Geochemical and Geophysical Report
on the
Stump 1 Mineral Claim

Kamloops Mining Division

British Columbia

N.T.S. 92 I 8

Latitude 50° 25' 20" North

Longitude 120° 17 '15" West

Covering the Stump 1 Claim (12 units)

located near Napier Lake, B. C.

Work performed between April 14, 1990 - May 21, 1990

Owners:

D. A. Leishman and W. Gruenwald

by

Douglas A. Leishman, B. Sc.

Consulting Geologist

Kamloops, B. C.

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Summary

The Stump 1 mineral claim, consisting of 12 metric units, is located in easily accessible, rolling terrain approximately 35 kilometres south of Kamloops, B. C. The claim straddles the eastern shore of Napier Lake and can be worked on a year round basis.

The claim group is underlain by Upper Tirassic Nicola volcanic and sedimentary rocks that outcrop as a "window" in Kamloops Group volcanics of Tertiary age. Highly altered units of Nicola, locally appearing as a prominent gossan outcropping near the shores of Napier Lake, are closely associated with a strong east-west trending shear zone up to 300 metres wide which has been traced to the eastern boundary of the property where it is covered by up to 80 metres of overburden. To the north granitic intrusions of the Jurassic Wildhorse Batholith have been mapped.

A limited amount of percussion drilling carried out in the early 1970's tested this eastery trending shear/alteration zone. Significant amounts of copper, zinc and in some instances gold were encountered in this drilling. One hole (73-P-11) drilled to a depth of 76 metres in this zone, returned a 48.8 metre intersection grading 0.21% copper. A second hole (73-P-8) located 335 metres to the southeast of the first, returned values of 0.17% copper across24.4 metres from the bottom of the hole. Soil sampling by the present operators (1987) has detected anomalous (but erratic) values in gold in soils from this shear/alteration zone (up to 310ppb gold). VLF-EM and magnetic surveys carried out by Leishman and Gruenwald in 1989 outlined low magnitude conductors/anomalies which appear to be associated with the lithologic boundarys along the periphery of the shear zone.

The work completed by the owner/operators in the 1990 field season consisted mainly of deep soil sampling pits and rock chip sampling in the area where previous drilling had outllined "subeconomic" copper and gold values. The work completed in 1990 confirmed that this area within the shear/alteration zone is anomalous in copper, zinc, gold and silver relative to other areas tested along the alteration zone. Soil sample values to greater than 7,000 ppm copper and 2,000 ppm zinc were obtained in this recent sampling. Limited rock sampling (buried float and outcrop) was able to outline values up to 10,234ppm copper, 8,435ppm zinc, 14.7ppm silver and 580ppb gold from the same area.

The geologic setting of the Stump 1 claim, combined with the presence of a large altered zone carrying signifcant amounts of copper, zinc, silver and gold, offers excellent exploration potential. Further exploration of the property is warranted. This should consist of both trenching and drilling.

Introduction

This report outlines the results of recent geochemical and geophysical survey work completed on the Stump 1 mineral claim through to May 1990. The work described in this report was completed by the owner/operators (Leishman and Gruenwald). A program of further exploration and development of the Stump 1 mineral claim is proposed .

A series of maps showing property and claim location as well as recent survey data are included with this report. The cost of the recent work on the Stump claim was approximately $4,800.

Location, Access and Physiography

The Stump 1 mineral claim is located in south central British Columbia within the Kamloops Mining Division. The claim is situated approximately 35 kilometres south of Kamloops on Highway #5 (Figure 1). The claims can be reached by two routes.

The first and most direct, is by travelling south along Highway #5 to Napier Lake, where a private road leads to the north end of the lake. From this point, a hike along an old trail for approximately 2 kilometres leads to the north boundary of the claim.

An alternative route is to continue south along Highway #5 past the south end of Napier Lake to the Stump Lake Ranch turnoff. The main Stump Lake road is followed towards the east for approximately 2.5 kilometres where a secondary ranch road is then taken to the south for 4.4 kilometres. This access road stops a few hundred metres south of the claim group. From here the claim is accessed through rangeland on foot (Figure 1).

The Stump 1 mineral claim covers an area of approximately 300 hectares and is centred on the east side of Napier Lake (N.T.S. Map No. 92I/8W, Figure 2). The claim area is covered primarily by rolling grasslands where the elevation varies from 945 m (3,100') along the south east corner of the claim group to approximately 715m (2,350') along the western boundary adjacent to Napier Lake. Annual precipitation in the area of the claims is low and the property is snow free most of the year.

