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GEOCHEMICAL AND GEOPHYSICAL EVALUATION OF A PORTION OF THE <u>WINSLOW GROUP CLAIMS</u> Revelstoke Mining Division Latitude 50°38' North Longitude 117°23' West N.T.S. 82K/11 W

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for WINSLOW GOLD CORP. Calgary, Alberta

# GEOLOGICAL BRANCH ASSESSMENT REPORT

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TAIGA CONSULTANTS LTD. #100, 1300 - 8th Street S.W. Calgary, Alberta T2R 1B2

September 30, 1983

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MAPS (in back pocket) Winslow Occurrence

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#### CERTIFICATE

I, the undersigned, of the City of Galgary in the Province of Alberta, do hereby certify that:

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- 1. I am a consulting geologist with the firm of Taiga Consultants Ltd. with an office at #100, 1300 - 8th Street S.W., Calgary, Alberta.
- 2. I am a graduate of the University of Alberta with a B.Sc. in Geology (1969).
- 3. I have practised my profession continuously for fourteen years since graduation.
- 4. I am a member in good standing of the Association of Professional Engineers, Geologists and Geophysicists of Alberta; and a Fellow of the Geological Association of Canada.
- 5. I personally visited the claims during the period July 28 to August 4, 1983, and supervised the field work conducted thereon.
- I have prepared this report at the request of Mr. G. N. Ross, President, 6. Winslow Gold Corp., #574, 330 - 5th Avenue S.W., Calgary, Alberta.

DATED at Calgary, Alberta, this 30th day of September, A.D. 1983.



Respectfully submitted,



J. R. Allan, P.Geol.

#### INTRODUCTION

#### Property, Location, and Access

The Winslow Gold properties consist of one six-unit, one nine-unit, and one fractional mineral claim staked under the modified grid system, and six Crown-granted mineral claims. The claims are located in the Revelstoke Mining Division in southeastern British Columbia (Figure 1). They are situated along Silver Cup Ridge approximately 9 km southeast of the village of Trout Lake in the Lardeau district. Five of the Crown grants and the Rit claims form a contiguous block of ground. The Alice Crown grant is situated approximately 3 km southeast of the contiguous block (Figure 2). The various claims are more specifically described as follows:

Claim Name	Record / Lot No.	Recorded Owner	Approx. Area	Record Date
Rit 1 Rit 2 Rit 3 Winslow Gladhand Okanagan Enderby U & I Alice	769(10) 770(10) 1622(8) L.8680 L.8681 L.9127 L.9128 L.7589 L.7440	Gerald N. Ross	<ul> <li>145 hectares</li> <li>140 hectares</li> <li>50 hectares</li> <li>18 hectares</li> </ul>	October 22, 1979 October 22, 1979 August 17, 1983
		Total	443 hectares	

The contiguous block of claims is accessible via gravel highway No.31 along the northeastern side of Trout Lake to a point 8.4 km south of the village, then a further 8.2 km of four-wheel-drive road to the old Winslow mill site. A four-wheel-drive road to the Silver Cup property on the east side of the ridge is within 2 km by foot of the old mill site.

### Physiography

The claims are located along the crest and southwesterly-facing flanks of Silver Cup Ridge in the Columbia Mountains. Elevations on the property range from 1,678 m to 2,470 m ASL. The Rit 2 claim and the Winslow and the Gladhand Crown grants are situated below treeline (approximately 2,134 m ASL), and the remainder of the property is situated over alpine tundra. The slopes



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facing Trout Lake are very steep and are covered with a thick growth of spruce, fir, balsam, and underbrush. The headwaters of Burg and Laughton Creeks drain the claims.

The region has been glaciated to an elevation of at least 2,500 m ASL and Triune and Silver Cup peaks form prominent horns above this elevation. Most valleys exhibit evidence of glaciation. Cirques, arrêtes, and serrated razorback ridges are common. The lower slopes of mountains are covered with variable thicknesses of glacial deposits, resulting in only fair bedrock exposures.

