

DATE RECEIVED NOV 1 3 1995



DECTING AND GEOPHYSICAL REPORT

on the

LASSO CLAIM

NELSE CREEK, WESTBRIDGE AREA

GREENWOOD MINING DIVISION, BRITISH COLUMBIA

49⁰ 17' North latitude 118⁰ 52' 30'' West longitude N.T.S. 82E/06

OWNERS: ST. ELIAS MINES LTD. 604 - 700 WEST PENDER ST. VANCOUVER, B.C. V6C 1G8

MADMAN MINING CO. LTD. 548 BEATTY ST. VANCOUVER, B.C. V6B 2L3

OPERATOR: ST. ELIAS MINES LTD. 604 - 700 WEST PENDER ST. VANCOUVER, B.C. V6C 1G8

REPORT BY: LEONARD GAL M.Sc. P. Geo.

DATE: November 5, 1996

GEOLOGICAL SURVEY BRANCH ASSESSMENT REPORT

642

TABLE OF CONTENTS

Summary and Conclusions	1
Introduction	1
Claim Information and Property Ownership	1
Location and Access	1
Physiography	4
History of Previous Work	4
Regional Geology	4
Property Geology	6
VLF - EM Survey	6
Selected Bibliography	10
Statement of Qualifications	11
Statement of Expenditures	12
APPENDICES	
I. Rock Sample Descriptions	13
II. Geochemical Rock Sample Assay Results	14
III. VLF-EM Raw Data	16

LIST OF FIGURES

1. Property Location Map	. 4
2. Claim Map	3.
3. Regional Geology Map	. 5
4. Adit No.1 Plan	7
5. Adit No.2 Plan	8
6. VLF - EM Profiles	9

Page

4

SUMMARY AND CONCLUSIONS

The Lasso claim covers old Crown Granted claims known as the Enterprise, Teresa Fr. and Richelieu. North to northeast trending quartz veins are present on the old Enterprise claim, and have been developed by three adits. The veins are hosted by Jurassic Nelson granodiorite, near the contacts with feldspar porphyry dykes (?). The veins pinch and swell, dip southeast, and are locally cut off by the feldspar porphyries on sheared contacts. Two of the adits (No. 1 and No. 2) show evidence of limited production from stopes, and sulphide minerals including pyrite, galena and chalcopyrite were observed. Gold and silver assays from past work, up to 0.40 oz/ton Au over 90cm and 0.148 oz/ton Au over 1.76m collected in 1983, have been substantiated. Results from the current program include 1.592 oz/ton Au over 30cm (LSR01-L), 1.05 oz/ton Au over 20cm (LSR02-G), and 0.786 oz/ton Au over 30cm (LSR06-G). A limited VLF-EM survey was carried out over the vein and shear structures in an attempt to delineate them under the talus cover. Northeast trending EM anomalies are apparent that may be due to the vein structures or the intrusive - porphyry contacts, or both.

INTRODUCTION

A brief prospecting tour, inspection and sampling of old workings, and VLF-EM geophysical survey was conducted by White Wolf Explorations Ltd. on behalf of the claim owners from August 10-11, 1996. The aim of the program was confirm high grade gold and silver on the old Enterprise Crown Grant claim, and conduct a limited VLF-EM survey over the area of the veins.

CLAIM INFORMATION AND PROPERTY OWNERSHIP

The Lasso Claim, located on the Greenwood Mining Division, is a 16 unit 4-post mineral claim, staked on November 5, 1995 by Mr. Alex Smith of Langely, B.C. Through a Bill of Sale, the title (100%) was assigned to Madman Mining Co. Ltd.. Subsequently, Madman assigned an 80% interest in the claim to St. Elias Mines Ltd. Claim information is summarized below:

CLAIM	CLAIM	TENURE	NUMBER	ANNIVERSARY
NAME	Type	Number	OF UNITS	DATE *
LASSO	4-post	341963	16	Nov. 5, 1996