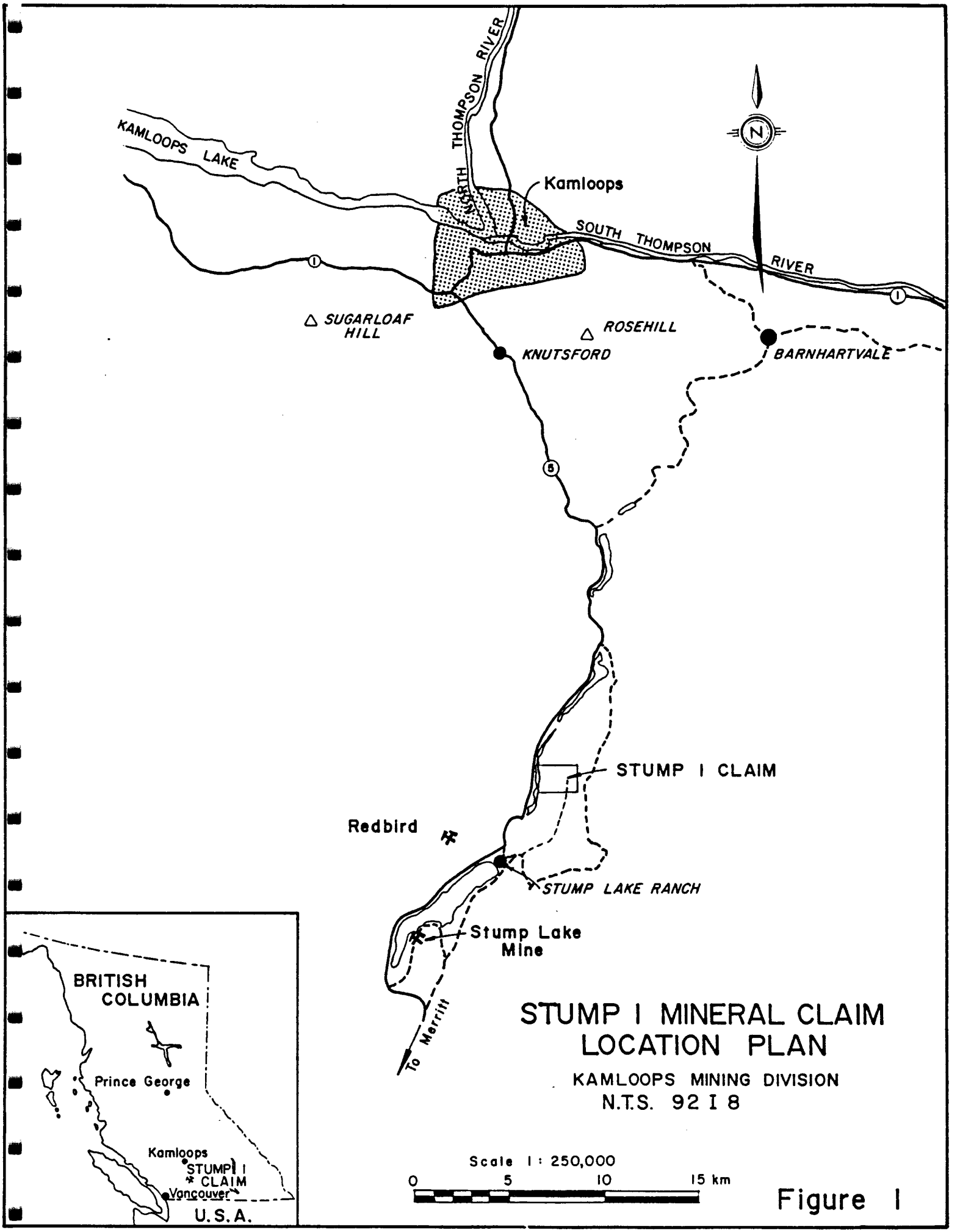

KAMLOOPS LAKE
NORTH THOMPSON RIVER
Kamloops
SOUTH THOMPSON RIVER
N
SUGARLOAF HILL
ROSEHILL
KNUTSFORD
BARNHARTVALE
STUMP I CLAIM
Redbird
STUMP LAKE RANCH
Stump Lake Mine
To Merritt
BRITISH COLUMBIA
Prince George
Kamloops
STUMP I CLAIM
Vancouver
U.S.A.
STUMP I MINERAL CLAIM
LOCATION PLAN
KAMLOOPS MINING DIVISION
N.T.S. 92 I 8
Scale 1 : 250,000
0 5 10 15 km

Figure 1

Outcrops are not common, being confined to the prominent east-west trending gully, steep slopes and small knolls. Overburden depth appears to be variable. In the eastern area of the claims previous drilling by Newconex encountered up to 80 metres of Tertiary ? sandstone overlying the shear/alteration zone. Work by Gruenwald/Leishman has identified this area to be underlain by pre-glacial gravels and not consolidated Tertiary units as previously mapped.

