85-664-13968

PART 2 OF 3

# GEOLOGICAL BRANCH

13,968

WOLF CLAIMS

Entiako Lake, B.C.

# 93F/3W

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GEOLOGY, GEOCHEMISTRY, TRENCHING

MAGNETIC AND VLF SURVEYS AND DIAMOND DRILLING

1985

L. D. Holmgren [R. M. Cann

October 1985

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Claims	Units Record No.			
Wolf	20	5565		
Wolf 2	1997 - Sentar State (1997) - Sentar State (1997) - Sentar State (1997) - Sentar State (1997) - Sentar State (1	5566		
Wolf 3	12	5567		
Wolf 4	12	6675		
Wolf 5	20	6676		
Wolf 6	8	6677		
Wolf 7	15	6678		
Wolf 8	<b>12</b>	6679		
Wolf 9	$\overline{20}$	6680		
Wolf 10	20	6681		

NTS:	93F/3W
LATITUDE:	53° 12.5 N
LONGTITUDE:	125° 28'W

#### Operator/Owner

Rio Algom Exploration Inc. 520-800 W. Pender Street Vancouver, B.C. V6C 2V6

Omineca Mining Division

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# WOLF CLAIMS

# Entiako Lake, B.C.

# 93F/3W

# GEOLOGY, GEOCHEMISTRY, TRENCHING

# MAGNETIC AND VLF SURVEYS & DIAMOND DRILLING

# 1985

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# SUMMARY

The Wolf claims, located 115km south-southeast of Burns Lake, were staked in 1983 as the result of an anomalous Ag value in lake sediment. Soil and rock sampling, trenching and geological mapping in 1983 and 1984 indicated an epithermal environment within Tertiary Ootsa Lake rhyolites and identified several silicified zones which are anomalous in gold and silver, including one zone (Ridge Zone) which returned a value of 8.49 g/t Au and 42.41 g/t Ag over 7.5m in a trench.

Field work in 1985 was aimed at drill testing the Ridge Zone and evaluating overburden covered areas in the vicinity of this zone using geophysics and trenching. Geological mapping, rock sampling and soil sampling was also conducted over a ridge located 3km east of the Ridge Zone (East Grid).

Four diamond drill holes totalling 344.1m were drilled on the Ridge Zone. Intensely silicified and brecciated rhyolite exposed in trenches was not intersected in drill core as the zone exposed on surface has been truncated to the west by a northsouth trending fault and cut-off approximately 25m below surface by flat-lying, non-outcropping sediments. Magnetic and VLF-EM surveys were not useful in tracing the zone, but did show several structural or lithological features. Rock sampling outlined a new zone termed the Pond Zone located 400m south-southeast of the Ridge Zone. Intense silicification and gold values greater than 0.5 g/t in rock define a zone 350m long, 25 to 50m wide which is open to the south. This zone was tested by two diamond drill holes totalling 249.4m in length. Results were comparable to those on surface with a highest gold value of 1.4 g/t and highest silver of 19.0 g/t

Geochemical and geological surveys in the East Grid outlined an oval Ag in soil geochemical anomaly approximately 1.2km long by 0.4km wide. Limited outcrop within the soil anomaly consists of silicified rhyolite.

Further exploration on Wolf should include additional soil geochemistry, geophysical surveys and diamond drilling on the Pond Zone to trace the zone further south. Additional diamond drilling is recommended on the Ridge Zone to test for mineralization in felsic volcanics which probably underly the sediments. Further mapping, rock sampling and possible trenching is recommended on the East Grid to evaluate the soil anomaly. WOLF CLAIMS Entiako Lake, B.C. 93F/3W GEOLOGY, GEOCHEMISTRY, TRENCHING, MAGNETIC AND VLF SURVEYS & DIAMOND DRILLING Page

1985

#### 1. INTRODUCTION

1.1 GENERAL

This report describes the results of soil and rock geochemistry, trenching, geological mapping, magnetic and VLF surveys and diamond drilling conducted during the period between May 24th and August 16th, 1985, on the Wolff group of 10 claims, located south of Burns Lake, B.C. This work was done to evaluate more fully the potential of epithermal gold and silver mineralization found on the Wolff Claims in 1984. This discovery, in 1984, was a result of an initial program of soil sampling, mapping, rock chip sampling and trenching prompted by a silver anomaly (2.1ppm) obtained from the lake of the Wolff claims during a Lake sampling programme by Riocanex (now Rio Algom Exploration Inc.) in 1982. Typical epithermal silicification of the Ootsa Lake group was discovered during rock sampling of the area in 1983, and was further explored in 1984. The 1984 work is described with results in a report:

WOLF CLAIMS GEOLOGY, GEOCHEMISTRY & TRENCHING 1984

by R. M. Cann, dated December 1984. This report is filed for assessment work on the claims Wolf 1-10.

The 1985 programme was aimed at further exploring an area of silicification with significant gold-silver mineralization referred to as the Ridge Zone. Trenching this zone in 1984 has exposed mineralization running up to 8.49 g/t gold and 42.21 g/t silver over 7.5m. Trenching, geophysics and drilling in 1985 were directed at outlining this zone of silicification and mineralization more accurately, and exploring its possible extension at depth. Geological mapping and geochemistry were aimed at exploring for other similar zones.

1.2 LOCATION AND ACCESS

The claims are located in central British Columbia 115km south-southeast of Burns Lake, between Entiako Lake and Johnny Lake (NTS: 93F/3W).

Access to the property is via the Kluskus logging road from Vanderhoof which passes approximately 18km southeast of the property, with final access by helicopter (DWG L-6787). Alternatively, access is possible via float plane from Burns Lake or Prince George to Cow Lake with final access to the



property by helicopter.

The Capoose silver deposit (Granger-Cominco) is located 22km east-northeast of Wolf on Fawnie Nose.

1.3 CLAIM STATUS

The Wolf property consists of 10 claims totalling 148 units as listed below.

CLAIM	UNITS	RECORD NO.	STAKED	RECORDED
Wolf	20	5565	13 Jul/83	818 Ju1/83
Wolf 2	9	5566	15 Jul/83	18 Jul/83
Wolf 3	12	5567	14 Jul/83	18 Jul/83
*Wolf 4	12	6675	23 Sept/84	26 Sept/84
Wolf 5	20	6676	23 Sept/84	26 Sept/84
Wolf 6	8	6677	22 Sept/84	26 Sept/84
Wolf 7	15	6678	23 Sept/84	26 Sept/84
Wolf 8	12	6679	22 Sept/84	26 Sept/84
Wolf 9	20	6680	21 Sept/84	26 Sept/84
Wolf 10	20	6681	22 Sept/84	26 Sept/84

The claims are within the Omineca Mining District. Claim boundaries are shown on Map L-6788.

1.4 TOPOGRAPHY AND VEGETATION

The claims are located in an area of moderate relief on a broad spur ranging in elevation from 975m to 1350m. Locally the terrain is composed of gentle knolls.

\* As of September 26, 1985 the Wolf 4 claim was allowed to lapse.



swampy, with abundant growth of tall grasses and small brush.

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## 1.5 HISTORY

Early exploration in this area was hindered by remoteness and by extensive overburden; however, logging activity has opened much of the area in recent years.

Earliest systematic mineral exploration in this general area is believed to have been a regional lake sampling program conducted by Rio in 1970. No lakes on Wolf were sampled as the western edge of the survey area was approximately 5km east of the claims. In 1982 Rio conducted another lake sediment survey in central B.C. and sediment from the lake of the Wolf claims was found to be anomalous in Ag (2.1ppm), Zn, As and Mo. Subsequent follow-up in October 1982 resulted in the Wolf claims being staked and a programme of soil and rock geochemical sampling being conducted in September, 1983 on three grids over areas of silicified breccias and veining by chalcedonic quartz.

