

# MOBILE METAL ION GEOCHEMICAL REPORT DIAMOND DRILLING I.P. SURVEY REPORT

on the

## WOOD GROUP MINERAL CLAIMS

Kamloops Mining Division British Columbia

> N.T.S. 92I/68 & 92I/58

Latitude 50° 36'N Longitude 120° 31'W

operator and owner

Charles Boitard 1756 246<sup>th</sup> Street Langley, B.C. V2Z 1G4

Property, History and Geology By John R. Deighton B.Sc. P. Geo. Report June 10, 2000

Diamond Drilling by Michael P. Moore B.Sc. P.Geo.

Geophysical Report by David G. Mark, P.Geo. Geophysicist Report January 7, 2003

GEOLOGICAL SURVEY BRANCH ASSESSMENT REPORT

Compiled by Charles Boitard

May 22, 2003

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## 1. SUMMARY

1.1 The Wood Group consists of 24 claims, 10 four post, and 14 two post, representing 126 units.

The property adjoins the south side of Afton Mine (now operated by D.R.C. Resources) located approximately 15 kilometres west of the town of Kamloops. The claims are accessible by the Coquihalla Highway using the Inks Lake exit.

- 1.2 The property is underlain by andesites of the Nicola Volcanics.
- 1.3 Geophysicals surveys, soil sampling and drilling have been carried out on this property but to date, no commercial mineralization has been encountered.

## 2. INTRODUCTION

- 2.1 This report has been prepared for assessment purposes.
- 2.2 Previous percussion drilling and diamond drilling carried out on the Wood Group intercepted many zones of alteration and bleaching, including 275 metres of visible native copper of sub-commercial values intercepted in the D.D.H. 92-6. Mobile Metal Ion (M.M.I.) soil survey is a new exploration tool, and appears to be the ideal method for a property covered with thick overburden. Based on past drilling, the Wood Group is covered with 15 to 60 metres of overburden.
- 2.3 The Wood Group is registered under the name of Charles Boitard. The property lies approximately 15 kilometres west of Kamloops, British Columbia.

## 3. LOCATION, ACCESS AND PHYSIOGRAPHY

- 3.1 The Wood Group Mineral Claims are located on the Thompson Plateau, approximately 15 kilometres west of Kamloops, B.C. The claim group is centered approximately 50° 36 north latitude and 120° 31 west longitude on the NTS map sheet 092I/10E and 092I/9W. The Wood Group of mineral claims is in the Kamloops Mining Division.
- 3.2 Access to the property property is provided by the Coquihalla Highway, then going west at the Inks lake exit. Good dirt roads provide access to most of the claims.
- 3.3 The property lies between elevations 900 metres to 1,675 metres above sea level. The vegetation consists of pockets of fir and pine within grassland. The whole terrain is drained by the northeasterly flowing Cherry Creek and Alkalie Creek. The climate is semi-arid with an average annual precipitation of 250 to 280 millimetres.

## 4. CLAIM STATUS

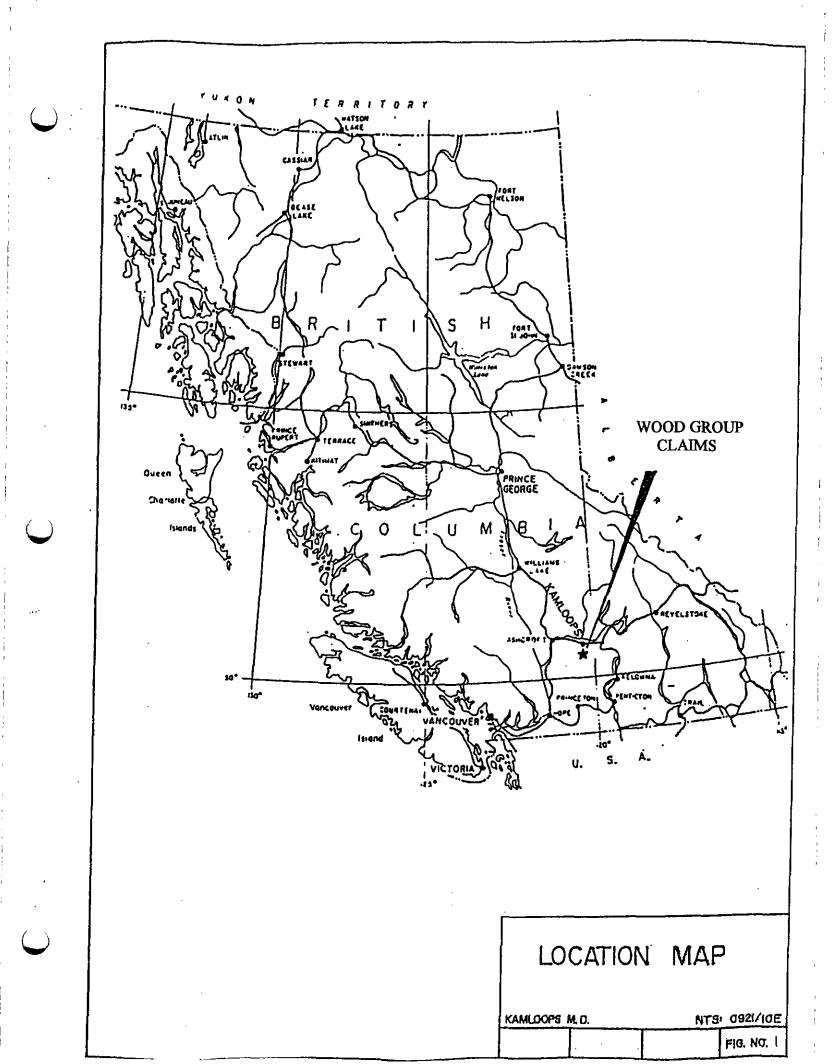
4.1 The Wood Group property consists of 27 mineral claims; 9 4 post claims and 18 2 post claims, totaling 126 units.

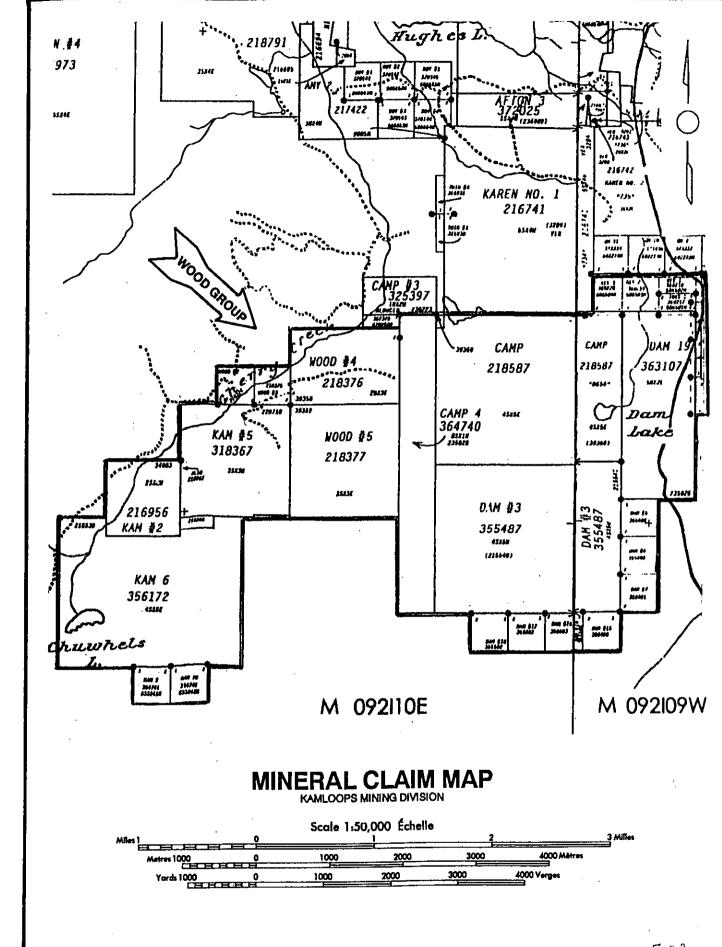
Claim Nan	1e	Units	Record #	Expiry Date	Map Sheet	Initial Yr Staked
					M.92I068	
Camp	*	20	218587	13/06/2006		13/06/89
Camp #4	*	8	364740	01/08/2006		01/08/98
Dam #3		20	355487	27/04/2006		27/04/97
Dam #5		1	355489	26/04/2004		26/04/97
Dam #6		1	355490	26/04/2004		26/04/97
Dam #7		1	355491	26/04/2004		26/04/97
Dam #15		1	355499	26/04/2006		26/04/97
Dam #16		1	355500	26/04/2006		26/04/97
Dam #17		1	355501	26/04/2006		26/04/97
Dam #18		1	355502	26/04/2006		26/04/97
Dam #19	*	10	363107	04/06/2006		04/06/98
Kam #2	*	4	216956	26/08/2006		26/08/80
Kam #5	*	9	318367	18/06/2006		18/06/93
Kam 6		20	356172	16/05/2006		16/05/97
Kam 9		1	364741	02/08/2005		02/08/98
Kam 10		1	364742	02/08/2005		02/08/98
Key 3		1	369220	14/05/2006		14/05/99
Key 4		1	369221	15/05/2006		15/05/99
Key 5		1	369222	15/05/2006		15/05/99
Wood #2		1	218374	04/04/2005		04/04/89
Wood #3		1	218375	04/04/2005		04/04/89
Wood #4		6	218376	04/04/2005		04/04/89
Wood #5		9	218377	05/04/2005		05/04/89
Monarch	*	6	396557	24/09/2006		24/09/02

\* Includes assessment currently being applied.

4.2 The Wood group mineral claims are all recorded under the name of Charles Boitard.

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FIGZ

## HISTORY

The property is located on the west side of the Iron mask Batholith, numerous showings and small deposits of copper, gold, silver, zinc, tungsten and mercury have been found in the area. The early copper discovery in British Columbia was found in the vicinity of the iron Mask Batholith, and staked in the late 1800's.

With the discovery of the Afton Deposit in the early 1970's, the area covered by the Wood Group, which adjoins the south side of the Afton property and covering approximately 30 square kilometers, has been continuously staked since the 70's by various companies.

The Afton deposit had a drill proven reserve of 30.8 million tonnes grading 1% copper, 0.58 ppm gold, and 4.19 ppm silver. The Afton orebody which has now been mined out was located a few kilometers north of the Wood Group.

## WOOD GROUP CLAIM HISTORY

1971: Shelly Claims

59,000 feet (1.78 km) of cut line, and location of a number of small, mostly single sample copper in soil anomalies

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1972: Shelly Claims

22.16 miles (35.7 km) Geomagnetic survey Geochemical Soil Survey Prospecting

Results: Andesites intruded by Coast Intrusive along Cherry Creek and cut by Quartz veins.

Located five soil anomalies in copper

Weak soil anomalies in copper along one magnetic high anomaly.

1972; Bill and Gal Claims

26.0 miles (41.84 km) of Magnetometer Survey

Results: Magnetic lows represent northwest trending shear zone.

1972: Rich Group

1187,500 feet (5.7 km) Magnetometer Survey

79,400 feet (23.0 km) I.P. survey

75, 500 feet (23.0 km) Geochemical Soil Survey

Results: slightly anomalous chargability values with some correlation to weak magnetic highs and positive copper geochemistry anomalies and in some cases reduced resistivity. Weak northeast magnetic trends, reflect one rock type. High geochemical Soil Anomalies that have a northeast trend that may reflect congisent faults off main northwest trending fault proposed by magnetic survey done in 1971.

### 1972: Ren Group

15.6 miles (25.0 km) of I. P. Survey Geochemical Soil Survey Geological Mapping Magnetometer Survey

Results: Low amplitude results in I.P., 5 weak anomalies, three later tested by drilling with negative results. Two anomalies untested and a high single point value on western margin of survey needs further definition. Several weak copper in soil anomalies detected that generally lie away from I. P. anomalies. Magnetic high not associated with chargability anomalies. Diamond drilling results indicate that there was no mineralization detected of significance, although alteration (chloritic and intense argillic) was detected in diamond drill hole 92-2. Magnetometer survey indicates two rock types underlie property.

#### 1976: Jim 1 Claim

27.0 km Magnetometer Survey

Results: Magnetics reflect Nicola volcanics and nothing of particular interest. Results reflect only one rock type.

## 1979: Dave and "A" Claims

24.0 km VLF Electromagnetic Survey Radiometric Survey

Results: No significant scintillometer readings found. Anomalous magnetic Patterns were found trending in a northwest direction more or less parallel to the trend of the Cherry Creek Valley depression. Apparently 8 percussion drill holes were drilled on anomalous area by Granite Mountain Mines Ltd. in 1972 totaling some 2500 feet, (reported to Tully by W. Meyer). Results from drilling were apparently reported to be inconclusive.

## 1979: Dave and "A" Mineral Claims

32.0 km Horizontal Loop Electromagnetic Survey

Diamond Drilling, 2 holes, 208 m

Results: drilling on VLF-Em anomaly found a major size multiple shear zone. Spectrographic analysis showed small amounts of copper and traces of gold and silver were present in the hardpan layer at the bedrock surface and concluded that the shear zone might contain significant mineralization at some point along its strike and dip. The H.L.E.M. survey confirmed the VLF-EM survey results from earlier surveys. 1980: Dave and "A" Mineral Claims

Diamond Drilling, 6 holes, 1504.53 m in 1980 and 2 holes, 1712.53 m in 1979 22.0 km Turam Ground Electomagnetic Survey

Results: several linear anomalous zones trending in a north-south pattern. The strongest anomalies chosen for diamond drilling, which showed strong zones of chloritic schists and mud faults with associated mylonitic rocks. Scattered flecks of native copper in all but one hole, full width of chloritic schists is greater than 300 meters and copper values up to 0.35% with values found in quartz carbonate zones.

1981: Hank 1 Claim

12.0 km VLF electomagnetic Survey

Results: Detected 3 north-south trending linear anomalies, which probably detect the Cherry Creek fault.

1981: G. M. Property

Prospecting, Soil Sampling and Grid Survey

Results: Several outcrops found north and east of Dam Lake with minor copper mineralization. Three areas of weak to moderate copper in soils.

1981: Kam Claims

3.6 kilometers of I.P. Survey

3.6 kilometers of Magnetic Survey

Geochemical Soil Survey

Results: 5 weakly anomalous zones of copper soil anomalies, I.P. anomalies and magnetics. One zone previously tested by drilling with no economic mineralization detected.

1981: Kam Claims

Percussion Drilling, 9 holes, 2855 feet (870.2 m)

Diamond Drilling, 3 holes 80-1 to 80-3, 600 feet (182.88 m)

Results: reports that the Nicola volcanic rocks are cut by feldspar porphyry dykes and contain sparsely distributed native copper and are faulted. The fault zones are up to 20 meters wide. One percussion drill hole with high amount of quartz chips. No significant mineralization encountered.

1982: Paye Claim

Magnetometer Survey

**VLF-EM Survey** 

Geochemical Soil Sampling Survey

Results: two magnetic low response areas, correlate with coincident zones of electromagnetic response. A weakly anomalous area of copper values appears to correlate with a creek drainage pattern and may be due to local accumulations.

1982: Greg Mineral Claim

20.0 km VLF Electromagnetic Survey, wide space reconnaissance

Results: Indicates a number of good conductors showing both a strong crossover and associated horizontal field strength anomalies requiring follow-up investigation.

1983: Hank 1 Claim

VLF Electromagnetic Survey

Geochemical Soil Survey

Results: detected 3 electromagnetic linear conductive zones, which are continuations of the EM anomalies found in 1981.

1984: Greg Mineral Claim

8.5 kilometers of VLF-Electromagnetic Survey

Geochemical Soil Survey

Results: No conclusive geochemical anomalies, high copper in soil values scattered throughout area surveyed. Reconfirmed anomalous electromagnetic conductors. No conclusive geochemical or electromagnetic targets found.

1990: Wood Group

5.0 kilometers of I.P. Survey. Survey over previously surveyed ground. Results: Confirmed anomalies found in an earlier survey.

1990: G. M. Property

Line Cutting

Geochemical Soil Survey

Results: an anomalous trend of high copper values that have a northerly strike, which suggests a potential for the presence of a sub-cropping mineralized shear zone.

1991: Wood Claims

9.3 km I.P. Survey. 9 holes

Diamond Drilling, 1 hole, 196.3 m

Results: I. P. correlated the location of 4 anomalous zones found in previous surveys, one anomaly not repeatable on larger dipole spacing. Drilling of clay altered rock, hole abandoned in fault.

- 1991: Wood Group Line Cutting. 14 line km
- 1992: Chu Claims

Interpretation of Government air photos and aeromagnetic maps and examination of rocks under a microscope.

Results: Concludes that the area may be underlain by an intrusive at shallow depth. Two styles of mineralization possible, porphyry Cu-Au and Au-Ag vein deposits.

1992: Wood Claims

21.90 kilometers of I. P. Surveys

12.0 kilometers of EM Surveys

Results: 5 anomalous zones, Cherry Creek represents a fault, which may carry mineralization and is worthy of further exploration. One anomaly drilled previously.

1992: Wood Claims

Diamond Drilling. D. D. Log for hole 92-2, 196.3 metres. Mention of 9 percussion drill holes drilled in 1981.

Results: A heterolithic breccia with rare localized pyrite and rare specks of native copper. Some faulting is present in the breccia.

1993: G. M. Property

**Geological Mapping** 

Results: One copper showing and two different rock units were found during the mapping, the Nicola Group (volcanics and minor limestone) and the Kamloops Group (dacite porphyry intrusive).

1993: Wood Claims

Percussion Drilling: 4 holes totaling 362.9 m

Diamond Drilling. 3 holes 367.0 m

Results: No economic amounts of copper mineralization were encountered.

1994: Wood Group

Percussion Drilling: 1 hole 94-8, 121.95 m

Diamond Drilling: 1 hole 94-2. 397.26 m

Results: traces of native copper in the top of hole 94-2 on Camp #3 Claim. Holes logged in 1995.

1997: Wood Group

Diamond Drill Logs 97-1 to 97-3 (729.45 m)

Results: Minor native copper, scattered pyrite and very occasional specks of chalcopyrite in Nicola volcanic rocks along with some dykes of intrusive.

1997: Wood Group

5.35 km I. P. Survey, 3 reconnaissance lines.

Results: No chargability highs were detected on the lines surveyed, which could be recommended for further work.

2002: Wood Group

8.150 km. M.M.I. Survey, Assessment Report #26915

## **Property Geology**

A thick layer of overburden, which may reach a thickness of up to 70 metres, covers most of the claim area. Only 5 percent of the property or less contains rock outcrop. This outcrop is widely scattered and is mainly limited to some ridge crests or creek drainage. Most of the outcrops mapped and seen are Nicola volcanics, some of which showed a slight schistocity or strain fracturing.

The claim area is underlain by the Nicola Group volcanic assemblage, which has been intruded by small bodies of intrusive. Small remnant bodies of the Kamloops Group volcanics are also reported to exist within the claim group. The Nicola Group volcanic rocks have been cut by several wide shear or fault zones, as noted in several of the assessment reports. Carbonate and quartz veining was noted in outcrops to the north and east of Dam Lake on the eastern side of the property. It was noted by D. W. Tully (1980), that copper mineralization picks up in assaying in areas of quartz carbonate veining in drill core from holes on the Dave and "A" mineral claims. The carbonate and quartz-veining note in outcrop, immediately north of Dam Lake, contained some open spaces and a small amount of the quartz was chalcedony. The shear zone and veining observed was at least 50 metres in width at the observed location. The strike of the majority of the observed veining Dam Lake immediately east of the lake, which appeared to have a similar strike and dip. Outcrops south of the lake were typical of the weakly altered Nicola Volcanics.