Property and Ownership

The Stump 1 property consists of one contiguous Modified Grid System claim totalling 12 units (Figure 2). The claim covers an area of approximately 300 hectares. Details of the claim are as follows:

Claim Name	Units	Record No.	Expiry Date
Stump 1	12	6641	May 21, 1992

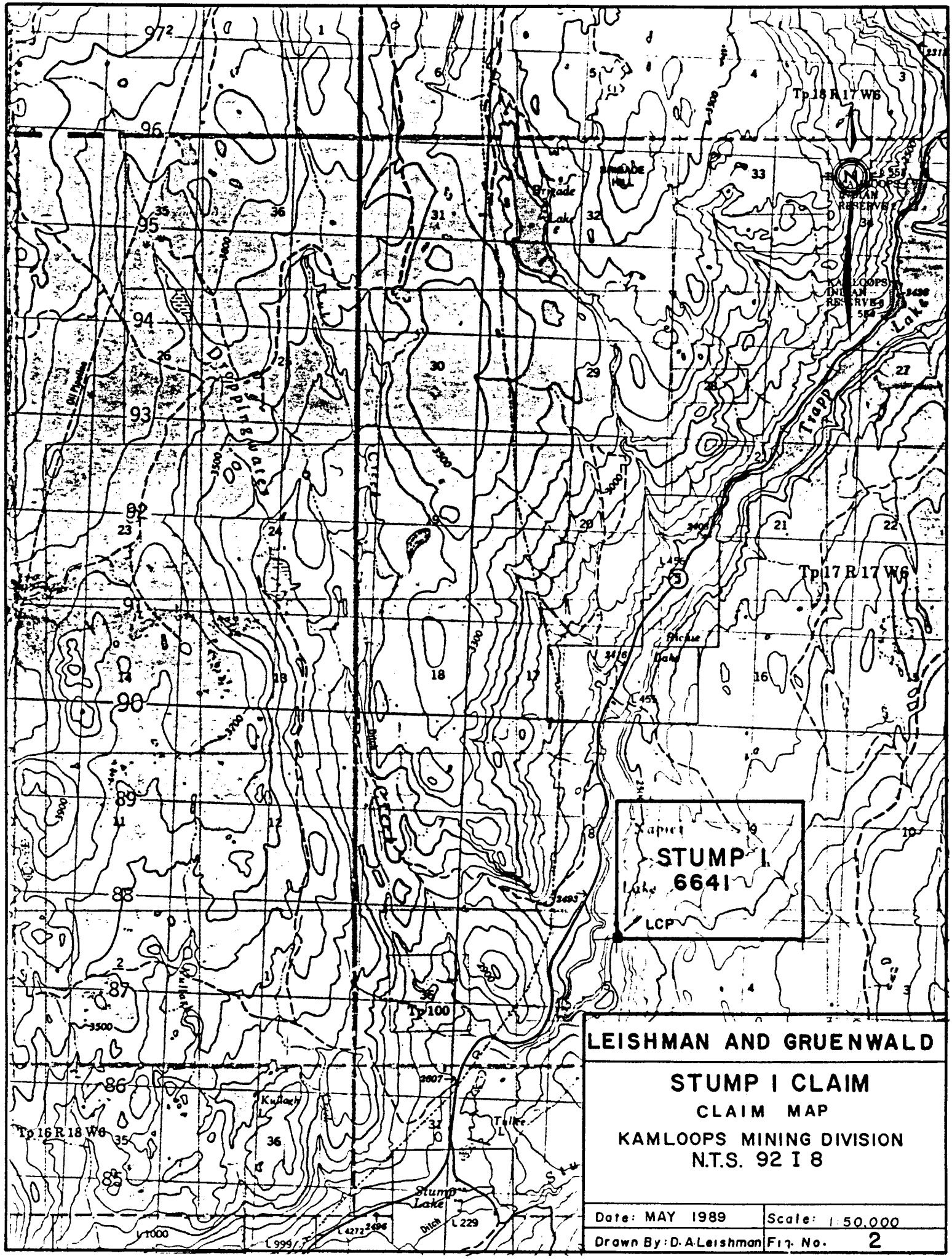
Claim Status

Table I

The owners of the claim are Douglas A. Leishman (Kamloops) and Werner Gruenwald of Vernon, British Columbia.

History

The history of the Stump Lake area dates back to 1882 when the Mineral Hill deposit was discovered (Stump Lake Mine). From 1882 to 1890 several shafts were sunk on a number of individual veins, but there was never any sustained production. Work resumed at this site in 1916 and continued until 1944. Production records indicate that one vein (the Enterprise Vein) yielded 78,601 tons avearaging 0.01 oz./ton gold, 3.170z./ton silver, 0.07% copper, 1.46% lead and 0.33% zinc. (B. C. Ministry of Mines, 1965, page 158). Old dumps from this mine are still visible along the eastern shore of Stump Lake.



LEISHMAN AND GRUENWALD

STUMP I CLAIM

CLAIM MAP

KAMLOOPS MINING DIVISION
N.T.S. 92 I 8

Date: MAY 1989	Scale: 1:50,000
Drawn By: D. A. Leishman	Fig. No. 2

In 1973, the area presently covered by the Stump 1 mineral claim was held and worked by Newconex Canadian Exploration Ltd. The initial work by Newconex consisted of soil sampling, magnetometer and geological surveys. Their target was a porphyry copper deposit. The work by Newconex identified a strong copper-zinc soil anomaly associated with an area of silicified and pyritized Nicola volcanics centred along an east-west shear zone. The more significant portions of this geochemical anomaly were tested by the drilling of 12 shallow percussion holes (totalling 915 metres) in the fall of 1973. This drilling, however was not reported as Assesment Work. Drill sections acquired by D. Leishman, revealed that some of the cuttings were analysed for gold and returned values up to 230 parts per billion (ppb). Significant copper intersections reported include an interval grading 0.17% copper across 24.4 metres (73-P-8) near the bottom of the hole. Another hole (73-P-11) located 335 metres to the northwest returned a value of 0.21% copper across 48.8 metres.