Field work in 1984 consisted of geochemical sampling, geological mapping, and later trenching, resulting in the discovery of several areas of multiphase silicification with accompanying gold and silver mineralization. Values on surface ran up to 8.49 g/t gold and 42.21 g/t silver over 7.5m. Subsequent to the 1984 field work, Wolf 4-10 were staked to protect the known areas of silicification, and adjacent areas of potential within the Ootsa Lake rocks.

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# 2. 1985 FIELD PROGRAMME

# 2.1 GENERAL

Field work in 1985 was aimed at exploring and testing the known zone of mineralization (Ridge Zone) and at a detailed search for mineralization in other areas of silicification. Areas of overburden cover surrounding the Ridge Zone, and the unexplored areas of Wolf 9 and 10 were also examined for similar silicified and mineralized zones. The programme was conducted between May 24 and August 16, though field work was interrupted by a forest service ban on industrial activity, (July 20-31) and the eventual total closure of the forest district to all activity, (August 1-5) due to the extremely high forest fire hazard.

Geological field work was carried out by a crew of 3-12 people under the supervision of temporary geologist L. D. Holmgren. Geophysical work was done by D. Sexsmith of the Toronto office of Rio Algom.

The programme was under the overall supervision of R. M. Cann of Rio Algom Exploration Inc.

2.2 GEOCHEMISTRY

2.2.1 GRID 3

As it seemed likely that the known mineralization would not

account for anomalous Ag obtained in the Wolf lake during the lake sediment sampling, 223 soil samples were collected on the western side of Grid 2. Lines lN, ON, 1S, 2S, 3S, 4S, 5S, 6S and 7S were extended from 8+00E to 3+00E. Eighty-two soil samples were collected along the south eastern side of Grid 3, where lines 4S, 5S, 6S and 7S were extended from 12+00E to 16+00E in order to further explore the area surrounding what is now called the Pond Zone.

All lines were surveyed in using hip-chain and compass with stations flagged at 20m intervals, B-horizon soil samples were collected at each 20m station, placed in kraft sample bags and shipped to Acme Analytical Laboratories Ltd., in Vancouver for Mo, Pb, Zn, Ag, As, Sb (ICP) and Au (AA) analysis.

Results are listed in Appendix C and plotted on DWGS. GC-8046 and GC-8047.

2.2.2 EAST GRID

/ To test the unexplored ridge, 3km to the east of the Ridge Zone, a total of 1160 soil samples were collected along E-W lines extending for 2.2-3.0 kilometres, and spaced 200m apart. A surveyed and cut baseline at 0+00E was the starting point for the grid lines. These lines were surveyed in using hip chain and compass with stations flagged at 25m intervals. B horizon soil samples were collected at each 25m station, placed in numbered kraft sample bags and shipped to Acme Analytical Laboratories for ICP analysis for Mo, Pb, Zn, Ag, As, Sb and AA analysis for Au.

To further define anomalies obtained in the above initial sampling 155 follow-up soil samples were collected on the East Grid. These samples were collected at 25m intervals along lines spaced midway between existing E-W lines located between 4+00N and 20+00N.

Locations are shown on DWG GC-8048. Results are listed in Appendix C and plotted on DWGS GC-8049 and GC-8050.

## 2.3 TRENCHING

Five trenches, totalling 16.0m in length, were hand-blasted and mucked on Grid 3 in an attempt to define the Ridge Zone more precisely. Trenching was carried out under contract during a 4 day period by a two man crew from Van Alphen Exploration Services, Smithers, B.C. The trenches were chip sampled along consecutive 1m intervals, and samples were sent to CDN Resource Laboratories Ltd. in Delta where they were fire-assayed for Au and Ag, and later reanalyzed for Ag by AA (atomic absorption). Trench locations are shown on DWG GC-6797. Results are given in Appendix E and shown on DWG GC-6798.

# 2.4 ROCK SAMPLING

A total of 21 rock grab samples were collected during mapping and prospecting on the west-half of the property. These samples were sent to Acme Analytical Laboratories in Vancouver for analysis for Ag (ICP) and Au (AA). Sample locations and results are shown on DWG G-7647. Thirty six rock grab samples were collected from the East Grid area. These samples were also sent to Acme Analytical Laboratories for Ag (ICP) and Au (AA) analysis on 25 samples, and for Mo, Pb, Zn, Ag, As, Sb (ICP) and Au (AA) analysis on the remaining 11 samples. Sample locations are shown on DWG GC-8048, and the results in DWG GC-8049 and GC-8050. All results are tabulated in Appendix D.

Chip samples were collected on the Chopper Pad Zone and the Lookout Zone, to refine anomalies obtained by 1983 rock samples and 1984 chip samples. On the Chopper Pad Zone, (DWG GC-8045) a total of 29 samples were collected along 4 E-W lines in an attempt to follow the northerly trend of a silicified zone shown by rock samples collected in 1983. These samples were taken across 3m intervals on the Lookout Zone (DWG GC-6808) a total of 48 chip samples were collected at 3m intervals along E-W lines 15m apart in order to sample consistently across the N-S trend of the silicified zone.

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A single line of 14 rock chip samples were collected at 10 to 20 metre intervals in an approximately north-south trending line down the length of the ridge at the Pond Zone and four 5m chip samples were taken 15m apart along the eastern edge at the northern end of the zone. A large silicified area of the Pond Zone was sampled along east-west lines spaced 15m apart. Thirty-nine 5m chip samples were collected initially, while thirty-five 1m chip samples were collected from the 5m sample intervals that yielded the highest Au and Ag. Sample locations are shown on DWG GC-6799. Results are given in Appendix D and shown on DWG GC-6800.

All of the chip samples may have comprised veins, silicified rock, or unaltered rock or any combination there of.

Samples were sent to Acme Analytical Laboratories in Vancouver for analysis for Au (AA) and Ag (ICP).

2.5 TEST PITS

Test pits were hand dug to the East of exposed outcrop on the Chopper Pad Zone in an attempt to trace Ag anomalies obtained by chip samples collected in 1984 and rock chip samples collected in 1983.

A total of 17 test pits were dug using pick and shovel, most to a depth of 0.5m. Subcrop or outcrop was encountered in 13 of the test pits, and a sample collected. Samples were geochemically analyzed for Au by AA, and for Ag by ICP, at Acme Analytical Labs in Vancouver. Sample locations are shown on DWG GC-6806. Results are given in Appendix D and shown on DWG GC-6807.

## 2.6 GEOLOGICAL MAPPING

Geological mapping at a scale of 1:5000 was carried out over the entire property by K. Andrew, a M.Sc. candidate from the University of British Columbia (DWG G-7647, 7648). Mapping was done on a 1:5000 topographic base map of the entire claim block prepared by Hugh Hamilton Ltd. The 1983, 1984 and 1985 soil grids were used as a control for mapping. Provincial government air photos at an approximate scale of 1:20,000 and a 1:5000 photo enlargement were also used where necessary.

Geological mapping at a scale of 1:1000 was carried out over Grid 3, ie. the area comprising the Ridge, the Lookout and the Pond Zones, on an enlargement of the 1:2000 topographic map of the area prepared by Hugh Hamilton Ltd. (G-8045). The 1985 geophysical grid, as well as the 1983, 1984 and 1985 soil grid lines were used for topographic control.

2.7 GEOPHYSICAL SURVEYS

Between May 30th and June 20th 1985 Rio Algom Exploration Inc. executed ground magnetic and VLF surveys in support of the continuing geological and diamond drilling program being conducted on the Wolf Claims in north central B.C. The Wolf Claims program being elsewhere described, the following discussion is confined to the equipment and methods used and the results obtained from the geophysical portion of the Wolf Claims project.

