298.30 m
76-1:	0.18% Cu / 36.50 m
87-7:	0.28% Cu, 0.15 g/t Au / 131.60 m
87-9:	0.13% Cu, 0.08 g/t Au / 10.98 m
87-12:	0.34% Cu, 0.34 g/t Au / 30.48 m
88-31:	0.34% Cu, 0.40 g/t Au / 36.58 m

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Scale: As Shown	File: 7N.Dxf

# Figure 9: Audra Zone Cross Section



DA-04-017: 0.45% Cu, 0.60 g/t Au / 98.0 m  
 DA-04-018: 0.29% Cu, 0.26 g/t Au / 132.0 m  
 \*CD-96-06: 0.39% Cu, 0.25 g/t Au 39.0 m

\*Hole extends partially off section

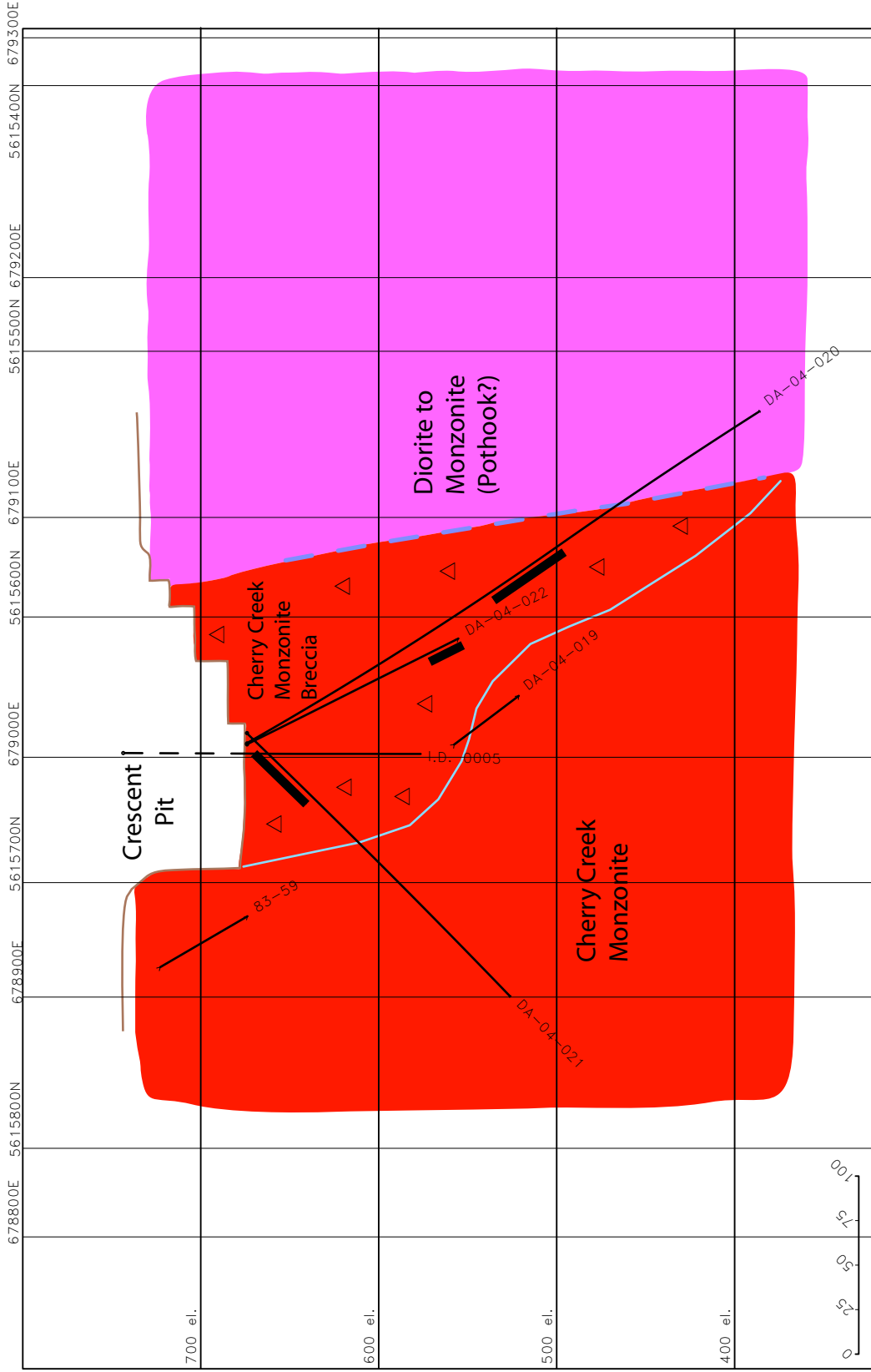
<b>Pamicon Developments Ltd.</b>	
COMET DAVENPORT PROJECT	
Section: 21N	
LOOKING EAST	
Drawn By: B. Eitzen	Date: 10/06/2005
Scale: As Shown	File: 21N.Dxf

And	78	132.0	54.0	0.30	0.12	
Incl.	102	132.0	30.0	0.34	0.15	
DA-04-005	146.5	289.5	143.0	0.40	0.26	DM
Incl.	146.5	176.5	30.0	0.60	0.54	
And	256.6	289.5	32.9	0.49	0.19	
DA-04-006	6.0	314.9	308.9	0.42	0.20	DM
Incl.	153.0	314.9	161.9	0.56	0.26	
Incl.	153.0	183.0	30.0	0.72	0.32	
Incl.	291.0	314.7	23.7	0.85	0.49	
DA-04-008	206.0	257.0	51.0	0.23	0.34	DM
DA-04-009	271.3	372.6	101.3	0.16	0.25	DM
DA-04-011	63.9	81.9	18.0	0.25	0.35	Audra
DA-04-012	13.72	64.00	50.28	0.21	0.29	Audra
Incl.	13.72	40.00	26.28	0.25	0.32	
DA-04-013	135.6	157.8	20.2	0.18	0.26	DM
DA-04-015	175.0	199.0	24.0	0.24	0.49	DM
DA-04-016	141.15	150.20	9.05	0.19	0.38	DM
DA-04-017	167.80	265.80	98.0	0.45	0.60	Audra
Incl.	167.80	249.80	82.0	0.51	0.60	
Incl.	179.80	212.80	33.0	0.68	0.80	
DA-04-018	165.0	297.0	132.0	0.29	0.26	Audra
Incl.	177.0	195.0	18.0	0.20	0.62	
And	249.0	291.0	42.0	0.44	0.31	
DA-04-020	163.1	209.4	46.3	0.40	0.06	Crescent
Incl.	200.4	209.4	9.0	1.31	0.13	
DA-04-022	115.0	209.3	94.3	0.26	0.08	Crescent
Incl.	179.4	209.3	29.9	0.37	0.14	
Incl.	179.4	189.7	10.3	0.50	0.08	
DA-04-025	201.0	249.0	48.0	0.39	0.09	Audra
Incl.	225.0	246.0	21.0	0.52	0.10	
DA-04-029	280.7	300.6	19.9	0.38	0.16	DM
DA-04-031	6.7	298.3	291.6	0.25	0.13	DM
Incl.	6.7	107.1	100.39	0.37	0.20	
Incl.	6.7	69.1	62.39	0.47	0.26	
Incl.	6.7	42.35	35.64	0.69	0.34	
DA-04-032	76.0	328.0	252.0	0.25	0.14	DM
Incl.	76.0	121.0	45.0	0.27	0.15	
And	199.0	232.0	34.0	0.33	0.18	
DA-04-035	153.5	204.8	51.3	0.56	0.95	Audra
Incl.	168.5	189.5	21.0	0.76	1.52	
DA-04-036	191.0	272.0	81.0	0.40	0.31	Audra
Incl.	191.0	221.0	30.0	0.40	0.46	
CO-04-001	241.8	274.8	33.0	0.01	0.61	Coquihalla
Incl.	241.8	247.8	6.0	0.01	2.28	
CO-04-002	85.0	181.0	96.0	0.13	0.18	Coquihalla
Incl.	88.0	112.0	24.0	0.36	0.33	
Incl.	97.0	109.0	12.0	0.54	0.45	
CO-04-003	65.2	89.2	24.0	0.23	0.11	Coquihalla
CO-04-004	34.0	406.09	372.09	0.03	0.11	Coquihalla
Incl.	145.0	184.0	39.0	0.04	0.42	
Incl.	166.0	172.0	6.0	0.22	0.81	

\* Intercept widths are down hole widths and do not necessarily reflect the true width of mineralization.



**Figure 10: Crescent Zone Cross Section**



DA-04-020: 0.40% Cu, 0.06 g/t Au / 46.3 m  
 DA-04-021: 0.37% Cu, 0.06 g/t Au / 39.0 m  
 \*DA-04-022: 0.26% Cu, 0.08 g/t Au / 94.3 m

\*Hole extends off section

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Scale: As Shown	File: 40N_South_sheet1.Dxf

Four holes were drilled beneath the previously mined Crescent pit (Section 9.3), which lies approximately 120 metres east of the Audra zone. The geology and style of mineralization in the Crescent zone suggests that it may be a continuation of the DM-Audra trend. If this is the case, then the Crescent zone must have a horizontal fault offset of at least 250 metres to the southeast.

Sulphide mineralization in the Crescent zone consists of blebby and stringer chalcopyrite and pyrite hosted within K-feldspar altered monzonite to diorite and monzonite intrusive breccia. The Abacus drilling indicates that copper mineralization continues beneath the existing pit to a depth of at least 250 metres. Figure 10 is a cross-section through the Crescent zone, illustrating holes DA-04-020, 021. Hole DA-04-020 intersected 46.3 metres grading 0.40% copper with 0.06 grams per tonne gold.

Holes CO-04-001 to CO-04-004 were drilled in the Coquihalla zone (Section 9.5). Teck and New Gold Inc. (formerly DRC Resources) to the west have previously intersected low-grade gold mineralization along the structural break and immediately northwest of the Comet-Davenport property. Abacus drilled hole CO-04-001 to test for a possible southeast extension of this gold mineralization onto its property and confirmed the presence of low-grade gold mineralization, averaging 0.01% copper with 0.61 grams per tonne gold over 33.0 metres intersected picrite volcanics and Sugarloaf hornblende-diorites. The diorites show variable K-feldspar, sericite albite and epidote alteration and are pyritic throughout. The mineralized interval coincides with pyritic hornblende-diorite and includes a subinterval of 6.0 metres, averaging 2.28 grams per tonne gold with 0.01% copper. Figure 11 shows a drill plan of the Coquihalla Zone.

Hole CO-04-002 to CO-04-004 were drilled in the area of a prominent ridge, just west of Highway 5, where several old workings expose northeast trending chalcopyrite bearing shears within pyritic, albitized Sugarloaf diorite. A strong IP chargeability anomaly underlies the area.