Newconex conducted an E.M. survey over part of the property in 1977. No anomalies of any significance were reported. The property was subsequently allowed to lapse.

There are indications (old claim posts) on the property that Noranda Exploration Ltd. staked part of the ground covered by the Stump 1 claim in the early 1980's. It appears the claims were never recorded and there is no information of Noranda completing work on the property.

More recently, work on the Redbird claim, located 5 kilometres southwest of the Stump 1 claim revealed an east-west trending fracture system containing epithermal style quartz-flourite mineralization. Signifcant, but subeconomic gold values were indicated from surface trenching and several diamond drill holes.

Major stuctures in the Stump Lake area trend northerly whereas the Redbird and Stump 1 properties are associated with definite east-west structures. It was this latter feature, combined with the anomalous copper/gold values in the Newconex drilling, that lead to the acquisition of the Stump 1 claim.

During 1986 and 1987 the writer and W. Gruenwald carrried out a grid geochemical sampling program over the central portion of the claim area to cover the east-west trending altered zone. Results revealed anomalous gold values (up to 310ppb) extending south of the baseline from Line2+00W to 2+00E. This correlated with the strongly altered, copper mineralized zone partially drill tested by Newconex.

Regional Geology

The regional geology of the Stump Lake area is described in Memoir 249 (Map No. 886A) by W. E. Cockfield (1961). More recently, J. H. Monger completed Open File Report 980 for the Geological Survey of Canada. The geology of the claim area, taken from Open File 980, is illustrated on Figure 3.

The oldest rock units in the area of the claim are of the Upper Triassic Nicola Group and consist of amphibolites, foliated diorites, fine grained sediments, volcaniclastics and augite porphyry flows. Intruding these rocks is the Early Jurassic Wildhorse Batholith. These rocks are in turn overlain by the younger Kamloops Group volcanic flows, olivine basalts and minor intrusions of intermediate composition. These flows and basalts form prominent ridges and cliffs which can be seen along Highway #5 near the Stump 1 mineral claim.

The mineralization at the old Stump Lake mine is associated with north-south striking vein structures. A major northwesterly trending fault has been postulated by Monger through the north end of Stump Lake. The structures on the Redbird and Stump 1 claims however trend east-west. This may suggest that they post date the main north-south structure in the area.