Geological mapping has been undertaken by several individuals on different portions and over several years, on several of the older properties that make up the present day Wood Claim Group. All the geologists report that the claim area is underlain by Nicola Group with some geologists reporting some minor remnant Kamloops Group volcanics and intrusive units probably belonging to the nearby Sugarloaf or Cherry Creek intrusions as underlying small portions of the property (Tully 1979). Minor limestone belonging to the Nicola Group is reported to occur in the eastern portion of the claim group on the present day Dam 19 claim (Blanchflower 1983) limestone was also encountered in the core from the drilling conducted in 2000. No compilation map was constructed of the various maps studied, as the outcrop is less than five percent of the total area of the present claims.

Alteration is not strong within the claim group, and the alteration within the Nicola Group volcanics is weak prophylitic, chlorite and epidote. One diamond drill hole 91-2 contains moderated to strong phyllic alteration in a heterolithic breccia composed of pebble to cobble sized mostly rounded fragments of Nicola rocks in a sandy to silty matrix. The alteration in this hole is argillic and clay alteration of the original Nicola volcanics and appears to be a dry alteration product caused by the movement of the fragments and not by hydrothermal fluids moving through the rock, which would be accompanied by quantities of carbonate and quartz. Strong prophylitic to weak and moderate phyllic alteration of the Nicola volcanics and volcanic sediments was noted in Holes 2000-1 to 2000-4. Veins or blotches of dark green chlorite were seen in these holes. The strongest alteration occurred in Hole 2000-2 and the top of hole 2000-3. Silicification and "bull " quartz was noted in these holes as well. Some of the

alteration reported from the drilling done in 2000 is hydrothermal alteration of the volcanics and volcanic sediments as seen by the bleaching of the rock and the clay alteration present.

A 30 metre section of black argillaceous sediments was reported in drill Hole 2000- 4. Shorter sections of black argillaseous sediments are reported in other holes in the 2000 drilling program. While these sediments appear to be associated with the Nicola Group volcanics they remind the author of the argillites of the Cache Creek Group.

Only very occasional specks of pyrite and native copper were seen in the Hole 91-2 (Sookochoff 1992). Friesen, 1973 reported traces of chalcopyrite and pyrite associated with quartz from Hole 93-1. Copper mineralization was also reported to occur in shear zones from drilling done in 1980 on the Dave and Dave "A" claim located to the northwest of the current claims. Minor pyrite was noted in carbonate altered shears, clay altered shears and /or associated with areas of carbonate-quartz or quartz in several of the drill holes from the 2000 drilling.

Blanchflower, 1983 reports copper mineralization to occur in outcrop on the newly acquired Dam #19 claim and Hilton, 1998 reports copper mineralization to the north and east of Dam Lake in his prospecting. Several geologists report minor copper mineralization from diamond drill holes that are located within the present property boundaries. No economically significant intersections have been reported in any of the diamond or percussion drill holes.

## Geophysics

A number of geophysical surveys were conducted, by several different mining companies over the past 25 years, over various portions of the claim group. The most complete survey type is the magnetometer surveys, which total of approximately 99.57 km of surveying in and around the present claims. The results of which are that the surveyed areas of the claims show relatively little magnetic relief and the relief shown is generally of one typical of volcanic terrain of the Nicola Group. There are small magnetic highs and lows that may be significant but are probably indicative of a slightly greater or less content of primary magnetite within the volcanic flows, tuffs and agglomerates that are the primary rock divisions within the Nicola.

In one case a diamond drill hole intersected a clay altered hydrolithic breccia for several hundred meters. Similar breccias may be found to underlie the larger of the remaining magnetic lows on the claim area. These breccias may be a source area for precious metal deposits as they may be sources of heat and hot water conduits for mineralizing solutions. One relatively large area of low magnetic conductivity exists on the Kam #8 and Wood # 5 claim and deserves exploration follow up. A compilation map showing the magnetic low relief areas within the claim boundary was made and is included as a map as Figure 4 and 4a.

Two different types of Induced Polarization (I. P.) Surveys were conducted over portions of the present Wood Claim Group. These were time domain and frequency domain surveys. A plot of all the high chargability and metal factor anomalies found in assessment and private reports were compiled and are shown on a compilation map, Figure 4 & 4a. Many of the I.P. surveys were surveys of short duration and did not cover a significant portion of the entire ł

## **Regional Geology**

The regional geology and mineralization of the area has been well documented by several government workers: Cockfield (1947), Carr (1956), Nothhcote (1977) and more recently by Kwong (1987), Stanley et al (1993).

The subject claim area is situated regionally within the Quesnel Trough, a 30 to 60 kilometer wide belt of Lower Mesozoic, volcanic and related sedimentary strata extending north from the International Boundary to, at least, Prince George, B. C., belonging to the Nicola Group. The Quesnel Trough is generally fault bounded by older mainly sedimentary strata, the Cache Creek Group. Older sedimentary rocks of the Cache Creek Group are found to the east of the Quesnel Trough in the immediate area and generally bound both sides of the Though over its entire length. Younger Coast Intrusions are found bounding the trough in places. The trough is itself intruded by a variety of batholiths in the immediate area of the claims the most important of which is the Iron Mask Batholith found to the immediate north of the claims.

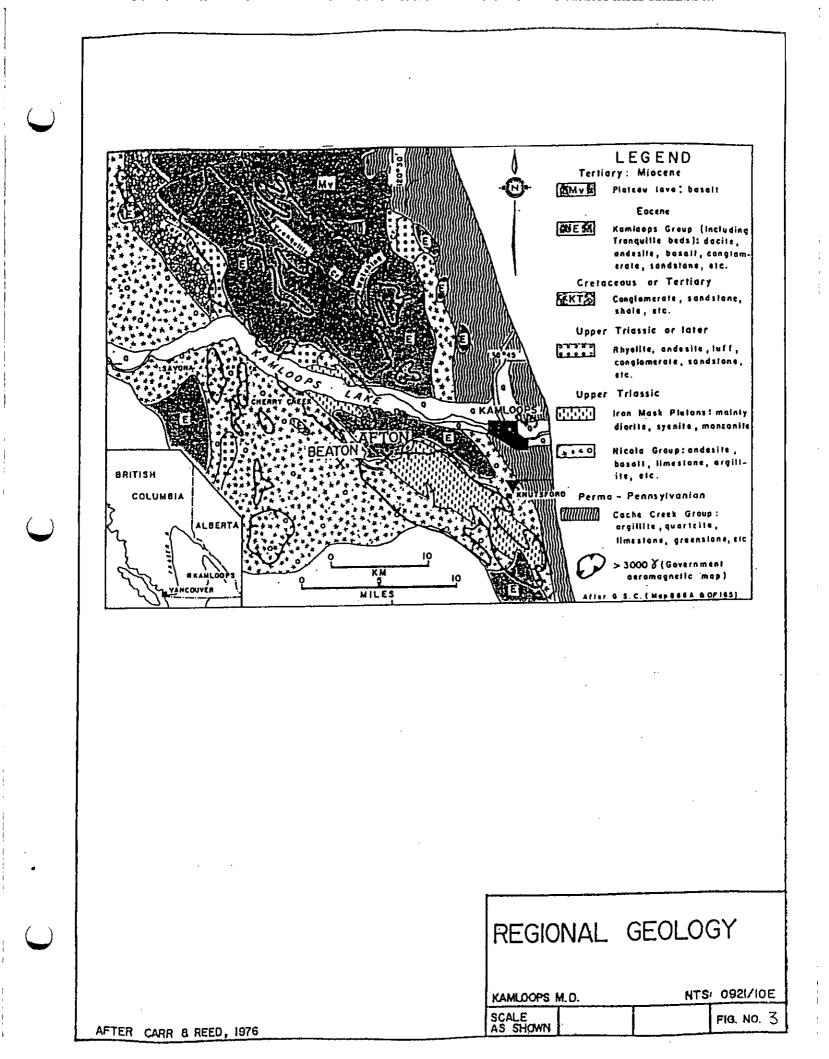
"The Iron Mask Batholith is a multi-unit intrusion composed of Iron Mask Hybrid, Pothook, Sugarloaf, and Cherry Creek units, each of which has several varieties. The rocks are fine grained and porphyritic to coarse grained, and are silica-poor, ranging from gabro to syenite with diorite-monzodiorite-monzonite compositions predominating.

The Iron Mask Batholith was emplaced in a high level volcanic to subvolcanic environment and is comagmatic with the Nicola volcanic rocks and coeval with part of the Upper Nicola succession. The batholith intrudes volcanic and sedimentary rocks of the Lower Nicola, but the Cherry Creek Unit occurs both as fragments in and is in intrusive contact with Nicola rocks." (Northcote).

The Nicola Group volcanics are generally a green to light grey green in colour although other colours from grey, purple and red. The volcanics may consist of flows, tuffs, breccias, agglomerates and include a variety of feldspar porphyries. They vary from fine grained or nearly aphanitic types to very coarsely crystaline porphyritic varieties.

Only minor amounts of sedimentary rocks occur with the volcanics rocks of the Nicola Group. The most prominent is limestone that occurs in small lenses. Argillite and conglomerate are also found within the group.

Small remnants of the Cretaceous to Tertiary Kamloops Group of volcanics and sediments occur throughout the area, although none are known to occur on the subject claims. The basal portion of the sequence is made up of conglomerates, sandstones and shale that are overlain by flat lying dense fine-grained basaltic lavas although very minor rhyolitic varieties are known. Minor tuffs, breccias, and agglomerates may also occur.



## 7. SURVEY GRID

7.1 In June 2002, 12 survey lines were established on the northwest corner of the Wood Group, now known as the Monarch Claim. The survey lines are established in the northeast direction (north 45°). The lines 1500E, 1700E, 1900E, 2100E, 2200E, 2400E, 2500E and 2600E are blazed and flagged at 100 metre intervals from 4950N to 5800N.

The Lines 1600E, 1800E, 2000E and 2300E have been extended from the previous survey to 5800N. All the survey lines are blazed and flagged with stations at 50 metre intervals, identified with red and blue flagging, and marked with a number indicating the location of the survey grid. A total of 6,650 metres of survey lines were established with a compass, hip chain and axe.

## 8. **DIAMOND DRILLING**

8.1 Based on previous geochem indications, from September 19, 2002 to October 6, 2002, one diamond drill hole was carried out on Line 1700E at 5375N on the survey grid.

Drill Hole	Easting	Northing	Azimuth	Dip	Total Depth	Core Size
2002-01	1720E	5350N	-	-90	382.52 m	NQ, BQ

Drill hole 2002-01 intersected primarily andesite volcanics and tuffs. Five samples were collected from this hole. Copper and gold values were negligible.

The hole was drilled to test a coincident magnetic, VLF-EM and MMI geochemical anomaly. Drilling intersected primarily andesite volcanics and tuffs with abundant calcite and hematite filled fractures. The top 101 metres of the drill hole contained between one and three percent disseminated magnetite. The drill results do not explain the cause of the MMI geochemical anomalies. Further MMI sampling is being conducted to better define the geochemical anomaly. When complete, all results will be reviewed by the Company's geological consultants who will make recommendations for future work.

See attached Log and Assay sheets, and Qualifications.

The diamond drill hole location map (fig. 4) has been placed in the report pocket.

# **APPENDIX 1**

# DRILL LOGS, DRILL LOG ASSAY SHEETS, CERTIFICATE OF ANALYSIS, STATEMENT OF QUALIFICATIONS

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								DIAM	OND DR	ILL LC	)G					<b>,</b>				1	HOLE	NO. 2	002-0	н.			PAGE	1 of	4	
Propert	y / Project	Wood C	laim Group		NTS	Claim Key 2				Date C	Collared		Date Com	deted		Drilled	d By Fi	rontier Di	illing		Assaye	ed By	Acme	Labs			Logged	By M. N	oore	
Coordin	ates		w		N Elev.			Azimuti	n 0		Dip 0		Total Leng	th 382.52	m												Checke	d By		
Ortilihole	Purpose /	Target									Downhole Sur	veys (distan	ce, type, re	suit) none																
						-			Plana	ar Featu	res		Sample C	ollection					Mineralia	zation (	Estimat	es					As	say Res	ults	
Flag	From	То	Rock	Relationship	Structure	Alteration		(0	ontacts, foi	iation, v	eining, etc.)	Sample	From	То	Interva	I PV	Tite	Chaico	pyrite	Nativ	e Cu	Magn	etite	Oth	er	Au	5			Cu
	(m)	(m)	Codes	·	Type Intensit	1	Insity	T	type deg	-		Number	(m)	(m)	m	Style		Style		Style	_			Style		рро	ppm			%
				******	A	<u> </u>		•			<u> </u>	1			1	i i						. 1								
	0.00	43.28	overburde	'n																										
			1													1								-1						
	43.28	100.89	fine to me	dium orained da	rk green andesit	e: <1% diss. Pv	rite, bla	ack-ore	en chlorite :	as fract	ure coating					diss	<1					iss	1-3							
					cm in size, 1-3%																									
					d veiniets very co										1						1				-1					
			1		casing HQ size																								í †	
					n NQ size core									-																
			1		m smaler BQ ?	Size core								İ																
												1													-					
			46.56-50	90; chlorite-calc	ite +/- hematite g	ouce and veinle	ts: per	vasive	chlorite alte	eration		1			1														í T	
					nd 30-45° to Ca,																								( T	
			1											1																
			53.80m c	alcite-chlorite fre	ncture sets 50° to	CA										1	[													
•																														
			62.03-62	33m chlorite-cai	icite breccia she	ar 60° to CA																								
	1		Î																		ŀ									
			63.86-69	19m strong perv	asive black chio	rite alteration, lo	cally m	nassive																						
					inlets (<1cm wid																									
					o CA, lower cont																									
			69.86-70	56m weakly blea	ached with black	chloritic clots ar	d vein	lets, 3 c	m wide chi	-cal myk	onitic shear																			
										,																			LT	
			73.76-76	14m very strong	marcon coloure	d (hematite) cla	y alter	ed inter	val, with 25	icm wide	breccia-gouge	zone																		
	1		upper cor	tact 76° to CA,	core soft to touc	h															Ţ									
			76.12-80	24m phyric and	esite flow, mod. t	o locally very str	ong ch	niorite a	Iteration,																					
		;	occassio	al irregular hem	atitic clots 0.5-2	cm in size															T									
															1	1														

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							DIA	MOND	DRILL	LOG						· · ·				HOLE	NO.	2002-0	1		PAGE	<u>2</u> of	4	4
roperty	/ Project	Wood	Claim Grou	ю						· · · · · · ·															<u> </u>			
	·							F	lanar Fe	atures		Sample (	olection					Minerali	zation	Estime	ites					Assay Re	<u>sults</u>	. <u>.</u>
Flag	From	To	Rock	Relationship	Structure	Alteration	-	T T		n, veining, etc.)	Sample	From	To	Interv	_	tive Cu		opyrite			Mag		Othe	<u>x Au</u>	<u>  a</u>	<u> </u>	<u> </u>	4
	(m)	(m)	Codes	<u> </u>	Type Intensity	Type intensity	at	type	deg	at type deg	Number	(m)	(m)	m	Sty	1e %	Style	*	Style	*	Style	*	Style	% ppb	ppm)	· <b> </b>		+-
												<b> </b>			+										—		<u> </u>	╉
		_			cture 55° to CA		-					<u> </u>	+				· .											+
			81.84m ch	iorite-calcite fra	cture 280 to CA							<u> </u>			+		<u> </u>	┼──	<b> </b>							+	—	
										<b>_</b>		┨~	<u> </u>	+	+		+								+	+	+	+-
$\rightarrow$			atter ~ 84	m epidote atten	aton is weak but i	ncreasingly obvious						<u>+</u> -		+	+-		-		-			+					+	+
			87.25 - 92	.51m: large ago	omeritic fragmen	ts with euhedral to su	ubhec	eral plagi	oclase cr	vstals	†													+	+	+	1	$\uparrow$
_										·																		
			92.57m: 4	cm wide calcite	vein 26° to CA							L			L				<u> </u>								<u> </u>	1
											L		1	<u> </u>	_				L							<u> </u>	<u> </u>	$\downarrow$
			93.97m: h	ematite-calcite I	myionitic shear, 8	cm wide 65° to CA					ļ	ļ		+	4					<u> </u>					<u> </u>	—	<u> </u>	+
											+				+			-							—	+	+	+-
-+					d fracture-fault zo	ne, bleahed It. Greer	n clay	-carbonat	e gouge l	breccia			+	+				÷	1				<u> </u>			+	-+	+
			36° to CA			·								+		+	-	+						-+-		+	+	+-
	100.89	102.24	Dark graa	- looiti endestis	t df: fre antonie i s	ary from 0.1 to 20cm	and			ded and	+			+			+		-		diss	<10				+	+	-+-
	100.85					, magnetite dissemin					1	<u> </u>		+	+-		-	+			4.34		-+			+	1	╈
- 1						orite, irregular hemat														1								
				n sub-paraliel to				-																				_
																			<u> </u>									1
			111.56m :	3cm wide hema	atite fracture 25° t	o CA					ļ		ļ				<u> </u>		<b> </b>	<u> </u>	L						<u> </u>	
			120.85m:	2cm wide white	calcite vein 29° to	CA					ļ		<u> </u>	<u> </u>	-				ļ	<u>                                     </u>						<u> </u>	+	-
													+	<del> </del>			+								<u> </u>			+
			136.25-13	7.46m: dissemi	nations and small	(<1cm) clots of nath	ve co	oper in lar	pill matri	x	61969	136.2	5 137.4	6 1.2	21 dis	s 1-2							-+		2.3 10		+	+
	<del> </del>		141 20-14	3 1m diss 1-3	% v fine grained	pyrite with 1% calcite	-hem	atite Íraci	ite infilis (	(<1cm wide)			+	+	+	-+	+	+	diss	1-3					+	-+	+	
				at 60° to CA	re et mine great fou	Plane with the output	e i real Pl				1	1	1		$\top$		+	1	1	<u> </u>		1			-	1	1	
		· —									1																	
			143.10-14	6.81m: chi-cal-	hem fracture-fault	gouge interval, parti	ially re	healed							T		1			1								T

