

LOG NO: APR 15 1992 RD.

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**GEOLOGICAL AND GEOPHYSICAL REPORT**

on the

CLIFF, CLIFF 1 TO 4, MAX 1 TO 4, DAVE 1 AND 2 CLAIMS,  
GREAT EASTERN (LOT 3437) AND COPPER KING (LOT 3065s) REV CG'S  
and  
SUNRISE, SOMETHING GOOD, LISEY D FR AND SILENT FRIEND CG'S

Hedley-Olalla Area  
Osoyoos Mining Division

82E-4W, 5W  
(49°16' N. Lat., 119°51' W. Long.)

for

GOLDCLIFF RESOURCE CORPORATION  
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Vancouver, B.C.  
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(Operator)

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by

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**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**  
March, 1992

22,257

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## SUMMARY AND RECOMMENDATIONS

The Cliff Property is located five kilometers north of Keremeos at Olalla, B.C.. Goldcliff Resource Corporation holds five modified grid mineral claims, six two post mineral claims, two reverted Crown Grants and four Crown Grants covering a total of 108 units. The property is located in the Osoyoos Mining Division.

The area has been the scene of exploration for base and precious metals since the late 1800's. A large number of properties have been explored in the area including the Sunrise (gold), Something Good (gold), Bullion (gold), Golconda (copper, molybdenum), Copper King (copper) and Dolphin (copper). Approximately 20 kilometers northwest of the property at Hedley, Mascot Gold Mines Limited resumed production in the spring of 1987 at the Nickel Plate Mine.

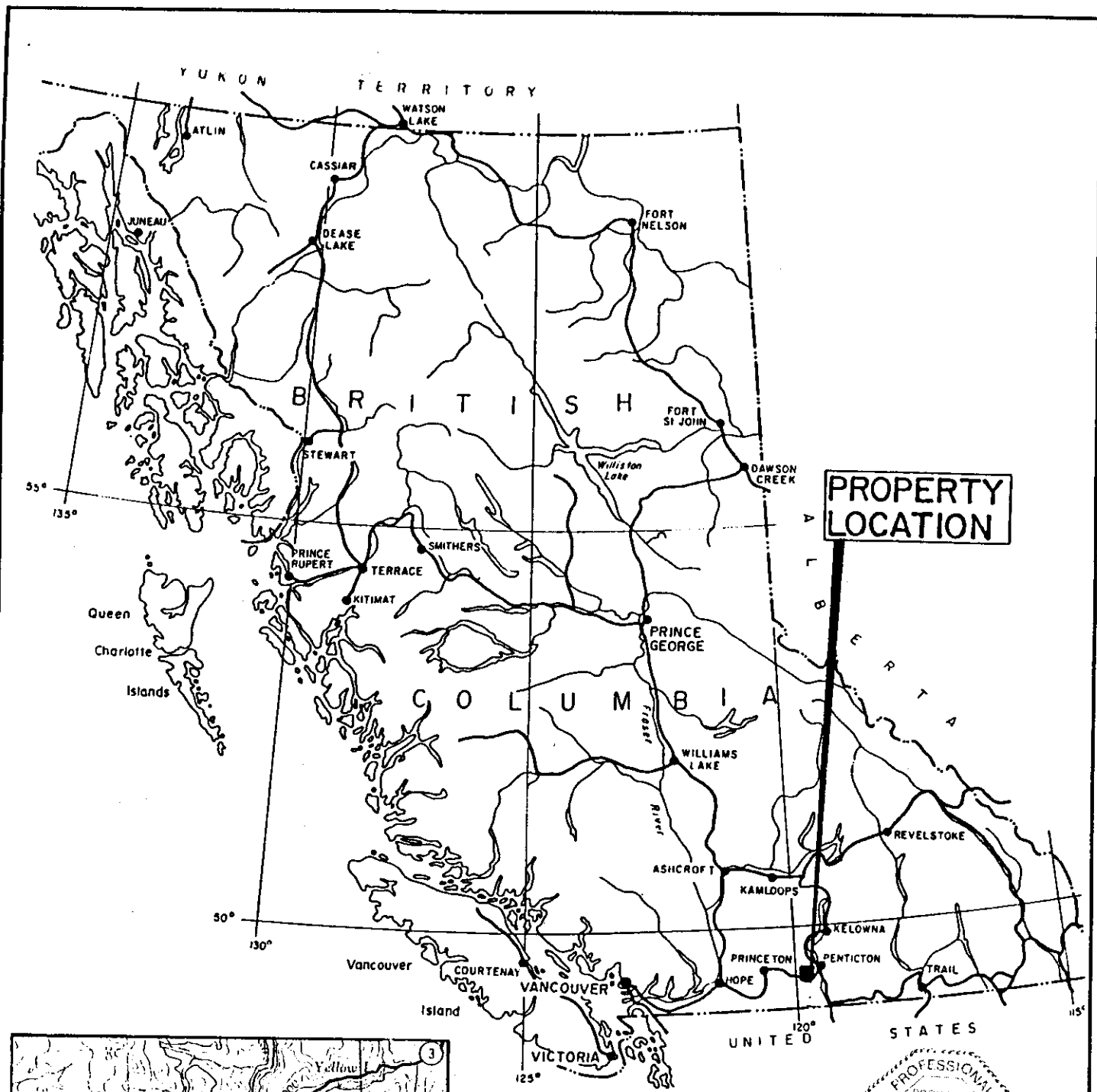
The Copper King, Golconda, Sunrise and Something Good properties are within the claim group presently controlled by Goldcliff. On the Copper King, a massive magnetite-pyrite skarn with lesser chalcopyrite occurs. Three levels with extensive workings exist on the Golconda and a small mill has operated on the property several times in the past. The Something Good contains a 110 foot section of adit with significant gold values in a carbonate flooded breccia zone. On the Sunrise significant gold values are contained in quartz veins as well as silicious, pyritic breccia zones.

Several areas of the Cliff claim have been explored by other operators. A number of old hand trenches have exposed gold mineralization along the Cliff Zone (figure 3). Soil sampling in the area also delineated gold geochemical anomalies.

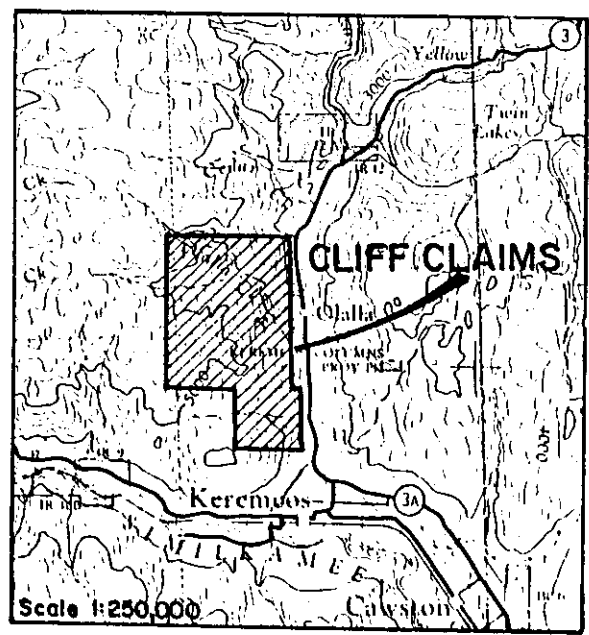
Goldcliff has been exploring the property since 1986 and a number of VLF-EM conductors, gold and multi-element soil geochemical anomalies and favourable geological structures have been outlined. The main zones of interest (figure 3) include the Cliff, Frank, Valley, Lee and Golconda zones. The addition of the Sunrise and Something Good Crown Grants add two more significant targets to the property.

The 1991 program consisted of relogging the five Freedom Resources drill holes, using an airphoto to accurately locate the workings, claim posts, surveyed lots and grid lines, prospecting, and magnetometer and VLF-EM surveying on Lots 18s, 1441, 3439 and 3441.

The relogging of the Freedom holes drilled in 1981 and 1983 did not disclose any additional geological information. The best assay results obtained from the drilling are in the order of 0.03 to 0.04 oz Au/ton over 1 to 2 meters. Several zones display silicification over wide zones, but with very low gold values.



**PROPERTY  
LOCATION**



Scale 1:250,000



GOLDCLIFF RESOURCE CORPORATION	
CLIFF PROJECT LOCATION MAP	
N.T.S. 82E-4,5W	OSOYOOS M.D., B.C.
0                      200                      400 KM.	
SCALE : AS SHOWN	DATE : MARCH 1992
DRAWN BY : G.F.C.	FIGURE NO. 1

The locating of the workings etc on the airphoto (figure 4) showed some of the workings were previously located up to 200 meters from their true locations. The baseline was also determined to be about 100 meters east of the location it was thought to be.

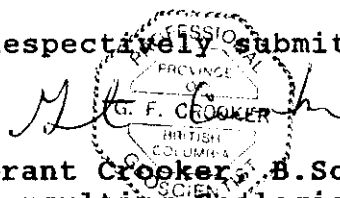
Prospecting located an additional showing at 9285N and 9950E. Angular quartz vein float with boxworks was initially found. Subsequently a hand trench located the vein in place and additional rock sampling was carried out. The vein was weakly anomalous in molybdenum, lead and silver but did not contain anomalous gold values.

The magnetometer and VLF-EM surveys were able to define the magnetite, pyrrhotite and pyrite skarn body on the Copper King. The VLF-EM survey also located an extension of the shear zone on the Something Good and defined the Valley Fault.

Recommendations are as follows:

The target areas outlined by previous programs should have continued exploration by geochemical sampling, prospecting, trenching and drilling if required. Particular emphasis should be put on the targets with known showings and the Sunrise, Something Good and Golconda which have been recently acquired.

Respectively submitted,



Grant Crooker, B.Sc., P.Geo.,  
Consulting Geologist

## 1.0 INTRODUCTION

### 1.1 GENERAL

Field work was carried out on the Cliff property from the summer of 1991 through the spring of 1992 by Grant Crooker, geologist, and Frank Haidlauf and Mike Harris, field assistants.

The program was carried out on the Copper King, Sunrise, Lisey D Fraction, Silent Friend Fr, Something Good and Cliff claim. The work program consisted of establishing grid lines, VLF-EM and magnetometer surveying and prospecting.

The five drill holes of Freedom Resources were relogged and a few additional samples taken. A number of grid lines, claim posts, Crown Grant corner posts and various workings were plotted on a blowup of an airphoto for increased control on the property.

### 1.2 LOCATION AND ACCESS

The property (Figure 1) is located 5 kilometers north of Keremeos, near Olalla in southern British Columbia. The property lies between 49°13'15" and 49°17'15" north latitude and 119°49'30" and 119°53'15" west longitude (NTS 82E-4W, 5W).

Access to the property is via Highway 3A, then turning west at Olalla onto the two wheel drive Olalla Creek Road. This road along Olalla Creek gives access to the Dave 1 and 2 claims and portions of the Max 1 to 4, Cliff and Cliff 2 and 3 claims. Another four wheel drive road turning off the main Olalla Creek Road higher up the creek leads to the Manganese Zone at the western boundary of the Cliff 3 claim.

An old four wheel drive mining road turning south from the main Olalla Creek Road gives access to the Lisey D Fraction, Silent Friend Fr, Something Good, Great Eastern and Copper King claims, higher elevations of the Max 1 to 4 claims and eastern portions of the Cliff claim.

A man made trail leads to the western section of the Cliff claim and the Cliff 4 claim.

### 1.3 PHYSIOGRAPHY

The property is located in the Okanagan Highlands of southern British Columbia. Elevation varies from 550 to 1830 meters above sea level. Topography is steep with few level spots and precipitous cliffs occur at many locations on the property.

Olalla and Shuttle Creeks flow through the property and have water all year long. Several springs also occur on the property.

Vegetation varies from open range land to a forest cover of pine and fir trees. Some sections have heavy deadfall and thicker brush. Rattle snakes are also found in abundance on the lower elevations of the property.

#### 1.4 PROPERTY AND CLAIM STATUS

During 1991 the Sunrise, Something Good, Lisey D Fraction and Silent Friend Fr Crown Grants were added to the property.

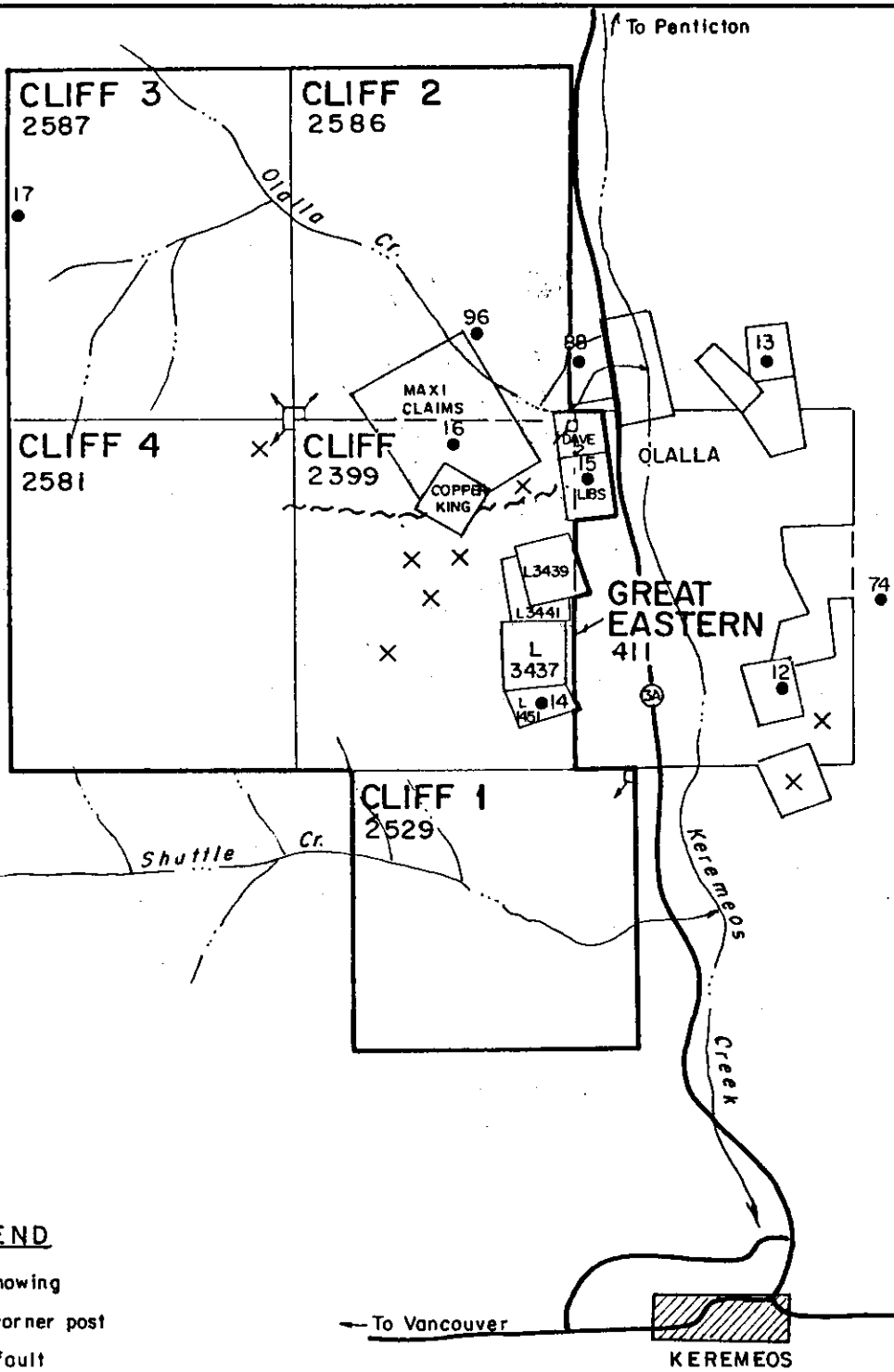
The Cliff, Cliff 1 to 4, Copper King and Great Eastern claims, and Sunrise, Something Good, Lisey D Fraction and Silent Friend Fr Crown Grants (Figure 2) are owned by Grant Crooker of Keremeos B.C., and are under option to and operated by Goldcliff Resources Corporation, 1505-409 Granville Street, Vancouver, B.C., V6C 1T2. The Max 1 to 4 and Dave 1 and 2 claims are owned outright by Goldcliff.

The property is located in the Osoyoos Mining Division and consists of five modified grid claims, six two post claims, two reverted Crown Grants and four Crown Grants covering 108 units.