Geological Legend

Quarternary

- Qd — GLACIAL DRIFT, ALLUVIUM

Tertiary

- Tv — OLIVENE BASALTS
- Ti — INTRUSIONS INTERMEDIATE COMPOSITION

Kamloops Group

- Ek — VOLCANIC FLOWS

Early Jurassic

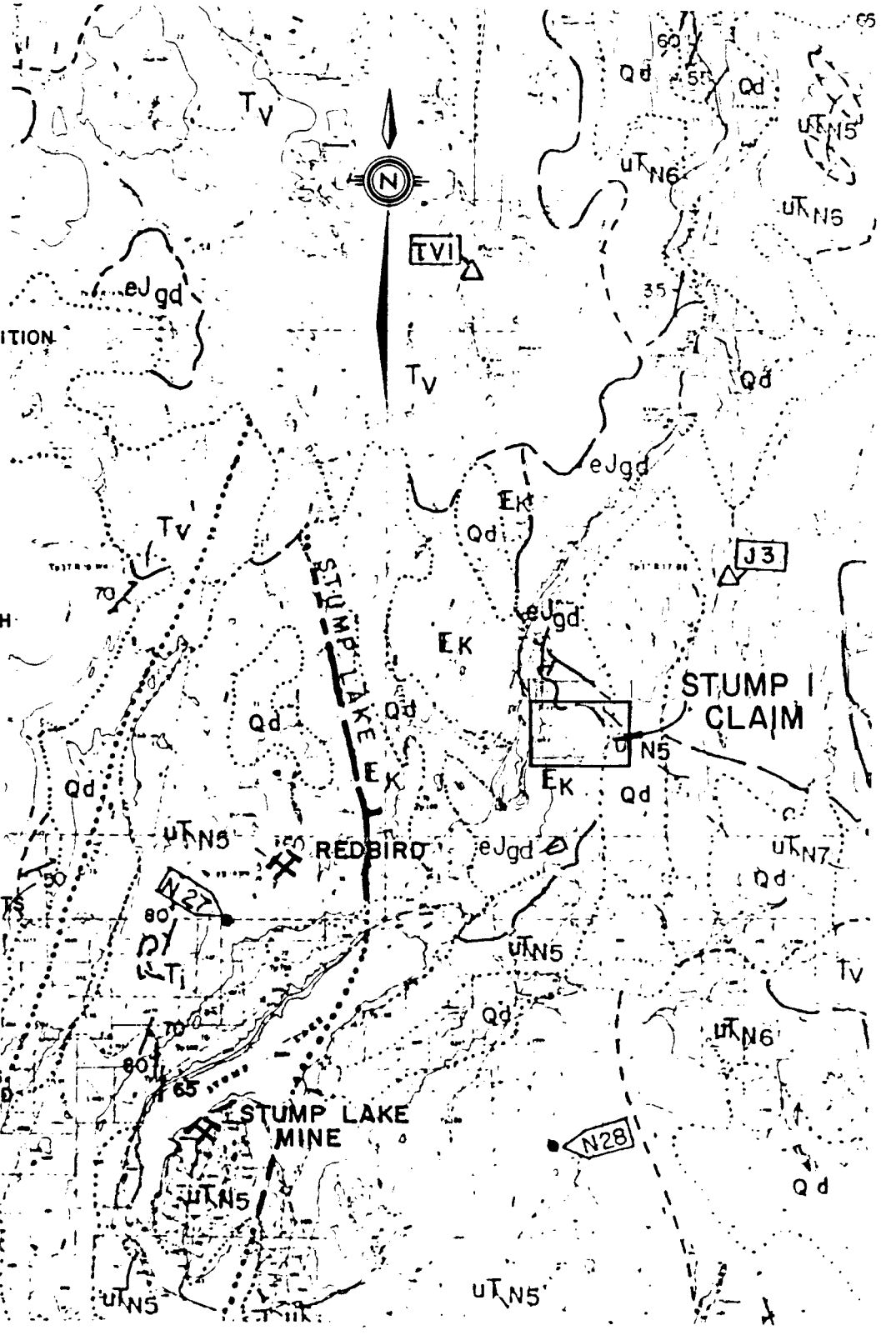
- eJgd — WILDHORSE BATHOLITH

Triassic & Jurassic

Nicola Group

- UTN5 — AUGITE PORPHYRY
- UTN6 — FINE GRAINED SEDIMENTS & VOLCANICLASTICS
- UTN7 — FOLIATED DIORITES, AMPHIBOLITES

FAULTS, DEFINED, APPROXIMATE, ASSUMED



Geology after Monger, 1982

SCALE 1:125,000

0 2 6 10 km

STUMP I CLAIM
REGIONAL GEOLOGY

KAMLOOPS MINING DIVISION

N.T.S. 92 I 8

Figure 3

Property Geology

The geological work carried out to date by the owners of the Stump 1 mineral claim has been limited to examination and random chip sampling of outcrops primarily in the area of the grid. For the purposes of this report, individual outcroppings are not indicated, however the inferred outline of the prominent east-west trending altered zone has been plotted on Figure 4 for interpretive purposes.

The oldest rocks exposed on the Stump 1 claim belong to the Nicola Group of Triassic age. These rocks are represented by both unaltered and altered variations. The unaltered variety consists primarily of a finely crystalline, massive, grey to black volcanic of intermediate to mafic compostion A weakly schistose texture is occasionally evident.

The altered variety consists of a fine grained, pale grey to yellowish rock displaying varying degrees of alteration including silicification, pyritization and sericitization. Finely disseminated pyrite locally occurs within the sericitized units in concentrations of up th 10%, however 2-3% is more common. Surface oxidation often results in a friable and bleached looking rock in the typical gossanous shades of yellow, orange and red. The soils derived from these rocks are often distinctly coloured and may prove useful in delineating such altered rocks. At least one band of a very limey unit has been identified as outcropping discontinuously in the area of the gully.

Silicification is often pervasive. Locally, quartz-carbonate + gypsum veinlets (fracture fillings) up to several centimeters have been observed . Some of these veinlets contain traces of chalcopyrite and malachite.

Where schistosity or fracture cleavage are evident, the strike ranges from 090° to 110°, with the dip generally steep to the south.

Although not directly observed, granitic rocks of the Wildhorse Batholith occur very near if not on the property. Drilling by Newconex approximately 150 metres east of the present claim boundary identifed a narrow sequence of hornfels underlain by massive granitic rock. This appears consistent with mapping by the G.S.C. (Monger, 1982) that shows rocks of the Wildhorse Batholith immediately

northeast of the Stump 1 claim.

Cutting the altered zone in the area of the prominent gully is an easterly striking mafic (lamprophyre?) dyke. This rock is thought to represent the final magmatic phase of the Wildhorse Batholith.

Unconformably overlying the Nicola Group rocks, as well as the Wildhorse Batholith, are rhyolitic to basaltic flows and pyroclastics of the Tertiary Kamloops Group. Large outcrops of these rocks are found in the northern and southern portions of th claim. A distinct white to pale grey, rhyolitic unit is present near the north end of Lines 2+00E, 0+00E, 7+00W, 8+00W, and along Highway #5 near the northwest corner of the Stump 1 claim.