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							DIAMOND	ORILL LOG										HOLE	NO,	2002-0	01			PAGE	<u>3 of</u>	4	
Property	/ Project	Woo	d Claim Gro	ID			· · · · · · · · · · · · · · · · · · ·														•	1					
					·			anar Features	<u> </u>	Sample C		I				Minerali									say Result	<u>s</u>	
Flag	From	To	Rock	Relationship	Structure	Alteration		foliation, veining, etc.)	Sample	From	To	Interval	1 T		Chalco	_	Style		Mag	Netite %	_	ner	Au pob	Cu			Cu %
	(m)	(m)	Codes		Type Intensity	Type Intensity	at type o	ieg at type deg	Number	(m)	(m)	m	Style	*	Style	*	STYle	%	Style	70	Siyie	70	ρου	ppm	<del> </del>		-~
													$\vdash$								diss	10			/ <u> </u> -		<u> </u>
			146.81-14	7.58m: 10-15%	disseminated he	matite, v. fine grained	atter pyrite		÷				╀──┼								0.55				<del>_</del>		-
			-									+	╈┈╼╇														
			1		nor brick red frag	ution interval, upper co ments		<u> </u>	+					+													
			it giev gie		NI DICK 100 II 89																						<b></b>
			173 92-17	4 68m fault-fra	chire zone, clavu	chiorita gouge, upper	contact 55° to (		1																		
			110.02-11	4.90xm. reduct in a					1																		
			177 39-1	8.19m:brick red	i fragment: densit	ty of brick red fragme	nts increasing o	lown hole	<u> </u>					_													
			1																						L		
			182.80-1	33.34m: soft cla	y gouge zone, mil	nor calcite healed bre	ccia, uppper co	ntact 40° to CA																	$\vdash$		1
																									┟┈╾╾┝		<u> </u>
	193.24	207.3	6 Dark gree	n andestie crys	tai tuff (+/- lappili)	; 1-3% magnetite disa	seminated												di <u>55</u>	1-3					$\vdash$		
						oderate pervasive ch		cal-hem veinlets			ļ														$\vdash$		
			commonly	at 30-40° to C/	A					ļ	<u> </u>	ļ		_											┢━━╋		_
									ļ	<u> </u>															┢		+
			197.21-1	97.75m; fault bre	accia zone cal-he	m-chi healed			<u> </u>							·									┝───╋		┼──
		ļ									<u> </u>								<i>.</i>	1					┝+		+
	207.36	277.9						isseminated magnetite		<u> </u>	<u> </u>			-+					diss	'							+
			-1			mod to strong prevas		ration			<u> </u>													<u> </u>	tt-		1
			core bec	ming soft, dens	ity of calcite vein	lets increasing to ~3%	6			· •			1														1
			212.45.2		zone, brick red a	ngular fragments in c	aicite hemetite	metriv			<u> </u>	1	+														T
			212.43-2	12.84m.breccia	Zone, blick reu a		ALLIG-TRAILIC		-	-	1		11				1										
		ł	215 49-2	19 64m: It green	to it marcon cold	oured very soft clay al	itered lapilii tuff			1																	
		1									}							<u> </u>									
			224.88-2	25.25m: calcite-	hematite (+/- qtz)	shear, 60° to CA										ļ		L			L	<u> </u>		ļ	┢──┤		<u> </u>
																					<u> </u>	<u> </u>			$\left\{ - \right\}$		
			227.69m	change to BQ s	ize core					<u> </u>	L	$\downarrow$					<u> </u>	ļ			<u> </u>	<b> </b>		<u> </u>	+-+		+
											ļ					ļ				<u> </u>	<u> </u>	+	──	<u> </u>	┼──┼		+
			230.73-2	33.02m: very br	oken soft core, s	trong chlorite alteratio	n				<u> </u>					<u> </u>		<u> </u>					<u> </u>	+	┿		+
			ļ	······					-				-			1	<u> </u>	+	<u> </u>	<b> </b>	<u> </u>		<u> </u>		╉╼╼╾╋		+
		ļ	253.90-2	62.28m; v. brok	en, very soft, stro	ngly chlorite altered c	ore				+			$\vdash$		<u> </u>	<u> </u>		<u> </u>	╂		+	<u> </u>	┝	╂───╂		+
				·····					+		+			$\left  \right $					<u></u>			1			++		+
			263.65-2	65.94m: pale re	d-brown clay alter	red fragment		•					+	┝┈┥			<b> </b>	+		┿	-		<u> </u>	$\vdash$	╉╍╍╌┽		+

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Property	/ Project	Wood	Claim Grou	p .						=										-							
							Plar	nar Features	ļ	Sample C	dection		<u> </u>			Minerai	zation	Estime	ites						say Result	its	
Fiag	From	To	Rock	Relationship	Structure	Alteration	(contacts, fo	ollation, veining, etc.)	Sample	From	To	interval	+					rite		netite		her	Au	Cu	ı	$ \longrightarrow $	Cu
	(m)	(m)	Codes		Type Intensity	Type Intensity	at type de	g at type deg	Number	(m)	(m)	m	Style	%	Style	%	Style	%	Style	*	Style	%	ppb	ppm	┝───┼		%
																				<u> </u>					<b>⊢∔</b>		
			265.94-26	9.75m: green al	ndesitic tapili tuff	(<10% fragments), k	ess chiorite alterat	tion then above																	i		
											· · · · · · · · · · · · · · · · · · ·					i		Ļ			ļ	ļ			┝──┼	$\rightarrow$	
			269,74-27	3.71m: very stro	ong clay altered p	ale grey red coloured	<u>d</u>										<b></b> .				<u> </u>				┟───┾		
																					· · · · ·				⊢+	$\rightarrow$	
	277.98	301.54				ore returns to normal			-									<u> </u>							┢╌╍╍─┼╸		
			weak to m	oderate chiorite	alteration, non-m	agnetic, minore calci	ite-hematite veinle	ets																	┢───┼╸		
			pyroxene (	rystals are ofte	en medium graine	d, hematitic matrix		· · · · · · · · · · · · · · · · · · ·		1							<u> </u>								┟╍╍╍╋	$\rightarrow$	
									+											+	┼──			106	$\vdash$		
			sampled a	s per instruction	ns: hematitc lapla	tuff no apparent mine	eralization		61970	282.55	283.46	0.91	+					-		-			3.3	106	┢──┼	$\rightarrow$	
																					-				┢╍╍╍╺╄	$\rightarrow$	
	301.54	312.72	· · · · · · · · · · · · · · · · · · ·				atrix vs above unit	l, similar calcite-hematite	Velniets		<u>.</u>									h					$\vdash$		
			narrow (<	Im) intervals of	strong hematite a	neration			+	-																-+	
						- 14			61971	304,19	305.41	1.22											3.5	156			
			sampled a	s per instruction	ns: mod. nematite	altered lapili tuff, no	apparent minerai	zation	01971	304.19	300.41	1.44								· ·			3.5	- 190			
	312.72	201.44	Andertic T	ov (+1. leniši trđ	f): upper contact	26º to CA, less calcit	e veinlets (<1%)													<u> </u>	<u> </u>	<u> </u>					
	312.72	321,44	t	oderate chiorite									1														
			Weak to th																	1							
	321.44	354 48	Andesitc /	Vacionerate (+/-	- laopili tuff interva	ais) hematitc matrix, r	minor calcite veink	ets (<1%)										1									
					n) of clay gouge																						
				· · · · ·										•								I			$\downarrow$		
		_	343.51-34	7.56m: grey-gr	een iapilii tufi with	lessor hematite mati	rix than aggiomera	ate			L	L			L	ļ		ļ						ļ	$\downarrow$		
									1			ļ		L	L	ļ		ļ	ļ	<u> </u>	<u> </u>	ļ		ļ	┢───╁		
	354.48	371.09	grey black	andesite (+/- ci	rystal tuff): 10% c	alvine phenos med gr	ained and partially	y chloritized	<u> </u>	<u> </u>	L	<b> </b>	<u> </u>			<u> </u>	<u> </u>	1	ļ	<u> </u>			ļ	<u> </u>	$\vdash$		
			rare calcit	e veiniets, weak	to locally moden	ate hematite-FeO2 a	Iteration as disser	minations and clots, non-r	nagnetic	<b>_</b>	ļ	<b>_</b>	+			<b> </b>				<b> </b>		-			+		
		;						<u>.</u>		ļ	<b> </b>		<u> </u>	<b>_</b>	<u>i</u>	-		+	-		<b> </b>	+	 		++		
		· .	sampled a	s per instruction	ns: < 2% dissemi	nations and clots of h	ematite, no appar	rent mineralization	61972		357.23		1				-			┢	-		1.2	1	1 1		
			test samp	ed: no apparen	t mineralization e	xcept brilliant green n	nineral		61973	366,90	367.90	1.00	-				<u> </u>	+			+		2.2	102	┼──┼		
			(martposit	e or mix of chio	rite-calcite??)								+					+		+	+	+			╉┈╼╾╋		
									+	+	<u> </u>		+	├	<u>}</u>		+	+	-	+	+	+			┼──┤		
	371.09	382.52	Andesitc /	Aggoimerate (+/	- lappill tuff intervi	als) hematitc matrix, i	minor calcite vein	ets (<1%)		ł		+		-		+	-	-		+	+	+		+	+		
			<b> </b>						-{			<u> </u>		<u> </u>				+		+		+	<del> </del>		┼┼		
			378.56-38	0.85m: broken	core, mod to loca	illy strong chlorite (+/	- clay)	***** · · · · · · · · · · · · · · · · ·			<u> </u>	·	+						+	+	+	+		+	+	$ \rightarrow$	
-			+	-							<del> </del>	+	+	<del> </del>	<u> </u>		+	+	<u>+</u>	+	+	+	<u> </u>		┼─┤		
			EOH 382.	52m						····	h				+		-	+		+	+	+	+	+	+		ļ

NUMBER         CALL CARDEGRATCH REAL LTD.         BEZ & A TANTING IS V. VI.         UVER IC. VEA.         PROVIDE IC         PROVID IC         PROVID IC         PROVIDE	GEOCELEMICAL ANALYEIS CERTIFICATE         Method Sector Street Colspan="2">Method Sector Street																					·												<u> </u>
Product         Revnolde         Geological         Pile         # 204483         Page 1           SAMPLE#         Mo         Curve         Dage         Page         Pag	Revision Lds         Geological State Ave, Vancekver, BC V68 1Y7         Paige 1.         Paige 1.           SMPLEH         Mo         Cu         Pb         Zn         Au         Th         State Ave, Vancekver, BC V68 1Y7         Substituted by: N. Moore         No								D.														I	HON	B (6(	(4)2	53-3	158	Fax	(604	L	1-17	16	
SAMPLEN         Ho         Cu         Pb         Zn         Ag         NI         Co         M         Fe         As         U         Au         In         Sr         Cd         Sb         Bi         V         Ca         P         La         Cr         Mg         Ba         Al         Na         K         Mu         Au         N         Sr         Cd         Sb         Bi         V         Ca         P         La         Cr         Mg         Ba         Al         Na         K         Mu         Au         Na         St         St <th>Image: SAMPLEN         4035 M. 31at Ave, Vanceuvér BC VéB 1V7         Submitted by: N. Hore         Medice         <th< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th><b>1</b></th><th>V 4 V</th><th></th></th<></th>	Image: SAMPLEN         4035 M. 31at Ave, Vanceuvér BC VéB 1V7         Submitted by: N. Hore         Medice         Medice <th< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th><b>1</b></th><th>V 4 V</th><th></th></th<>																															<b>1</b>	V 4 V	
$\frac{p_{PM}}{p_{PM}} \frac{p_{PM}}{p_{PM}} \frac{p_{PM}}{$	$\frac{p_{PM}}{p_{PM}} \frac{p_{PM}}{p_{PM}} \frac{p_{PM}}{$	▕▕▕▕▕							Ke	7,446	035 U	. 31a	t Ave,	Van		Fl r BC	. Lе V6в 1	₩ A Y7 \$	204 Submi	481 tted	by: M	Pac . Moo	Le Te	•										
$\frac{61969}{61970} \frac{1}{103} \frac{103}{55} \frac{13}{55} \frac{13}{617} \frac{14}{211} \frac{15}{7} \frac{16}{617} \frac{12}{211} \frac{7}{15} \frac{16}{617} \frac{2}{211} \frac{7}{15} \frac{15}{55} \frac{13}{57} \frac{13}{55} \frac{13}$	$\frac{61969}{61970} = 1 103 < 3 58 < .3 14 15 877 4.21 7 < 6 < 2 2 75 < .5 3 3 190 2.21 .127 6 20 1.60 37 27 16 2.15 .15 .07 < 2 .3  61971 1 106 < 3 54 .3 13 18 1859 3.82 5 < 8 < 2 < 2 135 < .5 3 < 3 167 4.88 .128 7 23 1.62 83 .20 7 2.58 .95 .12 2 3.3  61971 1 156 5 68 < .3 21 19 1253 4.38 3 < 8 < 2 3 91 < .5 < 3 3 193 4.35 .130 6 41 2.22 29 .22 9 2.29 9.258 .48 15 < 2 3.5  61972 1 7 < 3 55 < .3 106 25 1118 4.58 2 < 8 < 2 2 188 < .5 < 3 < 3 192 4.37 .216 8 59 3.10 43 .20 5 2.08 .34 .07 < 2 1.2  61973 1 102 < 3 50 < .3 369 38 1232 4.78 < 2 < 8 < 2 2 231 .5 < 3 < 3 182 6.35 .194 6 137 5.02 56 .12 10 2.72 .34 .05 < 2 .2  STANDARD D54 7 127 30 162 .3 37 12 819 3.18 23 9 < 2 3 30 4.9 6 5 75 59 .095 17 165 .64 155 .10 3 1.79 .04 .17 4 26.6  GROUP 10 - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H20 AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY 1CP-ES.  UPPER LIMITS - AG, AU, HG, W = 100 PPM; HO, CO, CO, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZW, NI, NN, AS, V, LA, CR = 10,000 PPM.  - SAMPLE TYPE: P1 CORE P2 CORE AU9 IGNITED, ACID LEACHED, ANALYZED BY ICP-MS. (10 gm)  DATE RECEIVED: OCT 15 2002 DATE REPORT MATLED: OCL 24/02 SIGNED BY TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS$	SAMPLE#					-																											
STANDARD DS4       7       127       30       162       .3       37       12       819       3.18       23       9       <2	STANDARD DS4       7       127       30       162       .3       37       12       819       3.18       23       9       <2	61969 61970 61971	1 1 1	103 106 156	र उ 5	58 54 68	<.3 .3 <.3	14 13 21	15 18 19	877 1359 1253	4.21 3.82 4.38	7 5 3	<8 <8 <8	<2 <2 <2	2 <2 3	75 135 91	<.5 <.5 <.5	3 3 <3	3 <3 3	190 167 193	2.21 4.88 4.35	.127 .128 .130	6 7 6	20 23 41	1.60 1.62 2.22	37 83 29	.27 .20 .22	16 7 9	2.15 2.58 2.58	. 15 . 95 . 48	.07 .12 .15	<2 2 <2	2.3 3.3 3.5	
UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, NN, AS, V, LA, CR = 10,000 PPM. - SAMPLE TYPE: P1 CORE P2 CORE AU* IGNITED, ACID LEACHED, ANALYZED BY ICP-MS. (10 gm) DATE RECEIVED: OCT 15 2002 DATE REPORT MAILED: OCH 24/02 SIGNED BY	UPPER LIMITS - AG, AU, HG, W = 100 PPM; HO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, HN, AS, V, LA, CR = 10,000 PPM. - SAMPLE TYPE: P1 CORE P2 CORE AU* IGNITED, ACID LEACHED, ANALYZED BY ICP-MS. (10 gm) DATE RECEIVED: OCT 15 2002 DATE REPORT MAILED: OCT 24/02 SIGNED BY																																	
All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only. Data FA	All results are considered the confidential property of the client. Arms assumes the lightlitics for actual cost of the analysis only $\nabla$			PPER SAMP	LIMIT PLE TY OCT 1	S - A PE: P 5 200	IG, AL 1 COR 2 E	J, HG, Re P2 Date	W = CORE REP	ORT	PPM; M AU* IG MAII	LED:	CD, ACI	SB, D LEA	BI, T CHED,	$\frac{1}{\sqrt{0}}$	& B = YZED _ SI	= 2,00 BY IC	O PPM P-HS.		PB, gm	ZN, N	τι, μη 	I, AS,	, V, L	.A, Cf	R = 10	,000	PPM.			SSAYE	RS	

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ANALY AL LABORATORIES (ISO 9 Accredited Co.			T. VAL	ver bc Cate	V6A	1R6	PHONE (604) 253-3158 PAX (604) 2 1716
TT.	Revnolds Geol 4035 W. 31st Av	ogical s, Vancouve	File #	A204 Submi	481 tted by:	Page M. Moore	2 <b>TT</b>
	SAMPLE#	S.Wt. gm	+150Wt gm	NCu gm	-Cu *	TotCu %	
	61969	507	27.20	-	.012	.012	

-150 MESH CU BY AQUA-REGIA FROM 10 GM, ANALYSED BY ICP-ES. +150 MESH CU BY AQUA-REGIA FROM TOTAL SAMPLES, ANALYSED BY ICP-ES. - SAMPLE TYPE: P1 CORE P2 CORE

DATE RECEIVED:

# STATEMENT OF QUALIFICATIONS

I, Michael P. Moore, of Suite 5 - 305 West 11th Avenue, Vancouver, British Columbia hereby certify.

1) I am a consulting exploration geologist providing services to the mining industry with offices at Suite 5 – 305 West 11th Avenue, Vancouver, British Columbia, Canada, V5Y 1T3.

2) I am a graduate of Carleton University, Ottawa Ontario, with a B.Sc. (Honours) in Geology (1989).

3) I have practised my profession with numerous mining and exploration companies in Canada, Cuba, Ghana (West Africa), Mexico, South America and the United States since graduating.

4) I am a Professional Geologist (P. Geo.) registered with the Association of Professional Geoscientists and Engineers of British Columbia (APEGBC), since 1995.

5) I completed the four-page drill log for diamond drill hole 2002-01(collared on the Key 2 Claim) included in this report. I logged and sampled the core on October 10-12 of 2002, while visiting the Wood Property.

Michael Mo BoSC Geo. Dated at Vancouver, B.C. May 09 2003

## 9. MOBILE METAL ION SURVEY

 9.1 From October 10, 2002 to October 15, 2002, 144 samples were collected on the Monarch Claim and the northend of the Dam #19 Claim, on Survey Lines 1600E, 1700E, 1800E,1900E, 2000E, 2100E, 2200E, 2300E, 2400E, 2500E and 2600E from 4950N to 5800N.

## SURVEY AND SOIL SAMPLING PROCEDURE

The sampling stations have all been marked with red and blue flagging; with the line and the station number written with a waterproof marker. A grand total of 144 stations were marked on the following lines: 1600E, 1700E, 1800E, 1900E, 2000E, 2100E, 2200E, 2300E, 2400E, 2500E and 2600E from 4950N to 5800N. A total of 7200 metres were sampled at 50 metre intervals.

The samples were collected with a pick and a small shovel to dig a small pit at each station. The soil samples were taken at an approximate depth of 20 cm. To sample the B. horizon. The soil was sieved with a plastic sieve and a pound of fine material was collected and placed in a snap seal plastic bag, and clearly marked with the property name, the line name and the station number.

The small samples were then placed into a larger plastic bag to be carried to he truck. At each station the sample pits were refilled and the tools used to collect the samples were brushed clean after each sample was taken to avoid contamination.

A maximum of six samples were placed in a larger plastic bag and carried to the truck for transportation to Langley. The larger bags of samples were then placed in cardboard boxes and shipped for assay to XRAL LABORATORIES at 1885 Leslie Street, Don Mills, Ontario, M3B 3J4.

XRAL Laboratories assayed all the samples with the Method Code M.M.I. Suite A and Suite B, for CU, PB, ZN, CD, CO, AU, AG, PD, NI.

9.2 The M.M.I. results from the Xral Laboratories have been plotted for copper. Cobalt, nickel, silver, gold and palladium. The copper and cobalt results appear to show a trend and have been contoured. The copper is contoured a t 550ppb and the cobalt at 12ppb.

The following M.M.I. results maps have been placed in the report pocket.