# 2.7.1 GRID CONTROL

The ground control for the geophysical survey was primarily established by means of 26 compassed and flagged traverse lines turned off at 20 metre intervals from a cut and picketed base line. The base line, cut at 025 degrees, was chained at 20 metre intervals from 0 to 500S, while the traverse lines were hip-chained at 10 metre intervals from 200E to 300W. The 500 metre square, so described, was centered over trenches emplaced during the previous phase of the program.

#### 2.7.2 EQUIPMENT

Rio Algom rented the following equipment from Scintrex in Toronto. The manufacturer's technical specifications are appended (Appendix B).

- 1. IGS-2 integrated data acquisition system
- 2. MP-3 base station magnetometer
- 3. Epsom FX-80 printer
- 4. Magnetic and VLF sensors for the IGS-2 system
- 5. Other essential accessories, software, interfaces and supplies.

Additionally, a Company-owned EM-16 VLF receiver was used for a portion of the VLF survey.

The IGS-2 is a microproccessor-controlled data acquisition system which can be programmed to accept input from a variety of geophysical monitors, in this case total field magnetic and VLF sensors. By means of a menu-driven 32 character LCD display, the IGS-2 prompts the user to initialize the system for a survey by selecting the mode of operation and setting the initial survey parameters. The user enters such information by means of a keypad. In addition to housekeeping functions, the IGS-2 monitors the strength and quality of received signals, samples, stacks, averages and stores the data contined in such signals, provides editing functions and a means to dump stored data to a local printer or microcomputer, to a tape cassette or, via modem, to a remote data processing facility. A local data dump would typically consist of formatted data listings or simple profiles of 1 or 2 variables with rather limited control over scaling.

The MP-3 is a microprocessor controlled proton precession magnetometer (essentially an IGS-2 system dedicated to magnetic data) which under software control can be configured as either a base station monitor or as a field mangetometer. In the latter mode it can be programmed for either total field or gradiometer operation. In any configuration it measures the ambient magnetic field to the nearest tenth of a gamma. For precision work the sensor is mounted on a staff and held away from the operator. For speed and/or mobility in difficult terrain the sensor can be mounted on a backpack.

The VLF-3 and the IGS-2 with the VLF option (VLF-4) are digitially tuned, microprocessor controlled VLF receivers which can be programmed to sequentially record data from 3 VLF frequencies. For each frequency selected the user has the option to measure the M-field, the E-field or both. For the M-field mode the system records the horizontal field strength in arbitrary units to 3 significant figures, that vertical field in-phase component and the vertical field quadrature component; the latter 2 parameters being expressed as percentages of the horizontal field strength. The M-field data is measured by means of 2 mutually orthogonal coils. The ratio of the response between the coils provides a measure of the polarization ellipse.

2.7.3 FIELD PROCEDURES

The IGS-2 was configured to measure the total field magnetic response and the M-field component of the VLF signal at 24.8 kHz, emitted by transmitter NLK near Seattle. Bearing 156 degrees from the survey area, this transmitter provided an acceptable coupling with the presumed strike of the horizon of interest. Magnetic observations were recorded at 5 metre station intervals along the baseline and all traverse lines while the VLF observations were confined to the 26 traverse lines at 20 metre station intervals. The EM-16 was used to measure the VLF M-field from L80S to L180S inclusive while the IGS-2 was used to record all remaining VLF data.

The Mp-3 was set up as a base station magnetometer near the campsite about 1 kilometre west of the survey area. Prior to each survey day the internal clocks for the base and field magnetometers were synchronized. After a basefield of 57000 gammas and a sampling interval of 10 seconds were entered the base station auto-recording sequence was initiated. The field traverses could then commence. Later, data collected by the field magnetometer was stripped of diurnal variations by connecting the field mag to the base mag and initiating the auto-correction routine.

After the base station magnetometer failed, the magnetometer traverses were conducted in closed loops, each loop commencing and terminating with an observation at a station for which the correct magnetic value was known. Closure errors thus revealed were then chronologically distributed in a linear fashion among other observations within the loop. Closure errors in excess of 30 gammas were not accepted, the traverse in question being re-run to obtain a better result.

## 2.7.4 WORK PERFORMED

The mag and VLF surveys accumulated data for 663 VLF stations and 2667 magnetometer stations these figures being respectively equivalent to 12.8 and 13.3 line kilometres of data. Of the VLF data, 2.4 line kilometres or 19% of the total was acquired with the EM-16

2.8 DIAMOND DRILLING

Six NQ holes totalling 593.1m were drilled between June 13 to 28 and August 9 to 12 to test mineralization, beneath trenches at the Ridge Zone, and the silicified Pond Zone, at depth. Drill sites are plotted on DWG G-8045 and drill logs are attached as Appendix H. Drill sections at a scale of 1:500 are shown on DWG G-6801 and G-6805. Drilling was performed by D. W. Coates Enterprises Ltd. of Kamloops, B.C. using a Longyear 38 drill working two 11 hour shifts. Mobilization of the drill onto the property and between drill sites was by Hughes 500D helicopter. Demobilization of the drill off the property was by Bell 205 helicopter. Drilling charges are given in Appendix A. Average direct drilling costs (excluding camp and helicopter costs) were \$79.60/metre.

The drill core was routinely split in 2 metre sections, and half the core was shipped to CDN Resource Laboratories Ltd. in Delta, B.C. For geochemical Au (FA/AA) and Ag (aqua regia digestion, AA) analysis. Smaller intervals were sampled locally where quartz veining, sulphides and/or brecciation were important.

In the underlying units where silicification was not present, a 2 metre section of core was split and sampled every 8 metres. The results of drill core sampling are listed in Appendix E and given on the logs. The core is stored on the property in closed core boxes. Core from DDH-1, 2, 3 and 5 is stored near the collar of DDH-3 and core from DDH-4 and 6 is stored near the collar of DDH-4.

#### 3. GEOLOGY

#### 3.1 REGIONAL GEOLOGY

Geology of this area has most recently been described by Tipper, Map 1131A (1:253,440) in GSC Memoir 324. Oldest rocks in the vicinity of the Wolf claims are described by Tipper as Takla Group volcanic rocks. However, on GSC Map 1424A (1:1,000,000) these rocks have been reclassified as Lower Jurassic Hazelton Group. To the east, this unit is overlain by Middle Jurassic Hazelton Group andesitic flows, breccias and sediments. This unit hosts the Capoose silver deposit. Cretaceous or Tertiary granitic plutons are common within the Hazelton Group.

The Wolf Claims are located in a 10km by 40km northeasttrending belt of Lower Tertiary Ootsa Lake group volcanics. The rocks in the belt are described as subaerial rhyolite to dacite flows and volcaniclastics with minor andesite, basalt and conglomerate. A lower andesitic unit of the Ootsa Lake Group has been described but does not outcrop in the vicinity of the Wolf Claims.

There are no records of mineralization in the Tertiary rocks on the claims. The nearest showings, in older rocks are at least 15km away and are mostly of porphyry-type.

## 3.2 PROPERTY GEOLOGY

Wolf is underlain by a sequence of subaerial felsic flows, tuff, domes (?) and non-outcropping epiclastic sediments which are truncated to the south by an areally extensive feldspar porphyry intrusive. The felsic volcanic sequence is bounded on the east by an aphanitic green andesite (Unit 3) and on the west by a steeply dipping, basal (?), granite boulder conglomerate (Unit 1).

Units, as defined on DWG G-7647, are described briefly below.