Claim	Units	Mining Division	Tenure No.	Record Date	Expiry Date
Cliff	20	Osoyoos	246603	04/01/86	04/01/97
Cliff 1	16	Osoyoos	246661	10/30/86	10/30/97
Cliff 2	20	Osoyoos	246693	03/30/87	03/30/95*
Cliff 3	20	Osoyoos	246694	03/30/87	03/30/95*
Cliff 4	20	Osoyoos	246688	03/30/87	03/30/95
Copper King	1	Osoyoos	247161	03/15/90	03/15/98
Great Eastern	1	Osoyoos	246173	06/01/78	06/01/01*
Max 1	1	Osoyoos	247670	09/12/74	09/12/97*
Max 2	1	Osoyoos	247671	09/12/74	09/12/97*
Max 3	1	Osoyoos	247672	09/12/74	09/12/97*
Max 4	1	Osoyoos	247673	09/12/74	09/12/97*
Dave 1	1	Osoyoos	247669	07/09/74	07/09/97*
Dave 2	1	Osoyoos	247684	10/22/74	10/22/97*
Lisey D Fr	1	Osoyoos	L 3441	CG	
Silent Friend					
Fraction	1	Osoyoos	L 3439	CG	
Something					
Good	1	Osoyoos	L 1451	CG	
Sunrise	1	Osoyoos	L 18s	CG	

\* Upon acceptance of this report.

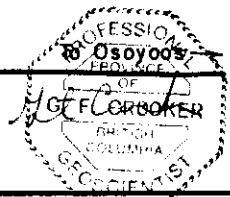




**LEGEND**

- X Gold showing
- Legal corner post
- ~ Valley fault

Min. File No.	Property name	Product
82E-5W-12	Dolphin	Cu, Ag
-13	Bullion	Au, Cu
-14	Something Good	Au
-15	Sunrise	Au
-16	Golconda	Cu, Mo, Au
-17	Dief	Mn, Ro
-88	Homestead	Cu
-96	Olalla	Ag, Au
-74	Opulence	Cu



**GOLDCLIFF RESOURCE CORPORATION**

**CLIFF PROJECT**

**CLAIM MAP**

N.T.S. 82E-4,5W      OSOYOOS M.D., B.C.

0      1      2      3 KM.

SCALE: 1:50,000	DATE: MARCH 1992
DRAWN BY: G.F.C.	FIGURE NO. 2

### 1.5 AREA AND PROPERTY HISTORY

The Goldcliff property is located in the Olalla-Hedley Gold Camp in southern British Columbia. Mining activity has been carried out in this area since the 1880's. The property is located 20 kilometers southeast of Hedley, where Mascot Gold Mines Limited resumed production by open pit methods at the Nickel Plate Mine in the spring of 1987. Mascot recently announced (February 1991) that ore reserves are sufficient to enable production to continue until the end of 1993.

A number of mining properties have been explored in the Olalla area since the 1880's. These include the Bullion, Copper King, Dolphin, Golconda, Opulence, Something Good and Shepherd-Sunrise. Exploration has been oriented towards copper, molybdenum, silver and gold.

During 1991 Goldcliff optioned the Sunrise (Lot 18s), Something Good (Lot 1451), Silent Friend Fr (Lot 3439) and Lisey D Fraction (Lot 3441) Crown Grants. These acquisitions give Goldcliff control of all of the Olalla Gold Camp west of Highway 3A. A number of prospects which have had significant amounts of work carried out on them in the past are included in this package. These include the Something Good (Lot 1451, Minfile 82E-SW-014), Sunrise (Lot 18S, Minfile 82E-SW-015), Golconda (Max Claims, Minfile 82E-SW-016), Copper King and Valley Zones (figures 2 and 3). A summary of the drill hole data and underground workings located on the property is presented in Tables I and II below.

ZONE	COMPANY	YEAR	NO. HOLES	FOOTAGE (FEET)
Copper King	Friday Mines	1961	2	487+
Golconda	Friday Mines	1961	7	?
Golconda	Trent Resources	1969	10	3,915
Golconda	Brenda Mines	1978	4	2,927
Shepherd-Sunrise	Hedley Monarch	1946	5	1,938
Shepherd-Sunrise	Friday Mines	1961	11	4,134
Something Good	Hedley Monarch	1948	12	1,903
Valley	Freedom Resources	1981	1	493
Valley	Freedom Resources	1983	4	1,741
Valley	Friday Mines	1961	2	1,182
			58	18,720+

Table I. Drill Hole Data - Cliff Project

ZONE	COMPANY	WORKING	YEAR	DEVEL (FEET)
Copper King	-	Magnetite Shaft	≈1918	20
Copper King	-	Adit #1	≈1918	25
Copper King	-	Adit #2	≈1918	65
Golconda	D MacEachern	No. 1 Level	1918+	225
Golconda	D MacEachern	No. 2 Level	1918+	1000
Golconda	Mollycot Mines	No. 5 Level	1967+	1270
Golconda	-	Stopes	1918+	500
Shepherd-Sunrise	Hedley Monarch	Haulage Tunnel	1947	32
Shepherd-Sunrise	Hedley Monarch	Powder Tunnel	1947	288
Shepherd-Sunrise	-	Pyroxenite Tun.	-	216
Shepherd-Sunrise	Hedley Monarch	Shepherd Tunnel	1947	280
Shepherd-Sunrise	-	Sunrise Tunnel	1900	96
Shepherd-Sunrise	-	Sunrise Shaft	1900	45
Something Good	Gold Valley	Adit #1	1936	360
Something Good	Gold Valley	Adit #2	1936	150
Something Good	Gold Valley	Adit #3	1936	<u>385</u>
				4957

Table II. Underground Workings - Cliff Project

A minimum of 58 drill holes totalling 18,720 feet and 4957 feet of underground development have taken place on the property. In addition to these prospects, Goldcliff has developed the Frank, Cliff (Cliff claim) and Lee Zones (Cliff 4 claim).

On the Something Good property (Lot 1451), a carbonate shear and breccia zone occurs in argillaceous and cherty sediments near the contact of a large pyroxenite body. Calcite, quartz, and pyrite occur within the breccia zone which contains significant gold values.

Three adits were driven on the zone in 1936-1937. The No. 1 adit (2541 feet ASL) was driven for 360 feet with the direction gradually changing from 255° to 235°. It followed the footwall of the shear zone with the first 110 feet of the adit in a well defined breccia zone with significant gold values. Samples taken by the resident geologist for the B.C. Department of Mines in 1937 (M.S. Hedley) ranged from 0.05 ounces per ton gold over 54 inches to 2.20 ounces per ton gold over 11 inches. Beyond this point the graphitic shear contained negligible gold values.

The No. 2 adit (2,470 feet ASL) was driven 150 feet westward approximately parallel to the No. 1 adit. The adit is mainly in pyroxenite, with the last 20 feet in cherty sediments.

The No. 3 adit (2342 feet ASL) was driven for 385 feet at approximately 255° mainly in pyroxenite. The last 10 feet of the adit are in blocky fractured quartzite. Negligible gold values were encountered in the adit.

A limited amount of diamond drilling was also carried out with some gold values reported. From the face of No. 2 adit, 6 holes were drilled south-westerly at vertical angles ranging from 0° to 60° above the horizontal. The holes were drilled along the strike of the breccia zone in No. 1 adit and four reached the elevation of the upper workings. Some values were encountered in the drilling but little information was gained regarding the downward extension of the breccia zone.

From the face of No. 3 adit, 3 holes were drilled near the strike of the breccia zone in No. 1 adit. Two were fanned to the south and one was drilled north-westerly. The core from all 3 holes showed mainly argillaceous and quartzitic sediments with minor amounts of limestone and short sections of pyroxenite. The only mineralization was scattered crystals of pyrite and calcite veinlets with no gold values.

The Shepherd-Sunrise property (Lot 18s) appears to have the most economically significant mineralization in the Olalla Camp. Several mineralized quartz veins and a siliceous, pyritic breccia zone have been explored by trenching, diamond drilling and several adits.

The diamond drilling was carried out in two phases, the first between 1946 and 1948 by Hedley Monarch Mines Ltd. (5 holes, 1,934 feet), and the second during 1961 and 1962 by Friday Mines Ltd (11 holes, 4,134+ feet). A summary of the drill hole data is given in Table III.

D.H. NO.	TARGET	AZMUTH	ANGLE	DEPTH (FEET)
S-1	Sweetner Vein	164°	-46°	460
S-2	Sweetner Vein	191°	-24°	480
S-3	Sweetner Vein	220°	-09°	270
S-4	Sweetner Vein	190°	-31°	340
S-5	Sweetner Vein	310°	-24°	388
H-1	Sweetner Vein	202°	-54°	330
H-1A	Sweetner Vein	202°	-62°	274
H-2	Sweetner Vein	187°	-55°	325
H-3	Sweetner Vein	176°	-59°	467
H-4	Breccia Zone	179°	-45°	413
H-5	Breccia Zone	184°	-59°	425
H-6	Sweetner Vein	?	?	≈270
H-7	Sweetner Vein	?	?	≈375
H-8	Breccia Zone	198°	?	425
H-9	?	?	?	?
H-10	Breccia Zone	209°	?	≈430
H-11	Sweetner Vein	?	?	≈400

Table III. Drill Hole Data - Shepherd-Sunrise

Most of the drilling was carried out under the Shepherd Tunnel on the Sweetner Vein, with 4 holes drilled 550 feet west of the Shepherd Tunnel on a silicious, pyritic breccia zone.

The mineralization appears to be related to the east-west striking Valley Fault. During drilling on the quartz veins, the gold bearing silicious, pyritic breccia zone was discovered. This breccia zone also appears to be related to the Valley Fault. Table IV below lists the principal mineral intercepts.

D.H. NO.	ZONE	MINERAL INTERCEPT FT	TRUE WIDTH FT	AU OZ/T	AG OZ/T
S-1	Sweetner Vein	135.0-155.0	17.32	0.026	0.522
S-2	Sweetner Vein	136.5-138.6	2.0	0.926	4.040
	Sunrise Vein	265.0-267.1	2.0	0.882	3.010
S-3	Sweetner Vein	152.0-154.0	2.0	1.120	0.760
H-1	Sweetner Vein	196.0-200.3	2.73	0.947	1.209
H-1A	Sweetner Vein	198.5-204.0	3.67	0.872	0.703
H-2	Sweetner Vein	268.8-270.0	0.90	0.040	1.550
H-3	Sweetner Vein	179.2-182.5	2.20	1.080	1.254
H-4	Sweetner Vein	333.0-335.9	2.00	0.603	0.263
H-5	Sweetner Vein	347.5-355.0	5.21	0.171	0.336
or	Breccia	315.6-373.8	39.07	0.056	0.140
H-6	Sweetner Vein	235.5-240.5	4.51	0.031	0.150
H-7	Sweetner Vein	346.5-352.5	0.01	0.573	0.540
H-8	Breccia	383.0-392.5	8.05	0.330	1.080
or	Breccia	365.2-407.0	35.49	0.110	0.345
H-10	Breccia	354.9-361.1	5.15	0.063	0.250
and	Breccia	403.8-413.4	7.86	0.139	0.528

Table IV. Mineral Intercepts - Shepherd-Sunrise

The drilling has indicated ore reserves of approximately 3100 tons of 0.85 ounces per ton gold and 2.00 ounces per ton silver above and below the Shepherd Tunnel. Approximately 300 tons of ore averaging 0.53 ounces per ton gold and 0.45 ounces per ton silver were shipped during the 1946-1948 period from the Shepherd Tunnel.

The drill results also indicate significant values over wider widths in the breccia zone west of the Shepherd Tunnel. No further drilling has been carried out on the property.

The Golconda property (Max 1 to 4, Dave 1 and 2) was acquired by Goldcliff during 1990. It is located along the northern boundary of the Cliff claim and consists of a shear zone up to five feet wide made up of one or more slickensided and gouge filled fault planes cutting pyroxenite. A number of quartz lenses between 30 and 60 feet long and 12 to 50 inches wide occur within the shear zone. These zones appear to occur at changes in attitude in the structure. The quartz is crudely banded and contains pyrite,

chalcopyrite, molybdenum, and minor galena. Values in gold and silver also occur within the structure.

Three main levels follow the shear zone, which strikes south 56° east. Level No. 1 (2,547 feet ASL) consists of 225 feet of crosscutting and drifting, of which about 140 feet is on the shear. Level No. 2 (2,423 feet ASL) contains about 1,000 feet of crosscutting and drifting of which about 450 feet is on the shear. Level No. 5 (2,147 feet ASL) consists of 1,270 feet of workings with only a few feet on the shear. A number of stopes, ore passes and manways connect the 3 levels.

Diamond drilling programs have been carried out on the Golconda at least three times, in 1961 by Friday Mines (7 holes, footage unknown), in 1969 by Trent Resources (10 holes, 3,915 feet), and in 1978 by Brenda Mines (4 holes, 1,938 feet). None of the drill results are available for the Friday Mines or Trent Resources drilling. The Brenda Mines drilling indicated continuity of the shear zone to depth but the values were considered "low grade".

During 1970, Toru Kikuchi was retained by Trent Resources to calculate ore reserves on the property. He calculated ore reserves of 59,781 tons grading 1.64% copper and 0.97% molybdenite in the "visible, probable and obtainable" categories.

Limited production has come from the property, and a small mill has operated several times. During 1957 a 45 ton/day mill was in operation and during 1960, 1500 tons of ore gave 2 ounces of gold, 460 ounces of silver, 61,060 pounds of copper, 1,406 pounds of lead and 5,414 pounds of molybdenum. During the period 1970 through 1972 a 100 ton/day mill was erected on the property but little production was obtained.

The Copper King reverted Crown Grant was acquired by Goldcliff during 1990. Some trenching and several short adits were driven on the Copper King by previous owners. This work exposed a large garnet, epidote, calcite and ferro-magnesium mineral bearing skarn zone containing massive magnetite and pyrite with lesser chalcopyrite, hematite and malachite. The mineralized zone is found at or near the contact of the pyroxenite and/or quartz diorite and overlying quartzites and argillites.

Two diamond drill holes were drilled to test the skarn mineralization by Friday Mines in 1961. This drilling apparently gave sub-economic values in the order of 0.40% copper with no mention of gold. Sampling by Goldcliff in 1991 gave up to 10,845 ppm copper with low gold values.

On the area covered by the Cliff claim, hand trenching, cat trenching, airborne VLF-EM and magnetometer surveying, ground VLF-EM surveying, geochemical soil sampling and diamond drilling have been carried out in the past.

Freedom Resources Ltd. carried out the last significant exploration on the claim area during the 1981 through 1983 period. The airborne VLF-EM survey (1981) indicated two strong conductors, one associated with the Valley Fault, and a second in the area of hand trenching at approximately 9100N+9400E (Cliff and Frank Zones). The airborne magnetometer survey delineated the pyroxenite stock. Follow-up soil sampling and ground VLF-EM surveying were carried out over a small portion of the area. A significant gold geochemical anomaly with coincidental VLF-EM conductors was delineated at approximately 9000N to 9700N, and 9300E to 9800E (Cliff and Frank Zones). No follow-up work was carried out in this area.

Along the Valley Fault (Valley Zone) at approximately 9900N and 10050E, cat trenching and diamond drilling has been carried out. The trenching exposed a north-south striking quartz vein, as well as a section of silicified and carbonatized syenite. This zone is described as being the westward extension of the silicious, pyritic breccia zone on the Sunrise. Table V contains a summary of the drill hole data from the Valley Zone.

D.H. NO.	GRID COORD.	AZMUTH	ANGLE	DEPTH (FEET)
C-1	9936N+10056E	180°	-50°	442
C-2	9875N+10038E	000°	-50°	740
81-1	9805N+10208E	000°	-45°	500
83-1	10132N+10520E	180°	-45°	388
83-2	9892N+10074E	000°	-45°	351
83-3	9922N+10076E	000°	-45°	505
83-4	9996N+10550E	175°	-45°	497

Table V. Drill Hole Data - Valley Zone

During 1961 two diamond drill holes were drilled by Friday Mines Ltd. to test the zone. Drill hole C-1 returned the best intersection, 0.03 oz/ton Au, 0.087 oz/ton Ag, 0.026 % Cu, with a trace of molybdenum from 100.8-115.05 feet. A number of other intersections of "weakly mineralized" syenite were reported, with only trace values in Au and Ag.

Freedom Resources Ltd. drilled five holes along the Valley Fault structure. Drill hole 81-1 was drilled north across the fault and into the syenite. Drill holes 83-2 and 83-3 were drilled in a northerly direction in an attempt to intersect the quartz vein north of the silicified and carbonatized zone. Two other holes, 83-1 and 83-4 were drilled along the structure further east. None of the drill holes encountered economic gold mineralization.

During the period 1986 through 1991 a number of exploration programs were carried out on the property by Goldcliff Resource Corporation. This work included establishing a grid on the Cliff claim and carrying out geological, geochemical and geophysical surveys. All of the work to date has been on the Cliff claim, Great Eastern and Copper King.