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#### REGIONAL GEOLOGY

#### Relevant Published Geological Data

The first geological map of the area was published in 1929 and accompanies G.S.C. Memoir 161. Numerous descriptions of mineral occurrences in the region appear in B.C. Minister of Mines Annual Reports, chiefly from 1890 to 1914. Other descriptions appear in G.S.C. Summary Reports and Annual Reports. Excellent descriptions of the regional geology and mineral deposits are included in B.C. Department of Mines Bulletin 45. G.S.C. Bulletin 193 includes much relevant geological information. The most useful and up-to-date work is included in G.S.C. Open File 464, published in 197%.

#### Regional Geology

The Winslow Gold property lies within a geologically and structurally complex zone known as the Kootenay Arc, which forms part of the Purcell Anticlinorium in the southern Rocky Mountains. In the Trout Lake area, the Kootenay Arc is comprised of interbedded sedimentary and volcanic rocks of Late Proterozoic to Mesozoic age, which have been subjected to multiple phases of deformation, metamorphism, and intrusion. The Winslow Gold claims are underlain by mafic volcanics, fine-grained argillaceous and siliceous sediments, grits, and carbonates of the Lardeau Group of Lower Cambrian to Middle Devonian age. These rocks have been subjected to at least one episode of metamorphism and now consist of greenstone, limey green phyllite, phyllitic grit and phyllite, quartzite and quartz grit, limestone, and phyllitic limestone (Figure 3). Read (1973) has mapped two phases of deformation in the area.

The Broadview, Jowett, Sharon Creek, Ajax, Triune, and Index Formations are of chief importance in the project area. Considerable difficulties attend the separation and correlation of these units owing to their similarities in composition, rapid facies changes laterally and along strike, lack of fossil controls, and repetition of sequences through faulting and folding.



# LEGEND

LARDEAU GROUP BROADVIEW FORMATION 10 Grey and green grit, dark grey and green phyllite. minor volcanic rocks 10d - green and light grey grit, minor phyllite 10c - dark grey phyllite and phyllitic grit 10b - pyroclastic member 10a - grey and green grit and phyllite JOWETT FORMATION 9 Mainly volcanic rocks 9c- agglomerate and breccia 9b- pyroclastic rocks, argillite and limestone 9a-motic lavas SHARON CREEK FORMATION Dark grey to black siliceous argillite AJAX FORMATION 7 Mossive grey quartzite TRIUNE FORMATION Grey to black siliceous argillite 6000 INDEX FORMATION 5 Grey and green phyllite, grey limestone, volcanic rocks, minor quarizite 5d - altered volcanic rocks 5c - Molly Mac limestone 5b - grey phyllite, argillite and limestone 5a - green phyllite 55 CORRELATION AND STRATIGRAPHIC SUCCESSION UNKNOWN VOLCANIC MEMBER: green phyllite BIDDLOMITE MEMBER: light grey to white dolomite, minor limestone C- dark grey grit and phyllite, minor quartzite and green phyllite 1.23.02 D- dark grey to black argillite, phyllite and argillaceous limestone, minor conglomerate To accompany B.C. Department of Mines and Petroleum . Miles بتند Resources Bulletin 45."Geology of the Ferguson Area." 1961

### LOCAL GEOLOGY

Of the claims constituting the Winslow Group, most are underlain by the Broadview Formation (Figure 3). The stratigraphically lower Jowett volcanics crop out as a 400 m wide band across the northeastern corner of the Rit 1 claim. The band narrows along strike to the southeast, and is only about 200 m wide where it crosses the Enderby Crown grant. This width remains fairly constant as far southeast as the Alice Crown grant (the southwestern boundary of which lies about 300 m northeast of the band), but abruptly widens again approximately 1 km south of the Alice. The extreme northeastern corner of the Rit 1 claim, the northeastern half of the Okanagan Crown grant, and the central part of the Alice Crown grant are underlain by the Sharon Creek Formation. The Ajax quartzite crops out as a broad band underlying the northeastern one-third of the Alice grant and most of Rit 3.