- Unit 1- Poorly sorted boulder conglomerate with a matrix of coarse-grained greywacke and rounded clasts up to 0.5m long of granodiorite (60%), andesite (25%) and aplite (15%).
- Unit 2- Light green-grey volcanic with 5% feldspar phenocrysts (commonly clay altered) in fine-grained matrix. No silificiation noted within this unit.
- Unit 3- Green, aphanitic andesite flows and local breccia which are commonly carbonate veined. Unit 3, which outcrops on the extreme eastern side of the property, may be stratigraphically equivalent to Units 1 and 2 on the western side.
- Unit 4- Grey-mauve crystal tuff containing 40% orthoclase and quartz crystals and apparently overlying rhyolite of Unit 9. This unit outcrops only on Grid 3 and is locally strongly silicified.

- Unit 5- Grey-green lithic crystal tuff containing 15% quartz and orthoclase crystals and 15% angular lithic fragments. Quartz veins occur locally within Unit 5.
- Unit 6- Cream-coloured, aphanitic ash tuff containing 2% smoky quartz eyes. Silicification and quartz veining occur locally.
- Unit 7- Maroon, orthoclase quartz porphyry flows which cover large areas southwest of camp. One to four millimetre tabular orthoclase crystals forming up to 5% of the rock are distinctive. Quartz veining is rare within this unit.
- Unit 8- Grey to tan aphanitic rhyolite containing 15% 1-2mm quartz and orthoclase phenocrysts. The outcrop distribution and abundant flow banding, spherilitic and brecciated textures suggest this unit may be in part, or entirely domal in origin. Unit 9 hosts the Ridge and Chopper Pad Zones.
- Unit 9- Black, hydrothermal or vent breccia which cuts both Units 7 and 9. The breccia contains 35% angular lithic and crystal fragments and minor quartz veins.
- Unit 10 Green altered volcanic, containing 15% subhedral feldspar phenocrysts, located marginally to Units 9 and 11 on the East Grid.
- Unit 11 Tan-coloured rhyolite porphyry intrusive with 60% tabular 5-10mm orthoclase phenocrysts and 10% 0,5mm quartz eyes. This unit outcrops across the southern part of the map area and intrudes all the above units. The Pond Zone is hosted by Unit 11.
- Unit 12 Unit 12 consists of 25% euhedral, 3mm orthoclase phenocrysts and 10% smoky quartz eyes in an aphanitic

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cream-grey matrix. This unit is intimately associated with Unit 11 and either a marginal or cross-cutting phase and they are therefore probably cogenetic.

Strong silicification and associated gold-silver mineralization appears to be restricted to the youngest or stratigraphically highest units (ie. Units 9, 4 and 11) although weak quartz veining can occur in Units 5, 6 and 7. The most continuous and best mineralized zones (Ridge and Pond) are centred on Grid 3; the geology of which is described in more detail in Section 5.3.

Northerly trending faults are suspected in several areas but could be substantiated only on the Ridge Zone as a result of detailed drilling and along the valley between camp and Grid 3 where a strong VLF-EM conductor suggests a fault.

3.3 GRID THREE

Outcropping at the northern end of the Ridge Zone (DWG G-8045) as seen in Trench 3 and on surface at DDH-3, is flow banded rhyolite with 1-2% 1-2mm quartz eyes. Flow laminations marked by thin tan and white bands, generally trend east-west and are steeply dipping.

Overlying and outcropping to the south and west of the flow banded rhyolite is a maroon-coloured crystal tuff. This is composed of 30-60% 1-2mm orthoclase phenocrysts and 10% 1-2mm angular quartz grains in a siliceous aphanitic matrix. Silicification within this unit has been described in detail in the report on the Wolf claims of 1984. It is the host for the Lookout Zone and the south end of the Ridge Zone. Sediments discovered in drilling do notoutcrop, probably due to their recessive weathering nature.

The Pond Zone is hosted by feldspar quartz porphyry with 7-10%, 1-6mm tan-white orthoclase phenocrysts and 1-2%, <1-1mm glassy quartz eyes in a fine-grained pale tan-green groundmass. This zone is extremely siliceous locally, with silicification occuring in patches, veinlets and veins up to 2.0m across and 6-8m in length. Massive milky white sucrosic quartz and cryptocrystalline white-grey quartz/chalcedony veins and veinlets may locally be bladed and vuggy. Banding and convoluted layering are noted in quartz/chalcedony veinlets. Boulders and outcrop of massive white quartz with very distinct blading are seen towards the southern end of the zone. The silicification is seen on surface over a length of at least 350m, and varies in width from 15 to 65m. This zone is still open to the south.

To the extreme north of the map area there are several outcrops of an aphanitic, grey-tan locally pale maroon-coloured quartz porphyry that exhibits minor flow banding.

In the southeast, an approximately 20m wide dyke (?) of

fine-grained quartz feldspar porphyry, with flow banding noted locally, outcrops within the feldspar quartz porphyry unit.

An approximately north-south trending right hand fault, with an apparent strike slip movement of about 150m is postulated along the creek gulley immediately west of the Ridge Zone. Evidence for the fault includes the relative offset of mapped units persistent and strong shearing in DDH-2 and locally in DDH-1; truncation of silicification and mineralization on the west side of the Ridge Zone; and a topographic lineament along the west side the Ridge Zone. 4. TRENCHING, ROCK SAMPLING AND TEST PITS

# 4.1 TRENCHING

Trenching in 1985 was carried out in the area of 1984 trenching (Ridge Zone) with the intent of sampling and further defining the known, high-grade silcified zone. Details of the 1985 trenches (Trenches 9-12) with descriptions of the geology are given in Appendix F. Gold and silver assay results from consecutive lm samples are shown on DWG GC-6798. The known area of silicification was extended 10m to the North as a result of this new trenching. Deep overburden, as encountered in Trench 13, prevented any further trenching to the north. The most southerly trench, Trench 11, is on the western flank of the silicified Ridge Zone. Deepening overburden to the west prevented any further trenching in that direction.

Rock in Trench 9 comprised of bladed-vuggy, sucrosic, white quartz very similar, visually, to that in test pit #9226 (164.0 g/t Ag, 17.10 g/t Au), although it averaged only 12.25 g/t Ag and 2.5 g/t Au over 4 metres. In Trench 12, a 0.25m section of the massive bladed white quartz gave 15.0 g/t Ag and 3.4 g/t Au.

Moderate silver values were obtained in both Trench 10 and Trench 11, where silicified and altered quartz eye porphyry averaged 7.17 g/t Ag and 0.87 g/t Au over 3 metres, and 7.9 g/t Ag and 0.68 g/t Au over 4.5m, respectively.



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11 + 80 E Trench 9 Trench 12 002 · 0,3013 01300, Trench 13 Trench 10 ¥ D 9 2 2 5 °0 Trench 2 63 64 65 66 0 94 67 68 **Rio Algom Exploration Inc.** WOLF CLAIMS RIDGE ZONE - GRID 3 TRENCH SAMPLE LOCATIONS DRAWN BY DWG. DATE Oct. 1985. GC 6797 L. D. H. / J.S.



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11 + 80E Trench 9 ..9 •3.₹ /13.6, 1.9 Trench 12 17.8,3.0 12.31.7 5.1.1.1 Trench 13 OVB Trench 10 ★ 3.7,0.30 Trench 2 <sup>3.3</sup>, <sup>₹0.0°</sup>7 <sup>50.3</sup>, <sup>50.0</sup>7 <sup>•0.</sup>3, •0.07 <sup>50.3</sup>, 50.07 <sup>•0.3</sup>, <sup>0.24</sup> <sup>2.</sup>3, <sub>0.14</sub> **Rio Algom Exploration Inc.** WOLF CLAIMS RIDGE ZONE - GRID 3 TRENCH ASSAYS - Ag, Au DATE DRAWN BY DWG. GC 6798 Oct. 1985. | L.D.H. / J.S. |

#### 4.2 ROCK SAMPLING

## 4.2.1 WESTERN AREAS

Of the 21 rock grab samples collected during prospecting and mapping on the west side of the property (DWG G-7647), only a few were anomalous in Ag (0.9-2.7ppm) and only one of those was anomalous in Au (250ppb). The most significant sample was G-2602 (1.7ppm Ag, 250ppb Au) which was the first sample collected on what was to become the Pond Zone. All of the anomalous samples came from areas of silicification.