Favourable results were obtained from these surveys. A number of VLF-EM conductors, gold and multi-element soil geochemical anomalies and favourable geological structures were outlined on the property. Several poorly exposed quartz stockwork and breccia zones gave values up to 1850 ppb gold in place, and up to 3400 ppb in float.

Four significant zones have been delineated by the exploration programs including the Frank, Valley, Lee and Cliff (north, central and south) zones (figure 3). Further information on these zones is available in previous reports by Goldcliff Resource Corporation.



## 2.0 EXPLORATION PROCEDURE

The grid co-ordinate system established in 1986 was used to expand the grid into the Crown Grants acquired during 1991.

### GRID PARAMETERS

- main baseline direction N-S along 10,000E
- secondary baseline E-W along 10000N
- secondary baseline E-W along 9500N
- survey lines perpendicular to baselines
- survey line separation 100 meters
- survey station spacing 25 meters, slope corrected
- lines 10700E to 10900E, Lot 18s, Dave
- lines 10100E to 10500E, Lots 1451, 3437, 3439, 3441
- survey total - 5.725 kilometers

### GEOCHEMICAL SURVEY PARAMETERS

- survey totals - 15 rock samples
  - 6 drill core samples
- 6 core samples analyzed by 30 element ICP and Au
- 3 rock samples analyzed by 30 element ICP and Au
- 12 rock samples analyzed by 31 element ICP and Au

Six core samples and three rock samples were sent to ACME Analytical Laboratories Ltd., 852 E. Hastings Street, Vancouver, B.C. for geochemical analysis. Laboratory techniques for geochemical analysis consists of preparing samples by drying at 60° C, and grinding to minus 100 mesh. A 30 element ICP analysis and Au (acid leach/AA finish) were then carried out on the samples.

Twelve rock samples were sent to Min-En Laboratories Ltd., 705 West 15th Street, North Vancouver, B.C. for geochemical analysis. Laboratory techniques for geochemical analysis consists of preparing samples by drying at 95° C and grinding to minus 150 mesh. A 31 element ICP analysis and Au (aqua-regia digestion, atomic adsorption finish) were then carried out on the samples.

### GEOPHYSICAL SURVEY PARAMETERS

#### TOTAL FIELD MAGNETIC SURVEY

- survey line separation 100 meters
- survey station spacing 25 meters
- survey totals 6.425 kilometers
- measured total magnetic field in nanoteslas (gammas)
- instrument accuracy  $\pm 1$  nanotesla

Readings were taken along the baseline to obtain standard readings for all baseline stations. All loops ran off the baseline were then corrected to these standard values by the straight line method.

The total field magnetic contours were plotted on figures 5 (Copper King), 6 (Lot 18s & Dave) and 7 (Lots 1451, 3439 and 3441).

#### VLF-EM SURVEY

- survey line separation 100 meters
- survey station spacing 25 meters
- survey total 7.0 kilometers
- transmitting station - Cutler - 24.0 KHz
- direction faced - southerly
- transmitting station - Seattle - 24.8 KHz
- direction faced - northwesterly
- instrument - Geonics EM-16
- in phase (dip angle) and out-of-phase (quadrature) components measured in percent at each station

The Cutler readings were used for the Copper King to complete the 1991 survey and the Seattle readings were used for Lot 18s and Lots 1451, 3439 and 3441. The VLF-EM profiles were plotted on figures 8 (Copper King), 9 (Lot 18s & Dave) and 10 (Lots 1451, 3439 and 3441).

The 1992 geophysical data collected on the Copper King was added to the 1991 maps. A compilation map (figure 11) was prepared for the Copper King showing the results of the soil geochemical sampling and the geophysical surveys.

### 3.0 GEOLOGY AND MINERALIZATION

#### 3.1 REGIONAL GEOLOGY

The Cliff Property (figure 3) is located within the Intermontane Belt of British Columbia. Most of the property is underlain by marine sedimentary and volcanic rocks. An ultramafic to alkalic stock has intruded the eastern margin of the Cliff claim, the southern portion of the Cliff 2 claim, and most of the Great Eastern, Copper King, Max 1 to 4 and Dave 1 and 2 claims.

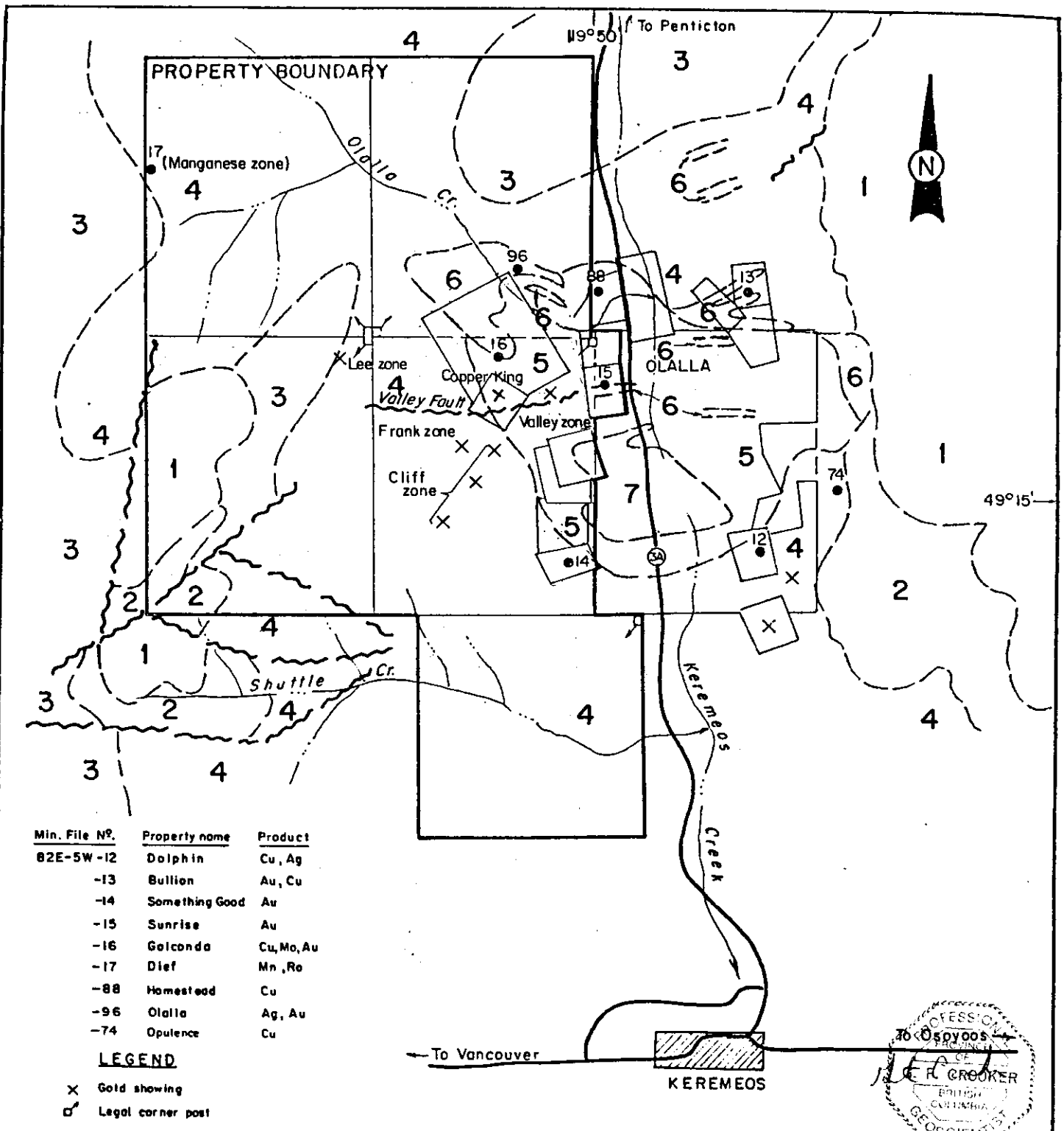
Early work in the area by Bostock and others described the marine sedimentary and volcanic sequence as belonging to the Old Tom, Shoemaker, Bradshaw, and Independence Formations. However as these formations do not form distinct, mappable units, Milford (1984) referred to the sequence as the Apex Mountain Group.

The Apex Mountain Group consists of five major lithofacies: massive and bedded chert, greenstone, chert breccia, argillite and limestone. Together they form a broadly folded, east dipping sequence that has an overall increase in age towards structurally higher rocks in the area. The maximum and minimum ages based on faunal ages in limestones and chert are Early Carboniferous and Middle to Late Triassic respectively.

The depositional environment of the Apex Mountain Group is interpreted to be generally deep, open-ocean basin. Shallow water deposition occurred locally. The group is interpreted to represent at least part of an ancient subduction complex that formed by eastward directed underthrusting and accretion of successively younger slices of oceanic sedimentary and volcanic rocks.

Other assemblages possibly temporally correlative with the Apex Mountain Group include the Kobau, Chapperon, Harper Ranch, and Cache Creek Groups.

The ultramafic to alkalic stock occupies approximately six square miles and is of late Mesozoic age. The stock grades from a peripheral zone of pyroxenite, high in mafics and magnetite, to a magnetite deficient granitic core. Faulting with associated veining, brecciation and mineralization occurred as contemporaneous or post consolidation features.



ROCK	TIME / UNIT	FORMATIONS
VOLCANIC & SEDIMENTARY	TERTIARY	
	1 Basalts	MARRON
	2 Conglomerates, sandstones	KETTLE RIVER
METAMORPHIC	PERMIAN	
	3 Greenstone	OLD TOM
	4 Chert	SHOE MAKER
PLUTONIC	MESOZOIC	OLALLA STOCK
	5 Pyroxenite	
	6 Diorite	
	7 Syenite	

**GOLDCLIFF RESOURCE CORPORATION**

**CLIFF PROJECT**

**PROPERTY GEOLOGY**

N.T.S. 82E-4,5W OSOYOOS M.D., B.C.

0 1 2 3 KM.

SCALE: 1:50,000 DATE: MARCH 1992

DRAWN BY: G.F.C. FIGURE N<sup>o</sup>. 3

### 3.2 CLAIM GEOLOGY

Most of the property has been geologically mapped in previous years. No geological mapping was carried out in 1992, and the units described below are not shown on any 1992 maps.

Most of the property is underlain by marine sedimentary and volcanic rocks of the Apex Mountain Group. Units 1 through 3 are members of this unit.

Unit 1 consists of mainly chert, with minor tuff and quartzite. The chert is predominantly massive, although some sections show distinct bedding. The chert varies in colour from black and green to blue. Bedding appears to be northeasterly with moderate dips to the northwest and small scale folding was noted in a few locations. Near the contact of the Olalla Stock and the Apex Mountain Group, the unit becomes more characteristic of a quartzite rather than a chert. Numerous tiny white quartz veinlets were observed in many locations.

Thin section interpretation of several rocks from this unit indicates a fine quartz matrix with a network of quartz veinlets cutting the fine quartz. There is a suggestion the unit may be a silicified tuff.

Unit 1a usually occurs within unit 1, and consists of poorly sorted, angular to subangular black or blue chert clasts within a microcrystalline matrix. The unit is usually no more than a few tens of meters thick, and occurs within the massive chert unit, often pinching out along strike.

Unit 1b consists of moderate to intense shearing with subrounded chert clasts. The unit often occurs near the emplacement of feldspar porphyry dykes and sills, and may be related to the emplacement of the dykes and sills.

Unit 2 is a greenstone unit which occurs within the chert, possibly due to the local extrusion of lava in shallow water. The rocks are generally greenish, massive and finely crystalline. They are likely of basaltic or andesitic composition.

Thin section interpretation of one rock from this unit indicated it to be of gabbroic composition.

Unit 3 is a finely crystalline, light blue-grey limestone. The unit varies from a few centimeters to perhaps 10 meters in thickness, and occurs rarely on the property.

Units 4 through 8 all appear to be derivatives of the Olalla Stock.

Unit 4 is a fine to medium grained equigranular rock, consisting mainly of dark green augite pyroxene. Generally 5 to 10% magnetite occurs within the pyroxenite.

Unit 5 is a syenite which has two modes of occurrence. Unit 5a is a coarse grained massive syenite, greyish-orange in colour which occurs as narrow "veins" or as small bodies. Orthoclase is the main constituent, with 5% biotite and 2 to 5% magnetite. Unit 5b is a fine grained, light grey to buff to pink syenite occurring within the central portion of the stock. The main constituent is orthoclase, with augite being the main ferromagnesium mineral. The syenite is believed to be of metasomatic origin.

Unit 6 consists of feldspar porphyry dykes and sills. The dykes vary from less than 1 meter, up to 100 meters or more in width in the northwest corner of the claim. They are generally fine to medium grained with plagioclase phenocrysts in a plagioclase or K-spar groundmass. Hornblende, epidote and chlorite occur in varying concentrations within the unit. Bulk composition varies from latite to diorite.

Unit 7 is a massive hornblende dyke which occurs in only a few locations on the property.

Unit 8 is a dark grey, fine grained monzonite with a colour index of approximately 60%. It contains from 25 to 40% augite which gives the rock its characteristic dark colour. Orthoclase and plagioclase feldspars, with local olivine and hornblende form the remaining major constituents of the rock.

### 3.3 MINERALIZATION

A few days were spent prospecting on the property and several soil geochemical anomalies were investigated. One new showing was found.

The new showing is located at approximately 9285N & 9950E (trench-H, figure 4). Angular quartz float with boxworks and limonite was found during June and sampling (91C-1 to 3) indicated anomalous molybdenum (2012 & 1358 ppm), lead (2847 & 592 ppm) and silver (14.7 & 4.7 ppm) values and weakly anomalous gold (44 & 60 ppb) values. Massive pyrite veins at approximately 9200N & 9920E were also sampled (91C-3) at this time and gave a weakly anomalous copper value of 442 ppm.

In August a hand trench was dug near the float and the vein was exposed. A number of rock samples were then collected from the vein but they generally gave lower values than the initial sampling (Appendix II). The highest values (GC-H5) were 1936 ppm molybdenum, 1157 ppm lead, 5.5 ppm silver and 70 ppb gold. Several soil samples (GC-HS1 and GC-HS2) were taken below the trench and they gave weakly anomalous copper (187 & 288 ppm) and gold (24 & 26 ppb) values.

One rock sample (GC-H7) was collected at a highly silicified outcrop at 9000N & 9900E. The sample gave a weakly anomalous gold value of 24 ppb.

Detailed prospecting was carried out around 8000N & 10275E where soil sampling gave a value of 1100 ppb gold. Four rock samples of limonite stained quartz float were collected near the site. None of the samples gave anomalous gold values although three gave weakly anomalous arsenic values between 49 and 91 ppm.

The five drill holes of Freedom Resources drilled between 1981 and 1983 were relogged and a few additional samples taken. No new information came to light from this work.

Drill hole 81-1 (figure 4) was drilled north across the Valley Fault to test a VLF-EM conductor and a gold geochemical anomaly. At a depth of approximately 60 meters the hole passed from pyroxenite, through the Valley Fault and into a silicious syenite breccia zone. The hole continued in syenite until the end at 150.4 meters. The entire zone is weakly fractured and mineralized with quartz veinlets and pyrite. The highest value reported was 0.019 oz Au/ton from 141.8 to 144.8 meters. A number of other samples gave values up to 141 ppb gold.

Drill hole 83-1 was drilled south towards the Valley Fault and was in pyroxenite the entire distance. One interesting zone between 72.56 and 81.71 meters was intersected. This zone contained up to 25% 1 to 8 mm quartz veinlets with up to 10% pyrite. The best result was 830 ppb gold from 75.61 to 78.66 meters. The zone maybe related in some way to the silicious, pyritic breccia zone on the Sunrise Crown Grant located several hundred meters to the east of 83-1.

Drill holes 83-2 and 83-3 were drilled to the north at the western end of the Valley Fault to test several quartz veins exposed on surface. Drill hole 83-2 was in pyroxenite to 72 meters and then went into syenite until the end of the hole. The quartz vein was intersected from 21.0 to 23.0 meters and gave up to .080% molybdenum and 0.009 oz Au/ton. A narrow zone containing quartz veinlets from 72.26 to 72.56 meters gave 2560 ppb gold.

Drill hole 83-3 was drilled entirely in syenite. A weakly silicified zone from 76.5 to 77 meters gave 0.044 oz au/ton. Several other narrow zones gaveweakly anomalous gold values of up to 430 ppb.

Drill hole 83-4 was collared near the Valley Fault south of 83-1 and drilled to the south. The hole was drilled entirely in pyroxenite and did not encounter any significant mineralization.