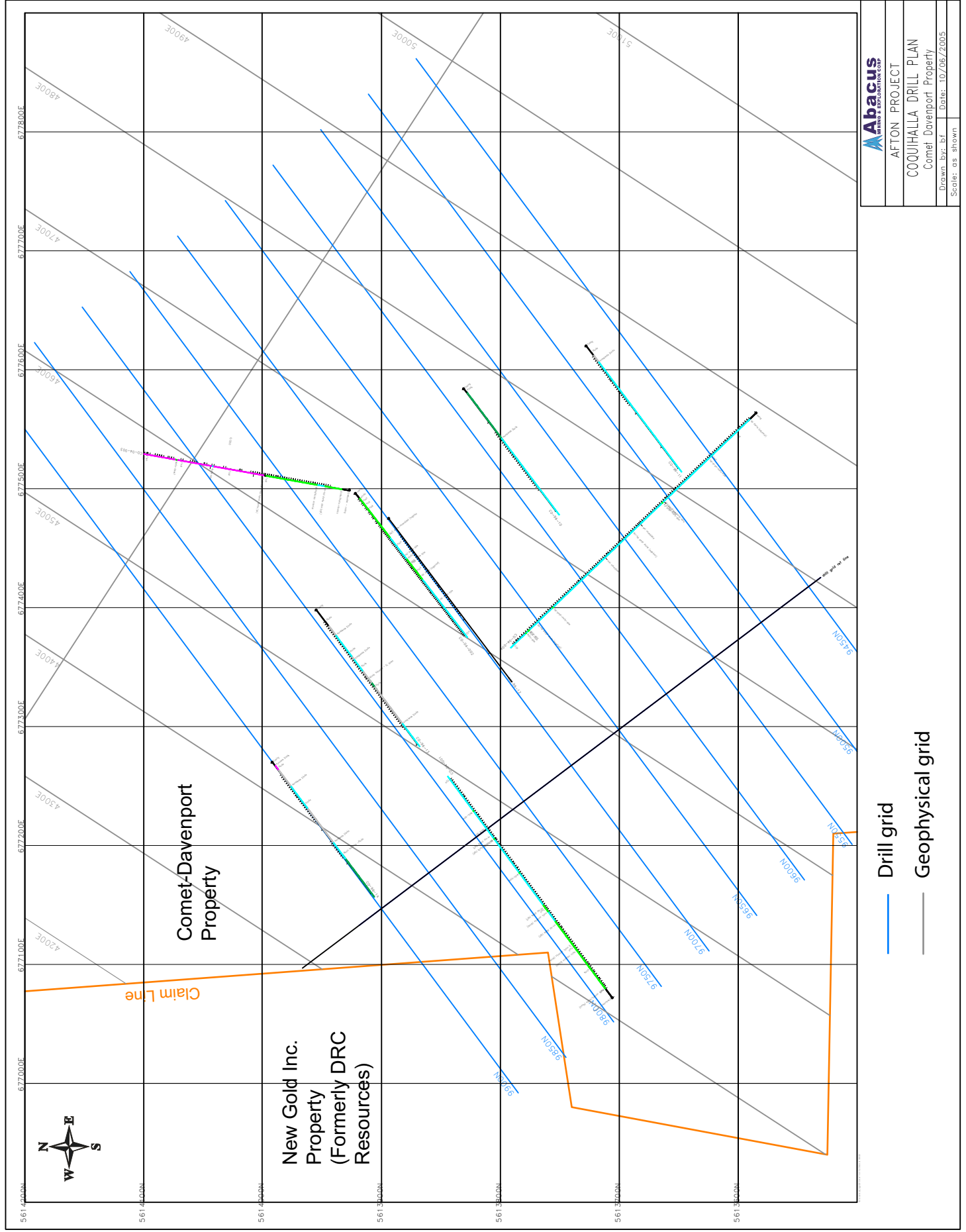
Hole CO-04-002, which tested the flanks of the IP anomaly, was drilled down dip of historical Teck hole CO-96-12. Hole CO-04-002 intersected a series of picritic volcanics and pyrite-chalcopyrite bearing hornblende-diorite dykes. It produced an interval of 24.0 metres, grading 0.36% copper and 0.33 grams per tonne gold (Figure 12).

Hole CO-04-004 was drilled down the axis of the IP chargeability anomaly. The hole intersected albite-altered diorite with local minor chalcopyrite. The rock is strongly pyritic, perhaps explaining the IP anomaly. Copper grades were generally not significant but the hole was anomalous in gold, averaging 0.11 grams per tonne over 372.09 metres; which included a 39.0 metre interval that assayed 0.42 grams per tonne gold.

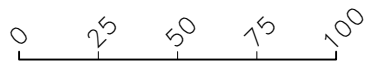
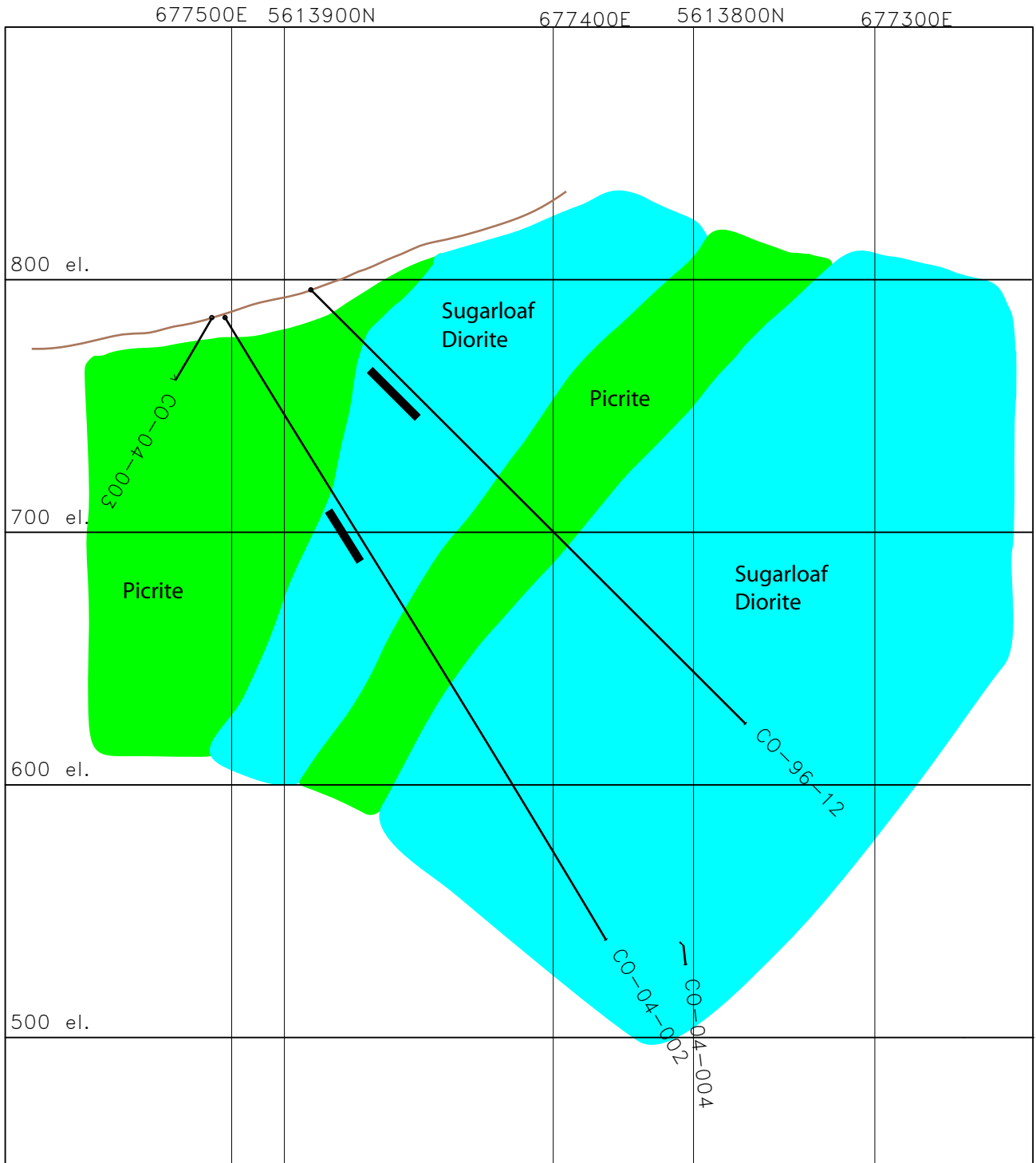
## **12.0 Sampling Method and Approach**

During the geological logging of the core, sample intervals were chosen by the geologist. They were normally three (3.0) metres of core length but often shorter intervals were used in areas of higher-grade material or where geological boundaries were encountered. The beginning and ending of each sample interval was marked with engraved aluminium tags stapled to the core box.

**Figure 11: Coquihalla Zone Drill Plan**



# Figure 12: Coquihalla Zone Cross Section



CO-04-002: 0.36% Cu, 0.33 g/t Au / 24.0 m  
 CO-96-12: 0.35% Cu, 0.14 g/t Au / 21.0 m

Pamicon Developments Ltd.	
COQUIHALLA PROJECT	
Section: 9700N Looking Easterly	
Drawn By: B. Friesen	Date: 10/06/2005
Scale: As Shown	File: 9700N.Dxf

### **13.0 Sample Preparation, Analysis and Security**

All drill core was taken by pickup truck from the drill site to a central office and core-handling facility located on Abacus' Rainbow property on the Rainbow NE claim. The core was first logged for recovery and rock quality by a Pamicon technician, and then geologically logged by Pamicon geologists Mr. Robert Falls or Mr. Colin Russell, P.Geol. Marked samples were then cut in half lengthwise with the use of a diamond saw and the sample portion bagged in plastic sample bags. The remaining half of core was returned to its appropriate place in the core box. Assay tags were placed in the bags with the samples and the bags tied with plastic non-removable plastic straps. Individual samples were then bagged in rice bags, which were in turn tied with plastic straps. All samples were taken by a Pamicon employee to Eco Tech Labs Ltd. in Kamloops. Any prepared samples that were not sent to Eco Tech the same day, were locked overnight in the on-site office trailer.

To avoid contamination of samples, the diamond saw was washed down and the blade cleaned and sharpened between each sample by taking a slice through a concrete brick.

The remaining and unsampled core was racked in covered core racks located at the core handling facility.

Samples were assayed for copper, gold, platinum and palladium. A 28 element ICP analysis was also run on each sample. In each batch of thirty samples, one copper standard, one gold and precious metal standard and one blank sample were included by Pamicon. Eco Tech Labs carried out a systematic duplicate and re-split assay procedure for their own quality control purposes.