4.2.2 EAST GRID

There are very few anomalous samples among the 36 rock grab samples collected during prospecting on the East Grid. (DWG GC-8049). All of these were anomalous in Ag (0.7-2.5ppm), with no corresponding Au values. Most of the anomalous samples were silicified and crosscut by quartz veinlets. Many similar silicified samples were not anomalous, indicating an erratic system.

4.2.3 CHOPPER PAD ZONE

Four additional lines of chip samples were taken across silicified areas north of the two 1984 sample lines (DWG GC-6806, GC-6807). Many anomalous silver values (1.0 to 7.4ppm Ag)




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were obtained along lines 2+90N, 3+10N, and 3+20N. Gold values are erratic, not necessarily corresponding with high Ag values. While anomalous values are obtained, no distinct mineralized zone is believed to be present.

4.2.4 LOOKOUT ZONE

Four east-west trending lines of chip samples were collected across the southwestern area of the Lookout Zone. (DWG. GC-6808, GC-6809). Scattered high gold and silver values occur but these do not form a cohesive zone.

4.2.5 POND ZONE

Initially, a single line of chip samples were collected down the length of the Pond Ridge. On the basis of some encouraging results obtained from the southern-most samples, several east-west trending lines of consecutive 5 metre chip samples were taken across the main silicified zone (DWG GC-6799, GC-6800). Results were anomalous for the most part in both Au and Ag across the entire zone. Of particular interest is a locally high-grade south to south-southwest trending zone that varies between 5 and 10 metres in width, with Au values between 500ppb and 1800ppb, and Ag values between 2.2 and 15.1ppm Detailed one metre chip samples of these high grade 5m samples revealed that the higher grades were sporadic, and the high-grade







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- 13+ 00 E × 1·5, 170 × 0.1,60 × 0·1, 25 × 1·3,5 x 1.4,35 x 0.4,40 x 1.4,15 I 1·3,110 0.9,210 1 1.0, 10 5 1 1.5, 225 **Rio Algom Exploration Inc.** WOLF CLAIMS POND ZONE - GRID 3 ROCK AND CHIP SAMPLES RESULTS - Ag, Au DWG. DRAWN BY DATE GC 6800 L.D.H. / J.S. Oct. 1985.

values obtained in the 5m samples were not consistently obtained in the 1m samples. Mineralization is therefore assumed to be patchy, and quite variable, as is typical of epithermal deposits.

4.3 TEST PITS

A total of 17 test pits were hand dug in the area of the Chopper Pad Zone, to the east of the exposed chip sampled outcrop. (DWG GC-6806, GC+6807). The purpose of these test pits was to determine if the silver anomalies obtained at the eastern end of the 1984 chip sample lines were continuous and extensive and to test the potential of the area for trenching. The overburden cover is quite variable, and in places within 10 metres of exposed outcrop is greater than 1m in depth. Details of the test pits with descriptions of geology are given in Appendix G.

Outcrop within the test pits was tan/white/grey variably altered, locally flow banded and locally silicified quartz porphyry rhyolite. Two of the pits contain significantly different units. In pit G-1691 a lapilli tuff, with a dark grey fine-grained matrix containing 15-20% randomly oriented <l-12mm variable fragments, is found. Test pit G-1692 contains a microbreccia, with a dark grey cherty matrix containing 70-80%, <l-6mm bleached white, mostly square or rectangular rock fragments, minor <1-6mm chert fragments and 3-4% <1mm dark grey smoky quartz eyes. Rock seen in outcrop 10-15m east of these pits is very similar in composition.

Geochem values obtained from these samples are variable, with a cluster of 3 anomalous Ag values (1.0 g/t to 1.5 g/t) at the southern end of the sample line. These correspond with values obtained in 1984 and 1985 chip sampling, and indicate a moderately anomalous zone trending north to northwest. Samples at the northern extent of the line of test pits are moderately anomalous in Ag (0.3 to 1.3ppm), Au (24 to 130ppb) or both. No cohesive mineralized zone can be recognized from the combination of 1984 and 1985 chip sample and the test pit sample results. While locally intense, the silicification is not as extensive nor does it seem to be as anomalous as at other silicified zones, such as the Pond Zone.

#### 5. SOIL GEOCHEMISTRY

#### 5.1 GENERAL

Soil sample locations and results from Grid 3 are shown on DWG GC-8046 and GC-8047. Soil sample location from the East Grid are shown on DWG GC-8048, with results shown on GC-8049 and GC-8050.

No statistical study to determine threshold values was carried out. Threshold values obtained by observation in 1984 are therefore retained. Silver is taken as anomalous over 0.6ppm The threshold for As has been taken at 15ppm, and for Zn at 150ppm. Gold does not form coherent anomalies, and while Pb shows some correlation with Zn and As, it cannot be meaningfully contoured.

5.2 GRID 3 RESULTS

Results of 1983, 1984 and 1985 sampling are shown on DWGS GC-8046 and GC-8047. Gold values obtained in 1985 sampling are generally flat, and only locally do scattered high values (10-25ppb) correspond with areas anomalous in Ag. Along 4S and 5S west of 8E, Ag values correlate well with weakly silicified outcrop. High As values along 0 and 1N are in areas of overburden cover, and have not been explained. Several single sample Ag anomalies occur approximately at the break in slope, probably a result of hydromorphic dispersion. The Pond Zone silver values correlate extremely well with the highly silicified zone exposed on surface. Arsenic and/or Zn anomalies show a good spatial relationship with Ag anomalies. Noticeable exceptions to this are the many small arsenic anomalies, some with corresponding Zn between 6E and 3E. These values may be a result of hydromorphic dispersion.

5.3 EAST GRID RESULTS

The soil sample results from the East Grid are shown on DWG GC-8049 and GC-8050. The threshold values determined by inspection for Grid 3 (>0.6ppm Ag, >15ppm As, >150ppm Zn) are applicable to the East Grid results.

A cluster of relatively high Ag anomalies is centered over the top of the ridge, and corresponds well to areas of locally moderate to strongly silicified quartz porphyry seen in outcrop. A few unexplained single Ag anomalies occur both to the east and west of the ridge. Gold values are for the most part quite low, however the few high Au values do correlate with anomalous Ag values.

There are many scattered single station anomalies of Zn and As to the west of the ridge, and only minor As and Zn anomalies associated with Ag anomalies. There is a very strong enrichment of both Zn and As to the East, and downslope, of the ridge. This possibly reflects an increase in the organic content of the soil as a marked increase in vegatation is noted on the east slope.

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#### 6. GEOPHYSICAL SURVEY RESULT

#### 6.1 GENERAL

After a basefield of 57000 gammas was subtracted from the diurnal-stripped magnetic field data, the residuals were plotted on a grid plan at a scale of 1:1000 (DWG GP-7649) and contoured at a linear 50 gamma contour interval.

The in-phase and quadrature components of the VLF M-field data appear in profile format at a scale of 1:1000 (DWG GP-7651). The profile scale is 10% per cm. The principal VLF axii are indicated on this drawing.