## 4.0 GEOPHYSICS

### 4.1 MAGNETOMETER SURVEY

#### Copper King (Lot 3065s)

A total field magnetic survey was carried out on lines 10000N and 10100N on the Copper King (figure 5) as these two lines were not completed during the 1990 field program. The data was plotted on the 1990 base map. The magnetic response was very active with total field magnetic values ranging from 56110 to 78415 nT. Two zones of high magnetism (MH-1 and MH-2) and two zones of low magnetism (ML-1 and ML-2) shown on figure 11, were defined by the survey.

The two zones of higher magnetism may have different causes. Zone MH-2 lies within the pyroxenite and is probably caused by high concentrations of magnetite within the stock. Zone MH-2 is at least in part caused by the massive magnetite, pyrrhotite and pyrite skarn body located between lines 9900N and 10000N at 9575E.

The two zones of lower magnetism (ML-1 and ML-2) shown on figure 11 are probably caused by outliers of cherts or other sediments within the pyroxenite stock. These outliers of cherts were the host rocks for the skarn mineralization.

#### Lot 18s (Sunrise) and Dave Claim

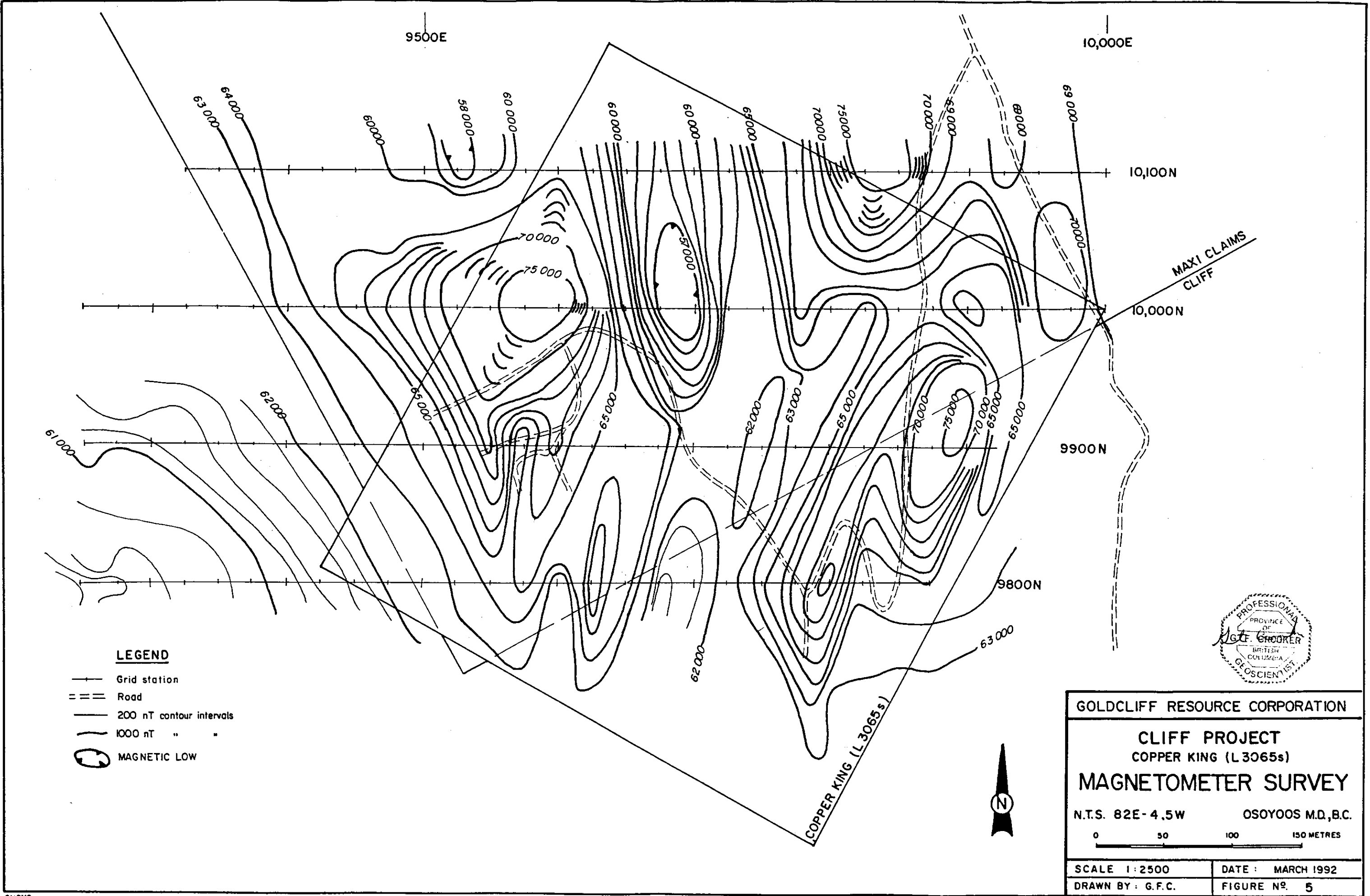
The total field magnetic survey was carried out on lines 10700E to 10900E (figure 6). The magnetic response was very active with total field magnetic values ranging from 48507 to 71988 nT.

The areas of higher magnetism appear to be underlain by pyroxenite and the area of lower magnetism appear to be underlain by both carbonatite alteration and a small granite body. The carbonatite alteration occurs along the Valley Fault while the granite body lies along the eastern portion of Lot 18s. The granite body is an important feature as it hosts the gold bearing quartz veins and breccia zone.

#### Lots 3439 (Silent Friend) and 3441 (Lisey D Fr)

A total field magnetic survey was carried out on lines 10100E to 10500E (figure 7). The magnetic response was very active with total field magnetic values ranging from 55328 to 67314 nT.

Most of the area has high magnetic values indicating it is underlain by pyroxenite. However one area centered at 10200E and 9250N contains a zone of low magnetism. This is probably caused by an outlier of cherts or other sediments.

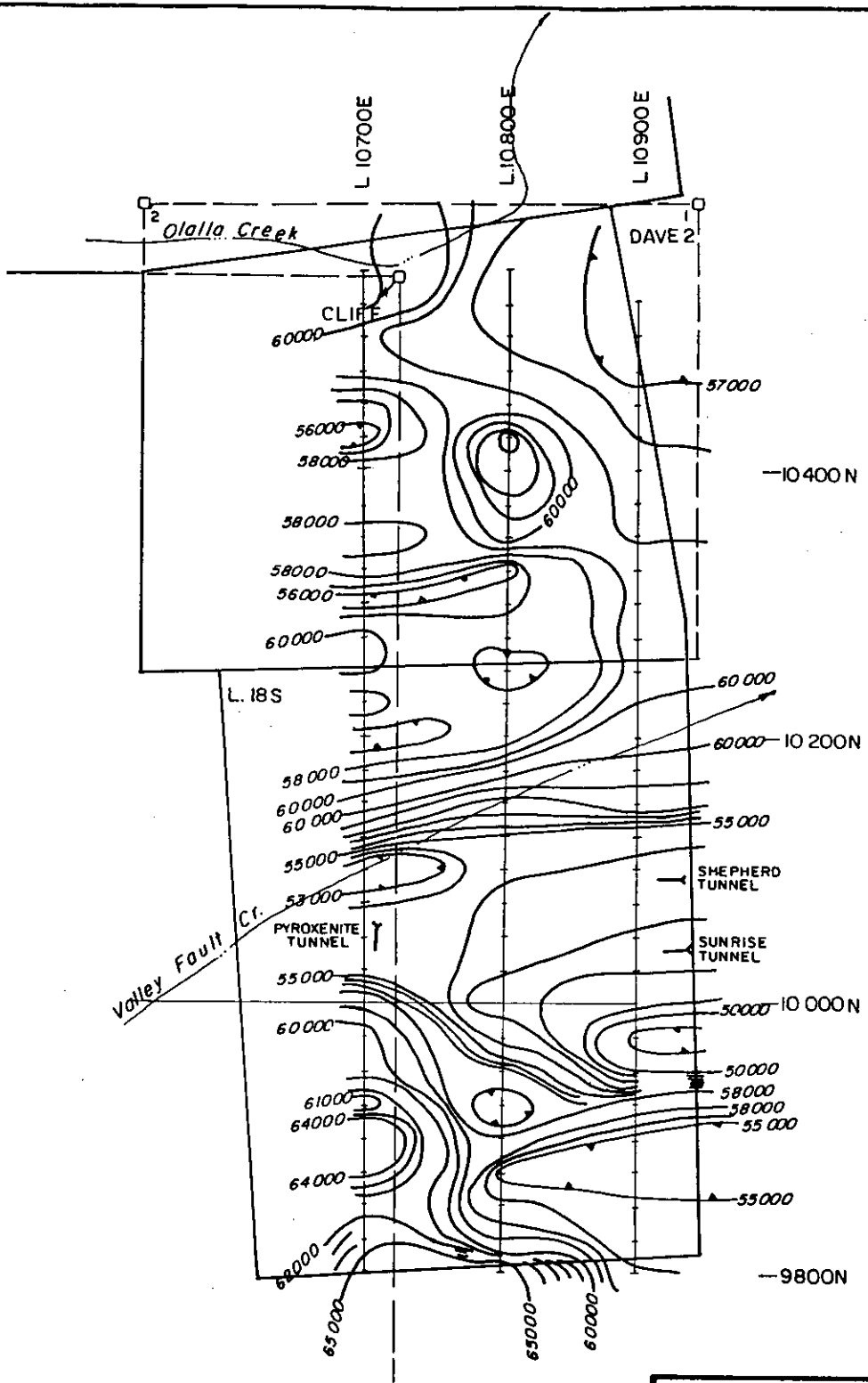


**LEGEND**

- +— Grid station
- == Road
- 200 nT contour intervals
- - - 1000 nT " "
- ⊙ MAGNETIC LOW



GOLDCLIFF RESOURCE CORPORATION	
CLIFF PROJECT COPPER KING (L 3065s)	
MAGNETOMETER SURVEY	
N.T.S. 82E-4.5W	OSOYOOS M.D., B.C.
0 50 100 150 METRES	
SCALE 1:2500	DATE: MARCH 1992
DRAWN BY: G.F.C.	FIGURE NO. 5

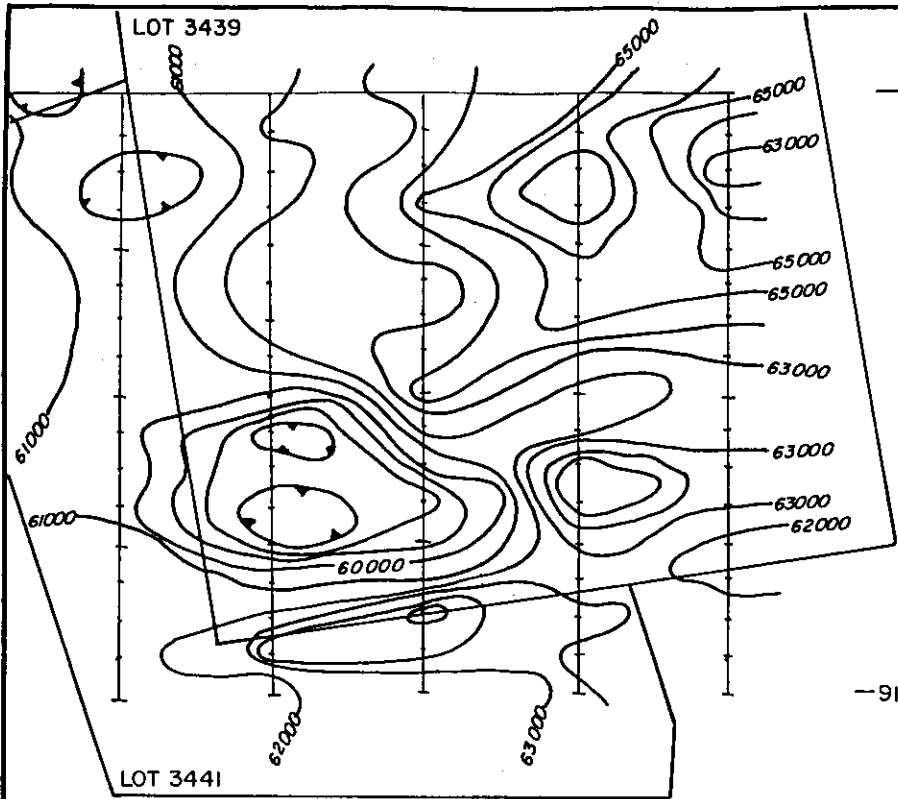


1000 nT contour interval  
 Magnetic log  

 M. G. F. CROCKER  
 PROFESSIONAL  
 PROVINCE OF ONTARIO  
 1992  
 GEOSCIENTIST

- Claim post ( 1 - initial , 2 final )
- Legal corner post
- Creek
- Grid station
- Adit

<b>GOLDCLIFF RESOURCE CORPORATION</b>	
<b>CLIFF PROJECT</b>	
<b>LOT 18S and DAVE 2</b>	
<b>MAGNETOMETER SURVEY</b>	
N.T.S. 82E - 4,5W	OSOYOOS M.D., B.C.
SCALE : 1:5000	DATE : MARCH 1992
DRAWN BY : G.F.C.	FIGURE NO. 6



9500N

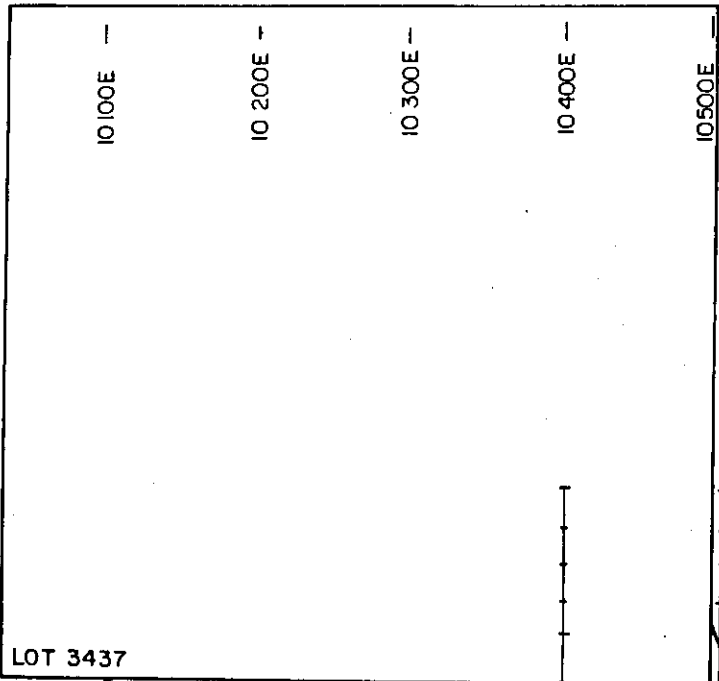


CLIFF CLAIM BOUNDARY

9100N

LOT 3441

- ⊥ Grid station
- | Adit
- ⊂ Magnetic low
- ⋄ 1000 nT contour interval



8700N



LOT 3437

LOT 1451

SOMETHING GOOD ADITS

8350N

**GOLDCLIFF RESOURCE CORPORATION**

**CLIFF PROJECT  
LOTS 3439 & 3441  
MAGNETOMETER SURVEY**

N.T.S. 82E-4,5W

OSOYOOS M.D., B.C.



SCALE: 1:5000

DATE: MARCH 1992

DRAWN BY: G.F.C.

FIGURE NO. 7

## 4.2 VLF-EM SURVEY

### Copper King (Lot 3065s)

A VLF-EM survey was carried out on lines 9800N and 9900N on the Copper King as these two lines were not completed during the 1990 field program. The VLF-EM profiles were plotted on figure 8 and the conductors on figure 11. As much of the survey was carried out on steep slopes the VLF-EM data have in many cases been influenced by topography in the form of a positive bias when the operator faced uphill and a negative bias when the operator faced downhill. The anomalies generally exhibit long wavelengths and in-phase anomaly amplitude ranged from strong through moderate to weak.

A number of weak to moderate northerly trending conductors were delineated by the survey. Conductor "A" is a weak conductor occurring along the west flank of a magnetic high and may be caused by high concentrations of magnetite within the pyroxenite. Conductor "B" is a moderate conductor coinciding with the massive magnetite, pyrrhotite and pyrite skarn body lying between lines 9900N and 10000N at 9575E. Several other conductors were delineated by the survey but no causes are evident for them.