### **14.0 Data Verification**

Since both authors Darney and Friesen were an integral part of the 2004 drilling and sampling program they are completely familiar with the presented data and its validity.

However, because of the volume and nature of the historic data (mainly Minfile reports and copies of old property reports and data, with little original material) used in the history section of this report, much of the sampling and analytical data was not verified. Most of the drill core from the pre-Afton Operating era is missing, as were many original drill logs and assay certificates in Abacus' dataset.

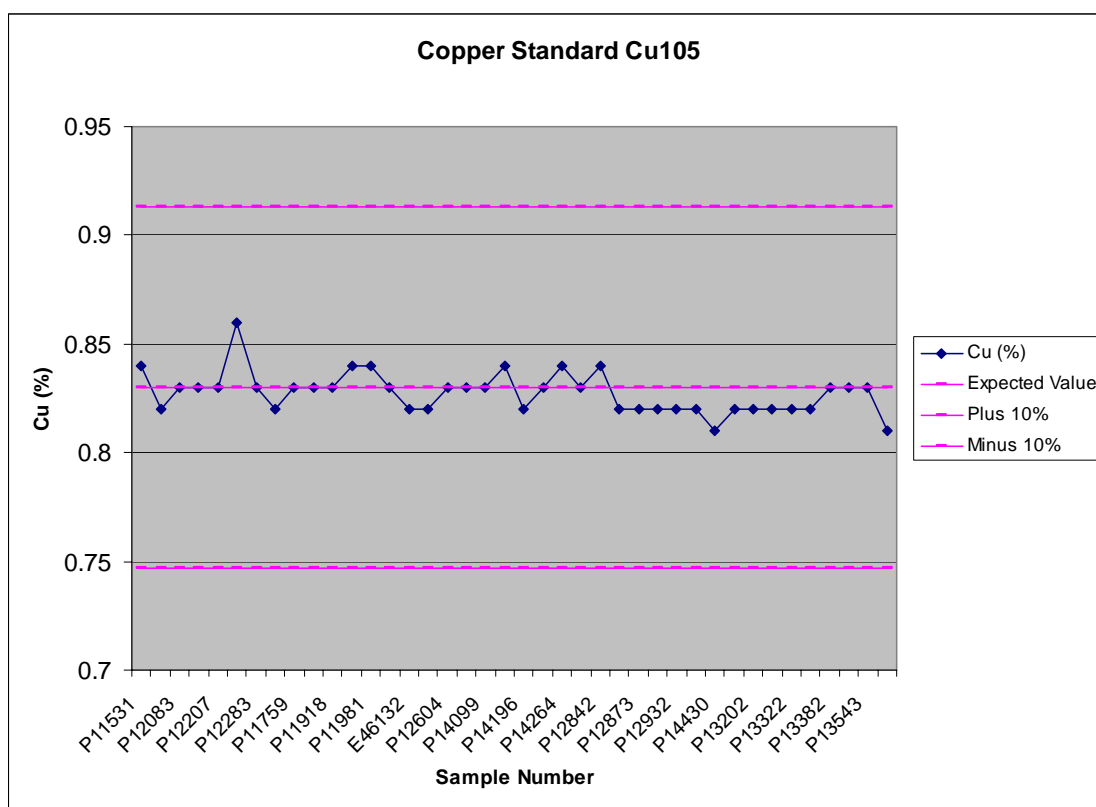
The authors personally know many of the previous authors and geologists and feel with a high degree of confidence that their work was completed in a professional manner. As previously mentioned, much of the historic drilling data would not meet the standards needed for inclusion in any resource estimations as defined by NI 43-101, but will be sufficient for guiding future exploration

The authors verified all results obtained by Abacus in 2004 by comparing assays reported in this report against certified lab results.

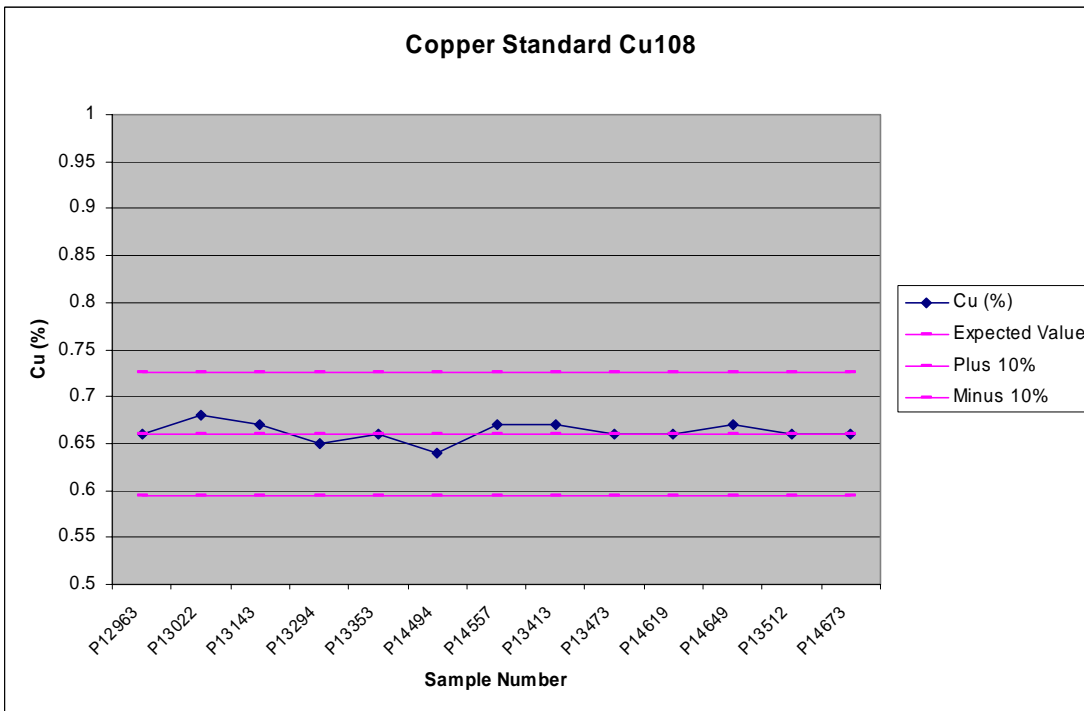
The 2004 quality assurance/quality control (QA/QC) program consisted of submitting blanks, standards and duplicates into the sample stream to check for contamination, precision and accuracy.

A total of 85 blanks were submitted and analyzed for Au, Cu, Pd, Pt and Co. All but two samples for gold showed less than detection, with two values reporting at the 0.03 g/t detection limit. All blanks assayed for copper reported at less than the detection limit. The results indicated no contamination from pulverizing or assay techniques.

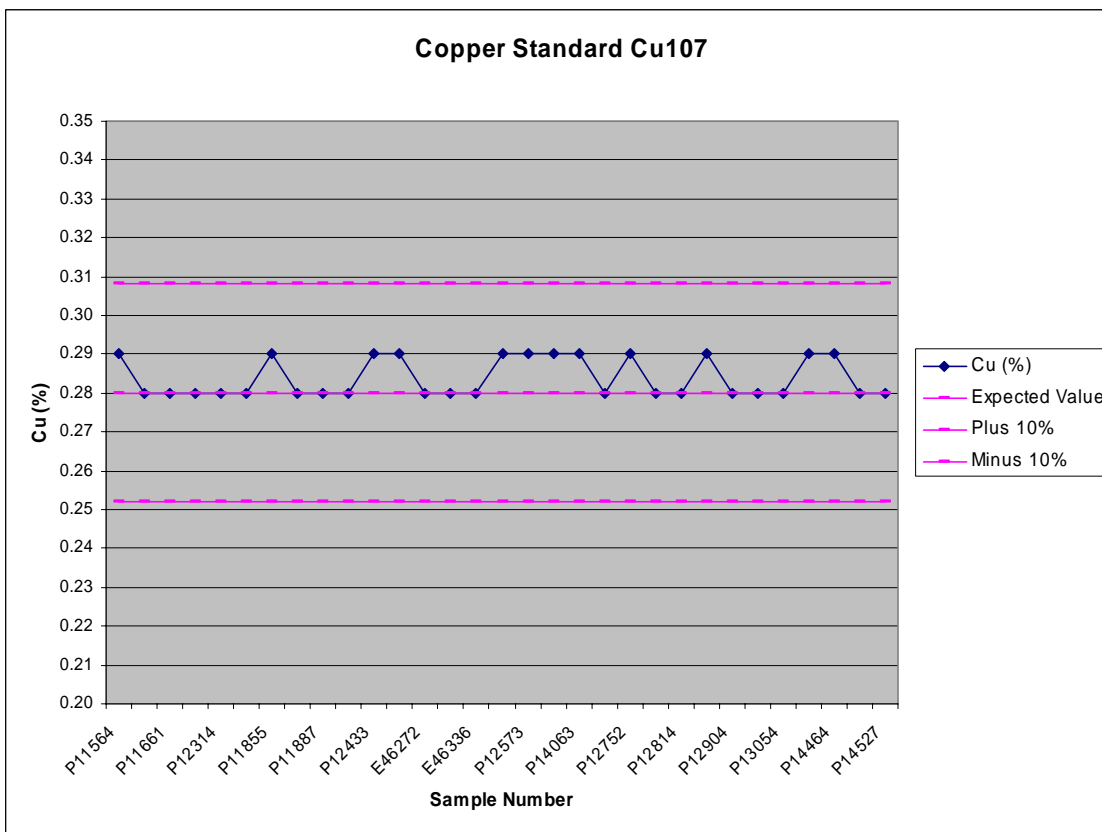
A series of three copper standards were used randomly through out the drill program: a high grade copper standard Cu105 (expected value 0.83 % Cu), a medium standard Cu108 (expected value 0.66 % Cu) and a low grade standard Cu107 (expected value 0.28 %). The results, as shown in the following plots, (Figures 13 to 15) were excellent with all results falling with  $\pm 10\%$  of the expected value.



**Figure 13: High Grade Copper Standard Cu105**



**Figure 14: Medium Grade Copper Standard Cu108**



**Figure 15: Low Grade Copper Standard Cu107**

Eco Tech, as part of the QA/QC procedure, takes a re-split from rejects on a frequency of about 1 in every 35 samples. The split is pulverized and assayed for copper and gold. During the 2004 drill program a total of 97 samples were analyzed. The results are presented in Figures 16 to 18. For copper there was excellent agreement with a correlation coefficient of 0.9974. The best fit regression line was superimposed on the equal value line indicating no sampling or analytical bias. A measure of the sampling precision was  $\pm 20\%$  which is very good.