The rocks of the Broadview, Jowett, Sharon Creek, and Ajax Formations all exhibit a regional northwesterly strike, locally complicated by folding. The dominant structural feature of the project area is the Silver Cup Anticline. At least one generation of penetrative foliation is related to this folding.

Detailed geological mapping (1" = 200') is available for most of the Winslow, Gladhand, Okanagan, and Enderby Crown grants and a limited surrounding area (originally part of the forfeited Winslow group and now included in the Rit claims). This mapping was carried out by James Millar and Associates in 1964 and 1965.

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FIGURE 4 MINERAL OCCURRENCES AND PRODUCING MINES

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158 California Рb 159 Winslow Au Ag Pb Zn Cu Ag Pb Zn Au 160 Towser Au Ag Pb Zn 161 U.I. 162 Free Coinage Ag Pb Zn 163 Okanagan Au Ag Pb Zn Ag Pb Zn Au 164 Silver Cup Ag Pb Au 165 Crescent 166 Mabel Group Ag Pb Ag Au Pb Zn 167 Triune 168 Alpine Ag Au Pb Zn Au Ag Pb Zn Cu 169 Foggy Day Ag Au Pb Zn Cu 170 Chance Ag Au Pb 171 Morning Star 172 Alice Au Au Ag Zn Pb Cu 173 Cromwell Ag Au Pb Zn 174 IXL Au Ag Pb 175 Golden Crown Ag Au Pb Zn 176 Noble Five Ag Au Pb 177 Jewel Ag Pb 178 н.Ү.М. 179 Arallu  $\mathbf{Cu}$ 180 Silver Belt Au Ag Pb Ag Pb Zn Cu 181 Hercules 182 Skyline Au Ag Pb Ag Pb 183 Silver Plate

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#### ECONOMIC GEOLOGY

The Kootenay Arc is a métailogenic province hosting several hundred known precious metals occurrences in the Kaslo, Slocan, and Lardeau districts. In the Trout Lake area, mineral occurrences lie along three fairly well defined belts variously referred to by earlier authors as the Lime Dyke Belt (easternmost belt), the Central Belt (in which the Winslow group is situated), and the South Western Belt. Several tens of precious metals prospects and more than a dozen former producing mines are situated in the immediate vicinity of the Winslow area (Figure 4). Of these, the Winslow (159) and the Okanagan (163) occurrences are covered by properties constituting part of the Winslow Gold project (numbers in parentheses refer to the number designating the occurrence on Figure 4). Both of these occurrences are former producers. Due to the remoteness and inaccessibility of the deposits in the early days of their development, production consisted mainly of "high-grading" the ore.

Almost all of the prospects and former producers are fissure vein type occurrences exhibiting strikes varying from northwesterly and northnorthwesterly to northerly, north-northeasterly, and northeasterly. Dips are generally in the order of 60° to 70°. Mineralization in most occurrences consists of galena, sphalerite, pyrite, and occasionally chalcopyrite in a quartz and carbonate gangue. High silver values accompany the galenarich veins whereas high gold values are more often associated with pyrite in veins containing a relatively lesser abundance of galena. The various deposits in the belt can be crudely categorized as gold/silver or silver/gold deposits, depending upon the relative importance of the precious metals in the deposits. Silver/lead or Silver/lead/zinc/copper deposits with negligible gold values occur more frequently than do gold deposits with negligible silver values. However, no coherent pattern of zoning is obvious in the distribution of metals in the various deposits.

In the following detailed descriptions of the mineral occurrences, information is drawn liberally from an earlier report written by James F. V. Millar and dated December 11, 1963 (Millar had available to him information contained in a number of reports relating to the property examinations carried out between 1936 and 1955, which are not available to this writer).