### Lot 18s (Sunrise) and Dave Claim

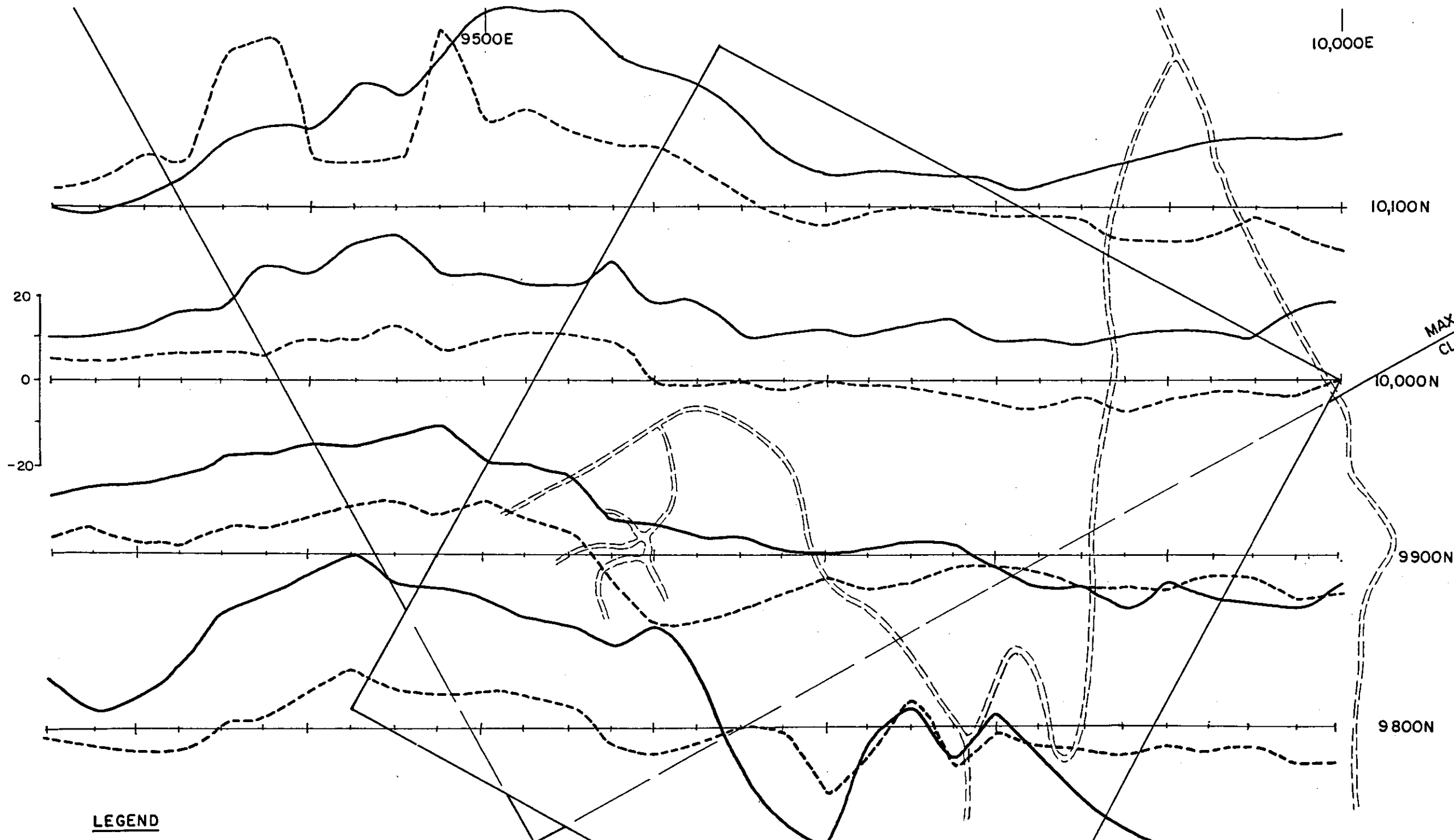
The VLF-EM survey was carried out on lines 10700E to 10900E (figure 9). The lines were not generally influenced by topography as they were ran parallel to the steep slopes or the level. Anomaly amplitude ranged from weak to moderate.

Three weak to moderate conductors were delineated by the survey. Conductor "C" is a moderate conductor caused by the cultural effect of a power line. Conductor "D" is a weak, northeasterly trending conductor which parallels the Valley Fault and probably represents this structure. Conductor "D" is also a weak, northeasterly trending conductor. It appears to coincide with the Sunrise Tunnel and maybe the expression of a structure associated with the Sunrise Vein.

### Lots 3439 (Silent Friend) and 3441 (Lisey D Fr)

The VLF-EM survey was carried out on lines 10100E to 10500E (figure 10). The lines were not generally influenced by topography as they were ran parallel to the steep slopes. Anomaly amplitude was weak.

A number of east-west trending conductors were delineated by the survey. However no causes are evident for them at this time.



**LEGEND**

- +— Grid station
  - === Road
  - ⋈ In-phase
  - ⋈ Quadrature
  - CUTLER 24.0 KHz
  - ⋈ Anomalous inflection (In phase)
- 1cm = 10%



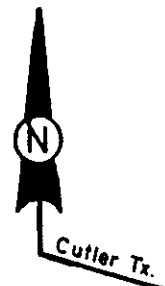
GOLDCLIFF RESOURCE CORPORATION

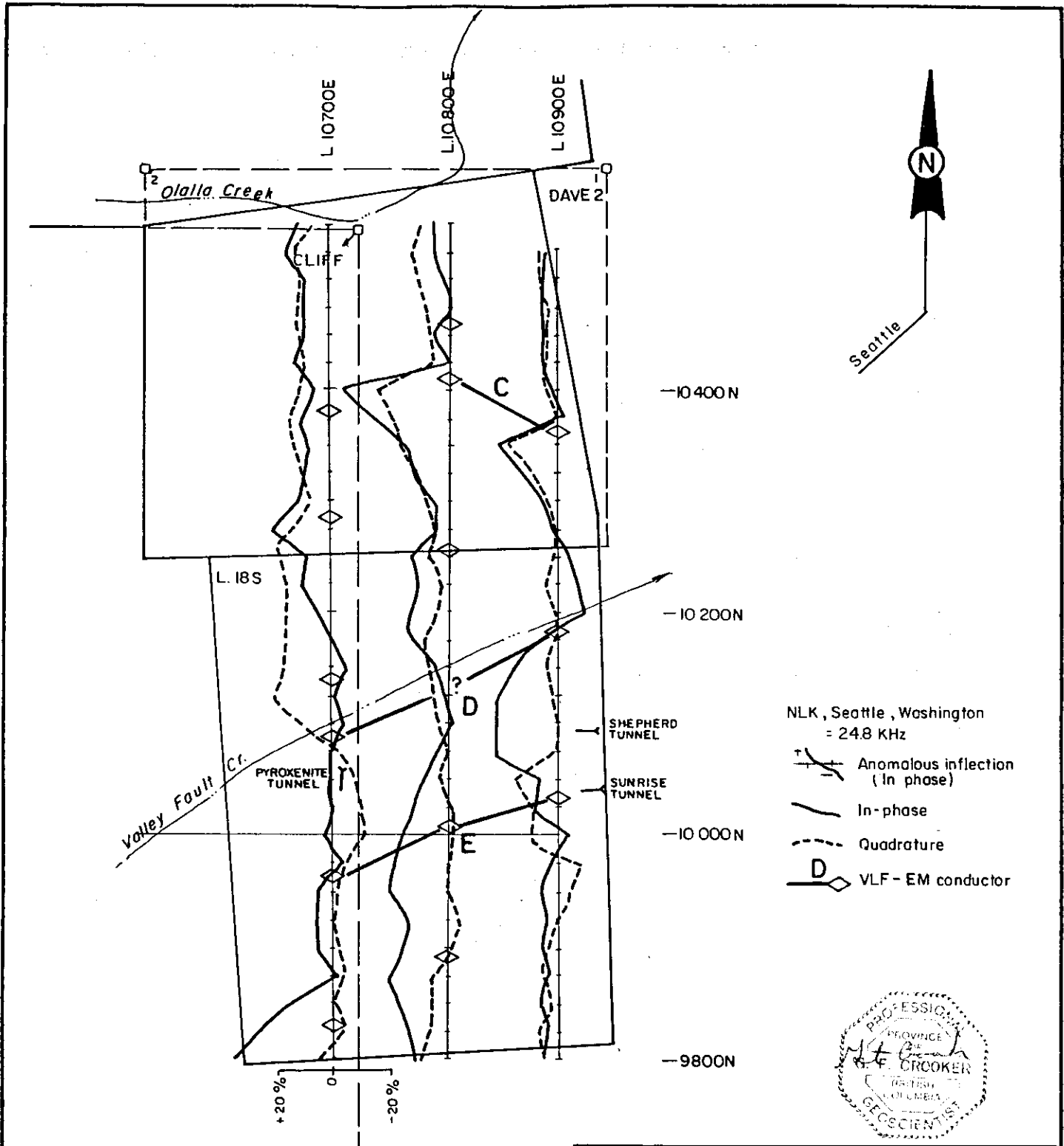
**CLIFF PROJECT**  
**COPPER KING (L3065s)**  
**VLF-EM PROFILES**  
**(CUTLER)**

N.T.S. 82E-4,5W      OSOYOOS M.D., B.C.





0      50      100      150 METRES

SCALE 1:2500	DATE: MARCH 1992
DRAWN BY: G.F.C.	FIGURE No. 8










NLK, Seattle, Washington  
 = 24.8 KHz

 Anomalous inflection (In phase)  
 In-phase  
 Quadrature  
 VLF-EM conductor



-  Claim post ( 1 - initial, 2 final)
-  Legal corner post
-  Creek
-  Grid station
-  Adit

**GOLDCLIFF RESOURCE CORPORATION**

**CLIFF PROJECT  
 LOT 18S and DAVE 2  
 VLF-EM PROFILES  
 (SEATTLE)**

N.T.S. 82E-4,5W      OSOYOOS M.D., B.C.



SCALE : 1:5000  
 DRAWN BY : G.F.C.

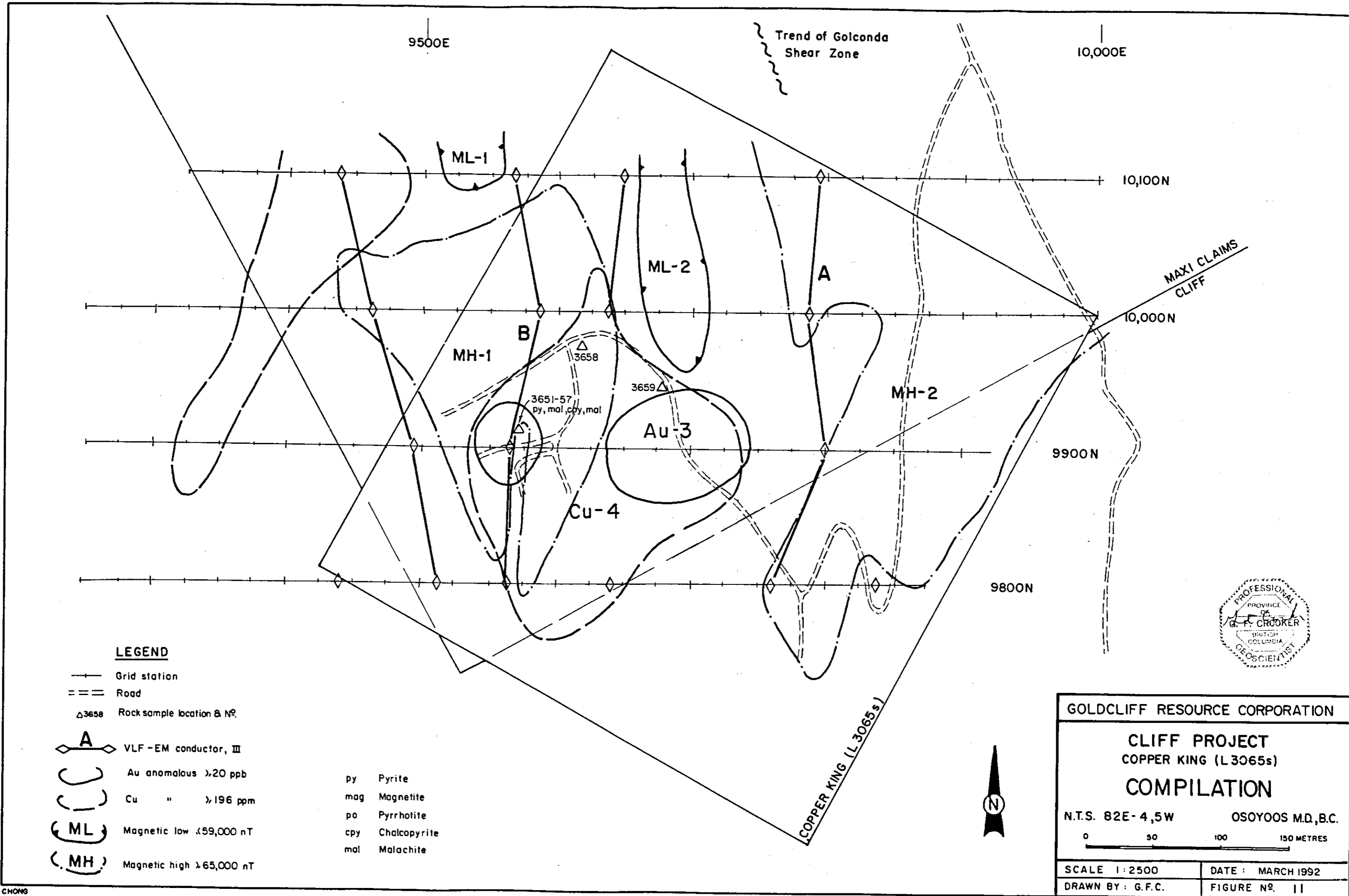
DATE : MARCH 1992  
 FIGURE NO. 9

**Lots 1451 (Something Good) and 3437 (Great Eastern)**

The VLF-EM survey was carried out on two short lines, 10400E and 10500E. The lines were not influenced by topography as they were ran parallel to the steep slopes. Anomaly amplitude was weak.

The survey was carried out to see if the graphitic shear zone at the Something Good workings could be defined with a VLF-EM survey. The survey appears to have been successful . Conductor "F", a weak to moderate conductor appears to pick up the shear zone on line 10400E and the extension on line 10500E.





**LEGEND**

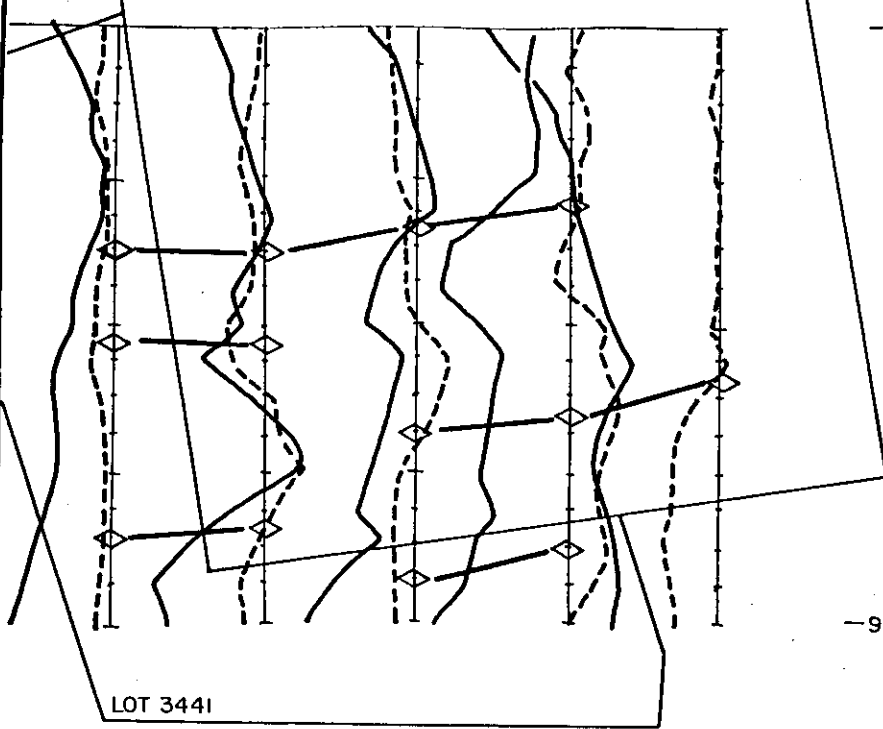
- +— Grid station
- === Road
- △3658 Rock sample location & No.
- A** VLF-EM conductor, III
- C** Au anomalous >20 ppb
- C** Cu " >196 ppm
- ML** Magnetic low <59,000 nT
- MH** Magnetic high >65,000 nT