Gold in re-splits showed a slight proportional bias, a coefficient of correlation of 0.9048 and a sampling precision of  $\pm 132\%$  due to a single outlier (see Figure 17). When this outlier, which was probably due to a numbering error, was removed the best fit regression line was slightly below the equal value line (Figure 18), the coefficient of correlation improved to 0.9856 and the sampling precision improved to  $\pm 51\%$ , which for gold is quite reasonable.

Eco Tech also took a second split from pulps on about a 1 in 10 frequency and assayed for both copper and gold. The results for copper were excellent when one outlier was removed with a coefficient of correlation of 0.9998 (Figure 19). The best fit regression line is superimposed on the equal value line and the sampling precision is  $\pm 5.2\%$ . The re-assays for gold show more scatter but still good agreement (see Figure 20). The best fit regression line through the data is just slightly below the equal value line indicating no analytical or sampling bias. The correlation coefficient is 0.9884 and the sampling precision is  $\pm 42.2\%$ .

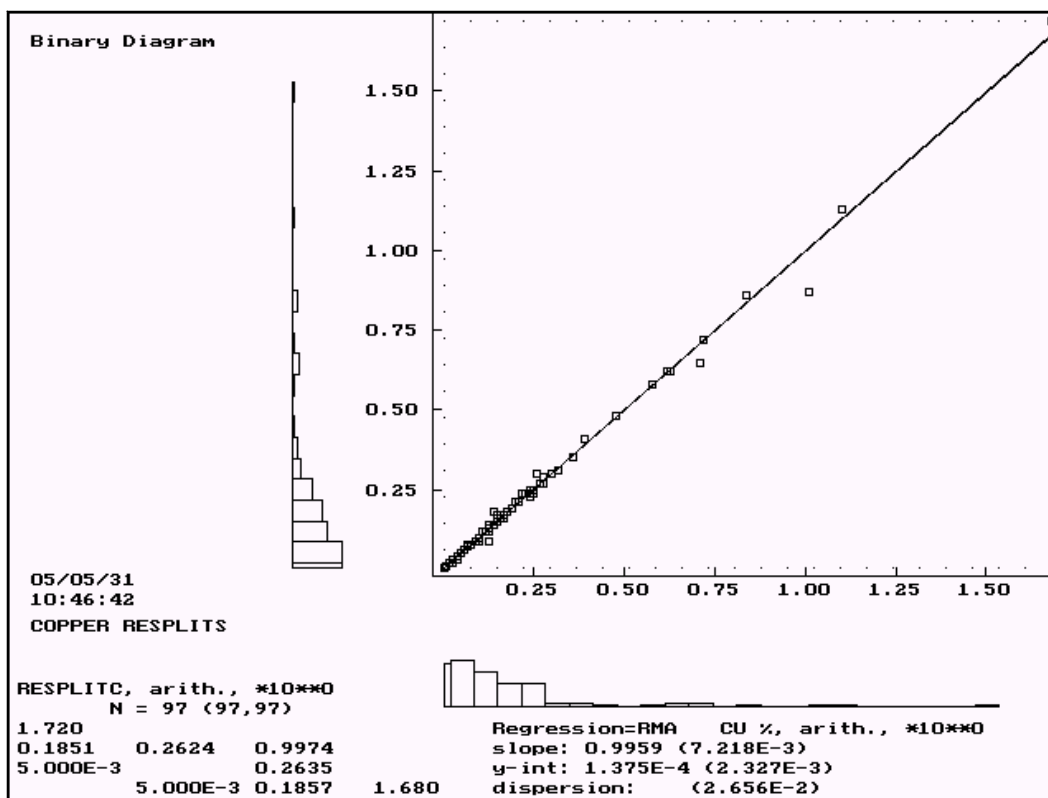


Figure 16: Original Cu assay compared with Cu from re-split of sample



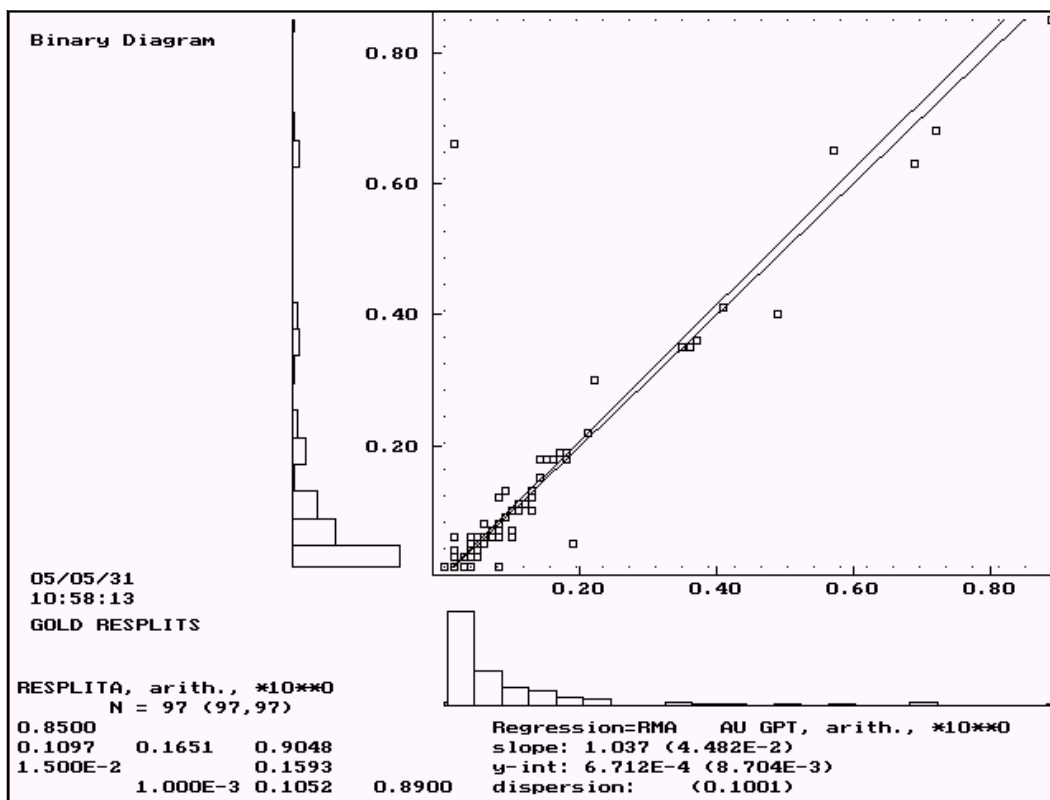


Figure 17: Original Au assay compared with Au from re-split of sample

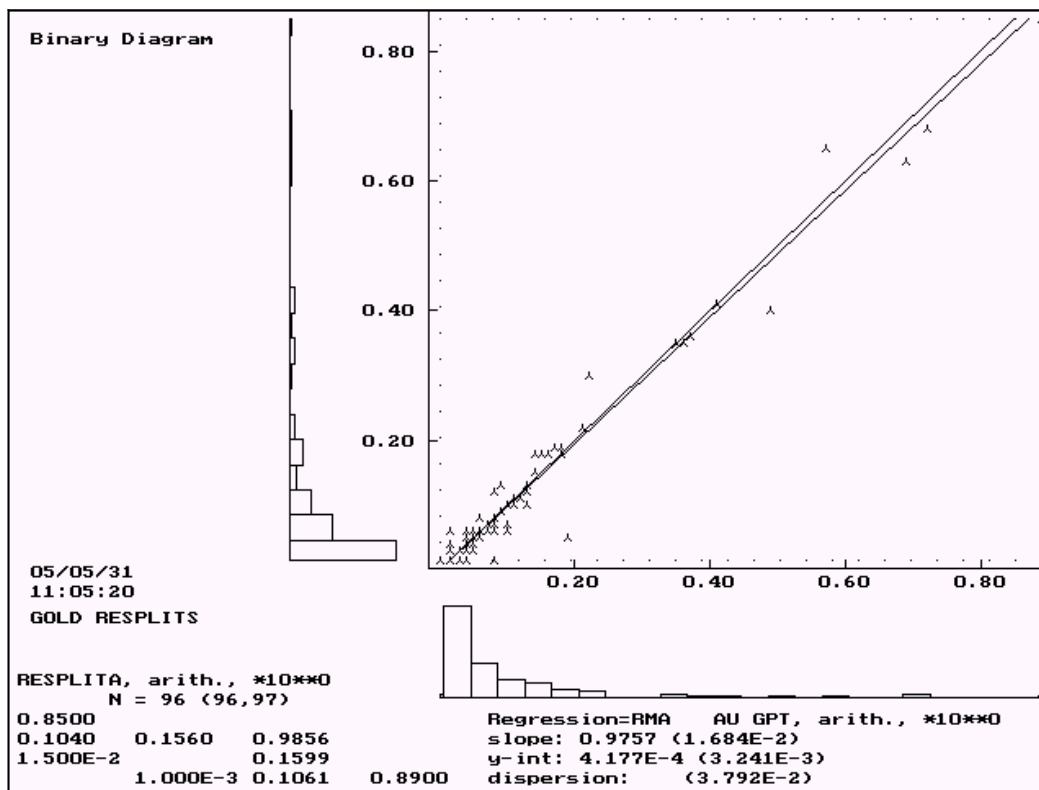


Figure 18: Original Au assay compared with Au from re-split of sample (1 outlier removed)

