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MOUNT SIDNEY WILLIAMS

AN UNIQUE GOLD OCCURRENCE

by

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## PREAMBLE

The suggestion that the norites of the Mount Sidney Williams property are a key part of the mineralization process has generally been received with some disbelief. Exploration to date has shown that the Mount Sidney Williams property is not a thrust-controlled listwanite system like that of the Atlin area, nor is it a gold-bearing quartz vein system like that of the Motherlode system. In stead, Mount Sidney Williams appears to be a system of listwanite alteration and accompanying sulphide mineralization surrounding intrusive norites which occur as dyke swarms within the ultramafics.

I document the evidence for the norite theory by citing the following examples:

- 1) In the Camp Zone, gold values were encountered in altered zones at the contact of the norite in drill holes 90-1 (1321 ppb Au), 90-3 (14860 ppb Au), 90-3 (5040 ppb Au).
- 2) In the Stibnite Zone, gold values were encountered in the contact phase of the norite in drill holes 90-2 (2690 ppb Au), 91-1 (3070 ppb Au).
- 3) In the Upper Zone, gold values were encountered in the contact phase of the norite in drill hole 90-5 (1260 ppb Au) and in the norite itself in drill hole 90-6 (5830 ppb Au).
- 4) In the Zero Zone, which consists of numerous norite outcrops and listwanite which forms an alteration cap immediately over the norite, gold values have been found at the contact of the norite (5750 ppb Au over 1.5 meters).
- 5) The RJS Zone consists of listwanite immediately over a norite. Gold values in the listwanite are as high as 1070 ppb over 3.0 meters.

- 6) The Arua Zone consists of extensive norite outcrops with high Cu, Au, and As in soils in close proximity to the norite (39 ppm Mo, 420 ppm Cu, 650 ppb Au, 590 ppm As).
- 7) In the B.S. Zone, auriferous listwanites are found in close proximity to norite dykes.
- 8) In the Cirque Zone, auriferous listwanite forms an alteration halo around a norite dyke.
- 9) In the Eddy Zone, listwanite and serpentine are found at the contact of a coarse-grained diorite.
- 10) In the Palmy Zone, talc with much quartz and very elevated levels of lead are found immediately adjacent to a norite dyke.

In addition, the importance of the norite is also inferred by the following:

- 1) Serpentine (type 2 alteration) is most intense near the norite intrusives
- 2) Jade (soda metasomatism) is found near the norites
- 3) The listwanites contain abundant plagioclase
- 4) Some ultramafics have been entirely replaced by plagioclase.

I would like to add that the location of the norites is made very difficult as these intrusives are very passive and rarely come to surface but can be almost certainly inferred by the Type 2 (serpentine) alteration and the listwanites. In addition, the norite is very recessive weathering when it does reach surface. The thin but extensive veneer of overburden does not help in the location of norites.

## INTRODUCTION

Mount Sidney Williams is an ultramafic-related gold occurrence. This is NOT a Motherlode vein type system. Instead the mineralization which occurs within the ultramafic is found in pervasively silicified zones and at the contact between a norite intrusive and the ultramafic.

To date 17 alteration zones have been discovered. In addition, numerous outcrops of alteration have been located.

## HISTORY

Mount Sidney Williams was discovered by myself in 1987 while prospecting under a grubstake agreement from Lacana Mining Corporation. The property is 100% owned by myself and consists of 223 units.

Only 25% of the property has received any attention at all. In this area the following exploration work has been performed:

- 1) silt sampling - 161 samples including 9 heavy mineral samples
- 2) soil sampling - 3217 samples
- 3) rock sampling - 1127 samples
- 4) flagged grid - 105,790 meters
- 5) trenching - 52 meters
- 6) geophysics - 26,150 meters of magnetometer surveys  
11,450 meters of IP surveys
- 7) drilling - 12 holes totalling 816.7 meters (2678 feet).

## GEOLOGY

The Mount Sidney Williams property is divided in half by Van Decar Creek which is a fault zone with approximately 1000 meters of horizontal displacement. On the western side of the fault, Cache Creek argillites and andesitic volcanics are the most predominant rock types. Lesser amounts of ultramafics, massive talc, listwanites, young basaltic and dacitic volcanics and norites have also been found on the west side. The eastern half of the property is primarily harzburgite with lesser amounts of dunites, listwanite, norite, young glassy, vuggy volcanics and very minor argillite.