Fraser filters of the inphase component of the VLF M-field data were calculated and posted on DWG GP-7650. The positive filter data have been contoured at 5% intervals..

6.2 MAGNETIC RESULTS

Less than 1000 gammas of magnetic relief were recorded within the survey area, superimposed on a regional background of 57450 gammas. A few discrete anomalies in excess of 300 gammas of local relief were located but most other features are considerably weaker.

If the high frequency surficial responses are stripped, the residual magnetic pattern can be resolved into several possible sources. Zone 1 - The rhyolite and crystal tuff exposed along the ridge west of the baseline are relatively non-magnetic as the quiet background or sub-background response suggests. The trench complex is located within this unit. This zone may continue to the northeast under cover, as the mag suggests.

- Zone 2 The porphyry underlying the southern portion of the survey area is somewhat more magnetic than the rhyolite but equally quiet suggesting an increased magnetite content uniformly distributed throughout the unit. The conact zone between these two units, however, is defined by a complex zone of sharp discontinuous magnetic linears striking 070° from L460S-30E to L400S-120E. This signature continues intermittently under cover to the north east along the eastern edge of the survey area.
- Zone 3 The tuff appears to be more magnetic than the other units found within the survey area, the local background being about 100 gammas above the general background.

The considerable magnetic activity suggests a nonuniform distribution of magnetite within the tuff, an internal structural complexity or, perhaps, sharp local variations in the depth of cover. The more intense magnetic observations do in fact occur in the south west portion of the grid, an area of extensive exposure.

### 6.3 VLF-EM SURVEY RESULTS

The VLF delineates several weak-to-moderately anomalous trends, the principle feature, Anomaly-1, being a semi-continuous linear striking the length of the property from LO-180W to L500S-25E. It probably traces a fault or shear zone although there is also a topographical component to this response. Anomaly 2, a weaker, discontinuous VLF trend branches from Anomaly 1 near L120S-100W and traces the northeast boundary of magnetic Zone-1 to its termination on the porphyry contact near L400S-90E.

The VLF clearly outlines the rhyolite-crystal tuff units as a <u>negative</u> anomaly reflecting the high resistivities that are probably associated with the wide spread silicification reported along this trend.

#### 7. DIAMOND DRILLING

#### 7.1 GENERAL

Four diamond drill holes were drilled to test at depth and along strike the gold-silver mineralization exposed in the trenches at the Ridge Zone and two holes were drilled to test silicification and mineralization at the Pond Zone. (DWG G-8045). Drill hole data is summarized below.

DDH	LENGTH (m)	ANGLE	AZIMUTH	COLLAR ELEV. (m)	GEOF	ORDINATES
1 .	95.1	46°	295°	1266.6	2+065	0+42W
2	75.3	47°	115°	1262.5	2+09S	1+05W
3	121.9	48°	295°	1277.7	2+56S	0+06W
4	105.8	50°	115°	1268.0	5+00S	1+15E
5	51.8	50°	115°	1257.9	1+94S	0+87W
6	143.6	50°	090°	1269.0	5+63S	1+47E
	503 5	•				

7.2 RESULTS

Drill sections and analytical results for gold and silver are shown in DWGS G-6801 and G-6805. Full drill logs and analytical results are located in Appendices H and E respectively.

In the Ridge Zone DDH's 1,2,3 and 5 were unsuccessful in intersecting the intensely brecciated and silicified zone outcropping in the trenches. The upper portions of all these holes however did intersect weaker, variably silicified and altered, generally flow banded rhyolite, composed of 1-2mm tan,



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1240 m	$\widetilde{\widetilde{}}$	Flow banded rhyolite
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Elevation

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----- 1260 m

## LEGEND

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		Feldspar po	rphyry (?)
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		Sandy silts	tone
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grey and white bands with 2-3% 1-2mm quartz eyes. The flow banded rhyolite is locally pervasively silicified, and the flow banding may be masked by silicification and/or alteration. Milky white and clear cryptocrystalline quartz veins and veinlets are common as are quartz/chalcedony patches. Quartz is locally bladed and may be vuggy. Multidirectional quartz veinlets separating fragments give the core a brecciated appearance in some sections.

The lower sections of each hole beneath a relatively sharp and distinct contact, consisted of a varied package of sedimentary rocks, including mudstone, silstone, epiclastic grit and the brecciated equivalents of each. In DDH-1 and 3 a medium-grained epiclastic unit labelled sandy siltstone in the drill logs is the last unit intersected. This sandy siltstone is repeated in the upper half of DDH-2, probably due to faulting, but is not encountered in DDH5, which ends in an autobrecciated dacite.

Fracturing, brecciation and shearing are very common in all four drill holes. The sedimentary section of DDH-2 is sheared and gougey, suggesting the hole was drilled within or subparallel to a fault zone marked on surface by the gulley on the west side of the Ridge Zone. Very little silicification is encountered in any of the units other than the flow banded rhyolite. A noticeable exception to this is some minor quartz veining, patchy silicification and thin pyritic veinlets noted in DDH-3. Minor disseminated pyrite is noted in all holes, with thick (up to 0.8cm) pyritic bands seen within the siltstone breccia in DDH-5. Gold and silver values in these four holes are generally less than 2.0ppm Ag and 100ppm Au. There are a few anomalous sections and scattered anomalous values most of which are associated with quartz veins, quartz/chalcedony patches, pervasive silicification and/or dark grey pyritic veinlets. The highest value in all four holes is 44.0ppm Ag, 3700ppb Au in a 0.5m section of pervasively silicified flowbanded rhyolite in DDH-5.

At the Pond Zone the upper half of both DDH-4 and DDH-6 intersected the feldspar quartz porphyry unit seen on surface. The groundmass of this unit is moderately clay-altered and is locally pervasively silicified. The unit is crosscut by at least 3 episodes of silicification, which include dark grey, occassionally pyritic quartz veinlets crosscut by later grey/white cryptocrystalline quartz veins and veinlets, and banded and/or convoluted quartz/chalcedony veins. Massive white quartz veins up to 58cm wide are seen in DDH-4 as well as on surface. In DDH-6, the largest quartz vein intersected was 32cm. Bladed texture is noted in quartz veins throughout the unit. Quartz veins may contain small (<1-2mm) angular fragments of feldspar quartz porphyry, and the core is locally brecciated by many thin, randomly oriented quartz veinlets. The percentage of quartz increases with depth, and becomes very intense immediately above the contact with the underlying units. Gold and silver values increase sympathetically with the percent age of quartz.

Dark grey, multidirectional pyritic veinlets up to 0.4cm in width occur in both drill holes. The only mineralization noted, pyrite, also occurs as disseminated <1-1mm cubes (trace-3%), and in small patches.

A brecciated and silicified contact containing quartz/ chalcedony fragments in a siliceous matrix separates the feldspar quartz porphyry from the underlying (or adjacent) units.

Beneath the contact, in Hole 4, is an intensely altered Feldspar porphyry (?), with minor remnant feldspar phenocrysts in a strongly clay-altered groundmass. The hole ended in a section of grey-green clay or mud fault gouge, which could not be penetrated. In Hole 6, a variably clay-altered lithic tuff, is intersected beneath the contact.

In DDH-4, the intensely silicified section above the contact is consistently anomalous with values between 1.1-5.3ppm Ag and 130-660ppb Au. The highest Au value (1.1ppm Ag, 660ppb Au) was from the brecciated contact zone.

DDH-6 appears more strongly and consistently anomalous than DDH-4. The contact zone is again anomalous (2.1ppm Ag, 800ppb Au). The highest Au value (17.0ppm Ag, 1440ppb Au) is found from 56.55-56.9m in altered core crosscut by minor 1-2mm randomly oriented quartz veinlets and a 1.5cm quartz vein. The highest silver value (19.0ppb Ag, 420ppb Au) occurs over the interval 24.1-25.7m, where the core is crosscut by numerous quartz veins and minor grey pyritic veinlets.