FIGURE 5	M.M.I. Assay Results: Copper	1=5,000
FIGURE 6	M.M.I. Assay Results: Cobalt	1=5,000
FIGURE 7	M.M.I. Assay Results: Nickel	1=5,000
FIGURE 8	M.M.I. Assay Results: Silver	1=5,000
FIGURE 9	M.M.I. Assay Results: Gold	1=5,000
FIGURE 10	M.M.I. Assay Results: Palladium	1=5,000

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## 10. **GEOPHYSICAL SURVEY**

From December 3, 2002 to December 5, 2002, two lines of induced polarization survey was carried out on Lines 2200E and 2300E. The I.P. Survey consisted of two lines totaling 2700 metres. The diapole length and reading was at an interval of 100 metres, read up to 12 levels.

See attached: Geophysicist's Report on the Survey, including conclusions, recommendations and qualifications.

The following maps are in the report pocket:

Map # GP-1	I.P. and Resistivity Survey plan	1= 5,000
Fig. GP-1	I.P. and Resistivity Pseudosections L. 2200	1= 5,000
Fig. GP-2	I.P. and Resistivity Pseudosections L. 2300	1= 5,000

# APPENDIX 2

# GEOPHYSICAL REPORT AND QUALIFICATIONS

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**GEOPHYSICAL REPORT** 

ON

# **IP AND RESISTIVITY SURVEYS**

# ON THE

# **MONARCH ZONE**

# WITHIN THE

# WOOD GROUP MINERAL CLAIMS

# **AFTON MINES AREA**

# KAMLOOPS MINING DIVISION, BRITISH COLUMBIA

## WRITTEN FOR:

V2Z 1G4

WRITTEN BY:

# **GREEN VALLEY MINE INCORPORATED** LAKEWOOD MINING CO. LTD. 1756 246<sup>th</sup> Street Langley, B.C.

David G. Mark, P.Geo. **GEOTRONICS SURVEYS LTD.** 6204 – 125<sup>th</sup> Street Surrey, British Columbia V3X 2E1

DATED:

January 7<sup>th</sup>, 2003



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SUMM	SUMMARY				
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(d)	Compilation of Data	5			
	SSION OF RESULTS				
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GEOP	HYSICIST'S CERTIFICATE	9			

# LIST OF ILLUSTRATIONS

MAPS	<u>Scale</u>	<u> Map #</u>
Survey Plan	1:5,000	GP-1
Line 2200E	1:5,000	GP-2
Line 2300E	1:5,000	GP-3



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# SUMMARY

Induced polarization (IP) and resistivity surveys were carried out during December 2002 over the northern part of the Iron Mask Property located within the Afton Mines area of the Kamloops Mining Division of B.C.

The main purpose of the geophysical surveys was to locate mineralization similar to that of the nearby Afton Mine with occurs within the Iron Mask intrusive, as well as to locate any other possible deposits that may occur within other rock types. The Afton mineralization consists of disseminated copper sulphides as well as other sulphides with associated gold values.

The resistivity and IP surveys were carried out using a BRGM Elrec-6 multi-channel receiver operating in the time-domain mode. The transmitter used was a BRGM VIP 4000 powered by a 6.5-kilowatt motor generator. The dipole length and reading interval chosen was 100 meters read up to 12 levels. The survey consisted of two lines for a total survey length of 2,700 meters. The results were plotted in pseudosection form and contoured.

The IP survey revealed an anomaly that correlates with the minimum 1000-meter long MMI soil anomaly that contains anomalous values in copper, gold, cobalt, palladium, as well as silver. It also correlates directly with and to the immediate northeast of a resistivity high. The resulting interpretation is a sulphide body containing economic minerals occurring within and/or to the immediate northeast of an intrusive body, possibly a dyke. The body would be 200 meters wide by at least 100 meters long (The anomaly is open both to the northwest and to the southeast.) with a possible depth extent of up to 200 meters.

A program of further geophysics to better define targets, followed by diamond drilling is recommended. The budget for this is \$200,000.

# **GEOPHYSICAL REPORT**

# ON

# **IP AND RESISTIVITY SURVEYS**

## ON THE

## MONARCH ZONE

# WITHIN THE

## WOOD GROUP MINERAL CLAIMS

# **AFTON MINES AREA**

# KAMLOOPS MINING DIVISION, BRITISH COLUMBIA

## **INTRODUCTION AND GENERAL REMARKS**

This report discusses survey procedure, compilation of data, interpretation methods, and the results of resistivity and induced polarization (IP) surveys carried out over the Monarch Zone occurring within the eastern part of the Wood Group Mineral Claums belonging to Lakewood Mining Co. Ltd. and Green Valley Mine Incorporated. The property is located on Alkali Creek in the Afton Mines area within the Kamloops Mining Division, British Columbia.

The IP and resistivity surveys were carried out by a Geotronics crew of four men, one of which was the writer, from December 3<sup>rd</sup> to the 5<sup>th</sup>, 2002. Mr. Charles Boitard, president of both Green Valley and Lakewood, accompanied the crew onto the property. The amount of IP and resistivity surveying totaled 2,700 meters.

The general purpose of exploration on this property is to locate sulphide mineralization similar to that of the nearby Afton Mine, which occurs within the Iron Mask intrusive, as well as to locate any other possible deposits that may occur within the Nicola volcanics. The Afton mineralization consists of disseminated copper sulphides as well as other sulphides with associated gold values.

The specific purpose of carrying out this IP and resistivity survey was to more accurately delineate the causative source of an MMI soil geochemistry anomaly containing anomalous values in copper, gold, palladium, cobalt and silver. This soil anomaly has a minimum strike



length of 1000 meters being open both to the northwest and to the southeast. The IP survey would carry this out by mapping sulphide mineralization, some of which hopefully would consist of base metal sulphides as well as associated gold mineralization, as indicated by the MMI soil sampling. The resistivity survey would carry this out by mapping associated alteration zones, geological structure, and lithology.

MMI stands for mobile metal ions and describes ions, which have moved in the weathering zone and that are weakly or loosely attached to surface soil particles. MMI, which requires special sampling and testing techniques, are particularly useful in responding to mineralization at depth probably in excess of 700 meters. It is characterized in having a high signal to noise ratio and therefore can provide accurate drill targets. However, it may also move along fault lines and therefore could show the causative source to be laterally moved from where it actually is.

Much IP and resistivity surveys has been carried out throughout the whole area, especially in the early seventies. This area of the property was surveyed in 1972 but at only one separation. Therefore, the reason for doing this survey was to explore to a greater depth. This was done by using a wide dipole length (100 meters) with dipole separations up to 12 resulting in a theoretical exploration depth of 660 meters (or, 2,200 feet).

## INDUCED POLARIZATION AND RESISTIVITY SURVEYS

## (a) Instrumentation

The transmitter used was a BRGM model VIP 4000. It was powered by a Honda 6.5 kW motor generator. The receiver used was a six-channel BRGM model Elrec-6. This is state-of -the-art equipment, with software-controlled functions, programmable through a keyboard located on the front of the instrument. It can measure up to 10 chargeability windows and store up to 2,500 measurements within the internal memory.

## (b) Theory

When a voltage is applied to the ground, electrical current flows, mainly in the electrolyte-filled capillaries within the rock. If the capillaries also contain certain mineral particles that transport current by electrons (mostly sulphides, some oxides and graphite), then the ionic charges build up at the particle-electrolyte interface, positive ones where the current enters the particle and negative ones where it leaves. This accumulation of charge creates a voltage that tends to oppose the current flow across the interface. When the current is switched off, the created voltage slowly decreases as the accumulated ions diffuse back into the electrolyte. This type of induced polarization phenomena is known as electrode polarization.

A similar effect occurs if clay particles are present in the conducting medium. Charged clay particles attract oppositely-charged ions from the surrounding electrolyte; when the current stops, the ions slowly diffuse back to their equilibrium state. This process is



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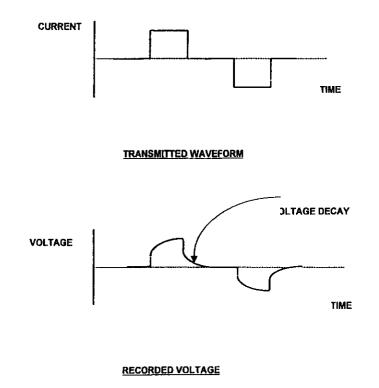
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known as membrane polarization and gives rise to induced polarization effects even in the absence of metallic-type conductors.

Most IP surveys are carried out by taking measurements in the "time-domain" or the "frequency-domain".

Time-domain measurements involve sampling the waveform at intervals after the current is switched off, to derive a dimensionless parameter, the chargeability "M", which is a measure of the strength of the induced polarization effect. Measurements in the frequency domain are based on the fact that the resistance produced at the electrolyte-charged particle interface decreases with increasing frequency. The difference between apparent resistivity readings at a high and low frequency is expressed as the percentage frequency effect, or "PFE".

The quantity, apparent resistivity,  $\rho_a$ , computed from electrical survey results is only the true earth resistivity in a homogenous sub-surface. When vertical (and lateral) variations in electrical properties occur, as they almost always will, the apparent resistivity will be influenced by the various layers, depending on their depth relative to the electrode spacing. A single reading, therefore, cannot be attributed to a particular depth.



The ability of the ground to transmit electricity is, in the absence of metallic-type conductors, almost completely dependent on the volume, nature and content of the pore

space. Empirical relationships can be derived linking the formation resistivity to the pore water resistivity, as a function of porosity. Such a formula is Archie's Law, which states (assuming complete saturation) in clean formations:

 $R_o = O^{-2} R_w$ 

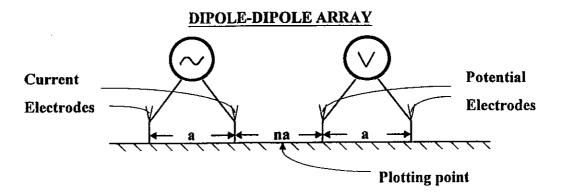
Where:  $R_o$  is formation resistivity  $R_w$  is pore water resistivity O is porosity

## (c) Survey Procedure

The two IP/resistivity survey lines were carried out on the previously established grid on which the soil sampling and magnetic surveying was carried out. The lines run in a due northeast direction (135°E) and are 100 meters apart. The IP and resistivity surveying was carried out on two of these lines, 2200E and 2300E, across an MMI soil sample anomaly.

The IP and resistivity measurements were taken in the time-domain mode using an 8second square wave charge cycle (2-seconds positive charge, 2-seconds off, 2-seconds negative charge, 2-seconds off). The delay time used after the charge shuts off was 80 milliseconds and the integration time used was 1,760 milliseconds divided into 10 windows.

The array chosen was the dipole-dipole, shown as follows:



The electrode separation, or 'a' spacing, and reading interval was chosen to be 100 meters read to 12 separations, which is the 'na' in the above diagram, on line 2200E and read to 6 separations on line 2300E. The 12 separations give a theoretical depth penetration of about 660 meters, or 2,200 feet, whereas the 6 separations give a theoretical depth penetration of 330 meters, or 1,100 feet. Stainless steel stakes were used for current electrodes as well as for the potential electrodes.

The surveying was done on the following lines and to the following lengths.

LINE NUMBER	SURVEY STATIONS	SURVEY LENGTH	MAP NUMBER
2200E	4200N to 5800N	1600 m	GP-1
2300E	4600N to 5700N	1100 m	GP-2

The total amount of IP and resistivity surveying carried out was 2,700 meter.

## (d) Compilation of Data

All the data were reduced by a computer software program developed by Geosoft Inc. of Toronto, Ontario. Parts of this program have been modified by Geotronics Surveys Inc. for its own applications. The computerized data reduction included the resistivity calculations, pseudosection plotting, survey plan plotting and contouring.

The chargeability (IP) values are read directly from the instrument and no data processing is therefore required prior to plotting. However, the data is edited for errors and for reliability. The reliability is usually dependant on the strength of the signal, which weakens at greater dipole separations. On this project, the chargeability data was reliable only about to the  $6^{th}$  dipole separation. However, on line 2200E, which was read to 12 separations, there was some consistency in the readings at seven to nine separations, though the data was quite noisy. Therefore, the chargeability data from these separations were not edited out, but the 10 to 12 separation data were edited out.

The resistivity values are derived from current and voltage readings taken in the field. These values are combined with the geometrical factor appropriate for the dipole-dipole array to compute the apparent resistivity. For line 2200E, the resistivity data were relatively reliable to the 12 separations.

All the data have been plotted in pseudosection form at a scale of 1:5000. One map has been plotted for each of the two lines, as shown on the above table and in the Table of Contents. The pseudosection is formed by each value being plotted at a point formed from the intersection of a line drawn from the mid-point of each of the two dipoles. The result of this method of plotting is that the farther the dipoles are separated, the deeper the reading is plotted. The resistivity pseudosection is plotted on the upper part of the map for each of the lines, and the chargeability pseudosection is plotted on the lower part.

All pseudosections were contoured at an interval of one millisecond for the chargeability results, and at a logarithmic interval to the base 10 for the resistivity results.

The self-potential (SP) data from the IP and resistivity surveys were plotted and profiled above the two pseudosections for each line at a scale of 1 cm = 50 millivolts

with a base of zero millivolts. It is not expected that the SP data will be important in the exploration of the property, especially with the dipole length used, but considering that the data was taken, it was plotted and profiled for its possible usefulness.

# **DISCUSSION OF RESULTS**

The survey revealed an IP anomaly correlating directly with the MMI soil geochemistry anomaly. As mentioned above, this anomaly has a minimum strike length of 1000 meters being open both to the northwest and to the southeast. On line 2200E, the IP anomaly occurs from about 5200N to 5400N and on line 2300E, it occurs from about 5100N to 5300N. It also correlates with a low amplitude resistivity high and with its northeastern contact. The anomaly reaches a high of 7.1 milliseconds against a background of two to three milliseconds. The width of the anomaly is at least 200 meters with a minimum strike length of 100 meters being open to both the northwest and to the southeast along the trend of the minimum 1000-meter long soil anomaly.

The IP anomaly is very likely reflecting a sulphide body that is close to the surface. It is probably of economic interest considering that the correlating MMI soil anomaly is anomalous in copper, gold, palladium, cobalt, as well as silver. The correlating resistivity high could be reflecting an intrusive such as a dyke. The dip is vertical to perhaps 45° to the southwest. Therefore, the suggested interpretation is a sulphide body containing economic minerals. It is at least 200 meters wide with an undetermined strike length that is at least 100 meters. The IP pseudosection suggests a depth extent of about 150 meters. This sulphide body appears to occur within an intrusive as well as extending to the northeast beyond the suggested intrusive.

The anomaly also appears to be correlating with a magnetic low shown from a survey carried out in 1972. This suggests the causative source contains little magnetite, as often is the case with sulphide mineralization. The magnetic low has a strike length of 550 meters and therefore if the magnetic low is reflecting the suggested mineral zone, then it may have a strike length of 550 meters, though the MMI soil geochemistry results suggest a much longer strike length. A magnetic survey would need to be carried out over the Monarch grid to help determine this.

Line 2200E shows a second IP anomaly at station 4800N at depth. However, the anomaly is questionable since the readings were quite unstable due to a weak signal. Nevertheless, the readings were not edited out since the anomaly consists of several values, and since there is a hint of its occurrence on line 2300E. In addition, it correlates with a resistivity low suggesting an interpretation of a sulphide body associated with a zone of fracturing and/or alteration.

A self-potential anomaly occurs on line 2300E at 5500N, which is to the north of the main IP anomaly. It may be reflecting sulphide mineralization though there is no IP or soil sample correlation.

### **RECOMMENDATION**

The IP/resistivity survey has revealed very positive results that should be followed up with further exploration. At this point, a target of economic interest has been produced that should be diamond drilled. Further geophysics is also recommended to better define the target. Ideally, part of this program would consist of trenching, but the overburden is probably too deep. As a result, since MMI soil sampling has already been carried out, the only option is geophysics. The recommended program is therefore as follows:

- 1. Diamond drill the IP anomaly. The drilling needs to be under the supervision of a geologist. It is anticipated that several holes will need to be drilled at least to a depth of 300 meters and perhaps one or two much deeper. The target at this point is 200 meters wide by a minimum of 100 meters along the strike length, being open on both ends.
- Do a magnetic survey over the Monarch grid taking readings every 25 meters on lines 100 meters apart. Its purpose is to help define the causative source of the MMI soil sample/IP anomaly.
- 3. Continue the IP/resistivity survey over the remainder of the grid. Some testing should be done with 50-meter dipoles read to 12 dipole separations for the purpose of better resolution and thus more optimum drill targets. If this is found to be more effective, than the IP/resistivity survey should be carried out using these survey parameters rather than the 100-meter dipoles.

### **GEOPHYSICIST'S CERTIFICATE**

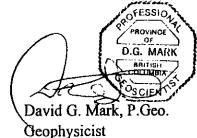
I, DAVID G. MARK, of the City of Vancouver, in the Province of British Columbia, do hereby certify that:

I am registered as a Professional Geoscientist with the Association of Professional Engineers and Geoscientists of the Province of British Columbia.

I am a Consulting Geophysicist of Geotronics Surveys Ltd., with offices at 6204 – 125<sup>th</sup> Street, Surrey, British Columbia.

I further certify that:

- 1. I am a graduate of the University of British Columbia (1968) and hold a B.Sc. degree in Geophysics.
- 2. I have been practicing my profession for the past 34 years, and have been active in the mining industry for the past 37 years.
- 3. This report is compiled from data obtained from an IP and resistivity survey carried out by a 4-man crew of Geotronics Surveys headed by me over the eastern portion of the Wood Claims, from December 2<sup>nd</sup> 5<sup>th</sup>, 2002.
- 4. I do not hold any interest in Green Valley Mine Incorporated nor in Lakewood Mining Co. Ltd., nor in the property discussed in this report, nor in any other property held by these companies, nor do I expect to receive any interest as a result of writing this report.



January 7, 2003



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#### **STATEMENT OF COSTS**

#### WOOD GROUP Mineral Claims, Kamloops Mining Division

Late in June 2002 a survey grid was established with compass, hip chain and axe. Late in October 2002 a soil sampling survey was carried out on Lines 1600E, 1700E, 1800E, 1900E, 2000E, 2100E, 2200E, 2300E, 2400E, 2500E, 2600E, from 4950N to 5800N. 144 samples were collected on 11 survey lines.

2 men, 5 field days @\$125	1,250.00	
Shipping samples to Xral Labs (Ontario)	175.00	
Assays A and B suite (144 samples)	6,096.86	
Motel, 2 men, five days	600.00	
Restaurant expenses, 2 men, five days	450.00	
Field supplies	200.00	
4 X 4 rental	350.00	
Field & truck expenses	250.00	
		\$9,371.86

One diamond drill hole was carried on Line 1700E at 5375N from September 19, 2002 to October 8, 2002

Diamond drilling, 382.62m. at \$65	24,870.00	
Core logging and Geologist's fee	<u>1,444.50</u>	
		26,314.50

From December 5, 2002 to December 5, 2002 2700 m. of I.P. Survey was carried out on Lines 220E and 2300E.

Geophysical Survey, Report and recommendations	<u>4,280.00</u>	
		<u>4,280.00</u>
		\$39,966.36

Respectfully submitted.