LOCATION AND ACCESS

The Lasso claim is located 290km east of Vancouver, and 11km north of Westbridge, B.C. The claim lies on the west side of the West Kettle River, and is bisected by the lower course of Nelse Creek. The property is in the Greenwood Mining Division, and is centered at approximately 49°17'N latitude and 118°52'30''W longitude, covered by NTS Map sheet 82E/6E. The claim is accessed by an old logging road which climbs the ridge north of Nelse Creek about 1.5 km north of the bridge on the road on the west bank of the West Kettle River. A few other tracks and overgrown trails branch off this road. The old trail along Nelse Creek is overgrown.





PHYSIOGRAPHY

The property is situated within the Okanagan Highlands of the Southern Interior Physiographic Region. Elevations range from 750m in the West Kettle River valley at the northeast corner of the claim, to 1170m on the ridge south of Nelse Creek, along the southern claim line. Nelse Creek cuts a steep incised valley into a plateau on the west side of the claim that slopes moderately toward the east and into the West Kettle River valley. The vegetation consists of mature fir, spruce and pine, although logging has taken place in the past. Underbrush is locally heavy, particularly along the creek gullies. The climate features warm and relatively dry summers, and mild winters with considerable snowfall. Water is available on Nelse Creek, and relatively scarce elsewhere on the claim.

HISTORY OF PREVIOUS WORK

The Lasso claim covers three old crown grants that were located in 1901. These were the Teresa Fr.(L869s), Richelieu (L942) and Enterprise (L1449s). B.C. Minister of Mines Reports for 1901, 1905, 1916 and 1933 reported the existence of three tunnels driven on gold and silver bearing quartz veins. Stoping in the No.2 adit indicates that some ore was shipped, and an old ore hopper still stands adjacent to the cabin at the workings. The B.C. Minister of Mines Annual Report for 1948 mentions a shipment of 10 tons of ore made from the Enterprise claim. The ore was shipped to Trail and yielded 155 g Au, 1.3 kg Ag, 369 kg Pb and 535 kg Zn. More recent work in the area consisted of prospecting traverses, reconnaissance scintillometer readings, and sampling of the workings in 1978 and 1979 (Allen, 1979). A three foot chip sample on the quartz vein at the portal of the most easterly adit (Adit No. 1) yielded 0.95 oz/ton Au and 5.83 oz/ton Ag. A chip sample across 3.5 feet of quartz vein in Adit No. 2, 40' in from the portal yielded 0.38 oz/ton Au, 2.3 oz/ton Ag. In 1980 a geochemical survey was undertaken in the area by Dayton Creek Silver Mines, which outlined an area of anomalous gold (Allen, 1980). In 1983 a program of rock and soil sampling, and a limited Scintrex "Genie" EM survey was undertaken by Mintek Resources (Corvalan and Morton, 1984).

REGIONAL GEOLOGY

The area is located within the Omineca Crystalline Belt, a NW trending belt dominted by plutonic and high grade metamorphic rocks. Regional geology is presented in Figure 3, simplified from GSC Maps. The area of the Lasso claim is underlain by middle Jurassic Nelson plutonics (the Westkettle batholith). Eocene Marron Group volcanics and sediments overlie the granodiorite along the western margin of the claim.