- py Pyrite
- mag Magnetite
- po Pyrrholite
- cpy Chalcopyrite
- mal Malachite

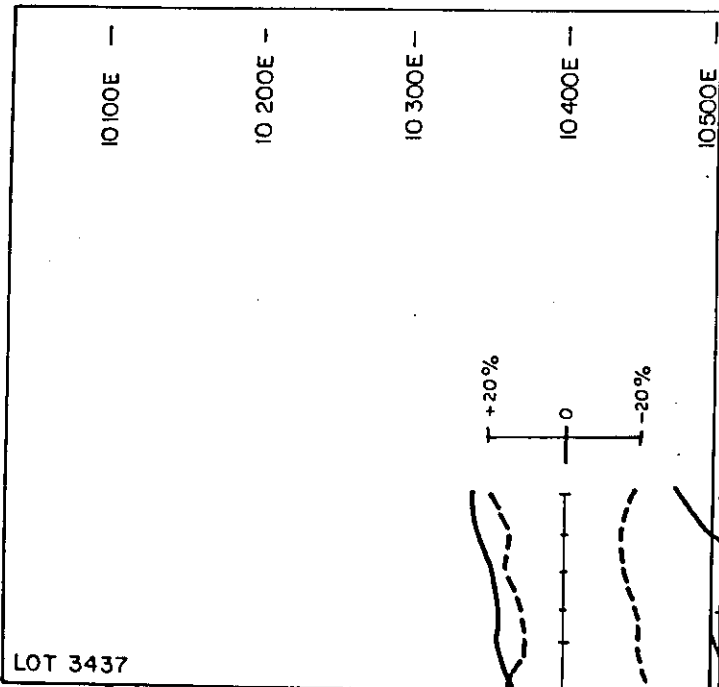


GOLDCLIFF RESOURCE CORPORATION	
<b>CLIFF PROJECT</b> COPPER KING (L3065s)	
<b>COMPILATION</b>	
N.T.S. 82E-4,5W	OSOYOOS M.D., B.C.
SCALE 1:2500	DATE: MARCH 1992
DRAWN BY: G.F.C.	FIGURE No. 11

LOT 3439



LOT 3441



LOT 3437

LOT 1451

SOMETHING GOOD ADITS

8350 N -

-9500N

CLIFF CLAIM BOUNDARY

-9100N

-8700N



- ⊕ Grid station
- ↖ Adit

NL K, Seattle Washington = 24.8 KHz

- Anomalous inflection (in-phase)
- In-phase
- Quadrature
- VLF-EM conductor



GOLDCLIFF RESOURCE CORPORATION

**CLIFF PROJECT**  
**LOTS 1451, 3437, 3439 & 3441**  
**VLF-EM PROFILES**  
 (SEATTLE)

N.T.S. 82E-4,5W

OSOYOOS M.D., B.C.



SCALE: 1:5000

DATE: MARCH 1992

DRAWN BY: G.F.C.

FIGURE NO. 10

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

The 1991 program program consisted of relogging the five Freedom Resources drill holes, using an airphoto to accurately locate the workings, claim posts, surveyed lots and grid lines, prospecting, and magnetometer and VLF-EM surveying on Lots 18s, 1441, 3439 and 3441.

The relogging of the Freedom holes drilled in 1981 and 1983 did not disclose any additional geological information. The best assay results obtained from the drilling are in the order of 0.03 to 0.04 oz Au/ton over 1 to 2 meters. Several zones display silicification over wide zones, but with very low gold values.

The locating of the workings etc on the airphoto (figure 4) showed some of the workings were previously located up to 200 meters from their true locations. The baseline was also determined to be about 100 meters east of the location it was thought to be.

Prospecting located an additional showing at 9285N and 9950E. Angular quartz vein float with boxworks was initially found. Subsequently a hand trench located the vein in place and additional rock sampling was carried out. The vein was weakly anomalous in molybdenum, lead and silver but did not contain anomalous gold values.

The magnetometer and VLF-EM surveys were able to define the magnetite, pyrrhotite and pyrite skarn body on the Copper King. The VLF-EM survey also located an extension of the shear zone on the Something Good and defined the Valley Fault.

Recommendations are as follows:

The target areas outlined by previous programs should have continued exploration by geochemical sampling, prospecting, trenching and drilling if required. Particular emphasis should be put on the targets with known showings and the Sunrise, Something Good and Golconda which have been recently acquired.

Respectively submitted,

A circular professional seal for Grant Crooker, a geologist in British Columbia. The seal contains the text 'PROFESSIONAL GEOLOGIST', 'PROVINCE OF BRITISH COLUMBIA', and 'GRANT CROOKER'. There is a signature over the seal.  
Grant Crooker, B.Sc., P.Geo.,  
Consulting Geologist

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## 7.0 CERTIFICATE OF QUALIFICATIONS

I, Grant F. Crooker, of Upper Bench Road, Keremeos, in the Province of British Columbia, hereby certify as follows:

1. That I graduated from the University of British Columbia in 1972 with a Bachelor of Science Degree in Geology.
2. That I have prospected and actively pursued geology prior to my graduation and have practised my profession since 1972.
3. That I am a member of the Canadian Institute of Mining and Metallurgy.
4. That I am a Fellow of the Geological Association of Canada.
5. That I am a Professional Geoscientist registered with The Association of Professional Engineers and Geoscientists of the Province of British Columbia.
6. That I am the owner of the Cliff, Cliff 1 to 4, Copper KING and Great Eastern Claims.
7. That I am the owner of the Sunrise, Something Good, Lisey D Fraction and Silent Friend Fraction Crown Grants.

Dated this *1st* day of *April*, 1992, at Keremeos, in the Province of British Columbia.

  
**Grant Crooker, B.Sc., P. Geo.,  
 Consulting Geologist**



**Appendix I**

**CERTIFICATES OF ANALYSIS**



ACME ANALYTICAL

Grant Cooker FILE # 91-2387

Page 2



ACME ANALYTICAL

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
P 3863	1	2	2	52	.1	31	15	796	3.95	14	5	ND	1	186	.6	2	2	52	12.58	.005	2	530	1.74	32	.05	2	.56	.01	.22	1	1
P 3864	1	8	4	58	.2	98	29	775	3.73	18	5	ND	1	279	.8	2	2	62	12.00	.009	2	227	3.96	7	.01	2	.37	.01	.12	1	4
P 3865	556	137	22	12	1.1	17	8	528	1.80	2	5	ND	1	270	.2	2	3	46	4.86	.008	2	14	.38	93	.01	2	.07	.01	.04	1	410
P 3866	95	15	4	6	.1	8	3	102	.89	2	5	ND	1	52	.2	2	2	17	.54	.021	2	9	.17	143	.01	3	.06	.01	.04	1	8
P 3867	15	11	8	47	.8	43	28	928	4.71	5	5	ND	1	413	2.4	2	2	81	12.20	.017	2	24	4.86	64	.01	2	.31	.01	.08	1	430
P 3868	3	914	2	33	1.3	21	16	559	6.79	3	5	ND	1	342	.5	2	2	242	3.20	.059	4	5	1.14	165	.10	2	.54	.04	.21	1	42



## GEOCHEMICAL ANALYSIS CERTIFICATE



Grant Cooker File # 91-2387 Page 1

Box 404, Keremeos BC V0X 1N0

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
91C-1	2012	47	2847	659	14.7	19	17	443	8.48	53	5	6	1	12	2.8	6	31	6	.11	.050	4	13	.08	59	.01	2	.25	.04	.07	1	44
91C-2	1358	33	592	369	4.7	12	16	519	7.02	49	5	4	1	11	1.9	7	9	9	.11	.055	3	7	.16	46	.01	2	.39	.03	.08	1	60
91C-3	50	442	12	33	.5	94	73	216	14.08	79	5	ND	4	6	.8	5	3	79	.06	.020	5	40	.73	29	.18	3	1.57	.02	.10	2	10
<del>91H-1</del>	<del>15</del>	<del>90</del>	<del>8748</del>	<del>1558</del>	<del>9.4</del>	<del>9</del>	<del>9</del>	<del>524</del>	<del>3.29</del>	<del>87</del>	<del>5</del>	<del>ND</del>	<del>7</del>	<del>33</del>	<del>29.6</del>	<del>2</del>	<del>3</del>	<del>4</del>	<del>.75</del>	<del>.033</del>	<del>5</del>	<del>10</del>	<del>.18</del>	<del>48</del>	<del>.01</del>	<del>2</del>	<del>.59</del>	<del>.01</del>	<del>.30</del>	<del>1</del>	<del>2080</del>
<del>91H-2</del>	<del>7</del>	<del>52</del>	<del>3390</del>	<del>132</del>	<del>7.7</del>	<del>8</del>	<del>2</del>	<del>83</del>	<del>1.28</del>	<del>166</del>	<del>5</del>	<del>2</del>	<del>1</del>	<del>3</del>	<del>2.2</del>	<del>2</del>	<del>2</del>	<del>3</del>	<del>.04</del>	<del>.002</del>	<del>2</del>	<del>7</del>	<del>.03</del>	<del>14</del>	<del>.01</del>	<del>3</del>	<del>.12</del>	<del>.01</del>	<del>.04</del>	<del>1</del>	<del>4620</del>
<del>91H-3</del>	<del>11</del>	<del>95</del>	<del>910</del>	<del>616</del>	<del>6.7</del>	<del>10</del>	<del>3</del>	<del>578</del>	<del>1.67</del>	<del>111</del>	<del>5</del>	<del>6</del>	<del>3</del>	<del>32</del>	<del>10.3</del>	<del>2</del>	<del>2</del>	<del>3</del>	<del>.81</del>	<del>.016</del>	<del>2</del>	<del>10</del>	<del>.12</del>	<del>17</del>	<del>.01</del>	<del>3</del>	<del>.34</del>	<del>.01</del>	<del>.13</del>	<del>1</del>	<del>6090</del>
<del>91R-1</del>	<del>1</del>	<del>2</del>	<del>40</del>	<del>52</del>	<del>.1</del>	<del>2</del>	<del>1</del>	<del>339</del>	<del>.39</del>	<del>2</del>	<del>5</del>	<del>ND</del>	<del>3</del>	<del>11</del>	<del>.2</del>	<del>2</del>	<del>2</del>	<del>1</del>	<del>.05</del>	<del>.009</del>	<del>25</del>	<del>3</del>	<del>.01</del>	<del>41</del>	<del>.01</del>	<del>7</del>	<del>.38</del>	<del>.03</del>	<del>.22</del>	<del>1</del>	<del>18</del>
<del>91R-2</del>	<del>4</del>	<del>5</del>	<del>110</del>	<del>116</del>	<del>.2</del>	<del>4</del>	<del>2</del>	<del>1359</del>	<del>1.54</del>	<del>6</del>	<del>5</del>	<del>ND</del>	<del>5</del>	<del>7</del>	<del>.3</del>	<del>2</del>	<del>2</del>	<del>4</del>	<del>.06</del>	<del>.019</del>	<del>24</del>	<del>7</del>	<del>.01</del>	<del>102</del>	<del>.01</del>	<del>5</del>	<del>.29</del>	<del>.04</del>	<del>.15</del>	<del>1</del>	<del>44</del>
<del>91R-3</del>	<del>1</del>	<del>2</del>	<del>6</del>	<del>26</del>	<del>.1</del>	<del>1</del>	<del>1</del>	<del>21</del>	<del>.16</del>	<del>2</del>	<del>5</del>	<del>ND</del>	<del>9</del>	<del>8</del>	<del>.2</del>	<del>2</del>	<del>2</del>	<del>1</del>	<del>.05</del>	<del>.003</del>	<del>25</del>	<del>2</del>	<del>.01</del>	<del>17</del>	<del>.01</del>	<del>4</del>	<del>.32</del>	<del>.03</del>	<del>.12</del>	<del>1</del>	<del>1</del>

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.  
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.

- SAMPLE TYPE: P1 ROCK P2 CORE AU\* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

DATE RECEIVED: JUL 9 1991 DATE REPORT MAILED: *July 12/91.* SIGNED BY: *C. Leong* .D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS



## ASSAY CERTIFICATE

Grant Cooker FILE # 91-2387R

SAMPLE#	SAMPLE AU-100 NATIVE		AVG.	
	wt. gm	oz/t	Au mg	oz/t
91C-1	600	.004	ND	.004
91C-2	550	.004	ND	.004

-100 MESH AU BY FIRE ASSAY FROM 1 A.T. SAMPLE.  
- SAMPLE TYPE: ROCK REJ.

DATE RECEIVED: JUL 25 1991

DATE REPORT MAILED: Aug 7/91

SIGNED BY.....D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS



**MIN-EN LABORATORIES**  
 (DIVISION OF ASSAYERS CORP.)

**SPECIALISTS IN MINERAL ENVIRONMENTS**  
 CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

**VANCOUVER OFFICE:**  
 705 WEST 15TH STREET  
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 FAX (604) 980-9621

**SMITHERS LAB.:**  
 3176 TATLOW ROAD  
 SMITHERS, B.C. CANADA V0J 2N0  
 TELEPHONE (604) 847-3004  
 FAX (604) 847-3005

*Metallic Assay Certificate* 1V-0721-RM1

Company: **GOLDCLIFFE RESOURCES**  
 Project: **CLIFF**  
 Attn: **MIKE HARRIS**

Date: **JUL-25-91**  
 Copy 1. GOLDCLIFF RESOURCES, NORTH VAN., B.C.

*We hereby certify* the following Metallic Assay of 1 METALLIC samples submitted JUL-23-91 by MIKE HARRIS.

Sample Number	Total		+120 M		Assay Value Au		Total Weight Au		Metallic Au		Net Au	
	Wt (g)	Wt (g)	+120(g/t)	-120(g/t)	+120(mg)	-120(mg)	(oz/ton)	(g/t)	(oz/ton)	(g/t)		
91-1	1025.90	32.90	.10	.06	0.003	0.060	0.000	0.00	0.00	0.002	0.06	

Certified by *[Signature]*  
 MIN-EN LABORATORIES









**Appendix II**

**ROCK SAMPLE DESCRIPTIONS**

### ROCK SAMPLE DESCRIPTIONS

Sample No.	Grid Coord.	Type	Description
91C-1	9285N 9950E	float	-strongly silicified, up to 25% boxworks with limonite
91C-2	9285N 9950E	float	-as above with less silicification
91C-3	9200N 9920E	grab	-grey-black chert with 1cm bands of pyrite
91-1	9285N 9950E	grab	-strongly silicified, up to 25% boxworks with limonite, resample of 91C-1
GC-H1	9310N 10000E	float	-quartzite with mineralized quartz vein py cubes, mo
GC-H2	9320N 9940E	float	-rusty quartz with hematite
GC-H3	9285N 9940E	float	-similiar to pit, quartz mineralized with py cubes, mo
GC-H4	9275N 9940E	grab	-from pit, highly mineralized
GC-H5	9275N 9940E	grab	-from trench, highly mineralized, oxidized
GC-H6	9200N 9850E	grab	-grab from extension of pit, less mineralized quartzite
GC-H7	9000N 9900E	grab	-quartzite
GC-H8	8000N 10375E	grab	-black chert with limonite stained veinlets
GC-H9	8000N 10375E	grab	-black chert, crumbly, limonite stained quartz veinlets
GC-H10	8000N 10375E	grab	-altered quartzite
GC-H11	8000N 10375E	float	-altered quartzite with minor quartz vein

**Appendix III**

**GEOPHYSICAL EQUIPMENT SPECIFICATIONS**

GEONICS LIMITED  
VLF EM 16

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Source of Primary Field      VLF transmitting stations

Transmitting Stations Used:    Any desired station frequency can be supplied with the instrument in the form of plug-in tuning units. Two tuning units can be plugged in at one time. A switch selects either station.

Operating Frequency Range:    About 15-25 Hz.

Parameters Measured:          1- The vertical in-phase component (tangent of the tilt angle of the polarization ellipsoid).  
2- The vertical out-of-phase (quadrature) component (the short axis of the polarization ellipsoid compared to the long axis).

Method of Reading:            In-phase from a mechanical inclinometer and quadrature from a calibrated dial. Nulling by audio tone

Scale Range:                    In-phase  $\pm 150\%$ ; quadrature  $\pm 40\%$

Readability:                     $\pm 1\%$

Operating Temperature Range:   -40 to 50° C.

Operating Controls:            ON-OFF switch, battery testing push button, station selector, switch, volume control, quadrature dial  $\pm 40\%$ , inclinometer  $\pm 150\%$

Power Supply:                   6 size AA alkaline cells  $\approx 200$  hrs.

Dimensions:                    42 x 14 x 9 cm (16 x 5.5 x 3.5 in)

Weight:                          1.6 kg. (3.5 lbs)

Instrument Supplied With:      Monotonic speaker, carrying case, manual of operation, 3 station selector plug-in tuning units (additional frequencies are optional) set of batteries.