Charles Boitard

# APPENDIX 3

# M.M.I SOIL SAMPLING ASSAY SHEETS, CERTIFICATE OF ANALYSIS

DEC-09-2	002 MON 11	:36 AM XRAL LABS	FAX NO. 416445	4152	P. 04
	annen in dane	XRAL Laboratories A Division of SGS Canada Inc.	Invoice/Factu	re No.: 081;(	0045978
		. INVOI	CE		
Gr	ce To/Factur een Valley M tn: Charlie B	Aine Incorporated	Submitted By/Sourr Green Valley M. Attn: Charlie Bo	ine Incorporated	
r la	56 - 246th NGLEY C., CANADA		1756 - 246th S LANGLEY B.C., CANADA		
tovoi	Order: ce Date:	070552 07/11/02	Customer No.: 405302 Your P.O. No.:		
	Submitted: od Via:	28/10/02 Egl	Your Project No.: Waybill No.	DAM B3284137	
Qnty	Çode	Description	# Ele	Unit Cost	Amt/Montant
144	MMIA&8	MMIA + MMIB		\$39.50	\$5688.00
1	AD25	Fax Charge	,	\$10.00	\$10.00
		Terel			
	2050	Total			\$56 <b>98.0</b> 0
	65177	7% GST Reg No. R105082572			\$398.86
	GSTW	7% GST Reg No. 8105082572			\$398

#### TOTAL IN CANADIAN FUNDS / TOTAL EN DOLLARS CANADIEN

\$6096.86

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Please remit to / S.V.P. envoyer votre palement à: P.O. Box 43999 Unit 065 Postai Station Bontal Vancouver, B.C. V7X 1N9 Piease courier to / S.V.P. envoyer par courier à: 1885 Leslie Street Don Mills, ON Canada M3B 3J4 Tel: (416) 445-5755 Fax: (416) 445-4152

6Please Quote Invoice Number / S.V.P. Spécifier le numéro de facture 081:00045978

Note/N.B.: 1.5% per month interest on Overciue Accounts / Intérêt de sur Comptes Arriéres de 1.5% Par Meis: Terms Net 30 days

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SGS Member of the SGS Group (Société Générale de Surveillance)





1885 Leslie Street Don Mills, Ontario Canada M3B 3J4 Telephone (416) 445-5755 Fax (416) 445-4152

### **CERTIFICATE OF ANALYSIS**

Work Order: 070552

#### To: Green Valley Mine Incorporated Attn: Charlie Boitard

**XRAL** Laboratories

A Division of SGS Canada Inc.

1756 - 246th Street LANGLEY B.C., CANADA V2Z 1G4

Copy 1 to

P.O. No.	:	
Project No.	:	DAM
No. of Samples	:	144 Soil(MMI)
Date Submitted	:	28/10/02
Report Comprises	:	Cover Sheet plus
		Pages 1 to 8

2

Distribution of unused material: Pulps: Store Rejects: Store

**Certified By** 

Dr. Hugh de Souza, General Manager XRAL Laboratories

#### **ISO 9002 REGISTERED**

ISO 17025 Accredited for Specific Tests. S.C.C. No. 456

Subject to SGS General Terms and Conditions

Report Footer:

L.N.R.= Listed not receivedI.S.= Insufficient Samplen.a.= Not applicable--= No result\*INF= Composition of this sample makes detection impossible by this methodM after a result denotes ppb to ppm conversion, % denotes ppm to % conversion

**SGS** Member of the SGS Group (Société Générale de Surveillance)

Date : 07/11/02



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# XRAL Laboratories A Division of SGS Canada Inc.

	A DIV	Division of SGS Canada Inc.			
Work Order:	070552	I	Date:	07/11/02	
Element. Method. Det.Lim. Units.	Cu MMI-A 5 ppb	Zn MMI-A 5 ppb	Cd MMI-A 10 ppb	Pb MMI-A 20 ppb	
Dam L1600E-5450N	504	1650	40	98	
Dam L1600E-5500N	564	849	40	110	
Dam L1600E-5550N	339	224	33	84	
Dam L1600E-5600N	554	1290	37	97	
Dam L1600E-5650N	606	436	41	88	
Dam L1600E-5700N	594	553	34	90	
Dam L1600E-5750N	800	250	32	92	
Dam L1600E-5800N	754	474	36	65	
DAM L1700E-4950N	193	186	17	99	
DAM L1700E-5000NSWA	139	34	12	77	
DAM L1700E-5050NSWA	202	326	17	78	
DAM L1700E-5100NSWA	180	63	16	54	
DAM L1700E-5150NSWA	210	470	17	36	
DAM L1700E-5200NSWA	220	67	14	<20	
DAM L1700E-5250NSWA	229	121	17	<20	
339 DAM L1700E-5300NSWA	61	8	13	< 20	
TEDAM L1700E-5350NSWA	1900	132	25	81	
DAM L1700E-5400NSWA	696	229	34	98	
CaseDAM L1700E-5450NSWA	828	584	42	68	
DAM L1700E-5500NSWA	831	192	36	89	
DAM L1700E-5550NSWA	1020	115	25	82	
DAM L1700E-5600NSWA	664	422	30	96	
DAM L1700E-5650NSWA	773	793	33	101	
DAM L1700E-5700NSWA	478	648	34	77	
DAM L1700E-5750NSWA	673	882	35	111	
DAM L1700E-5800NSWA	393	616	46	66	
DAM L1800E-5500N	403	149	24	100	
DAM L1800E-5550N	799	252	33	71	
DAM L1800E-5600N	431	809	30	117	
DAM L1800E-5650N	728	759	36	69	
DAM L1800E-5700N	482	260	38	79	
DAM L1800E-5750N	334	501	36	95	
DAM L1800E-5800N	769	206	43	85	
DAM L1900E-4950N	249	280	16	62	
DAM L1900E-5000N	220	520	27	62	
DAM LIODOT FOFON	670	70	22	< 20	
DAM L1900E-5050N	579	79	22	<20	
<ul> <li>DAM L1900E-5100N</li> <li>DAM L1900E-5150N</li> </ul>	355	357	29	103 108	
DAM L1900E-5150N DAM L1900E-5200N	540	515	21 23	95	
DAM L1900E-5200N DAM L1900E-5250N	140	1860		95 96	
	353	424	23	טע	
DAM L1900E-5300N	436	377	24	72	
DAM L1900E-5350N	745	235	30	69	
DAM L1900E-5400N	876	264	25	86	
DAM L1900E-5450N	477	1090	33	88	
DAM L1900E-5500N	634	268	27	86	

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	ADIV	Division of 565 Canada me.			
Work Order:	070552	I	Date:	07/11/02	
Element. Method.	Cu MMI-A	Zn MMI-A	Cd MMI-A	Pb MMI-A	
Det.Lim.	5	5	10	20	
Units.	ppb	ppb	ppb	ррb	
DAM L1900E-5550N	948	198	28	79	
*Blk BLANK	< 5	< 5	<10	<20	
*Sid MMISRM12	816	1750	24	145	
DAM L1900E-5600N	361	1570	29	87	
DAM L1900E-5650N	355	324	29	63	
		1000		00	
DAM L1900E-5700N	296	1920	34	99	
DAM L1900E-5750N	511	414	35	90	
DAM L1900E-5800N	1100	688	32	108	
DAM L2000E-5700N	800	142	29	99	
DAM L2000E-5750N	758	680	39	81	
DAM L2000E-5800N	675	160	28	89	
DAM L2100E-4950N	359	235	23	81	
DAM L2100E-5000N	267	274	22	97	
DAM L2100E-5050N	362	488	23	80	
DAM L2100E-5100N	288	284	26	75	
DAM L2100E-5150N	399	194	29	79	
DAM L2100E-5200N	396	277	22	47	
DAM L2100E-5250N	717	267	22	79	
DAM L2100E-5200N	610	184	23	53	
DAM L2100E-5350N	326	567	29	81	
(MM 121005 555614	520	501	27		
DAM L2100E-5400N	786	463	33	67	
DAM L2100E-5450N	927	206	30	60	
DAM L2100E-5500N	464	495	37	56	
DAM L2100E-5550N	311	701	28	47	
DAM L2100E-5600N	386	769	44	71	
DAM L2100E-5650N	663	481	34	64	
DAM L2100E-5700N	728	309	31	52	
DAM L2100E-5750N	479	264	27	62	
DAM L2100E-5000AN	223	608	28	56	
DAM L2200E-4950N	277	529	21	66	
	210			00	
DAM L2200E-5000N	319	800	19	90 59	
DAM L2200E-5050N	245	229	24		
DAM L2200E-5100N	238	258	17	54	
DAM L2200E-5150N	572	134	23	54	
DAM L2200E-5200N	329	215	22	65	
DAM L2200E-5250N	523	204	25	75	
DAM L2200E-5300N	438	310	24	54	
DAM L2200E-5350N	983	260	25	52	
DAM L2200E-5400N	458	489	31	45	
DAM L2200E-5450N	524	747	28	87	
DAM L2200E-5500N	453	383	30	58	
DAM L2200E-5550N	378	205	27	57	
DAM L2200E-5600N	333	419	23	53	
DAM L2200E-5650N	492	293	28	65	
DAM L2200E-5050N	499	624	36	69	
DITHE DEPUTE STOOL	,,,,		20	~*	

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A Division of SGS Canada Inc.					
Work Order:	070552	I	Date:	07/11/02	
Element. Method. Det Lim. Units.	Cu MMI-A 5 ppb	Zn MMI-A 5 ppb	Cd MMI-A 10 ppb	Pb MMI-A 20 ppb	
Onus.	hbo	իրո	pho	ppo	
DAM L2200E-5800N	735	267	39	69	
DAM L2300E-5750N	817	396	24	72	
DAM L2300E-5800N	455	814	34	141	
DAM L2400E-4950N	444	190	21	79	
*Blk BLANK	<5	<5	<10	<20	
*Std MMIXRAL01	109	490	47	27	
DAM L2400E-5000N	1080	292	20	80	
DAM L2400E-5050N	292	800	22	73	
DAM L2400E-5100N	212	510	22	60	
DAM L2400E-5150N	619	663	31	70	
15 + 1 4 400E 50001	407	0.2.1	20	00	
DAM L2400E-5200N DAM L2400E-5250N	497	931 190	28 21	89 41	
DAM L2400E-5250N DAM L2400E-5300N	387		21	70	
DAM L2400E-5350N	299 349	399 208	22	69	
DAM L2400E-5550N	279	208 692	22	53	
DAM L2400E-5400IN	219	092	23	33	
DAM L2400E-5450N	374	680	37	72	
	281	605	34	88	
DAM L2400E-5550N	369	339	32	73	
:DAM L2400E-5600N	384	584	34	55	
DAM L2400E-5650N	334	1510	37	70.	
DAM L2400E-5700N	472	1720	34	55	
DAM L2400E-5750N	439	285	24	31	
DAM L2400E-5800N	406	582	27	62	
DAM L2500E-4950N	509	738	31	46	
DAM L2500E-5000N	236	509	23	40	
DAM L2500E-5050N	215	1130	26	47	
DAM L2500E-5050N	382	357	20	47	
DAM L2500E-5150N	705	516	23	61	
DAM L2500E-5150N	1040	129	19	41	
DAM L2500E-5250N	553	745	27	66	
,					
DAM L2500E-5300N	383	468	31	59	
DAM L2500E-5350N	419	309	17	49	
DAM L2500E-5400N	246	347	20	67	
DAM L2500E-5450N	796	236	25	47	
DAM L2500E-5500N	292	1050	31	59	
DAM L2500E-5550N	492	367	22	65	
DAM L2500E-5600N	655	389	22	51	
DAM L2500E-5650N	779	110	19	46	
DAM L2500E-5700N	226	304	19	47	
DAM L2500E-5750N	502	283	25	49	
;					
DAM L2500E-5800N	471	249	29	55	
DAM L2600E-4950N	557	433	29	37	
DAM L2600E-5000N	354	960	30	80	
DAM L2600E-5050N	293	1490	28	78	
DAM L2600E-5100N	328	56	12	<20	

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# XRAL Laboratories A Division of SGS Canada Inc.

Work Order:	070552	Date:		Date:		07/11/02
Element.	Cu	Zn	Cd	Рь		
Method.	MMI-A	MMI-A	MMI-A	MMI-A		
Det.Lim.	5	5	10	20		
Units.	ppb	ppb	ppb	ppb		
DAM L2600E-5150N	342	613	21	60		
DAM L2600E-5200N	510	307	23	46		
DAM L2600E-5250N	445	653	24	35		
DAM L2600E-5300N	309	639	25	96		
DAM L2600E-5350N	598	91	22	25		
DAM L2600E-5400N	252	260	18	67		
DAM L2600E-5450N	472	550	22	<20		
*Bik BLANK	<5	< 5	<10	<20		
*Std MMISRM12	823	1640	21	124		
DAM L2600E-5500N	518	571	20	45		
DAM L2600E-5613N	427	501	24	62		
DAM L2600E-5650N	414	441	22	31		
DAM L2600E-5700N	849	204	25	<20		
DAM L2600E-5750N	520	313	21	33		
DAM L2600E-5800N	488	573	25	31		
*Dup Dam L1600E-5450	530	1670	49	108		
*Dup DAM L1700E-5150	231	523	20	49		
*Dup DAM L1700E-5750	728	925	35	122		
*Dup DAM L1900E-5100	388	380	27	104		
*Dup DAM L1900E-5700	336	2000	30	101		
*Dup DAM L2100E-5250	750	306	20	92		
*Dup DAM L2200E-4950	302	542	20	84		
*Dup DAM L2200E-5550	432	224	26	74		
*Dup DAM L2400E-5200	522	1010	25	98		
*Dup DAM L2400E-5800	425	590	26	79		
*Dup DAM L2500E-5500	316	1030	33	60		
*Dup DAM L2600E-5200	595	345	23	60		
*Blk BLANK	<5	<5	<10	<20		
*Std MMIXRAL01	114	513	48	26		

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# XRAL Laboratories A Division of SGS Canada Inc.

Work Order:	070552	I	Date:	07/11	/02
Element. Method. Det.Lim. Units.	Au MMI-B 0.1 ppb	Co MMI-B 1 ppb	Ni MMI-B 3 ppb	Pd MMI-B 0.1 ppb	Ag MMI-B 0.1 ppb
Cants.	րիս	հեր	իհո	իրո	իհո
Dam L1600E-5450N Dam L1600E-5500N	0.17 0.31	3 4	607 624	0.14 0.90	4.00 5.79
Dam L1600E-5550N	0.18	2	644	0.17	5.61
Dam L1600E-5600N	0.23	4	689	0.17	9.12
Dam L1600E-5650N	0.22	4	896	0.10	5.59
Dam L1600E-5700N	0.13	17	948	0.17	7.17
Dam L1600E-5750N	0.34	9	754	0.15	8.11
Dam L1600E-5800N	0.15	5	653	0.15	11.0
DAM L1700E-4950N	< 0.1	4	697	0.16	6.21
DAM L1700E-5000NSWA	< 0.1	1	1020	0.24	2.52
DAM L1700E-5050NSWA	< 0.1	8	877	0.13	7.59
DAM L1700E-5100NSWA	0.12	3	966	0.30	10.6
DAM L1700E-5150NSWA	0.14	5	570	0.40	9.19
DAM L1700E-5200NSWA	0.40	6	1440	0.56	13.4
DAM L1700E-5250NSWA	0.58	6	1230	0.89	16.1
DAM L1700E-5300NSWA	0.25	7	614	0.57	6.78
440AM L1700E-5350NSWA	1.78	18	380	0.84	11.8
DAM L1700E-5400NSWA	0.17	110	3070	0.14	7.98
DAM L1700E-5450NSWA	0.23	5	717	0.12	6.24
DAM L1700E-5500NSWA	0.32	6	888	0.19	10.9
DAM L1700E-5550NSWA	0.69	19	1160	0.24	17.0
DAM L1700E-5600NSWA	0.60	5	1080	0.20	9.36
DAM L1700E-5650NSWA	0.18	28	820	0.11	6.34
DAM L1700E-5700NSWA	< 0.1	9	584	0.13	7.95
DAM L1700E-5750NSWA	0.22	30	729	< 0.1	13.0
DAM L1700E-5800NSWA	0.10	3	493	0.15	8.00
DAM L1800E-5500N	< 0.1	15	970	0.18	6.69
DAM L1800E-5550N	0.25	8	959	0.15	6.31
DAM L1800E-5600N	0.12	5	346	< 0.1	16.4
DAM L1800E-5650N	0.33	4	629	0.18	9.19
DAM L1800E-5700N	0.28	11	501	< 0.1	9.62
DAM L1800E-5750N	0.11	41	1750	0.10	5.17
DAM L1800E-5800N	0.20	12	562	0.13	10.8
DAM L1900E-4950N	0.33	3	675	0.11	9.39
DAM L1900E-5000N	0.31	1	577	0.16	7.74
DAM L1900E-5050N	6.69	4	140	1.15	55.3
DAM L1900E-5100N	0.28	2	790	0.16	4.91
DAM L1900E-5150N	0.17	131	1580	0.20	5.70
DAM L1900E-5200N	< 0.1	1	363	< 0.1	2.59
DAM L1900E-5250N	0.10	3	552	0.16	3.98
DAM L1900E-5300N	0.21	8	478	0.19	8.63
DAM L1900E-5350N	0.43	22	558	0.26	4.10
DAM L1900E-5400N	0.45	40	825	0.18	3.71
DAM L1900E-5450N	< 0.1	2	522	0.23	4.18
DAM L1900E-5500N	0.19	14	1030	<0.1	7.18

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# XRAL Laboratories A Division of SGS Canada Inc.

Work Order:	070552	r	Date:	07/11	/02
Element. Method. Det.Lim. Units.	Au MMI-B 0.1 ppb	Co MMI-B 1 ppb	Ni MMI-B 3 ppb	Pd MMI-B 0.1 ppb	Ag MMI-B 0.1 ppb
DAM L1900E-5550N	0.25	18	1220	0.22	10.3
*BIK BLANK	< 0.1	<1	< 3	< 0.1	< 0.1
*Std MMISRM12	29.6	136	759	0.28	36.8
DAM L1900E-5600N	< 0.1	5	460	0.18	7.21
DAM L1900E-5650N	0.14	4	1050	< 0.1	8.03
DAM L1900E-5700N	< 0.1	3	603	0.13	8.24
DAM L1900E-5750N	0.17	7	668	< 0.1	6.12
DAM L1900E-5800N	0.35	27	917	0.15	17.2
DAM L2000E-5700N	0.41	8	987	0.20	10.3
DAM L2000E-5750N	0.25	3	683	0.18	12.6
DAM L2000E-5800N	0.30	5	764	0.21	7.25
DAM L2100E-4950N	0.23	3	1360	0.16	4.53
DAM L2100E-5000N	0.56	2	620	< 0.1	4.56
DAM L2100E-5050N	0.19	3	636	0.14	7.03
DAM L2100E-5100N	0.19	3	652	0.13	7.09
DAM L2100E-5150N	0.55	3	626	0.14	7.71
CODAM L2100E-5200N	0.34	6	967	0.11	7.37
DAM L2100E-5250N	0.10	7	980	0.21	8.98
DAM L2100E-5300N	0.78	8	502	0.26	5.64
DAM L2100E-5350N	<0.1	7	992	<0.1	3.10
DAM L2100E-5400N	0.21	27	843	0.14	6.38
DAM L2100E-5450N	0.34	9	833	0.29	11.9
DAM L2100E-5500N	< 0.1	15	833	0.13	7.23
DAM L2100E-5550N	0.12	9	611	0.13	11.5
DAM L2100E-5600N	< 0.1	2	521	0.12	5.43
DAM L2100E-5650N	0.17	9	1080	0.12	12.0
DAM L2100E-5700N	0.20	4	402	0.13	8.40
DAM L2100E-5750N	0.20	4	595	0.18	8.49
DAM L2100E-5000AN	0.14	2	640	0.14	9.03
DAM L2200E-4950N	< 0.1	2	879	0.14	8.18
DAM L2200E-5000N	< 0.1	2	674	0.12	8.65
DAM L2200E-5050N	0.13	2	503	< 0.1	7.95
DAM L2200E-5100N	< 0.1	4	707	< 0.1	6.54
DAM L2200E-5150N	0.22	9	651	0.16	4.56
DAM L2200E-5200N	< 0.1	2	748	0.14	5.22
DAM L2200E-5250N	0.20	3	651	0.17	6.21
DAM L2200E-5300N	0.22	5	983	0.19	7.95
DAM L2200E-5350N	0.41	21	942	0.26	6.12
DAM L2200E-5400N	0.23	10	463	0.14	10.1
DAM L2200E-5450N	0.11	9	419	< 0.1	3.64
DAM L2200E-5500N	0.29	3	601	0.18	8.85
DAM L2200E-5550N	0.26	6	748	< 0.1	7.44
DAM L2200E-5600N	< 0.1	8	658	0.12	8.13
DAM L2200E-5650N	0.14	11	940	0.11	9.05
DAM L2200E-5700N	0.12	6	669	0.18	5.71

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# XRAL Laboratories A Division of SGS Canada Inc.