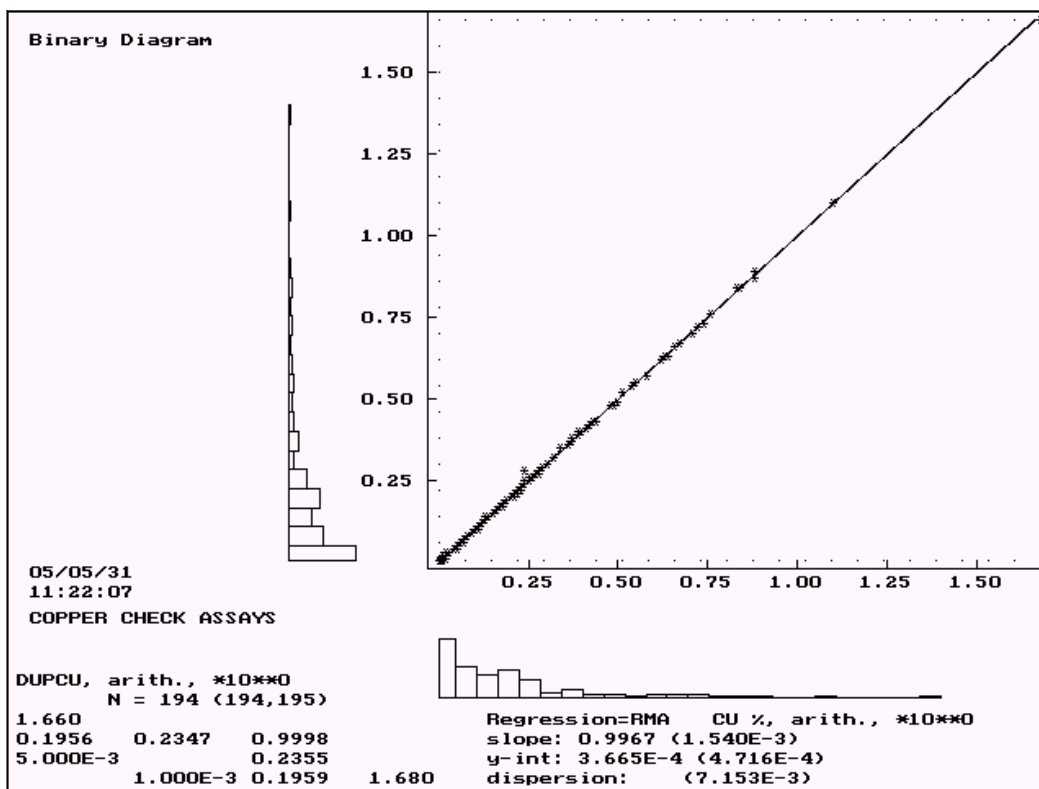


Figure 19: Original Cu assay compared with Cu from re-assay of sample (1 outlier removed)

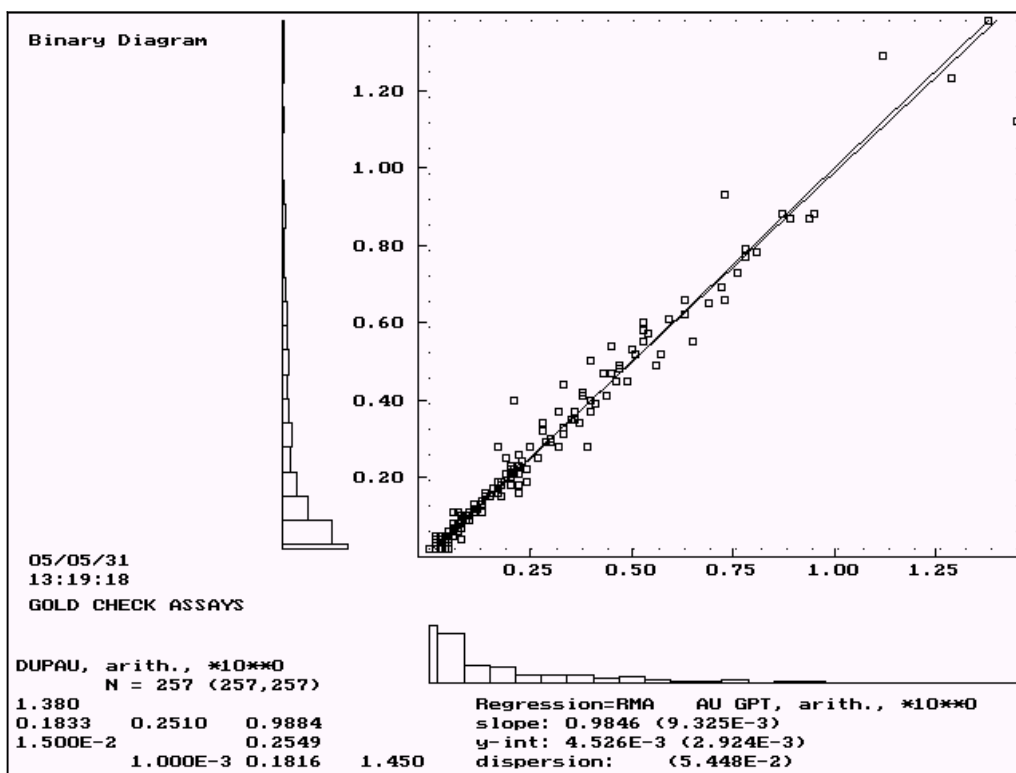


Figure 20: Original Au Assay compared with Au from Re-assay of sample

In the opinion of the authors the data for this project meets industry standards and is of sufficient quality to be used in a Resource Estimate.

## **15.0 Adjacent Properties**

The Comet-Davenport property is virtually surrounded by other claim groups that collectively cover most of the Iron Mask batholith and adjacent intruded rocks. Some of these groups are also under option to Abacus. The most prominent mineralizing host structure on the property is an east-west trending fault controlled structural corridor, which is interpreted to extend beyond property boundaries and include the original Afton open pit mine to the west, and the Big Onion deposit to the east. Abacus' Rainbow claims adjoin the Comet-Davenport property to the south and west. During 2004 Abacus aggressively drilled the No.2 and No.22 zones on their Rainbow property.

## **16.0 Mineral Processing and Metallurgical Testing**

The authors are unaware of any mineral processing or metallurgical testing on any of the Comet-Davenport mineralized zone or occurrences. However, since the Crescent deposit has been mined, the authors assume that testing was done prior to production and that the results were favourable enough to make a production decision.

## **17.0 Mineral Resource and Mineral Reserve Estimates**

### **17.1 Data Analysis**

A total of 129 drill holes with 332 down hole surveys were provided by Abacus for the combined mineralized zones of DM, Audra, and Crescent. A total of 7,897 samples were present but a large number of these were not assayed by previous operators. Gold was also not sampled by early explorers. Examination of this unsampled drill core has shown many of these intervals were mineralized with chalcopyrite visible in the drill core. Future exploration on the property should include assaying this un-split core particularly within the mineralized zone. Sections of core, not assayed for gold, should be examined and where possible ¼ core samples taken for gold assay, within mineralized zones. Samples un-assayed were left blank in this resource estimation, unless they were known to be unmineralized. Sample intervals in overburden or post mineral dykes were assigned a nominal 0.001% grade for copper and 0.001 g/t grade for gold. A total of 7,548 samples had copper assays and only 3,957 samples had gold assays. The statistics for these samples are presented in Table 17.1.1.

**Table 17.1.1**  
**Sample Statistics from drill hole assays**

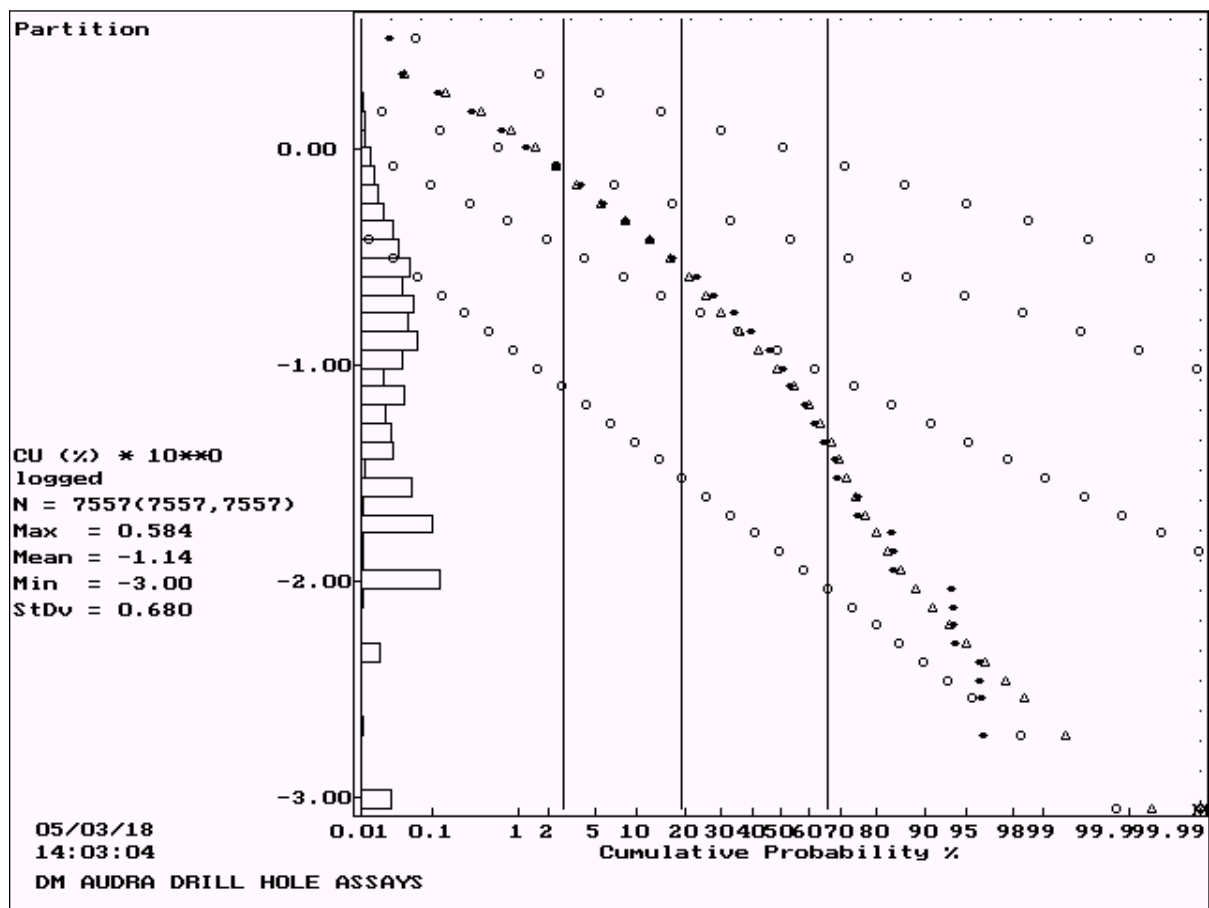
	<b>Cu (%)</b>	<b>Au (g/t)</b>
Number of Samples	7,448	3,957
Mean Grade	0.175	0.105
Standard Deviation	0.233	0.192
Minimum	0.001	0.001
Maximum	3.84	4.86
Coefficient of Variation	1.33	1.83

Assays for copper and gold both showed positive skewed distributions. Each variable was examined using lognormal cumulative frequency probability plots shown as Figure 21 and 22. In each case overlapping lognormal populations were found and partitioned out.

Table 17.1.2 shows the various copper populations present. The upper two populations represent the main mineralizing event and have mean grades of 1.03 % and 0.395 % Cu respectively. Population 1 represents 2.71 % of the data or 205 samples and as such cannot be considered erratic. A reasonable capping level would be at two standard deviations above the mean of this population, a value of 2.12% Cu. A total of three samples were capped at 2.12% Cu.