The eastern region of the claim contains few outcrops. A northwesterly trending drainage in the eastern portion of the Stump 1 claim cuts through a relatively thick sequence of well cemented, alluvial gravels which were intersected in some of the Newconex drill holes. These gravels may represent pre-glacial stream channels. The shear/alteration zone was encountered by Newconex beneath these gravels.

1989 Field Program

Introduction

The objective of the 1990 field program was to complete further soil and rock sampling in the area of the shear/alteration zone where previous work by the operators and others had oultined anomalous to sub-economic values in copper, zinc and gold mineralization.

Because very little sampling for gold had been completed in the past it was hoped to demonstrate that areas of higher copper-zinc values would also host better gold values. This was completed through a series of Test Pits (hand dug) where soils (or rocks when appropriate) were sampled and analysed for base and precious metals.

In addition, a VLF-EM survey was completed along the baseline with the hope of detecting any significant cross structures (north trending) that might cut the shear/alteration zone.

Descriptions of the completed work follows.

Geochemical Surveys

Sampling Method

Soil Sampling

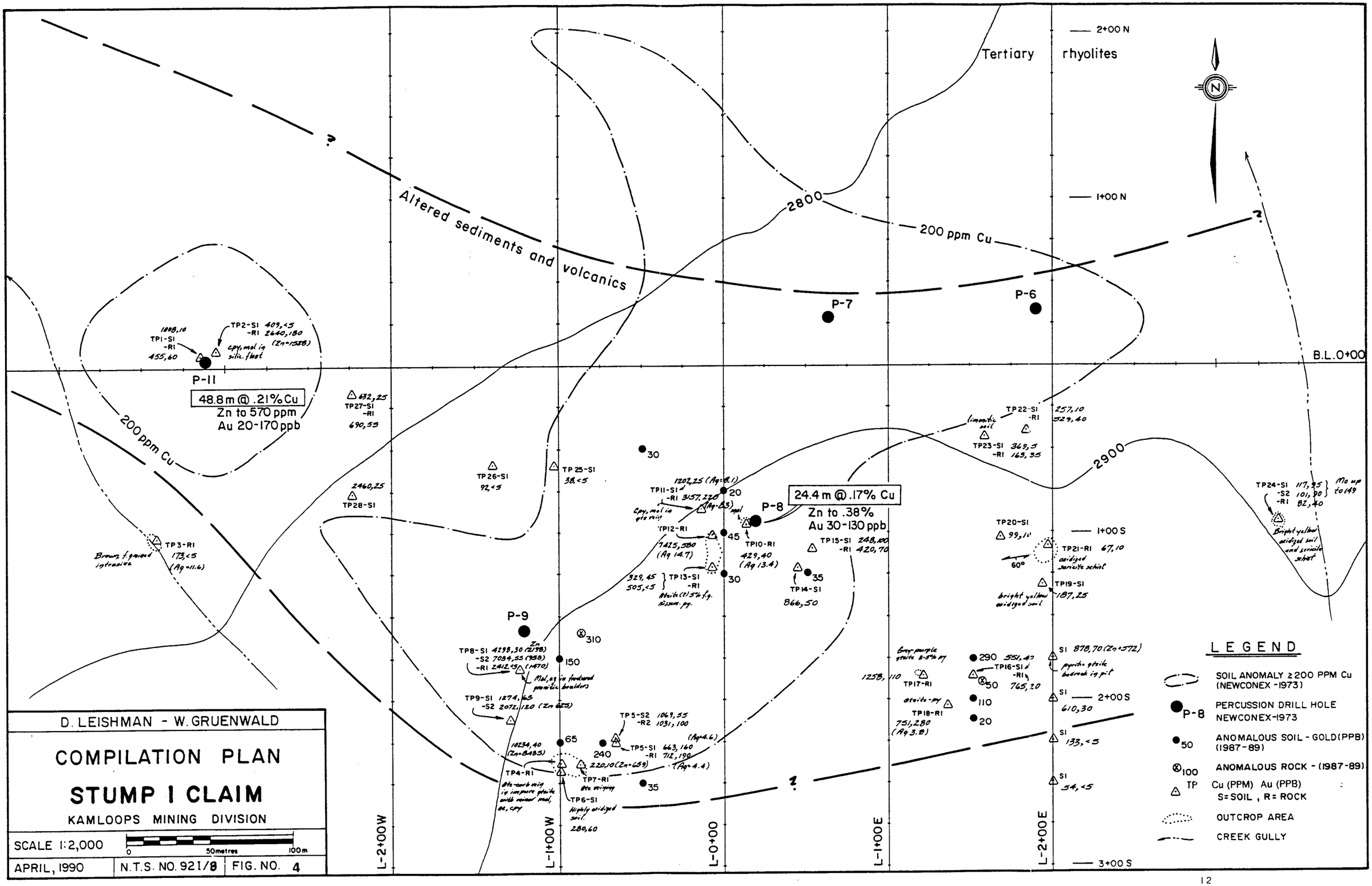
Hand dug Test Pits (designated as TP on Figures 4 and 5) were completed in the area of interest. Completed pits were up to 95 centimetres in depth with up to 2 soil samples taken from the individual pits. Table II which follows lists the various Test Pits with depth and descriptions of the various soil samples. Important analytical values for each sample site are also highlighted on the Table. Because all of the sampling took place on rangeland it was necessarry to fill in the pits however they were all marked with small survey stakes with identifying numbers at each site.