PROPERTY GEOLOGY

Medium grained granodiorite of the Nelson Plutonics outcrops through much of the area. In the vicinity of the adits, feldspar porphyry dykes (?) are interleaved with the granodiorite. The feldspar porphyry was also observed along the road along Richelieu Creek and is likely part of the Valhalla intrusives (Okanagan batholith) which surrounds the Nelson plutonics regionally. On the south facing slope above Nelse Creek, the feldspar porphyry bodies seem to strike northeast, are on the order of 50-100m wide, and alternate with Nelson granodiorite. However, contact relationships are obscured by talus cover. Quartz veins developed by the old adits are parallel to the contacts of these two lithologies, although the feldspar porphyries may offset or terminate the veins locally. Adit plan maps for Adits Nos. 1 and 2 are presented in Figures 4 and 5. In Adit No.1 is located just above Nelse Creek, about 750m upstream from the confluence of Kamloops Creek and Nelse Creek. The vein is up to 2m wide, with a thinner 15cm parallel vein in the footwall, which pinches out into a shear at approximately 13m from the portal. The main vein is stoped from 3-12m from the portal, which follows the vein for 26m. At 12m from the portal, the vein is observed to be offset by a west-northwest dipping fault zone. In Adit No. 2 shearing was observed at the contact of granodiorite and feldspar porphyry. The contact dipped toward the hanging wall of the vein. The main vein pinched out into a shear at 27m from the portal, from a maximum width of about 1.2m. The vein is stoped from approximately 17m to 27m from the portal. A thinner (10-25cm) quartz vein is followed in the hanging wall above the main vein for about 5m. Adit No.3 is located upslope and to the northwest of the other two adits. A 2m wide quartz vein in granodiorite is followed for at least 15m to the northeast, and is eventually cut off by a shear bounded feldspar porphyry. No sulphides were observed in this vein. In Adit #1 and 2, sulphides include pyrite with lesser galena and chalcopyrite. Sulphides occur as disseminations, lenses, stringers, and locally, bands parallel to the vein walls.

VLF-EM SURVEY

Five lines trending 110 degrees, each 50m apart and 400m long, were chained and flagged over the area of the workings (Figure 6). A Geonics-16 VLF-EM instrument was used to take dip angle readings at 25m intervals. Seattle was used as the transmitting frequency. Fraser filtered profiles are presented in Figure 6. A series of northeast trending anomalies are apparent. One is in the vicinity of Adit No. 2, and may be related to the vein - shear structure. It appears to extend south of Nelse Creek on Line 50S. These northeast trending EM anomalies may be due to vein - shear structures, or the granodiorite - porphyry contacts, or both.









į

SELECTED BIBLIOGRAPHY

Allen, G.P. (1980)	Geological and Geochemical Report on the Richelieu Property of Dayton Creek Silver Mines.
Allen, G.P. (1979)	Sampling Report on the Richelieu, Teresa Fraction, and Enterprise Mineral Claims, Greenwood M.D., B.C. Report for Dayton Creek Silver Mines Ltd. Assessment Report #7478.
Allen, G.P. (1979)	Prospecting eport on the Richelieu, Teresa Fraction, and Enterprise Mineral Claims, Greenwood M.D., B.C. Assessment Report #7163
B.C. Minister of Mines Annual Reports :	1901, 1905, 1916, 1933, 1948
Corvalan, I.R. and Morton, J.W. (1984)	Report on Geochemical and Geophysical Surveys, Top Claims, Greenwood M.D. for Mintek Resources Ltd. Assessment Report #12,066

STATEMENT OF QUALIFICATIONS

I, Leonard Gal, of Kelowna, British Columbia hereby certify that:

- I am a Professional Geoscientist registered in good standing of the Association of Professional Engineers and Geoscientists of British Columbia.
- I am a graduate of the University of British Columbia, with a B.Sc. in Geology (1986).
- I am a graduate of the University of Calgary, with a M.Sc. in Geology (Metamorphic Petrology) (1989).
- I have been engaged in geological work more or less continuously since 1986, in British Columbia, the Northwest Territories, Saskatchewan and the United States.
- The information in this report is based on a review of published reports and a visit to the Lasso claim on August 10 and 11, 1996.
- I grant permission to use this report in a prospectus or other financial offering.

Signed this <u>5</u> day of November, 1996.

Leonan Tal

Leonard Gal M.Sc., P.Geo.