## MINERALIZATION

Mineralization of the property consists of auriferous arsenopyrite and pyrite which occurs as:

- 1) Massive sulphides (10 - 20%) in the contact zone of norite intrusives. The sulphides occur as either pyrite as fracture-fillings or coarse-grained acicular arsenopyrite.
- 2) Disseminated acicular arsenopyrite and pyrite in Type 7 listwanite which consists of a very high percentage of quartz as a pervasive replacement.
- 3) Disseminated very fine-grained arsenopyrite and pyrite in brecciated listwanite which has been replaced by cryptocrystalline quartz. It is believed that this form of mineralization is epithermal since chalcedony veining is common and may be related to the young glassy volcanic.
- 4) Native gold (?) in serpentine. It is assumed that the gold values (5960 ppb) were from native gold since no sulphides were noted in the serpentine.

The genesis of the sulphide mineralization is not really understood but it would appear that the norite intrusives are an instrumental part. The better gold values are in close proximity to the norite if not in the norite itself. There appears to be several episodes of mineralization:

- 1) sulphide emplacement with the norite intrusion
- 2) sulphide emplacement with volcanism and late stage faulting.

#### ALTERATION

Alteration consists primarily of listwanites and the cryptocrystalline quartz replacement of the listwanites. Listwanites form a horizontally and vertically zoned package surrounding the norite intrusives. The package is as follows:

- 1) Norite - a fine-grained intrusive usually consisting of 80% pyroxene, 20% feldspar; occasionally completely ankeritized; highly magnetic to non-magnetic.
- 2) Type 7 listwanite - consists of quartz (> 50%) and carbonate which is usually Fe-dolomite or ankerite. Quartz occurs as pervasive silicification. Very-fine-grained mariposite is usually present.
- 3) Type 6 listwanite - consists of quartz (~ 50%) and carbonate.
- 4) Type 5 listwanite - contains 90% carbonate. By this stage of alteration gold values are uncommon unless the unit has been brecciated by late faulting which is usually accompanied by vuggy quartz veinlets.
- 5) Type 4 listwanite - consists of at least 25% talc and carbonate. This phase of alteration does not carry gold values.

- 6) Type 3 listwanite - this alteration package is not really a listwanite; it is composed of  $>10\%$  but  $<90\%$  carbonate and serpentine; this units does not contain gold values.
- 7) Type 2 alteration - consists of serpentine in which the primary harzburgite textures have been totally obliterated. This unit has gold values.
- 8) Type 1 alteration - consists of intensely serpentinized ultramafic but with igneous textures still in tact.

Seventeen alteration zones have been discovered to date and, in order of importance are:

- 1) Upper Zone
- 2) Stibnite Zone
- 3) Camp Zone
- 4) Zero Zone
- 5) No Name Zone
- 6) Arua Zone
- 7) B. S. Zone
- 8) Cirque Zone
- 9) RJS Zone
- 10) Sedna Zone
- 11) Oro Zone
- 12) Middle Zone
- 13) JNSQ Zone
- 14) Reno Zone
- 15) Eddy Zone
- 16) Palmy Zone
- 17) West Zone

In addition, there are numerous listwanite outcrops located over the property which indicate that there are many more overburden covered zones.

	Drill Hole	Interval	Width (meters)	Au ppb	As ppm	Comments (Assays)
geologic target	91-4	81.0-82.5	1.5	138	220	silicified list.
	(109.7 m T.D.)	82.5-83.5	1.0	1260	2054	" (1.40 g/t) (.041 oz/t)
		83.5-84.8	1.3	313	977	"
	*	84.8-85.8	1.0	1060	1210	" (1.21 g/t) (.035 oz/t)
		85.8-87.1	1.3	195	1254	"
	*	87.1-88.1	1.0	1810	3769	" (2.01 g/t) (.059 oz/t)
	*	88.1-89.1	1.0	1280	805	" (1.97 g/t) (.057 oz/t)
	*	89.1-90.1	1.0	1105	2329	" (1.36 g/t) (.040 oz/t)
		90.1-91.1	1.0	722	1810	"
		91.1-92.1	1.0	427	1358	"
		92.1-93.1	1.0	535	1420	"
	*	93.1-94.0	0.9	1000	1643	" (0.99 g/t) (.029 oz/t)
	*	94.0-94.9	0.9	1020	1607	" (1.08 g/t) (.032 oz/t)
geophysical/geochem target	91-5	65.7-66.7	1.0	65	714	talc-carbonate
	(106.6 m T.D.)	66.7-67.7	1.0	13	308	"
		83.7-86.7	3.0	116	1	Serpentine, 3% pyr
		86.7-89.7	3.0	122	1	"