Rock Sampling

Rock sample sites were also designated with TP and are shown on Figures 4 and 5. Samples of bedrock from surface exposures show no depth while rock samples taken from the pits have a depth designation (see Table II). In numerous instances rocks and soils were collected from the same pit.

Laboratory Determination

Soil and rock samples were analysed by Atomic Absorption methods for gold (geochemistry) and I. C. P. analysis (30 element). The gold geochemistry and sample preparation was completed by Kamloops Research and Assay Laboratories Ltd. while the I. C. P. analysis was completed by Acme Analytical Laboratories Ltd. under contract to Kamloops Research.



D. LEISHMAN - W. GRUENWALD

COMPILATION PLAN

STUMP 1 CLAIM

KAMLOOPS MINING DIVISION

SCALE 1:2,000 (0 — 50 metres — 100 m)

APRIL, 1990 | N.T.S. NO. 92I/8 | FIG. NO. 4

SAMPLE NUMBER	SOIL	DEPTH (cm)	SOIL DESCRIPTION	ROCK SAMPLE DESCRIPTION	GEOCHEMICAL VALUES Au (ppb)	Ag (ppm)	Cu (ppm)	Zn (ppm)
TP 1-S1	X	35	Gravelly		10	0.9	1006	333
-R1				Angular, limonitic float @ 75cm.	60	0.1	455	165
TP 2-S1	X	20	Sandy & pebbles.		<5	0.4	486	170
-S2	X	70	Sandy.		<5	0.3	350	168
-R1				Angular, schistose, siliceous rock with Cu carbonate fractures, disseminated pyrite, chalcopyrite.	180	2.0	2441	977
TP 3-R1				Brown, fine grained intrusive(?), 2% disseminated pyrite.	<5	1.3	173	159
TP 4-R1				Selected quartz-carb vein with abundant malachite/azurite fractures, vein 30 cm.	40	1.4	10234	6405
TP 5-S1	X	40	Yellow, oxidized.		160	4.6	663	136
-S2	X	40	Yellow, oxidized.		55	1.7	1069	261
-R1				Oxidized qtzite, 5% dissem. pyrite.	190	2.8	712	73
-R2				Grey, siliceous rock, pyrite to 10%.	100	1.1	1031	256
TP 6-S1	X	60	Decomposed bedrock(?)		60	1.1	280	177
TP 7-R1				Angular qtz-fragments, minor pyrite	10	0.6	228	659
TP 8-S1	X	30	Med. brown, f.grained.		30	1.1	4208	2196
-S2	X	95	Med. brown, f.grained.		55	0.6	7034	961
-R1				Granitic cobbles with malachite/ azurite along fractures.	<5	0.2	1412	672
TP 9-S1	X	20	F.grained limonitic.		65	1.2	1274	452
-S2	X	80	F.grained limonitic.		130	1.3	2072	625
TP 10-R1				Pale grey, siliceous rock with recrystallized carbonate patches, minor disseminated py, cpy, mal.	40	0.7	429	116
TP 11-S1	X	70	Limonitic.		25	4.1	1202	160
-R1				Highly oxid. qtz vein (0.5m) with mal/az and minor py, cpy.	220	9.3	3157	152
TP 12-R1				Purplish-grey, impure qtzite with 3% disseminated py and minor mal, cpy.	530	14.7	7657	878
TP 13-S1	X	40	Highly limonitic.		45	1.6	329	199
-R1				Limonitic qtzite(?) with 3% disseminated f. grained pyrite.	<5	1.7	302	88