Gold and silver anomalies do appear to be associated with silicified zones, but it is difficult to determine if one specific stage of silicification is responsible for mineralization. Analyses and interpretation of drill core from DDH-4 and 6 indicates that the zone of strong silicification and/or stockwork seen at surface is intersected at depth in the drill holes, as high Au and Ag values with intense quartz/chalcedony appear to be comparable with those on surface.

7.3 CHECK ASSAYING

Ten analyses from DDH-1 and five analyses from DDH-2 were checked by reanalysing the pulps by assay at Chemex Labs Ltd. The results are tabulated below.

Page \_ 40

SAMPLE	CDN (FAA/AA) Ag	CDN (AQUAREGIA AA) Ag	CHEMEX AQUAREGIA/AA Ag	CDN (FA/AA) Au	CHEMEX (FA/AA) Au	
D13051	8.0	2.0	2.3	0.2	0.07	
D13052	8.5	3.5	2.8	0.1	0.07	
D13053	5.5	1.9	1.7	0.1	0.07	
D13054	9.0	1.9	1.0	0.05	0.07	
D13055	4.5	0.6	0.5	0.05	0.07	
D13056	7.5	0.6	0.5	0.05	0.07	
D13057	5.5	0.7	0.5	0.05	0.07	
D13058	3.0	0.4	0.5	0.05	0.07	
D13059	5.5	0.4	0.3	0.30	0.07	
D13060	4.0	0.3	0.3	0.05	0.07	
D13092	1.5	1.8	1.7	0.05	0.07	
D13093	2.5	1.4	1.0	0.05	0.07	
D13094	6.0	1.1	1.0	0.05	0.07	
D13095	2.5	0.3	0.5	0.05	0.07	
D13096	2.5	0.4	0.5	0.50	0.07	

Comparison of these results indicate that both the Au and Ag geochemical (AA) analyses from CDN agree reasonably well with those of Chemex. CDN fire assays for Ag were inaccurate, and the samples from DDH-1 and 2 were reanalyzed geochemically by AA for Ag. All samples from DDH-3-6 were analyzed geochemically.

### 8. DISCUSSION

Field work in 1985 was successful in providing insight into the complex geology of the Ridge Zone and in identifying two zones of silicification and mineralization in addition to the Ridge, Lookout and Chopper Pad Zones established in 1984 field work. Rock and soil geochemical sampling and geological mapping in the East Grid identified a cluster of silver in soil anomalies centered over the top of the ridge which correspond with a poorly outcropping, patchy, moderately silicified zone. Additional work is needed to evaluate this zone.

Geological mapping and rock chip sampling south-east of the Ridge Zone identified on surface an area of intense quartz stockwork silicification called the Pond Zone.

Both new zones, the East and Pond, are typically epithermal in nature, with drusy quartz, banded chalcedonic quartz, repeated episodes of silicification, and variable precious metal values. The four diamond drill holes drilled in the area of the Ridge Zone were disappointing in that the well mineralized and silicified rock seen outcropping in the trenches (8.49 g/t Au and 42.21 g/t Ag over 7.5m in Trench 4) was not intersected at depth. However, the drill holes were important in giving a better understanding of the geology in this area. Detailed mapping and analysis of drill hole data have resulted in the geological interpretation shown in Figure 1. The flow banded rhyolite and the underlying sediments are believed to be approximately flat lying but are cut by an easterly dipping, north-trending fault which approximately follows the gulley on the west side of the Ridge Zone (DWG G-6799). Displacement on the fault is interpreted to be 150m of right-hand strike slip, as evidenced by the off-set of the geology on either side of the gulley. This fault appears to cut-off the mineralized zone which is interpreted to dip westwards. This attitude is supported by the lack of silicification in DDH-1, stronger silicification and abundant sulphide in the underlying sediments in DDH-5, and quartz veining subparallel to the core axis in the sediments in DDH-3.

It appears likely that the mineralization represented by the Ridge Zone is "leakage" from an underlying hyrdothermal system that is capped by the sediments, which are completely overlain by the mineralized flow banded rhyolite and crystal tuff (Units 1 and 2: DWG G-6799).

The spatial distribution of hydrothermal silica and goldsilver mineralization is strongly influenced by the physical properties of the premineralized volcanics and sediments. The brittleness of the flow banded rhyolite makes it receptive to the formation of quartz and chalcedony veins while the sediments which are only weakly altered by the mineralizing fluids passing



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through them, are too permeable and soft for the formation of veins.

Evidence for an underlying hydrothermal system includes widespread pyritization of the sedimentary units which is especially intense in DDH-5 at 28.8m, just beneath the silicified rhyolite; weakly mineralized quartz veins in the sediments in DDH-3; and the presence of what are possibly mineralized sedimentary fragements in a poorly defined breccia in the trenches. With the source of the mineralizing fluids at depth, there is potential for significant mineralization to occur in felsic volcanics which probably exist beneath the sediments. At least one diamond drill hole is necessary to test for such a zone of mineralization beneath the sediments.

The two diamond drill holes on the Pond Zone were successful in intersecting at depth the silicified and mineralized zone which outcrops on surface. Silicification and mineralization are confined to the brittle upper feldspar quartz porphyry, while the underlying or marginal units are intensely clay altered. The percentage of pyrite and the degree of silicification is greater in DDH-6 than in DDH-4. DDH-6 was more consistently and strongly anomalous in silver and gold over a greater interval than was DDH-4. This may be indicative of a system becoming better mineralized at depth, or to the south.

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Page

Additional chip sampling on both the Lookout Zone and the Chopper Pad Zone failed to identify any coherent zones of mineralization. The values obtained are anomalous, but are lower grade and more erratic than values at the Ridge Zone or the Pond Zone. Fluid inclusion studies and petrographic work may be useful in determing where in the system each zone is, and if they are in fact a part of the same epithermal system.

#### 9. RECOMMENDATIONS

Based on the results of the exploration program on Wolf in 1985, the following recommendations are made for further exploration on the claims.

- Fluid inclusion work may be useful in determining the relative erosion levels of veins in the Ridge Zone, the Pond Zone, the Lookout Zone and the Chopper Pad Zone. This would be important to determine where in the system each zone is. From an exploration standpoint, an apparent high erosion level for a weakly mineralized vein would indicate grades may improve with depth.
- 2. The soil grid over Grid 3 should be extended south, as a significant silver anomaly which overlies the Pond Zone is open to the south.
- 3. The geophysics grid should be extended further south, as it appears it may be useful in delineating contacts and in defining the Pond Zone in the southeastern corner of the grid.
- 4. Ideally 2 deep diamond drill holes (at least 120-150m) should be drilled in the area of the Ridge Zone, to test the hypothesis that a significant mineralized system lies at depth beneath the sediments and rhyolite in that area.

5. At least 1 diamond drill hole should be drilled 50-100m south of DDH-6 to test the extension of the Pond Zone to the south. A possible second hole to be drilled depending upon the outcome of the soil sampling and geophysical survey extensions, and the results of the intial drill hole.  Additional sampling and mapping on the East Grid, with detailed mapping of the silicified zones, chip sampling and possibly trenching.