LASSO CLAIM COST of WORK PROGRAM

DESCRIPTION S	A STATE AND SHARE		
Leonard Gal, M.Sc, P. Geo.	Aug 10 - Aug. 11	2 5days @ \$375.00	\$937.50
Gerard Gallissant, B.Sc. (Geography)	Aug 10 - Aug. 11	2 5days @ 275.00	\$687.50
Crew board (food)	5 man/days	@ \$52.00 m/d	\$260.00
Vehicle rentals 1 ton 4x4 crewcabs	2.5 days	@ \$75.00/d	\$187.50
Ford Bronco II 4x4	1 day	@ \$60.00/d	\$60.00
VLF-EM rental	Geonics EM-16	2.5 days @ \$750/mo. pro rata	\$62.50
ATC rental	Honda 250cc	2.5 days @ \$50.00/d	\$125.00
Survey supplies, fuel & oils (consumable)	Flagging, Topofil, sample bags,		\$156.00
Analytical analysis (Bondar Clegg Inchape) North Vancouver	10 rock samples	@ \$25/sample	\$250.00
Report preparation, drafting and research	3 days	@ \$250/day	\$750.00
Communications, management		@ 3%	\$108.00
Camping fees			\$16.00
TOTAL			\$3600.00

APPENDIX I ROCK SAMPLE DESCRIPTIONS

LSR01-G	Adit No. 2, 27m from portal, soft clay gouge on shear. No vein material.
LSR02-G	Adit No. 2, 23m from portal, chip across 20 cm quartz vein with some visible sulphides.
LSR03-G	Adit No. 2, 17m from portal, chip across 30cm quartz vein, disseminated sulphides with malachite staining.
LSR04-G	Adit No. 1, 21m from portal, chip across 100cm quartz vein with no visible mineralization.
LSR05-G	Adit No. 1, 12m from portal, chip sample across 1m of quartz vein offset on fault, malachite staining noted.
LSR06-G	Adit No. 1, 3m from portal, chip across 30cm of soft fault gouge and quartz vein with disseminated sulphides.
LSR07-G	Adit No. 3, 15m from portal at face, chip across 40cm of quartz with no visible sulphides.
LSR01-L	Adit No. 2, 4.4m from portal, chip across 30cm quartz vein with some pyrite.
LSR02-L	Adit No. 2, 8.5m from portal, chip across 1.2m quartz vein with sparse malachite stain.
LSR03-L	2m uphill and 10 feet above Adit No. 1 portal, chip across 1m quartz vein outcrop.

APPENDIX II ROCK SAMPLE ASSAYS

•



OPT

PPR

UNITS

NUMBER



PCT PCT PCT PPM PPM PPM

CLIENT: WH	ITE WOLF EX	PLORATI	ON I		U																		PROJE	CT: 5EM	1					
REPORT: V9	6-01355.0 (COMPLE	TE)																				DATE I	PRINTED	19-5	SEP-96	b	PAG	.E 1	İA
																			•••											
SAMPLE	ELEMENT	Au30	Aut	Ag AgOL	Cu CuOL	Pb	Zn ZnOL	Мо	Ni	Со	Cd Bi	As	Sb	Fe	Mn	Te	Ba	Cr	۷	Sn	W	La	Al	Mg	Са	Na	κ	Sr	Y	Ga