**Table 17.1.2**  
**Sample Statistics for Copper from drill hole assays**

<b>Population</b>	<b>Mean % Cu</b>	<b>Proportion of Data</b>	<b>Number of Samples</b>
1	1.029	2.71 %	205
2	0.395	19.05 %	1440
3	0.116	44.34 %	3350
4	0.014	33.91 %	2552



**Figure 21: Lognormal Cumulative Frequency Plot for Copper at DM Audra**

Table 17.1.3 shows 5 overlapping gold populations present. The upper most population (1) appears to be erratic high grade. Population 1 represents only 0.10 % of the data or 4 samples. Populations 2 and 3 represent the main mineralizing event. A reasonable capping level would be at two standard deviations above the mean of population 2, a value of 2.19 g Au/t. A total of four samples were capped at 2.19 g Au/t.

**Table 17.1.3  
Sample Statistics for Gold from drill hole assays**

Population	Mean Au (g/t)	Proportion of Data	Number of Samples
1	3.89	0.10 %	4
2	0.932	0.90 %	36
3	0.322	14.55 %	575
4	0.075	43.63 %	1725
5	0.013	40.81 %	1614

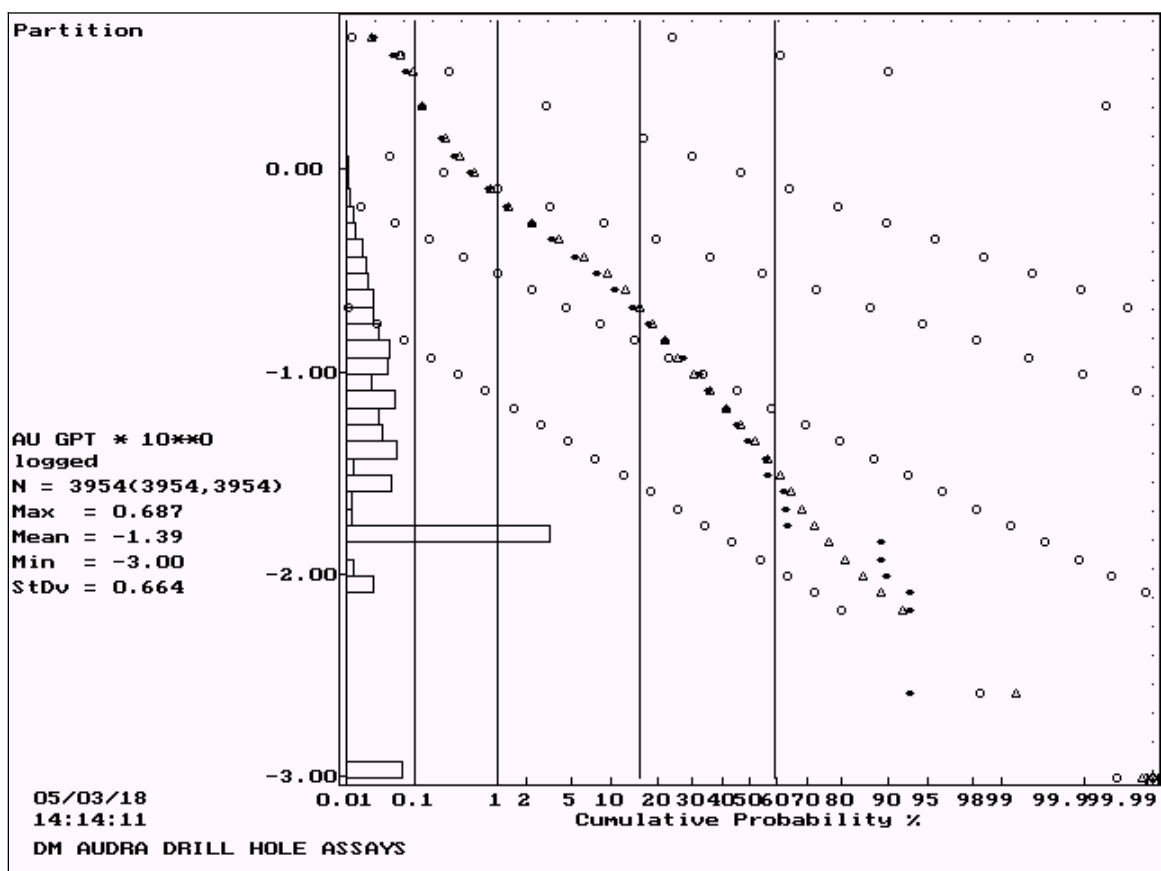


Figure 22: Lognormal Cumulative Frequency Plot for Gold at DM Audra

## 17.2 Composites

Composites, 5 m in length, were formed within the mineralized solid and in the outside waste with both sets honouring the 3 dimensional solid boundary. Composites less than 2.5 m at the edges of the solid and end of holes were combined with the adjoining composite while those greater than 2.5 m were left as is. In this manner the composite file was created at a common support of  $5 \pm 2.5$  m. The composite statistics for the variables within both Main Zone and waste are summarized below in Table 17.2.1.

Table 17.2.1  
Sample Statistics from 5 m Composites

	Mineralized Zone		Waste	
	Cu (%)	Au (g/t)	Cu (%)	Au (g/t)
Number of Samples	3,428	2,427	1,143	652
Mean Grade	0.179	0.099	0.091	0.016
Standard Deviation	0.188	0.137	0.168	0.018
Minimum	0.001	0.001	0.001	0.001
Maximum	1.698	1.442	1.698	0.298
Coefficient of Variation	1.05	1.39	1.85	1.12

### 17.3 Variography

Pairwise relative semivariograms were produced for both copper and gold in both the mineralized zone and waste. In all cases nested spherical models were fit to the data.

For copper and gold within the mineralized zone the four main horizontal directions namely azimuth  $90^\circ$ ,  $0^\circ$ ,  $45^\circ$  and  $135^\circ$  were tested. Both variables showed anisotropies with the longest ranges between azimuths  $45^\circ$  and  $90^\circ$ . Semivariograms for azimuths between  $45^\circ$  and  $90^\circ$  were then produced with the longest horizontal range found at azimuth  $68^\circ$ . The vertical plane perpendicular to this azimuth was then evaluated and in both copper and gold the longest ranges were down dip at azimuth  $353^\circ$  dip  $-85^\circ$ .

Within the waste material there was insufficient data to prove or disprove anisotropy so simple isotropic models were fit. All parameters for all models are summarized below in Table 17.3.1.

**Table 17.3.1**  
**Parameters for semivariogram models DM Audra**

Domain	Variable	Direction	C0	C1	C2	Range a1 (m)	Range a2 (m)
Mineralized Zone	Cu	Az. $68^\circ$ Dip $0^\circ$	0.08	0.25	0.36	15	180
		Az. $352^\circ$ Dip $-85^\circ$	0.08	0.25	0.36	20	120
		Az. $172^\circ$ Dip $-5^\circ$	0.08	0.25	0.36	10	70
	Au	Az. $68^\circ$ Dip $0^\circ$	0.10	0.35	0.25	60	120
		Az. $352^\circ$ Dip $-85^\circ$	0.10	0.35	0.25	20	120
		Az. $172^\circ$ Dip $-5^\circ$	0.10	0.35	0.25	10	70
Waste	Cu	Omnidirectional	0.10	0.30	0.50	80	160
	Au	Omnidirectional	0.10	0.20	0.15	40	160

### 17.4 Bulk Density

A total of 105 specific gravity measurements were made on drill core from DM Audra. For each sample the weight in air and the weight in water were determined. The specific gravity was calculated by dividing the weight in air by the difference between the weight in air and weight in water. For each sample three determinations were made and averaged. The results were sorted by copper grade to evaluate the change in density as a function of mineralization. The results are shown in Table 17.4.1.

**Table 17.4.1**  
**Summary of Specific Gravity Determinations**

<b>Number of Measurements</b>	<b>Range of Copper Grades (%)</b>	<b>Average Specific Gravity</b>
12	$0.0 < \text{Cu} < 0.20$	2.67
23	$0.20 \leq \text{Cu} < 0.40$	2.67
18	$0.40 \leq \text{Cu} < 0.60$	2.64
22	$0.60 \leq \text{Cu} < 0.80$	2.66
13	$0.80 \leq \text{Cu} < 1.00$	2.66
17	$\text{Cu} \geq 1.00$	2.66
<b>105</b>	<b>Total Average</b>	<b>2.66</b>

There was no apparent difference in density as a function of copper grade and as a result the average of 2.66 was used for tonnage conversions.

### 17.5 Block Model

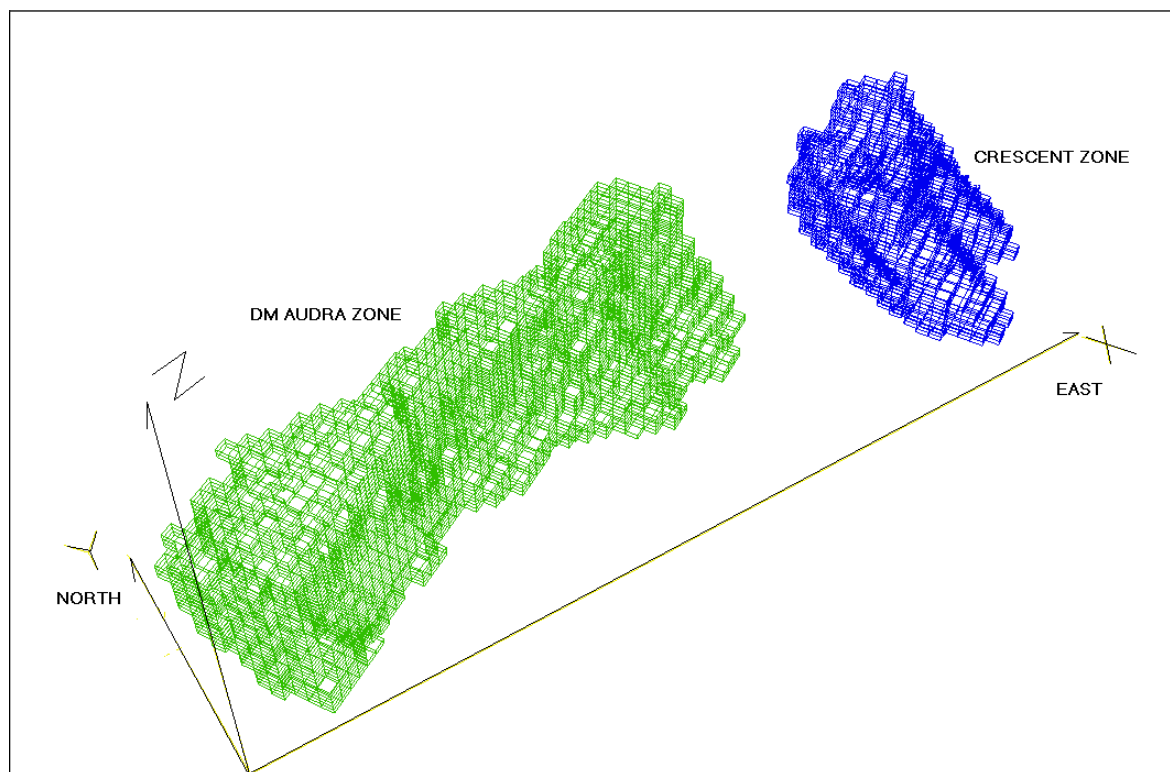
A block model was built to contain the interpreted 3 D Solids model in Surpac. Blocks 25 x 25 x 10 m were rotated to azimuth 060°. The parameters of the model are as follows.