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GENERAL COST STATEMENT

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APPENDIX A

GENERAL COST STATEMENT

Personnel - Temporary	\$28,210.48
Personnel - Permanent	\$4,224.00
Benefits - 25% of above	\$8,108.63
Food & Accomodation	\$10,300.00
Supplies	\$7,882.29
Travel	\$2,431.13
Helicopter	\$50,429.00
Fixed Wing	\$2,632.70
Geochemistry	
Acme Analytical \$21,142.20	
CDN Laboratories \$1,886.00	\$23,028.20
Assaying - CDN Laboratories	\$900.00
CONTRACTORS	
Diamond Drilling - D. W. Coates	\$47,213.98
Trenching, line cutting - Van Alphen Exploration	
Services	\$9,845.88
Equipment Rentals	\$6,678.08
Topographic Map - Hugh Hamilton Ltd.	\$3,995.00
Drafting and Report Preparation	\$4,150.00
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# 1985 COST STATEMENT - WOLF GROUP TO JULY 18, 1985

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W. Taylor - 28 days (May 21-31, July 1-17) @ 74.07/day \$2,073.96 \$459.20 B. Osadchuk- 8 days (May 28-31, June 1-4) @ 57.40/day L. Holmgren-68 days (May 27-July 16) @ 83.33/day \$5,666.44 M. McPherson-52 days (May 22-July 16) @ 57.40/day \$2,984.80 \$4,399.92 S. Monger - 54 days (May 20-July 16) @ 81.48/day D. Sexsmith - 18 days (May 30-June 16) @ 89.25/day \$1,606.50 Supervision R. Cann - 15 days (May 24,25; June 8-20) @ \$1,800.00 120/day \$880.00 C. Spence 5 days (June 21-25) @ 176/day \$4,967.71 Benefits - 25% of above Contractors Van Alphen Exploration Services \$1,869.00 Trenching - May 31 - June 3 Line-cutting - May 28-30 \$1,020.00 Drill-site preparation - June 4-6 \$1,020.00 Camp construction - May 24-27 \$1,360.00 \$5,269.00 D. W. Coates Enterprises 5 NQ holes totalling 449.5m - June 11-29 \$34,850.18 Geochemistry \$2,256.75 Acme Analytical - 177 rocks (Au, Ag) @12.75 Assaying CDN Laboratories \$900.00 72 - Au, Ag @ 12.50 \$1,230.00 \$2,130.00 120 - Au, Ag @ 10.25 Helicopter \$27,258.03 Okanagan Helicopters, Prince George Fixed Wing Northern Thunderbird, Prince George \$2,377.70 Equipment Rentals \$751.20 Traeger Distributors - radio \$933.14 Project Machinery - generator \$4,183.84 \$5,868.08 Scintrex - mag. and VLF Supplies (including fuel, propane) \$7,462.29
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UP TO JULY 18, 1985 CONTINUED

Camp Costs 324 person/days @ 20.00/day

Travel

Map Preparation Hugh Hamilton Ltd.

TOTAL

\$6,480.00 \$1,307.37

\$2,591.35

\$122,689.00

# 1985 COST STATEMENT

# WOLF GROUP - JULY 19-SEPT. 24, 1985

### Personnel

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L. Holmgren - 30 days (Jul. 19-Aug. 17) @ 83.33 M. McPherson - 30 days (Jul. 19-Aug. 17) @ 57.40 S. Monger - 30 days (Jul. 19-Aug. 17) @ 81.48 K. Andrew - 4 days (Aug. 14-17) @ 74.07 W. Taylor - 4 days (Aug. 14-17) @ 74.07 R. Cann - 5 days (July 28, Aug. 14-17) @ 120.00	\$2,499.90 \$1,722.00 \$2,444.40 \$296.28 \$296.28 \$600.00
Supervision C. D. Spence - 4 days (Aug. 9-12) @ 176.00	\$704.00
Benefits - 25% of above	\$2,140.72
Contractors Van Alphen Exploration Services - July 18-21 Drill Site preparation	\$1,056.88
D. W. Coates - diamond drilling 143.6m Aug. 8-14	\$12,363.80
Geochemistry Acme Analytical Soils - 304 (Au,Ag,Mo,Pb,Zn,As,Sb) @ 9.10 Rock - 13 (Au,Ag) @ 12.75	\$2,766.40 \$165.75
CDN Laboratories Core - 64 (Au,Ag) @ 10.25	\$656.00
Helicopter Okanagan Helicopter - Prince George	\$17,194.80
Westland - Burns Lake	\$2,061.80
Fixed Wing Lakes District Air Services	\$255.00
Travel & Accomodation	\$1,123.76
Radio Traeger Distributors	\$200.00
Generator Land-Sea Power	\$410.00
Camp Costs 135 person/days @ \$20/day	\$2,700.00
Drafting & report preparation	\$3,650.00
TOTAL	\$55,308.00
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## 1985 COST STATEMENT WOLF EAST GROUP TO SEPT. 24, 1985 (WOLF 8, 9 10)

#### Personnel

W. Taylor - 28 days (June 1-28) @ 74.07/day \$2,073.96 B. Osadchuk - 10 days (June 7-16) @ 57.40/day \$574.00 G. Nicholson - 13 days (June 16-28) @ 68.51/day \$890.63 R. Cann - Supervision - 2 days (June 8,16) @ 120/day \$240.00 L. Holmgren - 1 day - July 24 @ 83.33/day M. McPherson - 1 day July 24 - @ 57.40/day \$83.33 \$57.40 \$81.48 S. Monger - 1 day July 24 @ 81.48/day \$1,000.20 Benefits - 25% of above Contractors Van Alphen Exploration Services Line-cutting - June 7-11 - 5 days @ \$340/day \$1,700.00 Soil sampling - June 24-28 - 520 samples @ \$3.50/sample \$1,820.00 Geochemistry Acme Analytical Lab. \$15,584.30 Soils - 1,523 (Au,Ag,Mo,Pb,Zn,As,Sb) @ \$10.10/sample \$369.00 Rocks - 36 (Au, Ag, Mo, Pb, Zn, As, Sb) @ \$10.25/sample Helicopter Okanagan Helicopters - Prince George \$3,915.00 9 hours @ \$435/hour Radio \$200.00 Traeger Distributors Ltd. Camp Costs 56 person/days @ \$20/day \$1,120.00 Map Preparation \$1,403.65 Hugh Hamilton Ltd. \$420.00 Supplies \$500.00 Drafting & report preparation \$32,033.00 TOTAL



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METRES

![](_page_79_Picture_7.jpeg)

![](_page_80_Figure_0.jpeg)

![](_page_81_Figure_0.jpeg)

![](_page_82_Figure_0.jpeg)

![](_page_83_Picture_0.jpeg)

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	7,7,193	26,10,142	9,7,68	10, 9,107	13,8/48	12, 7, 74	4, 7, 43	3,12,42	6,4,47	5, 11, 57 -360	
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$\bigvee$	5,7,75	4,8,51	5, 14, 442	34, 26, 486	5,1,87	2,4,86	3, 4, 27	17,14,127	2,6,46	9,10,44	
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	4,6,59	3, 11, 36 -	4,23,68	2,2,48	2, 5, 73	2,7,59 - 140	3,1,45	6, 9, 38	2,3,44 -	4,13,71	
	3, 6, 46	4, 4, 38 - 205	3, 12, 64	2,19,49	4,1,45	2,4,57	3, 4, 37	4, 8, 29 -	2, 9,34 -	3, 13, 54	
	2, 13, 40	5,11,59-205	58 B 4, 7, 58	6,20,45	4, 3, 52	2,4,67	3,1,47	2,2,36 -	2,2,41	8,14,140 -	
	3, 9, 42	3, 7, 72	5,4,36	2,14, 77	4, 2, 45	2,10,54	5,2,39	2,6,36	3, 5, 32 -	12, 10, 96	
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![](_page_83_Picture_2.jpeg)

![](_page_84_Figure_0.jpeg)

![](_page_85_Figure_0.jpeg)