Manufacturer:                   Geonics Limited  
1745 Meyerside Drive/Unit 8  
Mississauga, Ontario  
L5T 1C5

SCINTREX  
MP-2 PROTON PRECESSION MAGNETOMETER

**Resolution:** 1 gamma

**Total Field Accuracy:**  $\pm$  gamma over full operating range

**Range:** 20,000 to 100,000 gammas in 25 overlapping steps.

**Internal Measuring Program:** A reading appears 1.5 seconds after depression of Operate Switch & remains displayed for 2.2 secs. Recycling feature permits automatic repetitive readings at 3.7 sec. intervals.

**External Trigger:** External trigger input permits use of sampling intervals longer than 3.7 seconds.

**Display:** 5 digit LED readout displaying total magnetic field in gammas or normalized battery voltage.

**Data Output:** Multiplied precession frequency and gate time outputs for base station recording using interfacing optionally available from Scintrex.

**Gradient Tolerance:** Up to 5,000 gammas/meter.

**Power Source:** 8 size D cells  $\approx$ 25,000 readings at 25° C under reasonable conditions.

**Sensor:** Omnidirectional, shielded, noise-cancelling dual coil, optimized for high gradient tolerance.

**Harness:** Complete for operation with staff or back pack sensor.

**Operating Temperature Range:** -35 to +60° C.

**Size:** Console, 8 x 16 x 25 cm; Sensor, 8 x 15 cm; Staff 30 x 66 cm;

**Weights:** Console, 1.8 kg; Sensor, 1.3 kg; Staff, 0.6 kg;

**Manufacturer:** Scintrex  
222 Snidercroft Road  
Concord, Ontario

**Appendix IV**

**VLF-EM AND MAGNETIC DATA**

Grant Crooker Data Listing

Area: Olalla, B.C.

Current File Name: goldclif.xyz

Grid: Cliff

March, 1992

Line & Station + = northing/easting

- = southing/westing

Instrument Type: Scintrex MP-2 and Geonics EM-16

Facing southerly using Cutler

Facing southeasterly Seattle

DATA TYPES:

#1 Total Field Magnetic Values

#2 VLF-EM In-Phase Values

#3 VLF-EM Quadrature

#4 VLF-EM In-Phase Values

#5 VLF-EM Quadrature

DATA DETAILS:

Corrected Total Magnetic Field

Cutler Transmitter

Cutler Transmitter

Seattle Transmitter

Seattle Transmitter

N/S	E/W						
Line #	Station	# 1.	# 2.	# 3.	# 4.	# 5.	# 6.

line 9500

9500	10000	61065					
9500	10025	59672					
9500	10050	59510					
9500	10075	60117					
9500	10100	60560					
9500	10125	60937					
9500	10150	61271					
9500	10175	61364					
9500	10200	61872					
9500	10225	62118					
9500	10250	62849					
9500	10275	63120					
9500	10300	63273					
9500	10325	63718					
9500	10350	64286					
9500	10375	64667					
9500	10400	64857					
9500	10425	65285					
9500	10450	66234					
9500	10475	67457					
9500	10500	65868					

line 9800

9800	9250	60299	12	-2	-10	-13	
9800	9275	60310	4	-4	-6	-11	
9800	9300	60492	8	-5	2	-10	
9800	9325	60681	14	-4	7	-8	
9800	9350	60753	27	1	9	-5	
9800	9375	60924	30	2	15	-1	
9800	9400	61122	35	8	22	6	
9800	9425	61493	40	14	28	12	
9800	9450	61743	33	9	23	10	

9800	9475	62059	32	8	20	7
9800	9500	62639	29	9	17	7
9800	9525	63185	25	8	14	5
9800	9550	64042	24	5	10	-1
9800	9575	65054	19	-4	4	-9
9800	9600	62734	14	-6	0	-12
9800	9625	66982	11	-3	-4	-11
9800	9650	64335	-9	0	-15	-16
9800	9675	61028	-4	-1	-15	-15
9800	9700	61669	-16	-15	-13	-13
9800	9725	62243	-3	-6	-8	-9
9800	9750	64290	5	6	-6	-5
9800	9775	67460	-7	-9	-10	-5
9800	9800	70200	3	-1	-10	-9
9800	9825	64145	-8	-4	-19	-7
9800	9850	64722	-17	-5	-29	-10
9800	9875	65020	-23	-6	-33	-7
9800	9900	64257	-27	-4	-38	-6
9800	9925	64149	-29	-5	-44	-6
9800	9950	62622	-32	-5	-45	-10
9800	9975	62050	-36	-8	-48	-9
9800	10000	63524	-30	-8	-47	-11
line 9900						
9900	9250	60909	14	4	-5	-6
9900	9275	60982	15	6	-6	-3
9900	9300	61070	16	3	2	-3
9900	9325	61299	18	2	2	-8
9900	9350	61514	23	6	8	-3
9900	9375	61650	23	6	13	1
9900	9400	61954	25	8	19	6
9900	9425	62482	25	11	21	9
9900	9450	62918	28	12	20	11
9900	9475	63483	30	9	21	12
9900	9500	64338	22	12	14	12
9900	9525	66431	21	8	13	7
9900	9550	69728	18	5	7	3
9900	9575	64702	8	-6	-6	-9
9900	9600	67004	7	-16	-15	-18
9900	9625	65055	4	-16	-15	-19
9900	9650	64135	4	-12	-13	-14
9900	9675	64300	1	-9	-14	-14
9900	9700	62324	0	-6	-13	-14
9900	9725	62238	1	-8	-12	-11
9900	9750	61798	3	-6	-11	-8
9900	9775	63179	2	-3	-8	-5
9900	9800	64252	-3	-3	-14	-5
9900	9825	67217	-7	-4	-14	-4
9900	9850	68280	-7	-7	-18	-6
9900	9875	74909	-12	-8	-22	-3
9900	9900	75884	-6	-8	-19	-6
9900	9925	63871	-10	-4	-19	-7
9900	9950	65485	-11	-5	-25	-5
9900	9975	66016	-12	-10	-27	-10
9900	10000	68512	-7	-9	-22	-10



line 10000

10000	9250		10	5
10000	9275		10	4
10000	9300		12	5
10000	9325		16	5
10000	9350	62303	17	7
10000	9375	62798	26	4
10000	9400	63132	25	9
10000	9425	64728	31	9
10000	9450	65597	35	12
10000	9475	67726	25	7
10000	9500	69345	25	9
10000	9525	71455	22	10
10000	9550	74636	22	10
10000	9575	77125	26	8
10000	9600	78195	18	-1
10000	9625	69778	18	-1
10000	9650	62371	12	0
10000	9675	56866	10	-2
10000	9700	56110	12	0
10000	9725	62175	10	-1
10000	9750	62011	12	-2
10000	9775	66045	14	-3
10000	9800	64538	9	-5
10000	9825	63032	9	-6
10000	9850	65686	8	-4
10000	9875	65545	10	-4
10000	9900	64223	11	-4
10000	9925	63466	11	-2
10000	9950	72358	10	-3
10000	9975	73637	17	-3
10000	10600	57968		
10000	10625	56347		
10000	10650	56555		
10000	10675	56409		
10000	10700	59517		
10000	10725	58515		
10000	10750	54829		
10000	10775	52924		
10000	10800	52761		
10000	10825	53084		
10000	10850	49640		
10000	10875	51894		
10000	10900	52036		

line 10100

10100	9250		0	5
10100	9275		-1	6
10100	9300		2	13
10100	9325	62123	8	10
10100	9350	62769	15	36
10100	9375	63957	18	40
10100	9400	64252	18	10
10100	9425	63784	28	10
10100	9450	64280	25	11

10100	9475	59912	38	42
10100	9500	59511	45	19
10100	9525	57582	45	22
10100	9550	58637	45	16
10100	9575	60354	35	14
10100	9600	64615	32	14
10100	9625	63850	28	8
10100	9650	60827	21	2
10100	9675	57835	11	-3
10100	9700	59968	8	-5
10100	9725	61405	8	-1
10100	9750	65404	7	0
10100	9775	66125	7	-1
10100	9800	70477	5	-2
10100	9825	78415	5	-2
10100	9850	77464	8	-2
10100	9875	69894	9	-7
10100	9900	68270	13	-8
10100	9925	69811	16	-6
10100	9950	68459	16	-2
10100	9975	68937	16	-6
10100	10000	69466	18	-11

Grant Crooker Data Listing

Area: Olalla, B.C.

Current File Name: goldclif.xyz

Grid: Cliff

March, 1992

Line & Station + = northing/easting  
 - = southing/westing

Instrument Type: Scintrex MP-2 and Geonics EM-16

Facing northerly using Cutler

Facing northwesterly using Seattle

DATA TYPES:

#1 Total Field Magnetic Values  
 #2 VLF-EM In-Phase Values  
 #3 VLF-EM Quadrature  
 #4 VLF-EM In-Phase Values  
 #5 VLF-EM Quadrature

DATA DETAILS:

Corrected Total Magnetic Field  
 Cutler Transmitter  
 Cutler Transmitter  
 Seattle Transmitter  
 Seattle Transmitter

E/W	N/S						
Line #	Station	# 1.	# 2.	# 3.	# 4.	# 5.	# 6.
line 10100							
10100	9100	61307	27	2	26	3	
10100	9125	61289	26	1	23	2	
10100	9150	61627	24	-1	20	1	
10100	9175	61542	19	2	17	2	
10100	9200	61230	16	4	15	2	
10100	9225	60406	14	2	14	2	
10100	9250	60482	20	7	16	3	

10100	9275	60438	19	8	14	6
10100	9300	60565	16	12	10	5
10100	9325	60486	15	8	9	5
10100	9350	60420	7	4	5	2
10100	9375	60401	4	2	2	2
10100	9400	60204	4	2	2	2
10100	9425	59910	7	7	6	3
10100	9450	59858	8	3	7	6
10100	9475	60132	16	6	12	4
10100	9500	60560	19	10	15	4
line 10200						
10200	9100	61216	28	6	16	5
10200	9125	64062	32	8	30	7
10200	9150	61945	20	2	19	2
10200	9175	60750	8	-2	9	-2
10200	9200	56550	-11	-12	-9	-11
10200	9225	56707	-9	-7	-8	-4
10200	9250	57702	0	-2	1	-2
10200	9275	55328	20	12	16	8
10200	9300	60207	16	7	6	11
10200	9325	61979	10	5	7	4
10200	9350	62184	3	1	1	2
10200	9375	62373	2	6	-1	4
10200	9400	62623	2	6	2	6
10200	9425	61866	7	7	5	6
10200	9450	61979	7	4	7	4
10200	9475	62010	12	3	10	2
10200	9500	61872	19	4	14	2
line 10300						
10300	9100	62779	32	-4	28	-5
10300	9125	64049	26	4	20	5
10300	9150	66476	8	5	9	6
10300	9175	60421	20	6	15	5
10300	9200	58594	12	1	12	3
10300	9225	57594	5	-5	9	-3
10300	9250	60311	7	-10	5	-6
10300	9275	62941	1	-9	3	-9
10300	9300	64509	15	-6	13	-2
10300	9325	63800	7	1	11	2
10300	9350	62766	6	3	5	2
10300	9375	62703	-3	1	-6	0
10300	9400	63760	5	2	-4	6
10300	9425	63505	3	6	0	5
10300	9450	63655	8	1	3	4
10300	9475	63024	7	2	5	6
10300	9500	63273	16	9	12	8
line 10400						
10400	8350		-1	8	11	12
10400	8375		-5	5	10	8
10400	8400		-21	0	-8	3
10400	8425		-23	9	-4	6
10400	8450		-12	6	5	10
10400	8475		-8	2	10	3
10400	8500		-3	1	10	3

10400	8525		4	3	14	2
10400	8550		-10	3	5	8
10400	8575		-4	8	13	14
10400	8600		4	9	16	10
10400	8625		-3	6	16	10
10400	8650		-1	12	17	15
10400	8675		3	15	21	14
10400	8700		1	19	24	19
10400	9100	63011	36	0	35	1
10400	9125	62733	30	-3	27	-7
10400	9150	63192	27	-7	24	-10
10400	9175	62103	25	-8	19	-8
10400	9200	63966	31	-6	24	-7
10400	9225	65602	5	-12	27	-12
10400	9250	65636	21	-16	20	-13
10400	9275	61433	18	-10	18	-9
10400	9300	61031	28	-16	23	-10
10400	9325	63409	46	-14	35	-4
10400	9350	65130	43	0	31	2
10400	9375	65049	26	-3	18	-1
10400	9400	66510	16	-6	9	-2
10400	9425	67314	18	-7	9	-4
10400	9450	67260	20	-2	11	-3
10400	9475	66151	14	-12	12	1
10400	9500	64857	19	1	10	1
line 10500						
10500	8350		0	-2	6	4
10500	8375		-10	-1	-1	7
1055	8400		-10	0	0	6
10500	8425		-5	7	4	7
10500	8450		-6	3	6	8
10500	8475		-2	6	9	10
10500	8500		-3	9	8	12
10500	8525		-10	10	3	13
10500	8550		-27	8	-13	14
10500	8575		-36	14	-21	18
10500	8600		-35	19	-16	21
10500	8625		-22	14	-9	21
10500	8650		-20	20	-8	25
10500	8675		-2	21	3	26
10500	8700		8	23	11	23
10500	9100	62980	15	4	27	11
10500	9125	62568	29	12	26	12
10500	9150	62230	40	20	28	14
10500	9175	61833	33	12	30	12
10500	9200	61648	37	12	32	11
10500	9225	63276	37	12	32	11
10500	9250	63072	32	7	29	5
10500	9275	62634	29	3	24	-2
10500	9300	62792	34	4	29	7
10500	9325	63186	34	1	32	0
10500	9350	64431	39	4	34	1
10500	9375	65776	44	4	38	0
10500	9400	64201	40	3	37	1

10500	9425	64111	44	-4	41	0
10500	9450	62245	54	2	46	-3
10500	9475	63995	65	4	55	-1
10500	9500	65868	72	4	64	-1
line 10700						
10700	9800	71988	33	3	36	4
10700	9825	63499	19	-4	26	-4
10700	9850	61343	7	-2	14	0
10700	9875	64840	-10	-6	-1	-3
10700	9900	64612	-1	-1	6	-1
10700	9925	67134	-2	-6	5	0
10700	9950	60246	-3	-9	6	-2
10700	9975	60410	-10	-9	-3	-4
10700	10000	59517	-5	-13	2	-12
10700	10025	54631	-6	-14	0	-10
10700	10050	54621	-6	-15	2	-8
10700	10075	54622	-4	-7	1	-1
10700	10100	52648	-11	0	-4	10
10700	10125	57603	-5	8	-1	19
10700	10150	60330	-11	5	-5	15
10700	10175	58817	-5	2	-1	15
10700	10200	56489	-1	1	4	16
10700	10225	58105	4	4	9	14
10700	10250	61028	3	3	11	18
10700	10275	60854	3	8	20	15
10700	10300	55879	2	6	11	7
10700	10325	59625	0	8	8	9
10700	10350	57797	4	8	7	12
10700	10375	58706	4	7	10	13
10700	10400	58347	10	8	5	10
10700	10425	56678	5	8	11	8
10700	10450	57206	4	8	9	10
10700	10475	59784	4	7	9	11
10700	10500	59984	6	10	8	9
10700	10525	61035	7	9	14	12
10700	10550	61214	6	0	10	5
10700	10575		8	7	22	7
line 10800						
10800	9800	67913	0	-2	10	8
10800	9825	58963	5	-2	13	5
10800	9850	57331	6	-3	16	4
10800	9875	54633	11	-2	20	4
10800	9900	58240	4	-8	16	-1
10800	9925	55592	0	-10	13	-4
10800	9950	56592	9	-6	21	0
10800	9975	53575	9	-8	19	-1
10800	10000	52761	5	-7	15	-2
10800	10025	53162	1	-7	11	-2
10800	10050	53676	-3	-6	8	1
10800	10075	53826	-4	-4	2	-1
10800	10100	54324	-9	-4	-2	2
10800	10125	54656	-9	-8	-1	4
10800	10150	57721	-4	-3	2	5
10800	10175	60904	2	2	8	12

10800	10200	57209	7	0	13	4
10800	10225	57409	2	2	11	2
10800	10250	56626	5	1	11	5
10800	10275	57328	0	5	4	4
10800	10300	56727	2	1	3	6
10800	10325	55893	9	2	10	12
10800	10350	60675	14	15	14	17
10800	10375	61191	-23	-14	-25	-19
10800	10400	62594	29	21	34	24
10800	10425	64406	-2	2	-1	5
10800	10450	59740	4	5	5	7
10800	10475	58571	-1	-3	-2	7
10800	10500	57905	-2	8	0	10
10800	10525	57525	3	8	5	13
10800	10550	57645	3	8	4	10
line 10900						
10900	9800	56665	4	3	5	5
10900	9825	55121	4	6	3	7
10900	9850	55505	2	4	5	3
10900	9875	54916	1	-1	3	4
10900	9900	54186	5	4	6	4
10900	9925	58011	-1	1	3	11
10900	9950	49964	4	-3	7	3
10900	9975	48507	-2	-10	3	9
10900	10000	51036	-3	9	-4	9
10900	10025	52161	5	2	8	8
10900	10050	52601	10	16	6	15
10900	10075	53319	21	-1	22	1
10900	10100	53685	20	0	22	0
10900	10125	54491	18	-2	21	1
10900	10150	58215	14	2	15	4
10900	10175	59739	2	3	4	3
10900	10200	60595	-8	1	-9	0
10900	10225	60102	-9	2	-8	4
10900	10250	59299	-6	2	-4	1
10900	10275	59172	0	4	1	1
10900	10300	59774	6	4	5	5
10900	10325	59445	14	9	13	8
10900	10350	58896	16	25	20	20
10900	10375	58309	-6	-4	-2	-1
10900	10400	58131	3	2	3	3
10900	10425	57992	4	3	5	4
10900	10450	57279	5	4	4	4
10900	10475	56874	4	2	5	3
10900	10500	56805	4	6	5	6
10900	10525	56896	4	3	4	6

**Appendix V**

**DIAMOND DRILL LOGS**

PROPERTY .....