#### Winslow Occurrence

The original Winslow vein was staked prior to 1904, and most of the exploration and development work was conducted prior to 1915. Some ore shipments were reported for 1918, but from then until 1933, the property was dormant. Attempts to rehabilitate the old workings began in 1933 and by the end of 1939, a pilot plant scale mill had been constructed and several tons of concentrates shipped. Milling operations continued through 1940 and 1941, when in the latter year, a small tonnage of ore was treated mainly from the Okanagan claim. The property again lay dormant from 1941 to 1963, when rising precious metals prices encouraged a new geological evaluation of the ground. Subsequent to 1941, the property changed ownership several times and a limited amount of information is available from examinations carried out by professional engineers during this interval.

The Winslow vein has been traced from near the southern boundary of the Winslow Crown grant (L.8680) to the crest of the hill between Six Mile Creek and Burg Creek. To date, approximately 1,000' of underground workings, driven from at least seven(?) separate locations, have explored the vein over a vertical distance of 300' and a horizontal distance of 400'. Mineralization consists mainly of pyrite with lesser amounts of galena, sphalerite, and rare free gold. The vein system consists of two veins, reportedly aggregating up to 12' in width, with a  $l_2'$  to 4' panel of schistose material separating the two veins. The vein strikes about N20°E and dips 55-60°E. The best gold values occur in a pipe-like ore shoot with grades decreasing horizontally along the vein structure. The vein is typical of other precious metals occurrences, in the "Central Belt", which also exhibit limited potential along strike but good continuity of grade with depth. The oxidized portions of the Winslow vein system are considerably enriched in gold, and have assayed as high as 5.4 oz/ton gold and 4.5 oz/ton silver (MMAR, 1914). More representative grades of unoxidized vein material are reported by several authors to be 0.4 oz/ton gold and 0.6 oz/ton silver. Although it is impossible to arrive at any meaningful estimate of possible tonnages at this point in time, it should be borne in mind that today's high precious metals prices and efficient milling and extraction techniques might significantly extend the mineable dimensions of the vein.

Underground development on the Winslow vein has been described in detail in Millar's 1963 report and is summarized below:

Underground workings are known to have been carried out at seven different levels on the Winslow vein structure (the locations of four of these adits and numerous trenches are shown on Millar's 1963 map).

The uppermost workings consist of two adits or underground workings of an undetermined nature that were badly caved prior to an examination of the property in 1937. The vein was stoped to surface from these openings.

At the 1A level (6,780' ASL), an adit has been driven 178' following the footwall of the vein. The initial 50' of the adit have been stoped to surface. 150' in from the portal, a "Y-raise" has been driven, following the footwall. The 'stem' of the "Y" is 32' long and each arm is 50' in length. This raise was reportedly actively mined in 1939-1940.

No.1 level (6,740' ASL) adit is reported to have been crosscut for 62' and then drifted for 50' following the footwall vein structure. A 40' long stope in the high-grade ore shoot extends to surface through the 1A level.

No.2 level (6,640' ASL) was driven as a crosscut for 160' and then drifted 80' along the vein, here averaging 6½' to 10' in width. Assays of samples collected during various examinations indicate that the adit did not intersect the high-grade zone of the Winslow vein. Millar indicated that earlier writers (McDougall and Scorgie) believed that the ore shoot was located to the south of the end of the crosscut, but the drift had been driven to the north and consequently missed it.

No.3 level (6,540' ASL) was driven as a crosscut for 300' and intersected the footwall vein, reported to be 52" wide at that point. A heavy flow of water in the vein structure apparently discouraged any further development.

No.4 level (6,240' ASL) in the northwestern corner of the Gladhand Crown grant; was driven in an attempt to intersect the Winslow vein at the lowermost level considered topographically feasible. The adit was driven in 1914 but never reached its objective apparently owing to financial difficulties.

During Millar's examination of the property in 1963, the No.2 level portal was cleared. Currently, all of the adits are badly caved, some as far as 15 m back from the portal.