Centroid of Top Lower-left block			
Easting	677729.58	Block size = 25 m	90 columns
Northing	5614434.55	Block size = 25 m	50 rows
Top Elevation	995.0	Block size = 10 m	90 levels
Baseline azimuth = 60°			

For every block, with some portion of volume inside the mineralized zone solid, the proportion of the block below topography and the proportion of block inside the solid were recorded.

An isometric view of the block model is presented as Figure 23.





**Figure 23: Isometric view of block model for DM Audra and Crescent**

## 17.6 Block Interpolation

Blocks 25 x 25 x 10 m in dimension were estimated by ordinary kriging for Cu and Au. Blocks with some proportion within the mineralized solid were estimated for Cu and Au using the composites from the mineralized zones. The blocks with less than 100% within the solid were also estimated for dilution using composites from outside the solid. A weighted average was calculated for blocks with less than 100% inside the mineralized solid.

Kriging was completed in up to 4 passes using a search ellipse oriented in the directions of maximum continuity as outlined by the variography and with varying dimensions. The first pass used dimensions equal to  $\frac{1}{4}$  the semivariogram ranges. If a minimum 4 composites were not found within this search, the ellipse was expanded to  $\frac{1}{2}$  the semivariogram ranges for pass 2. If the required 4 composites were still not found the ellipse was expanded to the full range in pass 3 and twice the range if pass 4 was required. In all cases if more than 16 composites were found the closest 16 were used.

## 17.7 Classification

### 17.7.1 Introduction

Based on the study herein reported, delineated mineralization of the DM Audra and Crescent Zones is classified as a resource according to the following definition from National Instrument 43-101

*“In this Instrument, the terms "mineral resource", "inferred mineral resource", "indicated mineral resource" and "measured mineral resource" have the meanings ascribed to those terms by the Canadian Institute of Mining, Metallurgy and Petroleum, as the CIM Standards on Mineral Resources and Reserves Definitions and Guidelines adopted by CIM Council on August 20, 2000, as those definitions may be amended from time to time by the Canadian Institute of Mining, Metallurgy, and Petroleum.”*

*“A **Mineral Resource** is a concentration or occurrence of natural, solid, inorganic or fossilized organic material in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.”*

The terms Measured, Indicated and Inferred are defined in NI 43-101 as follows:

*“A '**Measured Mineral Resource**' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.”*

*“An '**Indicated Mineral Resource**' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed.”*

*“An '**Inferred Mineral Resource**' is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological*

*evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.”*

### 17.7.2 Results

At this stage of resource estimation at DM, Audra and Crescent there are no blocks considered measured. Blocks estimated in passes 1 and 2 for both Cu and Au using up to ½ the semivariogram ranges are considered indicated. All other blocks are classed as inferred.

The resource is tabulated with a wide range of cutoffs to demonstrate the changes in tonnage as a function of grade. At this time no economic evaluation has been completed on this resource so an economic cutoff is unknown.

**Table 17.7.1  
Indicated Resource**

<b>DM - AUDRA - CRESCENT ZONE INDICATED RESOURCE</b>					
<b>Cutoff (Cu %)</b>	<b>Tonnes &gt; Cutoff (tonnes)</b>	<b>Grade &gt; Cutoff</b>		<b>Million lbs. of Cu</b>	<b>Million Ozs of Au</b>
		<b>Cu (%)</b>	<b>Au (g/t)</b>		
0.10	59,900,000	0.217	0.116	286.613	0.2234
0.20	28,500,000	0.295	0.153	185.385	0.1402
0.25	16,200,000	0.350	0.188	125.024	0.0979
0.30	10,100,000	0.396	0.219	88.191	0.0711
0.35	6,300,000	0.437	0.246	60.706	0.0498
0.40	3,600,000	0.486	0.261	38.579	0.0302
0.45	2,149,000	0.529	0.273	25.067	0.0189
0.50	1,149,000	0.580	0.311	14.695	0.0115
0.55	582,000	0.639	0.358	8.200	0.0067
0.60	349,000	0.681	0.375	5.241	0.0042
0.65	133,000	0.768	0.177	2.252	0.0008
0.70	50,000	0.952	0.082	1.050	0.0001
0.75	50,000	0.952	0.082	1.050	0.0001
0.80	50,000	0.952	0.082	1.050	0.0001
0.85	50,000	0.952	0.082	1.050	0.0001
0.90	50,000	0.952	0.082	1.050	0.0001
0.95	33,000	0.976	0.039	0.710	0.0000

**Table 17.7.2  
Inferred Resource**

<b>DM - AUDRA - CRESCENT ZONE INFERRED RESOURCE</b>					
<b>Cutoff (Cu %)</b>	<b>Tonnes &gt; Cutoff (tonnes)</b>	<b>Grade &gt; Cutoff</b>		<b>Million lbs. of Cu</b>	<b>Million Ozs of Au</b>
		<b>Cu (%)</b>	<b>Au (g/t)</b>		
0.10	48,900,000	0.186	0.081	200.554	0.1273
0.20	15,800,000	0.281	0.124	97.898	0.0630
0.25	9,400,000	0.322	0.153	66.741	0.0462
0.30	5,400,000	0.359	0.174	42.746	0.0302
0.35	2,789,000	0.393	0.180	24.168	0.0161
0.40	800,000	0.437	0.156	7.709	0.0040
0.45	200,000	0.492	0.144	2.170	0.0009
0.50	80,000	0.515	0.118	0.908	0.0003

## 18.0 Other Relevant Data and Information

At the time of writing this report, both authors are unaware of any other relevant data or information that can be included in this report to make it more understandable and not misleading.

## 19.0 Interpretation and Conclusions

The Comet-Davenport property covers a very large area that is underlain by rocks favourable to host porphyry style copper-gold deposits. Historical exploration of the property has led to the discovery of numerous mineralized zones some of which still remain under-explored. The known mineralized zones lie along recurring fault related structural zones that have hosted economic ore deposits both on the property and adjoining claims. Recent exploration by New Gold Inc. (formerly DRC Resources Ltd.), on the adjoining Afton property, has outlined a potentially economic extension of the original deposit at deeper levels beneath and southeast of the Afton mine pit. New Gold Inc.'s work indicates the possibility for the discovery of additional higher-grade deposits at depth elsewhere within the Afton mining camp—including on the Comet-Davenport property.

Work on the property has outlined three zones of copper-gold mineralization that require further exploration. At the DM-Audra zone drilling has outlined an area of copper-gold mineralization varying in width from 20 to 200 metres. The zone has been drill tested intermittently over a strike length of 800 metres and to a maximum depth of 300 metres. Although a narrow interval within the zone has not been drilled, the authors are confident of its continuity. Further infill drilling will be needed to fully define the zone. The zone remains open along strike to the east and west and at depth.

At the Crescent zone, a limited amount of drilling indicates that copper mineralization continues beneath the existing pit. Further drilling will be necessary to determine whether a significant amount of copper mineralization remains or whether the grade improves. Infill drilling between the Crescent zone and the Audra zone to the immediate west will be necessary to determine if there is continuity between the two—taking into account the apparent horizontal fault offset of over 250 metres.

The Coquihalla zone is likely the most under-worked zone on the property. Abacus only drilled four widely spaced holes in the area in 2004, but intersected encouraging gold and copper grades. Systematic grid drilling northwest to the to the property boundary with New Gold Inc. and southeast to the Rainbow property will be needed to define this zone

## 20.0 Recommendations

An aggressive program of further diamond drilling totaling 10,000 metres is recommended for the most advanced zones on the Comet-Davenport property: the DM, Audra, Crescent and Coquihalla. The program should consist of

- **DM-Audra zone:** 5000 metres of diamond drilling to further expand the zone to the east and west and infill undrilled areas within the zone. At least one deep hole is also recommended to explore for another “Afton extension” type zone, currently being delineated by New Gold Inc. This hole could be up to 1000 metres in depth.
- **Crescent:** 3000 metres of diamond drilling are necessary to determine if any unmined economic copper-gold mineralization remains in the area of the current pit.
- **Coquihalla zone:** 2000 metres of diamond drilling should be carried out to further explore the zone to the northwest and southeast.

A budget of \$975,203 CDN is proposed to complete the above drilling recommendations. Table 20.1 on the following page details the proposed expenditures.

**Table 20.1  
Budget for 2005 Program**

	<b>No.</b>	<b>Days</b>	<b>Rate</b>	<b>Amount</b>	<b>TOTAL</b>
<b>WAGES</b>					
Project Geologist	2	65	\$425	\$55,250	
Field Geologist	1	65	\$375	24,375	
Samplers	2	65	\$225	29,250	\$108,875
<b>RENTALS</b>					
<b>Field Equipment</b>					
Generator		65	\$40	2,600	
Trailer	2	65	\$25	3,250	
Miscellaneous		65	\$55	3,575	
Truck Rental	2	65	\$60	7,800	17,225
<b>SUBCONTRACTS</b>					
Contract Geologist	1	65	\$300	19,500	
Drilling (m)	10,000		\$53	530,000	
Assays (Core)	3,000		\$30	90,000	
Surveying		est		5,000	644,500
<b>MATERIALS, SUPPLIES AND SUPPORT</b>					
Meals (Man Days)		325	\$30	9,750	
Hotel				8,000	
Core Racks	7		\$1,000	7,000	
Core Facility				2,500	
Field Supplies				2,500	
Fuel				3,000	
Freight				2,500	
Report Costs				10,000	45,250
<b>Subtotal</b>					815,850
<b>CONTRACT FEES</b>					70,698
<b>Subtotal</b>					886,548
<b>10% CONTINGENCY</b>					88,655
<b>TOTAL BUDGET</b>					<b>\$975,203</b>

Respectfully submitted June 13, 2005

R. Darney P.Geo.

R. Friesen P.Geo.

G. Giroux, P.Eng.

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## **Appendix 1**

### **Statement of Qualifications for**

**R. Friesen, P.Geo.**

**R. Darney, P.Geo.**

**G. Giroux, P.Eng**

**Robert Friesen, P. Geo.**

I, **Robert G. Friesen** of #23 – 758 Riverside Drive, Port Coquitlam BC, V3B 7V8, do hereby certify that:

- 1) I am a consulting geologist with an office at #615 – 800 West Pender St, Vancouver, BC.
- 2) I am a graduate of the University of British Columbia in 1967 with a B.Sc. (Geology major).
- 3) I have practiced my profession continuously since 1967.
- 4) I am a member in good standing of the Association of Professional Engineers and Geoscientists of the Province of British Columbia.
- 5) I have read the definition of “qualified person” set out in National Instrument 43-101 and certify that by reason of education, experience, and affiliation with a professional association, I meet the requirements of an Independent Qualified Person as defined in National Policy 43-101.5
- 6) This report is based on my experience co-managing the Comet-Davenport Exploration program for Abacus from September – December, 2004. Mr. Robert J. Darney, P. Geo. also managed the program. As co-manager of the program, I was on-site for a large portion of its duration.
- 7) I have worked previously on this property in 2002 and 2003.
- 8) I am not aware of any material fact or material change with respect to the subject matter of the technical report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
- 9) I have been a director of Abacus Mining & Exploration Corporation since 2003; and as such own shares in the company and have options to purchase additional shares.
- 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 with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 13th day of June, 2005

Friesen Geological Services

Per:

“Robert G. Friesen”

Robert G. Friesen, P. Geo., B.Sc.