PPM PPM

PPM PPM

PCT PPM PPM PPM PPM PPM PPM PPM PCT PCT

PPM PCT PPM PPM PPM

PPM

PPM PCT

PPN

⊢	•
	•

	- 6950	0.0			17					-0:4-	, 5,		51	2.59	-572	~10-	56	-34-	17 3	20 <2	20	7 0.47 0.07	0.15 <.0	10.19	6		72
TOR OUR							<u></u>						- 199							64 - C						in an	
TOR 09t	-255)	17	22	<u> </u>	4	-12	-0.5	0	10	0	-2.00	1113	10	0	-40	21-5	20 22	20	13 0.92 0.30	0.24 .0	1 0.25	10	10	72
LSR-01G	14	0.8	3	7.	5	56	<1	7	13	0.3	<5	<5	<5	2.88	1008	<10	78	42	63 <	20 <2	20	6 2.29 1.73	2.50 0.0	6 0.38	103	6	7
LSR-026	>10000 1.050	>200.0	414 650	3	39	16	2	2	2	0.6	38	<5	<5	1.08	257	199	6	90	10 <	20 <2	20 •	<1 0.25 0.29	0.51 <.0	1 0.03	39	<1	<2
LSR-03G	8841	135.6	>1000	0 1.7	249	52	8	5	4	2.7	18	<5	7	3.73	308	42	5	57	18 <	20 <2	20	2 0.28 0.28	0.32 <.0	1 0.02	32	<1	<2

Bondar-Clegg & Company Ltd., 130 Pemberton Avenue, North Vancouver, B.C., V7P 2R5, (604) 985-0681



PPM PPM PPM PPM PCT PPM

Geochemical Lab Report

PAGE 1B

REPORT :	V96-01355.0 (COMPLETE)					PROJECT: 5EM	I
						and the second second second second	a construction and the construction of the second sec	 DATE PRINTED:	19-SEP-96
CAMPLE	ELEMENT	Li Nb	Sc T	a Ti Zr					
NUMBER	UNETS	PPM DDM							

#LR-01L <5 <10 0.10 -5-

UNITS

	-	-		-10	·.vi	~1
LSR-01G	17	3	<5	<10	0.15	2
LSR-02G	2	<1	<5	<10	<.01	<1
LSR-03G	2	<1	<5	<10	<.01	<1





PAGE 2A

CLIENT: WHITE WOLF EXPLORATION PROJECT: 5EM I REPORT: V96-01355.0 (COMPLETE) DATE PRINTED: 19-SEP-96 SAMPLE ELEMENT Au30 Au+ Ag AgOL Cu CuOL Pb Zn ZnOL Mo Ni Co Cd Bi As Sb Mn Te Ba Cr V Sn Fe W La Al Mg Са NUMBER Na K Sr Y Ga UNITS PPB OPT PPM PPM PPM PCT PPM PPM PCT PPM PPM PPM PPM PPM PPM PPM PCT PPM PPM PPM PPM PPM PPM PPM PCT PCT PCT PCT PCT PPM PPM PPM LSR-04G 102 3.9 323 190 9 32 2 1 <0.2 <5 <5 <5 0.43 105 <10 4 90 21 <20 <20 <1 0.25 0.13 0.53 <.01 <.01 21 <1 <2 LSR-05G >10000 0.404 96.5 57 27 9 <1 3 1 0.3 <5 <5 <5 0.56 85 53 2 112 7 <20 <20 <1 0.14 0.08 0.05 <.01 <.01 4 <1 <2 LSR-06G >10000 0.786 >200.0 260 74 28 11 2 4 4 <0.2 <5 <5 6 78 103 15 105 12 <20 <20 <1 0.26 0.11 2.62 0.03 <.01 0.10 3 <1 <2 LSR-07G 647 10.9 86 31 37 2 5 8 0.2 <5 2.14 397 <10 64 87 44 <20 <20 4 2.55 0.89 <5 <5 0.99 0.20 0.79 45 4 6 LSR-01L >10000 1.592 >200.0 341 77 26 10 2 3 3 < 0.2 33 0.67 157 196 10 93 11 <20 <20 <1 0.37 0.26 <5 <5 0.22 0.01 0.06 25 <1 <2 LSR-02L >10000 0.422 109.5 78 21 10 <1 3 2 <0.2 <5 <5 0.56 117 65 17 90 12 <20 <20 <1 0.37 0.16 <5 0.39 0.01 0.12 27 <1 <2 LSR-03L 6834 36.1 16 15 6 <1 3 <1 <0.2 <5 <5 <5 98 28 7 123 5 <20 <1 0.13 0.07 0.25 0.11 <.01 0.03 6 <1 <2