#### Okanagan-Enderby Occurrence

The Okanagan-Enderby veins are located on the Okanagan (L.9127) and the adjoining Enderby (L.9128) Crown grants which are situated at the headwaters of Burg Creek about 1 km east of the Winslow mill site. The Okanagan vein has been exposed over a length of 200' in a shallow basin near the summit of the ridge at an elevation of 7,700' ASL. Workings consist of two 14' shafts and several open cuts. Approximately 200' south of the southern shaft and 60-70' lower in elevation, a crosscut was driven towards the vein but was stopped 10-20' before intersecting it (probably for financial reasons).

The vein is one of a large number of barren and mineralized (variable amounts of pyrite and lesser galena, sphalerite, and chalcopyrite) quartz veins that are exposed along the gently sloping part of the ridge crest between Cup Creek and the steep slopes facing Trout Lake. The vein, where exposed, is  $1\frac{1}{2}$ ' to  $4\frac{1}{2}$ ' in width, strikes N10°W to N33°W, and dips 57-65°E. The following assays have been reported:

Location	Width	<u>Au (oz/ton)</u>	<u>Ag (oz/ton</u>
North shaft	1.2'	1.68	-
Grab at shaft	-	1.03	
Grab at shaft	-	2.71	-
Grab at shaft	-	2.22	-
	3'	5.4	5.0
Specimen (no gangue)		13.7	67.9
	3'	1.9	2.9

The vein pinches out about 200' north of the above-described workings, but has been traced southerly from the workings for a 'considerable' distance.

The Enderby vein is exposed several hundred feet northwest of the southeastern corner of the Enderby grant. The vein is reported to be  $1\frac{1}{2}$ ' to 3' in width, strikes N55°E, and dips fairly flatly to the east. The following assays have been reported.

<u>Width</u>	<u>Au (oz/ton)</u>	<u>Ag (oz/ton)</u>	<u>Pb (%)</u>
Grab from dump	0.065	35.2	33.5
Two feet	0.04	46.83	43.43
Two and a half feet	0.07	7.3	-
14-foot trench	0.012	2.68	-

The vein exhibits more similarities to the Silver Cup vein structures than to the Winslow, Okanagan, or Alice veins.

#### 1983 FIELD PROGRAM

During the period July 28 to August 4, 1983, a three-man party under the direction of the writer undertook a cursory evaluation of the Winslow and the Okanagan veins utilizing soil geochemistry, a VLF-EM survey (Winslow vein only), and reconnaissance prospecting. The examination was directed toward selecting the optimal exploration techniques for a comprehensive exploration of the Winslow Group.

A cut-and-picket base line with compass-controlled flagged cross lines wase established over the Winslow vein whereas the Okanagan grid (above treeline) was exclusively compass controlled and flagged.

#### Soil Geochemical Survey

A total of 78 'B' zone soil samples were taken from the Winslow grid, generally at 12.5 m station intervals on 50 m spaced lines. Additionally, 103 'B' zone soils were selected at 25 m station intervals on 100 m spaced lines from the Okanagan grid.

The soil samples were analyzed for gold, silver, lead, and copper by TerraMin Research Labs Ltd. of Calgary. The gold content was analyzed by their combined fire assay - atomic absorption technique (25 g sample aliquot), and the other metals by standard atomic absorption techniques. The analytical results are included in the appendix.

## Winslow Grid Results (c.f. Maps 83-2 and 83-3)

A moderately strong coincidental gold/lead soil geochemical anomaly with a north-south orientation and a width of less than 25 m extends from L1+00N to L1+00S. As a consequence of the nearly perfect correlation of the anomaly with adits No.1 and No.1A, the mill site, and adit No.3, this zone is almost assuredly related to contamination from the various spill piles and mill tailings.

Okanagan Grid Results (c.f. Maps 83-6 and 83-7)

A moderately strong coincidental gold/silver/copper geochemical anomaly is spatially related to the trenches on the Okanagan vein. Downslope dispersion of up to 100 m is apparent.