Wash Ondon	070552				
Work Order:	070552	ł	Date:	07/11	/02
Element.	Au	Co	Ni	Pd	Ag
Method.	MMI-B	MMI-B	MMI-B	MMI-B	MMI-B
Det.Lim.	0.1	1	3	0.1	0.1
Units.	ppb	ppb	ppb	ppb	ppb
DAM L2200E-5800N	0.32	5	741	0.29	11.7
DAM L2300E-5750N	0.27	8	590	0.12	6.80
DAM L2300E-5800N	0.17	13	302	< 0.1	8.35
DAM L2400E-4950N	0.27	16	1790	0.13	4.23
*Bik BLANK	< 0.1	<1	<3	<0.1	<0.1
*Std MMIXRAL01	1.13	68	550	0.13	87.0
DAM L2400E-5000N	1.48	35	876	0.70	15.0
DAM L2400E-5050N	0.18	1	451	0.20	9.00
DAM L2400E-5100N	0.22	1	568	0.13	8.98
DAM L2400E-5150N	0.32	5	600	0.14	11.9
DAM L2400E-5200N	0.21	12	850	0.13	14.4
DAM L2400E-5250N	0.28	13	910	0.12	7.70
DAM L2400E-5300N	0.20	2	987	0.16	3.89
DAM L2400E-5350N	0.12	6	698	< 0.1	5.48
DAM 1.2400E-5400N	<0.1	6	784	< 0.1	6.51
DAM L2400E-5450N	0.12	8	630	< 0.1	6.44
DAM 1.2400E-5500N	< 0.1	2	865	< 0.1	8.70
··· DAM L2400E-5550N	0.11	2	1100	0.14	7.60
- DAM L2400E-5600N	< 0.1	5	981	0.15	5.22
DAM L2400E-5650N	< 0.1	3	455	< 0.1	4.91
DAM L2400E-5700N	< 0.1	2	789	0.13	5.06
DAM L2400E-5750N	0.22	3	994	0.19	6.58
DAM L2400E-5800N	0.40	3	897	0.17	5.69
DAM L2500E-4950N	0.13	12	853	0.13	3.64
DAM L2500E-5000N	< 0.1	3	376	0.13	9.09
DAM L2500E-5050N	< 0.1	1	578	0.11	7.68
DAM L2500E-5100N	0.25	5	689	0.16	7.32
DAM L2500E-5150N	0.18	13	516	0.14	13.0
DAM L2500E-5200N	1.00	8	1710	0.36	17.2
DAM L2500E-5250N	0.11	13	890	0.13	12.3
DAM L2500E-5300N	0.13	1	1080	0.16	10.1
DAM L2500E-5350N	0.19	16	1010	0.17	8.55
DAM L2500E-5400N	0.11	5	1070	0.16	6.58
DAM L2500E-5450N	0.48	31	649	0.12	10.4
DAM L2500E-5500N	< 0.1	6	596	0.18	6.18
DAM L2500E-5550N	0.21	20	1070	0.32	7.43
DAM L2500E-5600N	0.44	4	811	0.24	8.29
DAM L2500E-5650N	0.40	27	811	0.23	12.6
DAM L2500E-5700N	< 0.1	6	870	0.15	4.68
DAM L2500E-5750N	0.16	4	671	0.18	10.5
DAM L2500E-5800N	0.13	2	746	0.12	5.22
DAM L2600E-4950N	0.17	7	738	0.13	10.4
DAM 1.2600E-5000N	0.13	3	725	0.13	4.69
DAM L2600E-5050N	< 0.1	3	499	0.12	4.55
DAM L2600E-5100N	4.14	9	272	1.56	82.2

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Work Order:	070552	I	Date:	07/11/02		
Element.	Au	Co	Ni	Pd	Ag	
Method.	MMI-B	MMI-B	MMI-B	MMI-B	MMI-B	
Det.Lim.	0.1	1	3	0.1	0.1	
Units.	ppb	ppb	ppb	ppb	ppb	
DAM L2600E-5150N	<0.1	9	1380	<0.1	2.97	
DAM L2600E-5200N	0.16	7	1470	0.12	4.18	
DAM L2600E-5250N	0.12	4	757	0.13	5.29	
DAM L2600E-5300N	<0.1	4	< 3	<0.1	3.95	
DAM L2600E-5350N	0.92	6	1090	0.21	24.7	
DAM L2600E-5400N	<0.1	10	491	<0.1	5.27	
DAM L2600E-5450N	0.11	10	350	0.33	9.90	
*BIk BLANK	<0.1	< 1	<3	<0.1	<0.1	
*Sul MMISRM12	31.1	150	841	0.38	39.6	
DAM L2600E-5500N	0.23	15	694	0.18	9.48	
DAM L2600E-5613N DAM L2600E-5650N DAM L2600E-5700N DAM L2600E-5750N DAM L2600E-5750N DAM L2600E-5800N	0.17 0.15 0.29 0.14 0.14	6 10 4 7 15	1400 862 877 1530 1270	0.12 <0.1 0.14 0.31 0.16	8.28 12.4 9.04 9.55 5.27	
*Dup Dam L1600E-5450	<0.1	3	595	0.14	3.83	
*Dup DAM L1700E-5150	<0.1	3	573	0.48	8.73	
*Dup DAM L1700E-5750	0.20	31	738	0.15	12.7	
*Dup DAM L1900E-5100	0.30	2	796	0.25	4.82	
*Dup DAM L1900E-5700	<0.1	2	526	0.12	7.77	
*Dup DAM L2100E-5250	<0.1	7	963	0.18	8.78	
*Dup DAM L2200E-4950	<0.1	2	864	<0.1	8.11	
*Dup DAM L2200E-5550	0.23	6	707	0.12	7.23	
*Dup DAM L2400E-5200	0.17	11	737	0.14	13.0	
*Dup DAM L2400E-5800	0.38	4	899	0.17	5.91	
*Dup DAM L2500E-5500	0.10	5	600	0.25	6.84	
*Dup DAM L2600E-5200	0.13	7	1420	<0.1	4.10	
*Bik BLANK	<0.1	<1	< 3	<0.1	<0.1	
*Std MMIXRAL01	1.12	57	539	0.23	85.2	

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### ASSAY SHEETS - AMENDED LOCATIONS

There is a discrepancy in the location of some of the soil samples. The following sheets have been corrected.



Work Order: 070552	Date:	07/11/0	02	PRELIME	NARY			Page 1
Element. Method. Det.Lim. Units.	Cu MMI-A M 5 ppb	Zn MI-A MM 5 ppb	Cd Pb fl-A MMI-A 16 20 ppb ppb	Au MMI-B MN 0.1 ppb	Ca Ni 1 <b>1-B MMI-B</b> 1 3 ppb ppb	Pd MMI-B 0.1 ppb	Ag MMI-B 0.1 ppb	
Dam L1600E-5450N Dam L1600E-5500N Dam L1600E-5550N Dam L1600E-5650N Dam L1600E-5650N	504 564 339 554 606	1650 849 224 1290 436	40         98           40         110           33         84           37         97           41         88	0.17 0.31 0.18 0.23 0.22	3       607         4       624         2       644         4       689         4       896	0.90	4.00 5.79 5.61 9.12 5.59	
Dam L1600E-5700N Dam L1600E-5750N Dam L1600E-5800N	594 800 754	553 250 474	34         90           32         92           36         65	0.13 0.34 0.15 <0.1	17 948 9 754 5 653 4 697	0.15	7.17. 8.11. 11.0	
DAM L1700E-4950N DAM L1700E-5000NSWA	193 - 139 -	186 34	17 99 12 77	<0.1	1 1020	0.16 0,24	6.21 2.52	
DAM L1700E-5050NSWA DAM L1700E-5100NSWA DAM L1700E-5150NSWA DAM L1700E-5200NSWA DAM L1700E-5250NSWA	202 180 210 220 229	326 63 470 67 121	$\begin{array}{cccc} 17 & 78 \\ 16 & 54 \\ 17 & 36 \\ 14 & < 20 \\ 17 & < 20 \end{array}$	<0.1 0.12 0.14 0.40 0.58	8 877 3 966 5 570 6 1440 6 1230	0.13 0.30 0.40 0.56 0.89	7,59 10,6 9,19 13,4 16,1	
DAM L1700E-5300NSWA DAM L1700E-5350NSWA DAM L1700E-5400NSWA DAM L1700E-5450NSWA DAM L1700E-55500NSWA	61 1900 696 828 831	8 132 229 584 192	13       <20	0.25 1.78. 0.17 0.23 0.32	7 614 18 380 110 3070 5 717 6 888	0.57 0.84 0.14 0.12 0.19	6.78 11.8 7.98 6.24 10.9	
DAM L1700E-5550NSWA DAM L1700E-5600NSWA DAM L1700E-5650NSWA DAM L1700E-5700NSWA DAM L1700E-5750NSWA	1020 664 773 478 673	115 422 793 648 882	2582309633101347735111	0.69 0.60 0.18 <0.1 0.22	19.       1160         5.       1080.         28.       820         9.       584         30.       729		17.0 9.36 6.34 7.95 13.0	
DAM L1700E-5800NSWA DAM L1800E-5500N DAM L1800E-5550N DAM L1800E-5600N DAM L1800E-5650N	393 403 799 431 728	616 149 252 809 759	46         66           24         100           33         71           30         117           36         69	0.10 <0.1 0.25 0.12 0.33	3 493 15 970 8 959 5 346 4 629	0.15	8.00 6.69 6.31 16,4 9,19	

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Work	Order:	070552

Date: 07/11/02

#### PRELIMINARY

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Element.	Cu	ZB	Cd	Рь	Au	Co	Ni	Pd	Ag	
Method.	MMI-A	MMI-A	MMI-A	ММІ-А	MMI-B	MMI-B	MMI-B	MMI-B	MMI-B	
Det.Lim.	5	5	IO	20	0.1	I	3	0.1	U.1	
Units.	ppb	ppb	ppb	ррb	ppb	pph	ppb	ppb	ppb	
DAM L1800E-5700N	482	260	38	79	0 <b>.28</b>	11	501	<0.1	9.62	
DAM L1800E-5756N	334	501	36	95	0.11	41	1750	0.10	5.17	
DAM L1800E-5800N	769	206	43	85	0 <b>.2</b> 0	12	562	0.13	10.8	
DAM L1900E-4950N DAM L1900E-5000N	249 226	280 520	16 27	62 62	0.33 0.31	3	675 577	0.11 0.16	9.39 7.74	
DAM L1900E-5050N	579	79	22	<20	6.69	4	140	1.15	55.3	
DAM L1900E-5100N	355	357	29	103	0.28	2	790	0.16	4.91	
DAM L1900E-5150N	540	515	21	108	0.17	131	1580	0.20	5.70	
DAM L1900E-5200N	140	1860	23	95	<0.1	1	363	<0.1	2.59	
DAM L1900E-5250N	353	424	23	96	0.10	3	552	0.16	3.98	
DAM L1900E-5300N	436	377	24	72	0.21	8	478	0.19	8.63	
DAM L1900E-5350N	745	235	30	69	0.43	22	558	0.26	4.10	
DAM L1900E-5400N	876	264	25	86	0.45	40	825	0.18	3.71	
DAM L1900E-5450N	477	1090	33	88	<0.1	2	522	0.23	4.18	
DAM L1900E-5450N	634	268	27	86	0.19	14	1030	<0.1	7.18	
DAM L1900E-5550N	948 	198	28 	79 <20	0.25 <del>&lt; 0.1</del>	18 	1220	0.22	10.3	
DAM L1900E-5600N DAM L1900E-5600N DAM L1900E-5650N	<del>816</del> 361 355	1750 1570 324	24 29 29	145 87 63	<del>29.6</del> <0.1 0.14		759 460 1050	0.28 0.18 <0.1	36.8 7.21 8.03	_
DAM L1900E-5700N DAM L1900E-5750N DAM L1900E-5800N	296 511 1100	1920 414 688	34 35 32	801 90	<0.1 0.17 0.35	3 7 27	603 668 917	0.13 <0.1 0.15	8.24 6.12 17.2	
DAM L2000E-5700N DAM L2000E-5750N	800 758	142 680	29 39	99 81	0.41 0.25	83	987 683	0.20 0.18	10.3 12.6	
DAM L2000E-5800N DAM L2100E-4950N	<u>675</u> 359	160 235	28 23	<u>89</u> 81	0.30	5	764	0.21	7.25	
DAM L2100E-5000N	267	274	22	97	0 <i>_5</i> 6	2	620	<0.1	4.56	
DAM L2100E-5000AN 50 50	223	608	28	56	0.14	2	640	0.14	9.03	
DAM L2100E-5950N 5100	352	488	23	80	0.19	3	636	0.14	7.03	
DAM L2100E-5160N 5150	288	284	26	75	p.19	3	652	0.13	7.09	

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Work Order: 070552	Date:	07/11/02		PRELIM	fINARY	7			Page 3 of 12
Element. Method. Det.Lim. Units.	Cu MMI-A M 5 ppb	Zn Cd MI-A MMI-A 5 10 ppb ppb	Pb MMI-A 20 ppb	Au MM <b>1-B</b> 0.1 ppb	Co MMI-B 1 ppb	Ni MMI-B 3 ppb	Pd MMI-B 0.1 ppb	Ag MNI-B 0.1 ppb	
DAM L2101E-5150N 5200 DAM L2100E-5200N 5250 DAM L2100E-5250N 6300 DAM L2100F-5500N 5350 DAM L2100E-5550N 5400	399 396. 717 610. 326	194         29           277         22           267         22           184         23           567         29	79 47 79 53 81	0.55 0.34 0.10 0.78 <0.1	3 6 7. 8 7.	980	0.14 0.11 0.21 0.26 <0.1	8.98. 5.64	
DAM L2100E-5400N 5450 DAM L2100E-5450N 5500 DAM L2100E-5550N 5500 DAM L2100E-5550N 5600 DAM L2100E-5550N 5600 DAM L2100E-5550N 5650	786 927 464 311 386	463 33 206 30 495 37 701 28 769 44	56	0.21 0.34 <0.1 0.12 <0.1	27 - 9 - 15 - 9 - 2 -	833 833 611	0.14 0.29 0.13 0.13 0.13	6.38 11.9 7.23 11.5 5.43	
DAM L2100E-5650N 5700 DAM L2100E-5700N 5750 DAM L2100E-5750N 5900	663 728 479	481 34 309 31 264 27	64 52 62	0.17 0.20 0.20	9 4 4	1080 402 595	0.12 0.13 0.18	12.0 8.40 8.49	_ <del>~</del> *
DAM L2200E-4950N	277	529 21	66	<0.1	2 .	879	0,14	8.18.	
DAM L2200E-5000N DAM L2200E-5050N DAM L2200E-5100N DAM L2200E-5150N DAM L2200E-5150N	319 245 238 572 329	8001922924258171342321522	90 59 54 54 65	<0.1 0.13 <0.1 0.22 <0.1	2 2 4 9 2	674 503 707 651 748	0.12 <0.1 <0.1 0.16 0.14	8.65 7.95 6.54 4.56 5.22	
DAM L2200E-5250N DAM L2200E-5300N DAM L2200E-5350N DAM L2200E-5400N DAM L2200E-5450N	523 438 983 458 524	204         25           310         24           260         25           489         31           747         28	75 54 52 45 87	0.20 0.22 0.41 0.23 0.11	3 5 21 10 9	651 983 942 463 419	0.17 0.19 0.26 0.14 <0.1	6.21 7.95 6.12 10.1 3.64	
DAM L2200E-5500N DAM L2200E-5550N DAM L2200E-5650N DAM L2200E-5650N DAM L2200E-5650N	453 378 333 492 499 502	383         30           205         27           419         23           293         28           624         36           283         25	57 53 65 69	0.29 0.26 <0.1 0.14 0.12 0.16	3 6 8 11 6	658 940	-	8.85 7.44 8.13 9.05 5.71	
L2200 <u>-5750N</u>				0.32	5		<u>81.0</u> P.A.C	<u>10.5</u> (1.7	

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Work Order: 070552	Dat	e: 07.	/11/02		PRELIN	IINARY	(			Page 4 of 12
Element. Method. Det.Lim. Units.	Cu MMI-A 5 ppb	Zn MMI-A 5 ppb	Cd MMI-A 10 ppb	Ph MMI-A 26 pph	Au MMI-B 0.1 ppb	Co MMI-B 1 ppb	Ni MMI-B 3 ppb	Pd MM <b>U-B</b> 0.1 ppb	Ag MM1-B 0.1 ppb	
DAM L2200E-5800N	735	<u> </u>	39	69	0.32	5	741	0.29	11.7	
DAM L2300E-5750N	817	396	24	72 141	0.27 0.17	8		0.12	6.80 8.35	
DAM L2300E-5800N DAM L2400E-4950N	455	<u>814</u> 190	<u>34</u> 21	79	0.27	16	1790	0.13	4.23	
	<del>&lt;5</del>		<del>~~~10</del> -		<0.1	<ĩ	<3			
+Std MMIXRAL01	109	490		27	1.13	68		0.13		
DAM L2400E-5000N	1080.	292	20	80	1.48					
DAM L2400E-5050N	292	800	22	73	0.18		451.	0.20	9.00	
DAM L2400E-5100N	212 🤇		22	60	0.22	1- 5-	568-		8.98	
DAM L2400E-5150N	619	663	31	70	0.32	2.	600	0.14	11.9	
DAM L2400E-5200N	497	931	28	89	0.21	12 ·	850	0.13	14.4	
DAM L2400E-5250N	387	190	21	41	0.28-	13 -	910	0.12	7.70	
DAM L2400E-5300N	299	399	22	70	0.20	2	987		3.89	
DAM L2400E-5350N	349	208	22	69	0.12	6	698		5.48	
DAM L2400E-5400N	279	692	23	53	<0.1	6	784	<0.1	6.5I	
DAM L2400E-5450N	374	680	37	72	0.12	8	630	<0.1	6.44	
DAM L2400E-5500N	281	605	34	88	< 0.1	2 2 5	865		8.70	
DAM L2400E-5550N	369	339	32	73	0.11	2	1100.	0.14	7.60	
DAM L2400E-5600N	384 -	584	34	55	< 0.1	5.	981	0.15		
DAM L2400E-5650N	334	1510	37	70	<0.1	3	455	<0.1,	. 4.91 -	
DAM L2400E-5700N	472	1720	34	55	<0.1	2	789			
DAM L2400E-5750N	439	285	24	31	0.22	. 3	994		6.58	
DAM L2400E-5800N	406	582	27	62	0.40	3			5.69	
DAM L2500E-4950N	509	738	31	4G	0.13					
DAM L2500E-5000N	236	509	23	40	<0.1	3	3,76	0.13	9.09	
DAM L2500E-5050N DAM L2500E-5100N	215 382-	1130 357	26 23	47 46	<0.1 0.25			0.16		
DAM 12500E-5150N	705	516	23	61	0,18	13	516-			
DAM 12500E-5200N	1040	129	19	41	1.00			0.36		
DAM L2500E-5250N	553	745	27	66	0.11	13	890.	0.13	12.3	