Ge	Chemical
Lal	0
Rej	port

REPORT . V96	-01355 0 /	PROJECT: 5EM I			
				DATE PRINTED: 19-SEP-96 PAGE 2	B
SAMPLE	ELEMENT	Li Nb Sc Ta Ti Zr			
NUMBER	UNITS	PPM PPM PPM PCT PPM			

LSR-04G	1	<1	<5 <10 <.01	<1	
LSR-05G	1	<1	<5 <10 <.01	<1	
LSR-06G	2	<1	<5 <10 <.01	<1	
LSR-07G	13	2	<5 <10 0.10	1	
LSR-01L	3	<1	<5 <10 0.02	<1	
LSR-02L	2	<1	<5 <10 0.01	<1	
1 SR-031	1	<1	<5 <10 < 01	<1	

APPENDIX III RAW VLF-EM DATA

STATION SEATTLE

LINE 50S	DIP ANGLE	QUADRATURE
2+00E	-10	-26
1+ 7 5E	-30	-30
1+50E	-50	+10
1+25E	-20	+38
1+00E	+10	+18
0+75E	-45	+17
0+50E	-40	+33
0+25E	-20	-30
0+00	-45	-20
0+25W	-90	-4
0+50W	-93	+16
0+75W	-115	+28
1+00W	-80	+23
1+25W	-70	+34
1+50W	+10	+24
1+75W	-50	+24
2+00W	-130	+35
LINE 0		
2+00E	-10	+12
1+ 75 E	-30	+26
1+50E	-20	+20
1+25E	-20	+25
1+00E	-45	+34
0+75E	+35	+36
0+50E	-50	+42
0+25E	-70	+26
0+00	-80	+34
0+25W	-85	+32
0+50W	+50	+32
0+75W	+25	+28
1+00W	+90	+38
1+25 W	+95	+24
1+50W	-90	+38
1+/5W	+60	+22
2+00 W	723	+10
LINE 50N		
2+00E	+80	+21
1+75E	-60	+38
1+50E	-50	+7
1+25E	+65	+37
1+00E	-70	+42



LINE 50N

DIP ANGLE QUADRATURE

0+75E	-90	+20
0+50E	+65	+11
0+25E	+90	+8
0+00	+90	+40
0+25W	-90	+32
0+50W	-55	+32
0+75W	+50	+33
1+00W	+70	+30
1+25W	+80	+20
1+50W	+75	+26
1+75W	-65	+35
2+00W	+85	+26

LINE 100N

2+00E	+70	+36
1+75E	-70	+30
1+ 50 E	+90	+4
1+25E	-80	+30
1+00E	-60	+36
0+75E	-55	+28
0+50E	-35	+20
0+25E	-45	+35
0+00	-80	+25
0+25W	-130	+20
0+50W	-70	+15
0+75W	-60	+28
1+00W	-65	+37
1+25W	-90	+3
1+50W	-75	0
1+75W	-100	+16
2+00W	+50	+25

LINE 150N

•

2+00E	-100	+18
1+75E	+80	-3
1+50E	-65	+40
1+25E	-120	+28
1+00E	+90	+32
0+75E	-80	+21
0+50E	-90	+38
0+25E	+60	-3
0+00	+110	-20
0+25W	+90	+10
0+50W	+80	+8
0+75W	+90	+32
1+00W	+70	+19
1+25W	+90	+33
1+50W	+50	+15
1+75W	+65	+2
2+00W	+105	-9

,

LINE 200N	
2+00E	
1+75E	

2+00E	+80	-10
1+75E	+90	-10
1+50E	+65	-36
1+25E	+75	+24
1+00E	-80	+26
0+75E	+100	+42
0+50E	-80	-12
0+25E	-90	+10
0+00	-100	+4
0+25W	+40	+14
0+50W	+20	+20
0+75W	+30	+22
1+00W	+70	+20
1+25W	+20	+12
1+50W	+30	+8
1+75W	+90	+11
2+00W	+120	+8