#### CONCLUSIONS AND RECOMMENDATIONS

#### 1. Soil Geochemical Surveys

The immediate vicinities of the Winslow and Okanagan veins are geochemically contaminated by the spill piles and drainage of numerous adits, test pits, and trenches. As a consequence, detailed soil geochemical results are highly suspect. For reconnaissance purposes, a grid extension in the Winslow area would be considerably hampered by increasingly steep slopes to the east and north (in excess of 40°) and by a 100 m wide rock slide to the west. No further geochemical surveys are recommended here.

Although the Okanagan vein is readily apparent from the gold/silver soil geochemical data, detailed prospecting in this well-exposed alpine terrain would probably be a more cost effective approach to exploration.

#### 2. VLF-EM Survey

A strong VLF-EM anomaly (Conductor A) is coincidental with the inferred surface trace of the Winslow vein.

Additional VLF-EM for both the Winslow and the Okanagan veins is recommended if this project progresses beyond the proposed Phase I drilling.

# 3. 'Cat' trenching

The steep slopes (averaging  $>25^{\circ}$ ) over the inferred surface trace of Winslow vein present a formidable obstacle to trenching with any type of heavy equipment. The fine overburden, which varies from one metre to over five metres, has a high clay content and is water saturated. Even hand trenching may pose insurmountable problems.

4. An access road (suitable to four-wheel-drive trucks) was completed to the millsite on October 3, 1983.

## 5. Okanagan Vein

No additional work is proposed for the Okanagan vein pending the outcome of the Phase I drilling of the Winslow occurrence.

# 6. <u>Winslow Vein</u>

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A four-hole diamond drill program totalling 550 m is proposed to verify the reported underground gold values and width of the vein structure. Budget requirements, including mobilization, drilling, camp support, assays, and supervision would be approximately \$75,000. SUMMARY OF EXPENDITURES

PERSONNEL		\$	7,305.00
ACCOMMODATION			960.00
TRUCK RENTAL and FUEL			714.71
HELICOPTER TRANSPORTATION (Terr Air Rotary Ltd.)			1,237.50
VLF-EM and TRANSCEIVER RADIO RENTAL			200.00
COURIER AND FREIGHT			21.75
REPRODUCTIONS and PHOTOCOPYING			182.64
DRAFTING			320.00
DISPOSABLE FIELD SUPPLIES			80.45 <sup>.</sup>
TELEPHONE, HANDLING CHARGES, MISC.			289.00
ASSAYS TerraMin Research Labs Ltd.			
181 soil samples, 9 rock samples		<u> </u>	1,906.85
	TOTAL	\$	13,217.90

#### SUMMARY OF PERSONNEL

J. R. Allan, P.Geol. (Supervisor) July - Sept./83 13 man days 3609 - 1A Street S.W. Calgary, Alberta T2S 1R4 D'Arcy Lincoln (Project Geologist) July 28-Aug. 4/83 8 man days #201, 823 - 19th Ave. S.W. Calgary, Alberta T2T OH6 E. Ingarfield (Sampler) July 28-Aug. 4/83 8 man days #574, 330 - 5th Ave. S.W. Calgary, Alberta T2P 0L4 29 man days

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#### BIBLIOGRAPHY

- Fyles, J.T., and Eastwood, G.E.P. (1962): Geology of the Ferguson Area, Lardeau district; B.C. Dept. of Mines, Bull.45
- Millar, James F.V. (Dec.11/63): Geological Report, Winslow Claim Group; private company report

Netolitzky, R.K. (Dec.12/80): Geological Evaluation and Exploration Program, Winslow Gold Project; private company report

Read, P.B. (1973): Petrology and Structure of Poplar Creek Map-Area; G.S.C. Bull.193

(1977): Geology, Lardeau Map-Area 82K(W<sup>1</sup>2); G.S.C. Open File 432

File 464 File 464

Walker, J.F., and Bancroft, M.F. (1930): Lardeau Map-Area; G.S.C. Mem. 161



