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DAM L2600E-5500N

DAM L2600E-5613N

DAM L2600E-5650N

DAM L2600E-5700N

DAM L2600E-5750N

DAM L2600E-5800N

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Work Order: 070552	Da	ite: 07	/11/02	
Element.	Cu	Za	Cd	Pb
Method.	MMI-A	MIMI-A	MMI-A	MMI-A
Der.Lint.	5	5	10	20
Units.	ppb	ppb	ppb	ppb
DAM L2500E-5300N	383	468	31	59
DAM L2500E-5350N	419	309	17	49
DAM L2500E-5400N	246	347	20	67
DAM L2500E-5450N	796	236	25	47
DAM L2500E-5450N	292	1050	31	59

0.13 1089 Ł 0.16 10.1 0.19 8.53 6.55 16 1010 0.17 0.11 5 1070 0.16 0.4831 649 10.4 0.12 < 0.15 596 **G.18** 6.18 DAM L2500E-5556N 492 22 22 19 0.21 367 20-1070 0.32 65 7.43 DAM L2500E-5600N 655 389 51 0.44 4 811 0.24 8.29 DAM L2500E-5650N 779 110 0.40 27 811 0.23 46 12.6 DAM L2500E-5700N DAM L2500E 57 50 N.S 19 226 304 <0.1 47 б 870 0.15 4.68 TSLACK TOP -NS NS NS NS. NS DAM 1.2500E-5800N <u>29</u> 29 47 249 <u>55</u> 37 0.13 2 746 0.125.22 DAM L2600E-4950N 557 433 0.17 738 0.13 10.4 DAM L2600E-5000N 354 960 30 80 0.13. 3 -725 . **U.13** 4:69 DAM L2600E-5050N DAM L2600E-5100N 499 272 293 1490 28 78 <0.1. 4.55 82.2 3 -0.12 328 56 12 9 < 20 4.14 1.56 DAM L2600E-5150N 342 613 21 < 0.1 9 60 1380 <0.1 2.97 13452 DAM L2600E-5200N 7 1470 510 307 46 0.16 0.12 4.18 DAM L2600E-5250N 653 445 35 0.12 4 757 0.13 5.29 3% 25 DAM L2600E-5300N 639 309 < 0.1 4 <3 < 0.13.95 DAM L2600E-5350N 598 91 0.92 б 1090 0.21 -24.7 252 472 DAM L2600E-5400N < 0.1 260 18 67 10 491 <0.1 5.27 22 €18 DAM L2600E-5450N 550 <20 0.11 10 350 ~ 0.33 9.90 \*BIL BLANK ÷ <del><5</del> <20 **-0.1** <0.1 <0.1 <3 \*Sch MMISRA112 31.1 150 21 841 25.0 39.6 823 1640 124

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#### **APPENDIX 5**

### PREVIOUS M.M.I. ASSAY RESULTS

The complete grid from Line 1600E to 2600E and from 4950N to 5800N has been soil sampled and the results replotted on the enclosed map from figure 5 to figure 10. To verify these results which are partly shown in the previous Assessment Report #26915, find attached the previous M.M.I. assay results.

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1885 Leslie Street Don Mills, Ontario Canada M3B 3J4 Telephone (416) 445-5755 Fax (416) 445-4152

# **CERTIFICATE OF ANALYSIS**

Work Order: 067917

#### To: Green Valley Mine Incorporated **Charlie Boitard** Attn:

1756 - 246th Street LANGLEY B.C., CANADA V2Z 1G4

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Copy 1 to

P.O. No.	:		
Project No.	:		
No. of Samples	:	78	Soil(MMI)
Date Submitted	:	06/05/0	)2
Report Comprises	:	Cover S	Sheet plus
• •		Pages	1 to 4

Distribution of unused material: Pulps: Store Rejects: Store

**Certified By** 

D. Hugh de Souza, General Manager XRAL Laboratories

### **ISO 9002 REGISTERED**

Subject to SGS General Terms and Conditions

**Report Footer:** 

- L.N.R. = Listed not received = Not applicable
- = Insufficient Sample I.S. = No result --
- \*INF = Composition of this sample makes detection impossible by this method M after a result denotes ppb to ppm conversion, % denotes ppm to % conversion

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10/05/02 Date :

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Work Order:	067917	Ι	Date:	10/05/02
Element. Method. Det.Lim. Units.	Cu MMI-A 5 ppb	Zn MMI-A 5 ppb	Cd MMI-A 10 ppb	РЪ ММІ-А 20 ррb
DAM L LIGOE 4050N	107	777	16	~ 20
DAM L-1100E-4050N	183 12	777 15	15 <10	<20 <20
DAM L-1100E-4100N DAM L-1100E-4150N	444	123	12	20
DAM L-1100E-4150N	790	125	20	<20
DAM L-1100E-4200N DAM L-1100E-4250N	190	259	13	32
DAM C-1100E-425014	195	259	15	J2
DAM L-1100E-4300N	929	151	17	37
DAM L-1100E-4350N	834	115	20	54
DAM L-1100E-4400N	565	125	20	47
DAM L-1100E-4450N	1110	85	22	36
DAM L-1100E-4550N	817	222	26	<20
DAM L-1100E-4600N	643	177	26	40
DAM L-1100E-4650N	539	139	25	41
DAM L-1100E-4700N	639	981	30	26
DAM L-1300E-4000N	873	187	23	36
DAM L-1300E-4050N	84	176	16	<20
DAM L-1300E-4100N	183	307	16	<20
DAM L-1300E-4150N	174	252	19	55
DAM L-1300E-4200N	193	97	12	37
) DAM L-1300E-4250N	297	69	14	47
DAM L-1300E-4300N	963	196	22	21
DAM L-1300E-4350N	869	295	20	<20
DAM L-1300E-4400N	641	150	18	45
DAM L-1300E-4450N	226	141	10	30
DAM L-1300E-4500N	1810	165	24	<20
DAM L-1600E-4250N	438	178	23	28
DAM L-1600E-4300N	258	76	17	<20
DAM L-1600E-4350N	403	119	23	<20
DAM L-1600E-4400N	1820	114	26	<20
DAM L-1600E-4450N	521	191	25	40
DAM L-1600E-5100N	191	348	11	47
DAM L-1600E-5150N	19	7	< 10	<20
DAM L-1600E-5200N	508	131	15	<20
DAM L-1600E-5250N	638	100	12	25
DAM L-1600E-5300N	772	220	23	<20
DAM L-1600E-5350N	1980	192	26	38
DAM L-1600E-5400N	1040	187	28	47
DAM L-1800E-5050N	780	383	26	<20
DAM L-1800E-5100N	433	207	21	<20
DAM L-1800E-5150N	457	187	16	44
DAM L-1800E-5200N	428	65	15	<20
DAM L-1800E-5250N	52	52	17	<20
DAM L-1800E-5300N	733	169	21	43
DAM L-1800E-5350N	1040	221	21	35
DAM L-1800E-5400N	1750	128	28	37
DAM L-1800E-5450N	1160	282	33	24

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A Division of SGS Canada Inc							
	Work Order:	067917	067917 Date: 10				
Me De	ement. ithod. t.Lim. its.	Cu MMI-A 5 ppb	Zn MMI-A 5 ppb	Cd MMI-A 10 ppb	Pb MMI-A 20 ppb		
	DAM L-2000E-5000N	735	122	16	50		
	*Bik BLANK	< 5	<5	<10	<20		
	*Std MMISRM09	18	128	< 10	<20		
	DAM L-2000E-5050N	436	54	19	54		
	DAM L-2000E-5100N	376	346	28	35		
	DAM L-2000E-5150N	392	304	21	<20		
	DAM L-2000E-5200N	324	262	21	<20		
	DAM L-2000E-5250N	520	212	24	<20		
	DAM L-2000E-5300N	853	131	20	58		
	DAM L-2000E-5350N	1580	98	19	<20		
	DAM L-2000E-5400N	833	148	22	41		
	DAM L-2000E-5450N	1020	429	30	44		
	DAM L-2000E-5500N	666	126	25	31		
	DAM L-2000E-5550N	351	543	33	24		
	DAM L-2000E-5600N	1320	275	32	38		
	DAM L-2000E-5650N	812	535	33	<20		
	DAM L-2300E-4800N	432	154	16	35		
<hr/>	DAM L-2300E-4850N	2300	164	24	<20		
)	DAM L-2300E-4900N	975	105	23	<20		
	DAM L-2300E-4950N	357	337	30	37		
	DAM L-2300E-5000N	289	454	27	<20		
	DAM L-2300E-5050N	267	709	25	32		
	DAM L-2300E-5100N	385	167	26	<20		
	DAM L-2300E-5150N	781	268	28	<20		
	DAM L-2300E-5200N	313	940	32	<20		
	DAM L-2300E-5250N	343	246	24	<20		
	DAM L-2300E-5300N	855	162	21	20		
	DAM L-2300E-5350N	687	103	21	<20		
	DAM L-2300E-5400N	618	279	27	70		
	DAM L-2300E-5450N	872	208	25	52		
	DAM L-2300E-5500N	1080	171	27	64		
	DAM L-2300E-5550N	476	341	33	<20		
	DAM L-2300E-5600N	327	1650	32	21		
	DAM L-2300E-5650N	988	194	32	<20		
	DAM L-2300E-5700N	702	403	31	<20		
	*Dup DAM L-1100E-405	167	831	14	30		
	*Dup DAM L-1100E-470	597	971	33	<20		
	*Dup DAM L-1600E-425	424	186	23	38		
	*Dup DAM L-1800E-505	823	404	28	24		
	*Dup DAM L-2000E-515	418	320	22	34		
	*Dup DAM L-2300E-485	2500	169	23	27		
	*Dup DAM L-2300E-545	907	211	25	40		
	*Blk BLANK	<5	< 5	<10	<20		
	*Std MMISRM09	16	139	<10	24		
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# XRAL Laboratories A Division of SGS Canada Inc.

Work Order:	067917	Ι	Date:	10/05	/02
Element. Method. Det.Lim. Units.	Au MMI-B 0.1 ppb	Co MMI-B 1 ppb	Ni MMI-B 3 ppb	Pd MMI-B 0.1 ppb	Ag MMI-B 0.1 ppb
			••	••	••
DAM L-1100E-4050N	< 0.1	29	1160	0.10	12.1
DAM L-1100E-4100N	0.64	1	2120	< 0.1	14.2
DAM L-1100E-4150N	0.77	13	306	< 0.1	21.1
DAM L-1100E-4200N	0.94	45	541	0.34	19.8
DAM L-1100E-4250N	0.47	16	192	<0.1	12.8
DAM L-1100E-4300N	1.66	28	434	0.34	17.1
DAM L-1100E-4350N	0.97	24	194	0.12	17.8
DAM L-1100E-4400N	0.69	12	246	< 0.1	18.8
DAM L-1100E-4450N	1.03	28	376	< 0.1	15.5
DAM L-1100E-4550N	2.08	6	136	0.23	16.5
DAM L-1100E-4600N	0.37	11	358	< 0.1	15.8
DAM L-1100E-4650N	0.49	7	347	< 0.1	9.52
DAM L-1100E-4700N	0.71	9	810	0.32	11.7
DAM L-1300E-4000N	0.89	7	221	< 0.1	10.9
DAM L-1300E-4050N	<0.1	1	793	< 0.1	7.35
DAM L-1300E-4100N	0.57	13	309	< 0.1	15.2
DAM L-1300E-4150N	0.22	3	549	< 0.1	6.36
DAM L-1300E-4200N	0.17	5	103	< 0.1	22.3
) DAM L-1300E-4250N	0.82	3	576	< 0.1	9.63
DAM L-1300E-4300N	0.58	40	260	< 0.1	16.7
DAM L-1300E-4350N	0.65	20	280	< 0.1	15.2
DAM L-1300E-4400N	0.59	9	175	< 0.1	10.8
DAM L-1300E-4450N	< 0.1	3	121	< 0.1	7.73
DAM L-1300E-4500N	6.46	24	337	0.24	28.2
DAM L-1600E-4250N	0.80	11	368	< 0.1	21.9
DAM L-1600E-4300N	0.40	2	522	< 0.1	10.4
DAM L-1600E-4350N	0.83	3	533	< 0.1	10.6
DAM L-1600E-4400N	2.15	8	219	< 0.1	43.1
DAM L-1600E-4450N	0.36	7	474	< 0.1	11.8
DAM L-1600E-5100N	1.98	16	857	0.42	34.4
DAM L-1600E-5150N	0.70	<1	187	<0.1	23.7
DAM L-1600E-5200N	1.12	8	448	< 0.1	21.0
DAM L-1600E-5250N	0.79	17	523	0.34	25.4
DAM L-1600E-5300N	1.56	38	1240	0.17	30.5
DAM L-1600E-5350N	2.61	26	572	<0.1	15.7
DAM L-1600E-5400N	1.33	20	721	< 0.1	12.2
DAM L-1800E-5050N	0.91	5	926	0.39	19.9
DAM L-1800E-5100N	0.37	3	1460	<0.1	16.0
DAM L-1800E-5150N	0.29	3	1150	< 0.1	15.7
DAM L-1800E-5200N	<0.1	3	1680	<0.1	9.83
DAM L-1800E-5250N	0.30	289	1210	<0.1	0.82
DAM L-1800E-5300N	0.30	14	304	<0.1	16.3
DAM L-1800E-5350N	1.29	31	445	< 0.1	13.1
DAM L-1800E-5400N	3.08	38	638	< 0.1	16.3
DAM L-1800E-5450N	1.16	7	639	<0.1	23.2

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	Work Order:	067917	Ι	Date:	10/05	/02
Me De	ement. ethod. «t.Lim. its.	Au MMI-B 0.1 ppb	Co MMI-B 1 ppb	Ni MMI-B 3 ppb	Pd MMI-B 0.1 ppb	Ag MMI-B 0.1 ppb
	DAM L-2000E-5000N	0.67	41	664	<0.1	5.57
	*Blk BLANK	< 0.1	<1	<3	< 0.1	< 0.1
	*Std MMISRM09	< 0.1	14	52	<0.1	7.86
	DAM L-2000E-5050N	1.10	38	455	< 0.1	13.6
	DAM L-2000E-5100N	0.80	10	489	<0.1	17.9
	DAM L-2000E-5150N	0.21	4	600	<0.1	13.1
	DAM L-2000E-5200N	0.34	2	515	< 0.1	10.6
	DAM L-2000E-5250N	0.68	11	294	<0.1	10.4
	DAM L-2000E-5300N	1.05	16	593	< 0.1	16.4
	DAM L-2000E-5350N	3.28	21	226	<0.1	21.4
	DAM L-2000E-5400N	0.95	36	443	< 0.1	8.83
	DAM L-2000E-5450N	0.90	25	413	< 0.1	12.0
	DAM L-2000E-5500N	0.44	5	621	< 0.1	8.52
	DAM L-2000E-5550N	< 0.1	2	948	< 0.1	9.13
	DAM L-2000E-5600N	0.52	17	444	<0.1	12.9
	DAM L-2000E-5650N	0.45	12	400	0.21	24.0
	DAM L-2300E-4800N	0.30	14	1370	0.20	11.8
	DAM L-2300E-4850N	3.89	46	958	0.49	20.5
)	DAM L-2300E-4900N	0.51	12	825	< 0.1	8.45
	DAM L-2300E-4950N	0.14	3	1180	<0.1	7.28
	DAM L-2300E-5000N	0.15	2	908	< 0.1	12.9
	DAM L-2300E-5050N	< 0.1	2	724	< 0.1	11.0
	DAM L-2300E-5100N	0.63	9	852	< 0.1	13.5
	DAM L-2300E-5150N	0.76	16	413	< 0.1	13.1
	DAM L-2300E-5200N	< 0.1	4	305	<0.1	8.88
	DAM L-2300E-5250N	< 0.1	3	738	<0.1	7.30
	DAM L-2300E-5300N	0.54	14	490	0.18	10.3
	DAM L-2300E-5350N	0.24	22	481	< 0.1	15.8
	DAM L-2300E-5400N	0.10	13	482	<0.1	8.21
	DAM L-2300E-5450N	0.47	20	613	<0.1	7.05
	DAM L-2300E-5500N	0.40	33	754	< 0.1	13.4
	DAM L-2300E-5550N	< 0.1	8	439	< 0.1	13.1
	DAM L-2300E-5600N	< 0.1	1	497	< 0.1	9.83
	DAM L-2300E-5650N	0.58	13	977	< 0.1	18.8
	DAM L-2300E-5700N	0.45	3	641	<0.1	10.1
	*Dup DAM L-1100E-405	< 0.1	24	959	< 0.1	9.97
	*Dup DAM L-1100E-470	0.50	10	888	0.32	11.7
	*Dup DAM L-1600E-425	0.67	12	374	< 0.1	21.2
	*Dup DAM L-1800E-505	0.87	4	938	0.45	18.0
	*Dup DAM L-2000E-515	0.26	5	683	< 0.1	15.1
	*Dup DAM L-2300E-485	3.66	46	1020	0.56	22.6
	*Dup DAM L-2300E-485	0.30	40	661	< 0.1	23.6 8.41
	*Blk BLANK	< 0.1	<1	<3	< 0.1	<0.41 <0.1
	*Std MMISRM09	< 0.1	14	54	< 0.1	8.32
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A Division of SGS Canada Inc.										
Work Order:	055384	D	ate: 1	4/06/99		PAR	TIAL	•		
Element. Method. Det.Lim. Upits.	ł	Cu 1041-A 5 ppb	Zn MMI-A 5 ppb	Cd MMI-A IO ppb	Pb MMI-A 20 ppb	Au MMI-B 0.25 ppb	Со ММІ-В 1 ррს	Ni MMI-B 5 ppb	Pd MMI-B 0.25 ppb	Ag MIMI-B 0.25 ppb
DAM 1-1600E-42	50N	438	178	23	28	0.8	j. 11	368	< 0.1	21,9
DAM L-1600E-43 DAM L-1600II-43 DAM L-1600F-44 DAM L-1600E-44	50N ()0N 50N	258 403 1820 1. 521	76 119 114 191	23	<20 <20 <20 40	0.40 0.83 2.15 0,30	3. 3 5 8	522 533 219 474	<0.1 <0.1 <0.1 <0.1	10.4 10.6 43.1 11.8
L1600E 4550 N		405	196	· - 11	41	0.36	18	484	< 0.25	8.07
L1600B 4600 N L1600B 4650 N L1600E 4700 N L1600B 4750 N L1600B 4800 N		658 447 382 446 357	187- 327 545 577 194	< 10	22 <20 <20 <20 33	1.74* 0.54 0,32 0.51 0.46	16 18 23 8 6	685 473 711 653, 563	<0.25 <0.25 <0.25 <0.25 <0.25	11.1 10.7 8.83 10.4 6.83
L1600F 4850 N L1600E 4900 N L1600B 4950 N L1600B 5000 N L1600E 5050 N		459 599 561 518 24	278 207 165 65 < 5		<20 <20 43 52 <20	0.31 1.55 0.46 1.90 0.87	8 4 7 5 2	1020 1100 1060 733 428	<0.25 0.27 0.25 2359 0.30	8.50 14.2 8.36 22.6 21.5
DAM 1-16008-510	NON	191	348	11	47	1.98	. 16	857	0.42	34.4
DAM 1-1600F-51: DAM 1-1600E-52 DAM 1-1600E-52 DAM 1-1600E-53 DAM 1-1600E-53 DAM 1-1600E-53	XON 50N 50N 50N	19 508 638 772 1980 1040	7 131 100 220 192 187	< 10 13 12 23 26 28	<20 <20 25 <20 38 47	0.70 1.12 0.79 1.56 2.61	8 17	187 448 523 1240 572 721	<0.1 <0.1 0.34 0.17 <0.1 <0.1	23.7 21.0 25.4 30,5 15.7 12.2