## STATEMENT OF QUALIFICATIONS

I, **Robert J. Darney**, of 6276 Sunshine Coast Highway, Sechelt, V0N 3A7, in the Province of British Columbia, (Tel. (604) 885-2676)

### **DO HEREBY CERTIFY:**

1. THAT: I am a consulting Geologist with offices at Suite 800 – 650 West Pender Street, Vancouver, B.C. Canada, V6C 2V6. (Tel. (604) 684-5901, Fax. (604) 684-0279, E-mail [bdarney@amemining.com](mailto:bdarney@amemining.com)).
2. THAT: I am a member of the association of Professional Engineers and Geoscientists of the Province of British Columbia. (reg. no. 19716)
3. THAT: I graduated from the University of British Columbia in 1967 with a Bachelor of Science Degree in Geology, and that I have practiced my profession continuously since that year.
4. THAT: My experience has encompassed a wide range of geological environments in Canada and the United States of America. I am familiar with the geology of the Kamloops region having made several property inspections and conducted exploration programs within the area of Iron Mask batholith during 1970-1973. During the same period I was also involved in porphyry copper exploration programs in northwestern British Columbia. My thirty-six years of experience has allowed me to be involved in the design, budgeting and field execution of numerous exploration programs in Canada and the United States of America.
5. THAT: As a result of my experience and qualifications I am a qualified person as defined in NI 43-101.
6. THAT: During late June and September to December, 2004, I was on site and assisted in the execution of the diamond drilling program on the Comet-Davenport property described in this report.
7. THAT: This report was prepared by myself with the assistance of Mr. Robert Friesen, P.Geo.with Pamicon Developments Ltd.; and Mr. Gary Giroux, P.Eng., of Giroux Consulting Ltd.
8. THAT: I have reviewed the titles of the mineral claims through the British Columbia Ministry of Energy and Mines. During the site visits, individual claim posts were not inspected. I have read the Comet-Davenport Property Acquisition document between Abacus and Teck Cominco.

9. THAT: I am not aware of any material fact of material change with respect to the subject matter of this technical report which is not reflected in this report, the omission to disclose which would make this report misleading.
10. THAT: I am a shareholder of Abacus Mining & Exploration Corp. and have an option to purchase additional shares in the company.
11. THAT: I have read National Instrument 43-101 and Form 43-101F1, and this report has been prepared in compliance with NI 43-101 and Form 43-101F1.
12. THAT: Permission is hereby given to Abacus Mining & Exploration Corp. for use of this report for purposes as required by Regulatory Agencies.

DATED at Vancouver B.C. this 13 day of June, 2005

(signed by) (sealed)  
Robert J. Darney, P. Geo.

Partner  
Pamicon Developments Ltd.

**G.H. Giroux, P. Eng.**

I, G.H. Giroux, of 982 Broadview Drive, North Vancouver, British Columbia, do hereby certify that:

- 1) I am a consulting geological engineer with an office at #513 - 675 West Hastings Street, Vancouver, British Columbia.
- 2) I am a graduate of the University of British Columbia in 1970 with a B.A.Sc. and in 1984 with a M.A.Sc. both in Geological Engineering.
- 3) I have practiced my profession continuously since 1970.
- 4) I am a member in good standing of the Association of Professional Engineers of the Province of British Columbia.
- 5) I have read the definition of "qualified person" set out in National Instrument 43-101 and certify that by reason of education, experience, independence and affiliation with a professional association, I meet the requirements of an Independent Qualified Person as defined in National Policy 43-101.5
- 6) This report is based on a study of the available data and literature provided by Abacus. I am responsible for the resource estimation section of this report. The work was completed in Vancouver during the period April to June 2005. I have visited the property on February 28 and March 1, 2005.
- 7) I have not worked previously on this project or property.
- 8) I am not aware of any material fact or material change with respect to the subject matter of the technical report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
- 9) I am independent of the issuer applying all of the tests in section 1.5 of National Instrument 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 with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 13th day of June, 2005

GIROUX CONSULTANTS LTD.

Per:

"G.H. Giroux"

G. H. Giroux, P.Eng., MASc.

## **Appendix 2**

### **Eco – Tech Analytical Methods for**

- 1) Gold, Platinum, Palladium Assay**
- 2) Copper Assay**
- 3) Multielement ICP Analysis**
- 4) Quality Control**



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### **Gold, Platinum, Palladium Assay**

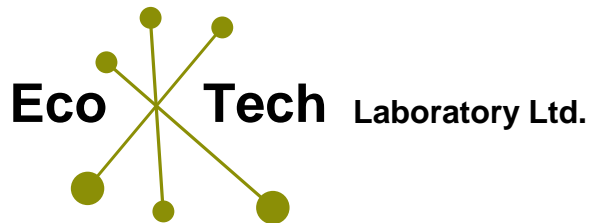
Samples are sorted and dried (if necessary). The samples are crushed through a jaw crusher and cone or rolls crusher to -10 mesh. The sample is split through a Jones riffle until a -250 gram sub sample is achieved. The sub sample is pulverized in a ring & puck pulverizer to 95% - 140 mesh. The sample is rolled to homogenize.

A 30 g sample size is fire assayed using appropriate fluxes. The resultant dore bead is parted and then digested with aqua regia and then analyzed on a Perkin Elmer AA instrument for Gold and Palladium. Platinum is analyzed by ICP.

Appropriate standards and repeat sample (Quality Control Components) accompany the samples on the data sheet.







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## Copper Assay

### Method Outline

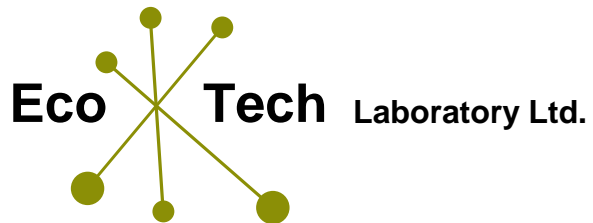
Samples and standards under go an aqua regia digestion in 200 ml phosphoric acid flasks. The digested solutions are made to volume with RO water and allowed to settle. The metals of interest are determined by Atomic absorption procedures. Instrument calibration is done by verified synthetic standards, which have undergone the same digestion procedure as the samples.

### Digestion

1. Weigh 0.5g sample into 200 ml phosphoric acid flask.
2. Add 20 ml conc.  $\text{HN}_3$  to flasks using a calibrated dispenser.
3. Remove flasks from hot plate and when cool, add 60 ml conc. HCL from a calibrated dispenser. Put flasks on hot plate and digest for 60 minutes
4. Remove flasks from hot plate, allow to cool to room temperature and bulk to 200.ml mark with RO water.
5. Allow assay to settle or clarify by centrifuging an aliquot for analysis.

### Analysis

- Run the analysis by Atomic Absorption using the instrument parameters in the following table.
- Set up calibration with verified synthetic standards.
- Verify instrument calibration after every 10 samples.
- Perform analysis in the linear range of the absorbance curve. It may be necessary to dilute some samples or rotate the burner to do this.
- Standards used narrowly bracket the absorbance value of the sample for maximum precision.



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### **Quality Control**

- Standard quality control procedures are used for these determinations. (ie repeat every 9 samples)
- Run one Can Met CRM/WCM CRM for each batch of 35 or less samples (one CRM per work sheet)
- The following Can Met CRMS/WCM CRM are available in this laboratory.

CRM	Cu%
CZn-1	0.144±0.003
CZn-3	0.685±0.008
KC-1a	0.629±0.015
Su-1A	0.967±0.005
CCU-1a	26.78±0.07
CCU-1b	24.67±0.03
Cu106	1.43
Cu107	0.28
PB106	0.62



### **Reporting**

Minimum reportable concentration is as follows:  
Cu 0.01%



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## Analytical Procedure Assessment Report

### *MULTI ELEMENT ICP ANALYSIS*

A 0.5 gram sample is digested with 3ml of a 3:1:2 (HCl:HN03:H2O) which contains beryllium which acts as an internal standard for 90 minutes in a water bath at 95°C. The sample is then diluted to 10ml with water. The sample is analyzed on a Jarrell Ash ICP unit.

Results are collated by computer and are printed along with accompanying quality control data (repeats and standards). Results are printed on a laser printer and are faxed and/or mailed to the client.

	Detection Limit			Detection Limit		
	Low	Upper		Low	Upper	
Ag	0.2ppm	30.0ppm	Fe	0.01%	10.00%	
Al	0.01%				10ppm	10,000ppm
As	5ppm	10,000ppm	Mg	0.01%	10.00%	
Ba	5ppm	10,000ppm	Mn	1ppm	10,000ppm	
Bi	5ppm	10,000ppm	Mo	1ppm	10,000ppm	
Ca	0.01%	10,00%	Na	0.01%	10.00%	
Cd	1ppm	10,000ppm	Ni	1ppm	10,000ppm	
Co	1ppm	10,000ppm	P	10ppm	10,000ppm	
Cr	1ppm	10,000ppm	Pb	2ppm	10,000ppm	
Cu	1ppm	10,000ppm	Sb	5ppm	10,000ppm	
Sn	20ppm	10,000ppm				
Sr	1ppm	10,000ppm				
Ti	0.01%	10.00%				
U	10ppm	10,000ppm				
V	1ppm	10,000ppm				
Y	1ppm	10,000ppm				
Zn	1ppm	10,000ppm				