	Drill Hole	Interval	Width (meters)	Au ppb	As ppm	Comments (Assay)
geological target	91-1 (91.4 m T.D.)	44.0 - 44.35	0.35	186	914	Norite
		50.0 - 50.5	0.5	232	225	"
		51.0 - 51.8	0.8	30	914	Norite
		* 51.8 - 52.2	0.4	3070	16452	" (3.11 g/t Au .091 oz/t Au)
		52.2 - 53.0	0.8	851	3386	silicified list.
		53.0 - 54.0	1.0	6	565	"
geological target	91-2 (121.9 m T.D.)	76.0 - 77.0	1.0	20	355	silicified list.
		77.0 - 77.4	0.4	22	568	"
		77.4 - 77.8	0.4	40	1211	silicified breccia
		77.8 - 78.8	1.0	21	849	silicified list.
		78.8 - 80.3	1.5	71	1072	"
		80.3 - 82.2	1.9	334	2024	"
		82.2 - 85.2	3.0	76	243	Talc-carbonate
geological target	91-3 (81.4 m T.D.)	7.6 - 9.1	1.5	63	227	silicified list.
		12.0 - 13.0	1.0	161	215	silicified list.
		13.0 - 14.6	1.6	192	254	"
		14.6 - 15.5	0.9	400	816	"
		* 15.5 - 16.0	0.5	4910	2791	" (6.48 g/t Au .160 oz/t Au)
		16.0 - 16.7	0.7	341	175	Breccia
		16.7 - 17.6	0.9	145	94	altered norite, 3% sulph
		18.1 - 19.2	1.1	350	332	Carb - talc
		19.2 - 20.0	0.8	286	248	"
20.0 - 20.8	0.8	482	281	"		
20.8 - 21.0	0.2	420	127	"		

	Drill Hole	Interval	Width (meters)	Au ppb	As ppm	Comments
geological target	90-6 *	6.9 - 7.3	0.4	5830	9480	altered norite, 20% sulph
	(30.5 m T.D.)	10.7 - 11.0	0.3	770	1364	"
		11.0 - 11.4	0.4	23	389	carb. list, 5% sulph
		11.4 - 13.0	1.6	23	852	sil'd list, 20% sulph
geological target	90-7	2.4 - 3.4	1.0	280	266	Breccia
	(47.3 m T.D.)	3.4 - 4.9	1.5	390	467	silicified list.
	*	4.9 - 5.5	0.6	5067	806	Carb. list
		5.5 - 8.6	3.1	128	324	sil'd list
		10.2 - 10.5	0.3	918	219	serpentine
		10.5 - 10.7	0.2	17	213	silicified list.
		11.3 - 12.2	0.9	2	174	serpentine
		12.2 - 13.7	1.5	261	432	sil'd list, 2% sulph
		13.7 - 15.0	1.3	441	862	"
	*	15.0 - 15.7	0.7	3204	3333	"
	*	15.7 - 17.4	1.7	1278	522	Breccia
		17.4 - 18.6	1.2	432	510	"
		18.6 - 19.8	1.2	57	854	sil'd list, 5% sulph