Work Order: 05	8817 E	Date: 20		PARTIAL					
Element. Metbod. Det.Lim. Units.	Си ММІ-А 5 ррb	Zn MMI-A 5 ppb	Cd MMI-A 10 ppb	Pb MMI-A 20 ppb	Au MMI-B 0.25 ppb	Co MMI-B 1 ppb	Ni MMI-B 5 ppb	Pd MMI-B 0.25 ppb	Ag MMI-B 0.25 ppb
DAM:£1800E-4100N DAM:L1800E-4150N DAM:L1800E-4200N DAM:L1800E-4250N DAM:L1800E-4300N	643 872 389 481 164	259 103 120 332 446	<10 <10 12 12 <10	101 176 229 117 49	0.98 1.09 0.32 0.30 <0.25	4 7 2 4 <1	713 615 476 419 486	<0.25 0.27 <0.25 <0.25 <0.25 <0.25	6.01 7.17 6.80 8.41 6.39
DAM:L1800E-4350N DAM:L1800E-4400N DAM:L1800E-4450N	468 602. 227.	161 154 81	<10 <10 <10	173 121 90	0.27. 0.67 0.34	6 8 10	268 237 497	<0.25 <0.25 <0.25	7.63 8.36 7.18
L1800E 4550 N L1800E 4600 N L1800E 4650 N L1800E 4700 N L1800E 4750 N	571 626 473 655 462	95 261 226 194 117	11 19 14 10 14	40 67 <20 62 51	0.71 0.55 0.33 0.48 0.92	20 17 5 12 3	517 412 416 1050 913	<0.25 <0.25 <0.25 <0.25 <0.25 <0.25	8,77 8,02 6,47 11,1 14,5
L1800E 4800 N L1800B 4850 N L1800E 4900 N L1800E 4950 N L1800E 5060 N DAM L-1800E-5050N	359 702 247 361 515 780	199 219 297 817 536 383	18 19 <10 10 <10 26	<20 <20 65 <20 27 <20	0.32 1.13 0.51 0.26 0.40 0.91	7 18 14 6 5	204 555 1010, 1600 1480 926,	0.25 0.31 0.26 <0.25 0.29 0.39	14.0 13.1 7.27 12.1 15.4 19.9
DAM 11800E-5100N DAM 11800E-5150N DAM 11800E-5200N	433 457 428	207 187 65	- 16 15	<20 44 <20	0.37 0.29 <0.1	3 3 3	1460 1150 1680	<0.1 <0.1 <0.1	16.0 15.7 9.83
DAM L-1800E-5250N DAM L-1800E-5300N DAM L-1800E-5350N DAM L-1800E-5400N DAM L-1800E-5450N	52 733 1040 1750 1160	52 169 221 128 282	17 21 28 33	<20 43 35 37 24	0.30 0.30 1.29 3.08 1.16	289 14 31 38 7	1210 304 445 638 639	<0.1 <0.1 <0.1 <0.1 <0.1	0.82 16.3 13.1 16.3 23.2
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# Work Order: 055384

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Date:

14/06/99

# PARTIAL

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Element. Method. Det.Lim. Units.	Cu MMI-A 5 ppb	Zn MMI-A 5 ppb	Cd MMI-A 10 ppb	Pb MMI-A 20 ppb	Au MMI-B 0.25 ppb	Со ММІ-В 1 ррს	Ni MMI-B 5 ppb	Pd MMI-B 0.25 ppb	Ag MMI-B 0.25 ppb
DAM:12000E-4100N DAM:12000E-4150N	851 422	223 124	<10 <10	121 85	0.55 <0.25	5 1	358 470	<0.25 <0.25	5.98 4.85
DAM:L2000E-4200N DAM:L2000E-4250N DAM:L2000E-4300N DAM:L2000E-4350N DAM:L2000E-4400N	130 282 244 209 <b>756</b>	398 1170 257 76 146	<10 16 10 11 14	179 173 153 158 141	<0.25 <0.25 <0.25 <0.25 0.77	<1 <1 2 2 9	479 398 361 217 287	<0.25 <0.25 <0.25 <0.25 <0.25	2.95 4.77 5.49 3.96 10.3
DAM:L2000E-4450N - 450 DAM:L2000E-4550N DAM:L2000E-4600N DAM:L2000E-4650N DAM:L2000E-4650N DAM:L2000E-4700N	wo <sup>N</sup> 893 476 375 240 540	313 214 118 813 402	17 18 15 <10 <10	169 115 172 151 212	0.59 1.07 0.32 0.43 0.86	7 4 3 9 9	295 359 453 1400 455	<0.25 <0.25 <0.25 <0.25 <0.25	4.46 7.12 4.19 2.88 9.67
DAM:L2000E-4750N DAM:L2000E-4800N DAM:L2000E-4850N DAM:L2000E-4900N	760, 384 273 828	144 113 218 49	3 <10 <10  2	148- 171 192 <20	1.93 0.46 0.31 0.48	9 2 2 10	1010 531 1200 1110	<0.25 <0.25 <0.25 0.37	5.36 7.11 7.26 8.27
<u>!)</u> AM 12000B-5000N <u></u>	73: 	5 <del>&lt; 3</del> 8 <del>128</del> 5 54	<del>&lt;10-</del> <del>&lt;10-</del> 19	50 	0.67 <del>&lt;0.1</del> <del>&lt;0.1</del> 1.10 0.80		664 <del>&lt; 3</del> 52 455 489	<0.1 <0.1 <0.1 <0.1 <0.1 <0.1	5.57 
DAM 1-2000E-5150N DAM 1-2000E-5200N DAM 1-2000E-5250N DAM 1-2000E-5300N DAM 1-2000E-5300N DAM 1-2000II-5350N	39, 32- 52 85 158	4 262 0 212 1 131	21 24 20	<20 <20 <20 58 <20	0.21 0.34 0.68 1.05 3.28	. 2 . 11 . 16	600 515 294 593 226	<0.1 <0.1 <0.1 <0.1 <0.1	13.1 10.6 10.4 16.4 21.4
DAM (2000E-5400N DAM L-2000E-5450N DAM L-2000E-5500N DAM L-2000E-5500N DAM L-2000E-5500N	83 102 66 35 132	0 429 6 126 1. 543	30 25 33	41 44 31 24 38	0.95 0.90 0.44 <0.1 0.52	) 25   5   2	443 413 621 948 444	<0.1 <0.1 <0.1 <0.1 <0.1	8.83 12.0 8.52 9,13 12.9
DAM L-2000E-5650N	81:	2 535	33	< 20	0.45	<b>5</b> 12	400	0,21	24.0

# **APPENDIX 6**

# M.M.I. PROCESS INFORMATION MANUAL

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# MMI PROCESS

#### **1.0 INTRODUCTION**

'Mobile Metal Ions' is a term used to describe ions which have moved in the weathering zone and that are only weakly or loosely attached to surface soil particles. It is a widely-held belief that these Mobile Metal Ions are transported from deeply-buried ore bodies to the surface. Studies from Australia and overseas have shown that such Mobile Metal Ions are useful in locating buried mineralization. Mobile Metal Ions are generally at very low concentrations in the soil. To successfully interpret these weak signals, a series of very carefully quality controlled steps have been developed that, when put together, constitute an integrated package 'The MMI Process'.

The steps which are necessary to ensure the successful application of Mobile Metal Ion geochemistry for mineral exploration include:

- A field, commodity and exploration situation appropriate for application of
- MMI geochemistry;
  - An understanding of landform and regolith relationships;
  - Application of appropriate specialized digestions;
  - Access to advanced ICP-MS analytical equipment/techniques; and
  - Correct interpretation of the partial extraction analytical data.

Detailed information on a number of these steps, remains confidential. At this point in the development of MMI technology and its role in exploration, orientation surveys are recommended, where possible, to develop a level of confidence for any particular prospect or project area.

Currently, the optimum application for MIMI geochemistry is to define specific mineralization targets for detailed drilling, making broad reconnaissance RAB programmes redundant. In this scenario, the assumption is that a number of target areas have been defined and MIMI is used to prioritize and more accurately define targets for RC drill programmes.

Developmental work is ongoing to allow extension of the technique to a regional application, and ultimately a target definition role is envisaged. Research is also underway to explore its applicability down hole.

Integral to the successful transition to these new applications will be the continued development in the understanding of Mobile Metal Ion anomalies and a competitive cost structure allowing the technique to deliver cost effective exploration programmes aimed at reducing first pass drilling campaigns. Both matters have been addressed via ongoing research programmes, and the initiative to Licence commercial laboratories to undertake MMI digestions and analyses on a non-exclusive basis.



### 2.0 BACKGROUND INFORMATION

The key attributes of Mobile Metal Ion surface soil geochemical anomalies include:

- Constrained, precise anomalies, vertically above mineralization and occasionally at up-dip projection positions on the surface;
- Commodity elements respond reducing the need for pathfinders;
- The anomalies can precisely target base metals mineralization at significant depths (greater than 700 m);
- The incidence of false anomalies is very low in comparison to conventional geochemistry;
- Surface soil anomalies are repeatable and persist over time; and
- Anomalies have a better signal to noise ratio related to mineralization in a much wider range of regolith units when compared with conventional techniques.

The Mobile Metal Ion geochemical technique has been developed over the past six years and resulted from a series of 13 case studies where the attributes summarized above were first observed. After this initial field testing in Australia and off-shore, a larger scale research and development initiative was instigated culminating in the establishment of The Geochemistry Research Centre at Technology Park in Perth. In an effort to understand and effectively apply MMI geochemistry to mineral exploration, its first project, The Mechanism of Formation of Mobile Metal Ion Anomalies, was supported by 11 mining companies, WAMTECH and the Western Australian State Government.

It is important to realize that the MIMI approach to geochemical exploration is significantly different to that used in conventional surveys. The principal aim of the process is to remove the smallest amount of metal ions from the exterior of soil particles whilst leaving the substrate unaffected. This is the essential difference between MIMI and other partial digestion techniques that specifically attack substrates, such as iron oxides and manganese oxides. This approach optimizes the use of improved analytical instrumentation with lower detection limits now available. While absolute metal concentration levels are significantly less than those from total digestions', the signal to noise ratios are significantly enhanced using MMI procedures.

Early case studies clearly suggested that, on an empirical basis, better contrast was achieved over a number of different styles of mineralization using MMI when compared to conventional (total) techniques. It was postulated that the very loosely-attached ions were sourced from mineralization and that input from other sources of metals, for example lateritic or lithological contributions would be minimized.

Currently the element suite for MMI analysis includes the following nine elements:

#### Cu, Pb, Zn, Ni, Cd, Au, Ag, Co, and Pd.

The concept of the MMI Process has been introduced to reinforce the requirement that the method is not simply an analytical technique. It is a series of integrated steps that, when combined correctly and intelligently, is proving to be a powerful addition to the existing exploration geochemistry techniques.

A cautionary note: as initial scepticism starts to abate, history confirms the tendency to regard a new technique as a panacea and usually it is grossly mis-applied. MMI technology will be no different. There is a current practical limit to its usefulness and cost effective application. As MMI TECHNOLOGY's on-going research progresses and a better understanding of the technique continues to develop, those limits will be revised, extended and up-dated in this manual.



## MMI PROCESS INFORMATION MANUAL

# 3.0 APPROPRIATE LANDFORM AND REGOLITH SITUATIONS

Mobile Metal Ion geochemistry has proved successful in a broad range of landform situations including relict, erosional, and depositional regimes. It is also proving effective in lateritic terrains by identifying primary sources of mineralization from the surface within broader conventional anomalies influenced by specific regolith units.

Surface Mobile Metal Ion geochemistry essentially responds to sources of mineralization, so that weakly-mineralized structures, like subsurface supergene mineralization blankets, are defined at a lower contrast level than the primary zones from which they are derived.

## 3.1 Relict and Erosional Regimes

Surface regolith units developed on relict and erosional landforms respond well to MMI geochemistry. The key advantage is a superior signal to noise ratio over mineralization. Compared to conventional geochemistry, it allows better focusing on follow-up exploration, either further surface sampling or more precise target drilling. Conventional responses are usually broader and maxima are often not directly over mineralization, particularly in deeply-weathered terrains. MMI responses are more constrained, and provided that the correct background levels are applied when calculating MMI Response Ratio values during interpretation, commodity element anomalies are usually closely related to primary mineralization.

This does not automatically ensure that a commercially-viable deposit is identified beneath each MIMI anomaly. However, the success rate for ore-grade drill intercepts early within an exploration programme can be significantly improved.

At an operational level, MMI samples can easily be collected from the surface of these regimes in a straightforward manner as discussed below.

#### 3.2 Depositional Regimes

Surface soils on depositional regimes need to be addressed with extra care. Case studies have shown clearly that the MMI technique extends the range of effective surface soil geochemistry further into more complex transported regolith units, when compared to conventional geochemical techniques. Again it is the superior signal to noise or anomaly to background responses provided by MMI geochemistry that allow the technique to identify and highlight anomalous responses from mineralization while reducing the effects of spurious background levels.

Terrains with colluvial soils, where coarser components are obvious, usually respond well to the MMI technique. In terrains with extensive alluvium, particularly within larger tracts of sheetwash with intermittent flood activity, care is required with any geochemical technique. MMI anomalies in this terrain type can be of the order of 1 ppb or less. At these analytical levels, great care must be taken to ensure quality of data, and correct interpretation.

An effective orientation study is strongly recommended if possible to provide data before embarking on a survey.



# 4.0 ORIENTATION STUDIES

Although MMI geochemistry is a powerful technique, it should not be regarded as a panacea for exploration. Field inspection can be important to establish whether any major landform or regolith changes are likely to influence the MMI results. Other relevant background material that can contribute to a successful MMI survey programme and interpretation includes: geological maps, aerial photographs, geophysical data including aeromagnetic maps and any interpretation thereof, conventional geochemistry results showing broader anomalies or corridors, and styles of any known mineralization.

As with any geochemical survey, an orientation programme can provide valuable information if a suitable target can be accessed and soils collected at the surface. Prior to any orientation, it is also important for the explorationist to define the parameters for minimum target size, especially when considering sample spacing for future exploration surveys. An important feature of MMI geochemistry is that it essentially responds to primary mineralization. Weakly-mineralized structures may not respond clearly or distinctly to an MMI programme so an orientation should preferably test a target considered significant.

# A 50-metre interval sample spacing along lines is recommended for orientation surveys.

To obtain the maximum benefit from the analytical data generated using commercial MMI analyses, response ratios (discussed below) should be calculated. Background samples provide the necessary data to allow meaningful response ratios to be calculated and therefore orientation sampling must include soils collected off the known mineralization.

# 5.0 SAMPLE DENSITY AND GRID ORIENTATION

Density of sampling is largely influenced by the type and style of mineralization being sought. Narrow higher grade styles require a maximum of 50-m sample intervals along lines spaced according to the required strike length of mineralization considered as an economic target within the specific project area. If the minimum strike length is 200 m, then the maximum line spacing should be 400 m. This is assuming that the target mineralization is likely to produce a geochemical halo, giving rise to an anomaly that may extend further than 200 m (for example along strike of a mineralization length. However, it is recommended that the line spacing be equal or less than the target mineralization length. Generally for gold targets a sample spacing of 100 m x 50 m will allow a focused drill programme to commence eliminating blanket RAB drilling.

Larger sedimentary styles (for example Mississippi Valley style) can have expanded sample patterns. However, in these cases it is vital that background is also sampled. Very specific targets, for example massive Ni sulphides along basal contacts, have in the past required 25 m x 25 m spacing to allow detailed anomaly definition prior to the first phase of drilling. This pattern density may represent the second or third infill phase of MMI sampling after an initial broader-spaced programme to identify contacts.

One important aspect of incorporating MIMI geochemistry into an exploration programme is that it can substantially reduce drilling costs (see Figure 1). If anomalies remain strong along significant strike lengths and more precise targets are desired, it is still more cost effective to undertake infill surface sampling at 50 m x 50 m spacing within the anomalous trend rather than to blanket drill.



## MMI PROCESS INFORMATION MANUAL

## 5.1 Sampling Grids

Pre-designated sample grids and numbers should be established prior to sampling to avoid irregular sample spacing/numbering which disrupts later data interpretation and any subsequent follow-up work. Sampling should be conducted in a methodical way, preferrably starting from the lowest easting and northing and working upwards. Avoid allocating negative eastings and northings for sample co-ordinates.

For orientation, survey traverses across known targets are ideal. These traverses can be assessed independently, however, it is imperative that background samples are collected for the general area, even at the expense of maintaining a consistent spacing along the line once the mineralized zone has been covered.

# 6.0 SAMPLE COLLECTION

### 6.1 Equipment

- A 30-cm diameter plastic garden sieve or kitchen colander with minus 5-mm apertures, available from hardware and super markets, is ideal for sample collection;
- Plastic collection dish with similar diameter and a kitchen floor brush used for cleaning the sieve and dish between samples;
- A bare steel (no paint) garden spade; and ...
- Plastic snap seal bags, do not use calico.

#### 6.2 Sample specification

A 500-gram sample is collected and stored in a plastic bag (a 90 x 150-mm plastic snap seal sample bag is recommended). Once sealed in the snap seal plastic bags, samples should be placed in polyweave sample dispatch bags (maximium 40 per bag). Stored in this manner, samples can be carried on tray-back vehicles during summer without problems and be stored for long periods.

### 6.3 Sample site

Sample sites should be undisturbed and preferably away from any major contamination: creek beds, drainage, drilling lines, pads, roads, etc. Wind borne contamination should also be eliminated during sample collection by sampling just below the surface.

### 6.4 Sample collection

It is imperative that during sample collection and handling no jewellery should be worn, (for example rings, bracelets, and chains), as this can be a possible major source of contamination. It is advisable that all field and laboratory staff be informed.

The initial step in taking an MMI soil sample requires the surface soil layer to be scraped away eliminating organic matter, debris, and any possible contamination. In undisturbed environments samples are collected approximately 150 to 200 mm below the surface. Before actually taking the soil sample material, the sieve and collection dish should be brushed to eliminate residue from previous samples and preferably flushed with the soil from the new sample site.