## Diamond Drill Record

## DIP TEST

Footage	Angle	
	Reading	Corrected

HOLE No. 81-1 Sheet No. 1

Lot.....

Total Depth.....150.4 m

Section.....

Dep. -45°

Logged By Grant Crooker

Date Begun 1981

Bearing 000°

Claim Cliff

Date Finished.....

Elev. Collar.....

Core Size BQ

DEPTH m	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH of SAMPLE	Au ppb	
0-6.71	- Casing						
6.71-22.41	- dark green augite pyroxenite, 1-2 % bi 12.35-15.60- alt., 2-5 % serecite, broken						
22.41-28.66	- bleached and clat alt fault zone						
28.66-32.56	- dark green pyroxenite						
32.56-33.69	- crushed, sheared pyroxenite, fault zone						
33.69-56.71	- pyroxenite, broken core						
	48.88-48.98- 10 cm quartz veinlet @ 70°						
56.71-58.65	- grey, sheared fault gouge, fault zone						
58.65-62.65	- weakly to strongly sheared pyroxenite						
	62.45- 5 to 10 mm calcite veinlets parallel to core						
62.65-68.20	- orange-green bleached syenite, random 1 to 4 mm quartz-calcite filled fractures						
68.20-70.70	- cg pink syenite, weak clay alt, random 1 to 4 mm quartz-calcite filled fractures, hem						
70.70-70.90	- green pyroxenite						
70.90-72.56	- cg syenite						
72.56-82.63	- breccia with subrounded clasts of fg orange syenite, up to 6 cm in diameter, 2% mag, 1% .1 to 5 mm quartz fragments with 1% py						





PROPERTY.....

## Diamond Drill Record

## DIP TEST

Footage	Angle	
	Reading	Corrected

HOLE No. 83-1 Sheet No. 1 Lat. .... Total Depth 118-29 m  
 Section ..... Dep. -45° Logged By Grant Crooker  
 Date Begun 1983 Bearing 180° Claim Cliff  
 Date Finished ..... Elev. Collar ..... Core Size NQ

DEPTH m	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH of SAMPLE	Au ppb	
0-3.66	-Casing						
3.66-32.77	-fg, light grey-green pyroxenite, minor serpentinized fractures						
	26.72-5mm fracture with py cubes, 20%						
32.77-34.15	-fg, grey-green pyroxenite, minor 1 to 5mm calcite veinlets @ 70°						
	40.55-1cm white calcite veinlet parallel to core						
	62.20-2cm white calcite veinlet @ 70°						
	5%-1 to 5mm quartz-calcite veinlets @ 45°, 2% py	3863	72.56	73.78	1.22	1	
	-1 to 8 mm quartz veinlets, 1-2% py, 1/2% mag	3854a	73.78	75.61	1.83	61	
	-25%-1 to 8mm quartz veinlets, 10% py, minor mariposite?	3855a	75.61	78.66	3.05	830	
	-10%-1 to 8 mm quartz veinlets, 2% py	3856a	78.66	81.71	3.05	280	
	-10% quartz-carbonate veinlets	3857a	102.44	103.96	1.52	14	
104.27-115.24	-fg pyroxenite, light grey alt. zones? breccia, chert fragments, 10% quartz fragments, minor quartz veinlets	3858	114.33	115.24	0.91	22	
115.24-118.29	-cg green pyroxenite -5% weak calcite veining, 15cm quartz breccia	3864	113.72	114.33	0.61	4	



PROPERTY.....

## Diamond Drill Record

## DIP TEST

Footage	Angle	
	Reading	Corrected

HOLE No. 83-2 Sheet No. 1

Lat. ....

Total Depth 107.01 m

Section .....

Dep. -45°

Logged By Grant Crooker

Date Begun 1983

Bearing 000°

Claim Cliff

Date Finished .....

Elev. Collar .....

Core Size NQ

DEPTH M	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH of SAMPLE		
0-1.52	-Casing						
1.52-28.35	-fg, dark green pyroxenite						
	-white quartz vein, some breccia, cavities	3851a	21.04	22.26	1.22	117	
	with 1cm quartz crystals, 2-5% py, trace mo						
	-10% quartz veinlets, 5% pink calcite, 5% py,	3852a	22.26	23.17	0.91	405	
	trace mo, cpy						
28.35-29.27	-cg pink syenite, 1 to 3cm biotite books						
29.27-33.23	-fg, dark green pyroxenite						
33.23-33.84	-cg, pink syenite, 1 to 3cm biotite books						
33.84-72.26	-fg, dark green pyroxenite						
	45.58-1cm quartz veinlet @ 70°						
	51.22-72.26 - weak, 1 to 3mm quartz @ 80°, tr py						
72.26-75.30	-cg pink syenite, weak 1 to 3mm quartz veinlets						
	5% py						
	-4-4cm quartz veinlets @ 75°, 1-2% diss. py	3853a	72.26	72.56	0.30	2560	
75.30-75.76	-fg, dark green pyroxenite						
75.76-78.66	-cg, pink syenite						
78.66-78.96	-fg, dark green pyroxenite						
78.96-107.01	-cg, pink syenite, very weak 1 to 2mm						
	quartz veinlets						
	82.01 - 1cm quartz veinlet @ 70°, 2% py						



PROPERTY.....

## Diamond Drill Record

## DIP TEST

Footage	Angle	
	Reading	Corrected

HOLE No. 83-3 Sheet No. 1  
 Section .....  
 Date Begun.....1983  
 Date Finished.....

Lat.....  
 Dep. -45  
 Bearing 000  
 Elev. Collar.....

Total Depth.....153.96 m  
 Logged By.....Grant Crooker  
 Claim.....Cliff  
 Core Size.....NQ

DEPTH M	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH of SAMPLE	Au ppb
0-1.22	-Casing					
1.22-60.98	-cg pink syenite, 10% augite, 1mm mag grains, minor fracturing with 1 to 3 mm quartz veinlets					
	-silicified zone @ 40°, 2% py	3865	55.18	55.28	.10	410
60.98-92.99	-cg syenite, less mafics, biotite					
	-quartz vein @ 80°, tr mo, py	3866	67.38	67.51	.13	8
	-weakly silicified zone	3867	76.22	76.83	.61	430
	79.73-5cm quartz veinlet @ 70°, 1% py					
	89.94-3cm quartz veinlet @ 45°, 1% py					
92.99-153.96	-cg pink syenite					
	-weakly silicified zone, 10% mag, 5% hem, tr bo	3868	109.45	111.28	1.83	42
	128.96-2cm quartz veinlet @ 40°					
153.96	End of hole					
	Note:					
	Mineralized zones were split and assayed by Freedom Resources, no economic gold values reported.					

PROPERTY.....

## Diamond Drill Record

DIP TEST		
		Angle
Footage	Reading	Corrected

HOLE No. 83-4 Sheet No. 1 Lat.....  
 Section..... Dep. -45°  
 Date Begun 1983 Bearing 175°  
 Date Finished..... Elev. Collar.....

Total Depth 151.52 m  
 Logged By Grant Crooker  
 Claim Cliff  
 Core Size NQ

DEPTH m	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH of SAMPLE	Au ppb	
0-5.18	-Casing						
5.18-9.45	-pale green pyroxenite, oxidized, weakly fractured with 1 to 2mm calcite veinlets, minor py						
9.45-11.59	-dark green pyroxenite						
11.59-12.04	-fault gouge, fault zone						
12.04-25.76	-dark green pyroxenite 18.29-18.45, 21.54-21.72, 21.78-21.95, 23.32-24.24, 25.15-25.76 - cg pink syenite dykes @ 45°, 1cm biotite books						
25.76-40.96	-dark green pyroxenite, minor 2 to 4cm cg pink syenite dykes with 1 to 2cm biotite books, minor 1mm randomly oriented fractures with calcite						
40.96-47.87	-fg pink syenite, 2% fg py, minor 1 to 2mm fractures with calcite						
47.87-151.52	-fg green pyroxenite, minor 5 to 15cm cg pink syenite dykes with biotite books						
151.52	- End of hole						
	Note:						
	Mineralized zones were split and assayed by Freedom Resources, no economic gold values reported.						

**Appendix VI**

**COST STATEMENT**



## COST STATEMENT

### SALARIES

- Grant Crooker, Geologist  
June 17, 18, 24, 25, 27, 28, Nov. 29,  
Dec. 2, 9-11, 1991, Feb. 11, 12, 17,  
18, 23, 24, 28, March 17, 18, 1992  
20 days @ \$ 400.00/day \$ 8,000.00
- Frank Haidlauf, Field Assistant  
August 9, 10, 1991  
2 days @ \$ 175.00/day 350.00
- Mike Harris, Field Assistant  
August 17, 18, Sept. 1, 1991  
3 days @ \$ 175.00/day 525.00

### MEALS AND ACCOMODATION

- Grant Crooker - 11 days @ \$ 60.00/day 660.00
- Frank Haidlauf - 2 days @ \$ 60.00/day 120.00
- Mike Harris - 3 days @ \$ 60.00/day 180.00

### TRANSPORTATION

- Vehicle Rental (Ford 3/4 ton 4x4)  
June 24, 25, 27, 28, Aug. 9, 10, 17, 18,  
Sept. 1, Nov. 29, Dec. 2, 9, 1991  
Feb 11, 12, 23, 24, 1992  
16 days @ \$ 60.00/day 960.00
- Gasoline 85.00

### EQUIPMENT RENTAL

- Magnetometer - Scintrex MP-2  
Nov. 29, Dec. 1, 1991, Feb. 12, 23, 1992  
4 days @ \$ 25.00/day 100.00
- VLF-EM - Geonics EM-16  
Feb. 11, 12, 23, 1992  
3 days @ \$ 25.00/day 75.00

### FREIGHT

29.49

### SUPPLIES

- Hipchain thread, flagging, geochem bags, etc. 50.00

**GEOCHEMICAL ANALYSIS**

- 2 soil samples, 31 element ICP, Au  
@ \$ 12.84/sample 25.68
- 6 core, 30 element ICP, Au acid leach,  
@ \$ 13.64/sample 81.84
- 3 rocks, 30 element ICP, Au acid leach  
@ \$ 13.64/sample 40.92
- 2 rocks, +100 mesh, -100 mesh, fire assay  
@ \$ 19.58/sample 39.16
- 1 metallic gold assay @ \$ 25.00/sample 25.00
- 12 rocks, 31 element ICP, Au wet  
@ \$ 15.52/sample 186.24

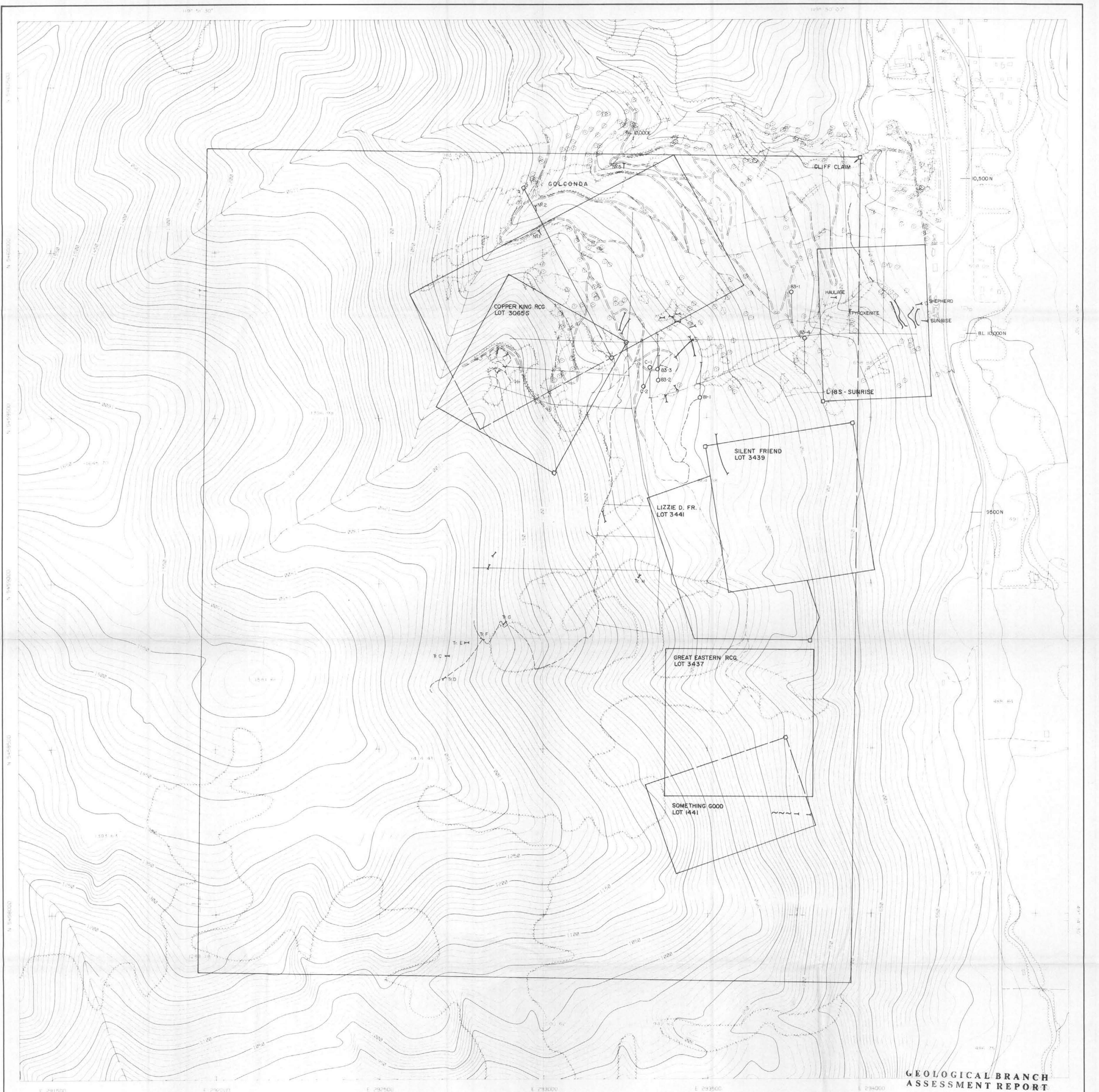
**DRAUGHTING**

300.00

**PREPARATION OF REPORT**

- Secretarial, reproduction, telephone,  
office overhead etc.

Total \$ 600.00  
12,433.33



GEOLOGICAL BRANCH  
ASSESSMENT REPORT

- LEGEND**
- Main Roads
  - Roads
  - Trails
  - Buildings
  - River
  - Stream
  - Lake
  - Trees
  - Contours
  - Index
  - Intermediate

- Claim post (1 - Initial, 2 - Final)
- Legal claim post
- Old post or iron pin
- Trench
- Adit
- Drill hole
- Grid line



**22,257**

GOLDCLIFF RESOURCE CORPORATION	
CLIFF PROJECT	
<b>PLAN OF WORKINGS</b>	
N.T.S. 82E-4,5W	OSOYOOS M.D., B.C.
0 100 200 400metres	
SCALE 1:5000	DATE: MARCH 1992
DRAWN BY: G.R.C.	FIGURE NO. 4