	Drill Hole	Interval	Width (meters)	Au ppb	As ppm	Comments
geological target	90-5	5.5 - 7.3	1.8	53	1038	Carbonate list.
	(45.8 m T.D.)	7.3 - 9.6	1.7	200	367	silicified list.
		9.6 - 12.8	3.2	97	316	Carbonate list.
		12.8 - 13.9	1.1	280	526	silicified list.
		13.9 - 14.3	0.4	49	186	Serpentine
		14.3 - 15.4	1.1	42	255	"
	*	16.2 - 19.3	3.1	1500	1584	Serpentine
		26.4 - 26.8	0.4	19	550	Hematite - serp.
		26.8 - 27.6	0.8	14	364	Carb - serp.
		27.6 - 28.5	0.9	67	559	sil'd list, 20% sulph
		28.5 - 29.4	0.9	71	617	"
	*	29.4 - 30.2	0.8	1130	2087	"
		30.2 - 31.0	0.8	42	551	"
		31.0 - 31.7	0.7	14	351	sil'd list, 10% sulph
		31.7 - 32.9	1.2	360	1242	"
	*	32.9 - 34.0	1.1	1290	1284	Breccia, 10% sulph
		34.0 - 34.8	0.8	32	183	Carb - talc
		34.8 - 36.6	1.8	760	1786	sil'd list, 10% sulph
	*	36.6 - 37.5	0.9	1850	2581	"
	*	37.5 - 40.6	3.1	1260	1104	Breccia, 10% sulph
	40.6 - 42.7	2.1	39	380	"	

	Drill Hole	Interval	width (meters)	Au ppb	AS ppm	Comments
geochem/geological	90-3	0 - 3.05	3.05	2210	2231	Fault gouge
	(30.5 m T.D.)	3.05 - 6.1	3.05	10340	6849	"
	*	8.2 - 9.2	1.0	14860	12218	silicified list, 4% sulph
		9.2 - 9.8	0.6	32	589	"
		10.5 - 11.0	0.5	220	562	silicified list,
		21.4 - 23.2	1.8	97	591	Felsite?, 1% pyr
	*	23.2 - 23.5	0.3	5040	4718	Gouge
		23.5 - 23.8	0.3	780	2830	silicified list.
geochem/geological target	90-4	0 - 3.05	3.05	9840	4716	Silicified list 30.0
	(29.3 m T.D.)	3.05 - 3.7	.65	300	1160	Carbonate list .2
	*	3.7 - 4.9	1.2	2330	3427	Breccia, 15% sulph 2.8
	*	4.9 - 5.2	0.3	18100	12493	Breccia, 30% sulph 5.4
	*	5.2 - 5.5	0.3	6430	6542	Gouge, 60% sulph 1.9
	*	5.5 - 5.8	0.3	2360	4039	Breccia, 40% sulph .7
		5.8 - 6.9	1.1	55	564	Talc-carb. list 41
		6.9 - 7.0	0.1	58	271	" 5.8
		7.0 - 8.9	1.9	18	260	" = 7.1g
	*	8.9 - 9.8	0.9	5170	6809	sil'd list; 10% sulph = 21g
		9.8 - 12.9	3.1	250	1120	"
		12.9 - 14.2	1.3	610	1591	"
		14.2 - 15.9	1.7	45	382	serp and sil'd list.
		27.5 - 29.0	1.5	3	144	Carb-talc list.
	29.0 - 29.3	0.3	4	173	Felsite	

	Drill Hole	Interval	(meters) Width	Au ppb	As ppm	Comments
geochem target	90-1 (61 m T.D.)	29.3-31.3	2.0	4	266	silicified list, tab
		32.5-33.2	0.7	10	207	silicified list.
		35.7-36.8	1.1	14	934	silicified list
		42.1-42.4	0.3	114	51	Norite
		45.3-48.8	3.5	4	180	Norite, 5% pyr.
		* 48.8-49.7	0.9	1321	1722	Norite, sheared
		49.7-51.6	1.9	261	460	Bleached norite
geological target	90-2 (61 m T.D.)	25.6-27.2	1.6	8	293	Carbonated dunite
		27.2-27.9	0.7	1	197	Carbonate list.
		27.9-29.0	1.1	50	462	
		29.0-32.1	3.1	65	365	Norite, 5-10% pyr
		33.6-35.7	2.1	20	814	silicified list.
		40.9-42.1	1.2	25	1317	silicified list.
		42.1-44.2	2.1	240	1363	
		44.2-45.1	0.9	55	271	
		45.1-45.8	0.7	20	309	
		45.8-47.4	1.6	260	1553	
		47.4-47.9	0.5	31	1246	
		* 47.9-49.0	1.1	2690	2694	Contact zone, 15% pyr
		49.0-49.3	0.3	270	126	Norite
		51.9-52.8	0.9	15	655	silicified list.