STUMP CLAIM TEST PIT SAMPLING

TABLE II

SAMPLE NUMBER	SOIL	DEPTH (cm)	SOIL DESCRIPTION	ROCK SAMPLE DESCRIPTION	GEOCHEMICAL VALUES Au (ppb)	Ag (ppm)	Cu (ppm)	Zn (ppm)
TP 14-S1	X	55	M.g. brown loam.		50	1.5	866	201
TP 15-S1	X	85	Yellowish, f.g.		100	0.4	248	86
-R1				Limonitic, siliceous grey qtzite(?)	70	1.7	420	48
TP 16-S1	X	50	Yellow, brown, f.g.		40	1.3	551	155
-R1				Angular, limonitic, siliceous rock. 3-5% pyrite.	200	2.2	765	58
TP 17-R1				Weakly schistose, siliceous rock, 3-5% pyrite.	110	2.1	1258	557
TP 18-R1				Purplish grey, schistose qtzite, 3-5% pyrite.	280	3.8	751	452
L-2E;1+75S	X	40	Yellow-brown, f.g.		70	1.5	878	572
L-2E;2+00S	X	60	Yellow-brown, f.g.		30	0.9	610	266
L-2E;2+25S	X	45	Med. br. f.g. hardpan.		<5	0.2	133	139
L-2E;2+50S	X	55	Med. br. f.g. hardpan.		<5	0.1	54	52
TP 19-S1	X	90	Bright yellow, decomposed bedrock(?)		25	1.0	187	69
TP 20-S1	X	100	White to golden brown from decomposed schist.		10	0.1	99	17
TP 21-R1				Limonitic, weakly schistose, siliceous rock, 3-5% pyrite.	5	1.1	67	360
TP 22-S1	X	85	Limonitic, f.g.		10	0.5	257	43
-R1				Angular, limonitic altered schist.	40	0.2	529	40
TP 23-S1	X	85	Yellow-brown, oxidized.		5	1.3	369	25
-R1				Altered, ser-bio schist, trace pyrite.	35	0.4	163	43
TP 24-S1	X	25	Bright yellow brown.		95	1.3	117	25
-S2	X	90	Bright yellow brown.		90	1.0	101	20
-R1				Bleached, lim, ser schist/bedrock.	40	0.4	22	18
TP 25-S1	X	55	Gravelly, rocky.		<5	0.1	38	40
TP 26-S1	X	65	Gravelly, rocky.		<5	0.1	92	62
TP 27-S1	X	85	Sandy, gravelly.		25	0.7	632	180
-R1				Angular chips, lim, schistose rock.	55	1.3	690	469
TP 28-S1	X	55	Sandy.		25	0.6	2460	420

STUMP CLAIM TEST PIT SAMPLING CONTINUED

TABLE II

SAMPLE NUMBER	DEPTH SOIL (cm)	SOIL DESCRIPTION	ROCK SAMPLE DESCRIPTION	GEOCHEMICAL VALUES Au (ppb)	Ag (ppm)	Cu (ppm)	Zn (ppm)
TP 29-R1 (6+15W;1+25N)			Recrystallized carb/qtz vein (.25m) in ser schist, dissem py, cpy, mal.	90	7.1	1003	85
TP 30-R1			Pale grey, lim, impure schistose quartzite, 5-10% pyrite.	<5	0.3	113	135
-R2			Recrystallized limestone bed in qtzite	5	0.1	4	45

TOTAL SOILS = 29
TOTAL ROCKS = 24

STUMP CLAIM TEST PIT SAMPLING

TABLE II

Presentation of Results

A listing of all analytical data is included in Appendix I. Soil sample sites and rock sample locations are shown on Figures 4 and 5 and designated with TP numbers. Table II lists all rock and soil samples with individual descriptions. Gold, silver, copper and zinc values are also listed on this table. Two sample sites (TP 29 and TP30) outside of the main area of interest are shown on Figure 5 which is a section of the original geochemical grid completed by Leishman and Gruenwald in 1987.

Discussion of Results

Soils (Figure 4)

The more significant soil values (copper) appear to be located in the area west of P-8 towards P-11. This includes TP-28 (2,460ppm copper), Tp-8 (4,298 and 7,034ppm copper), TP--9 (1,244 and 2,072ppm copper), TP-5 (1,069ppm copper) and TP-11 (1,202 ppm copper) . In addition gold values from these samples ranged from 25 to 160ppb. This is the same area where previous drilling by Newconex had intersected up to 48.8 metres of 0.21% copper in drill hole P-11 and 24.4 metres of 0.17% copper near the bottom of hole P-8.

TP-8 returned the highest soil values in copper and zinc (7,034ppm copper and 2,198ppm zinc) . This is immediately south of drill hole P-9 where values to 1,900ppm zinc were encountered near the bottom of the hole. Gold values from this previous drilling ranged up to 230ppb (0.23ppm).

Other interesting values in silver (to 8.1ppm in TP-11) are also found in this same area.

West of drill hole P-8 there appears to be a noticeable drop in the values for copper and zinc in soils however in most instances values are still of the anomalous category (ie: TP-16 and samples from grid line 2+00E, 1+75S, to 2+00S).

Gold values are erratic however in most cases clearly anomalous, with values to 160ppb gold which is found at TP-5 near the southern boundary of the shear/ alteration zone.

Something of interest (however to what significance) is the eastern area of the test pits (TP-24) where two soil samples both returned anomalous values in gold (to 95ppb gold) and significant values in molydenum (149ppm). This could represent a second geochemical anomalous zone within the shear/alteration zone. Further sampling is necessary.

Rocks (Figures 4 and 5)

Rock samples showed similar results as that of the soils. Of some significance were samples collected in the area of P-8 where a number of higher values in silver were obtained (ie: TP-10 13.4ppm Ag, TP-12 14.7ppm Ag). Outside of this area, south of P-11, TP-3 returned a value of 11.6ppm silver.

Of interest in the rock samples is the high values in copper and zinc from TP-4 where greater than 10,000 ppm copper and 8,435ppm zinc were obtained.

Gold is clearly anomalous within the same area. At TP-12 where over 7,000ppm copper was found a value of 580ppb gold was encountered. This was in contrast to previous soil sampling where values of 45ppb gold were found (1987 soil sampling).

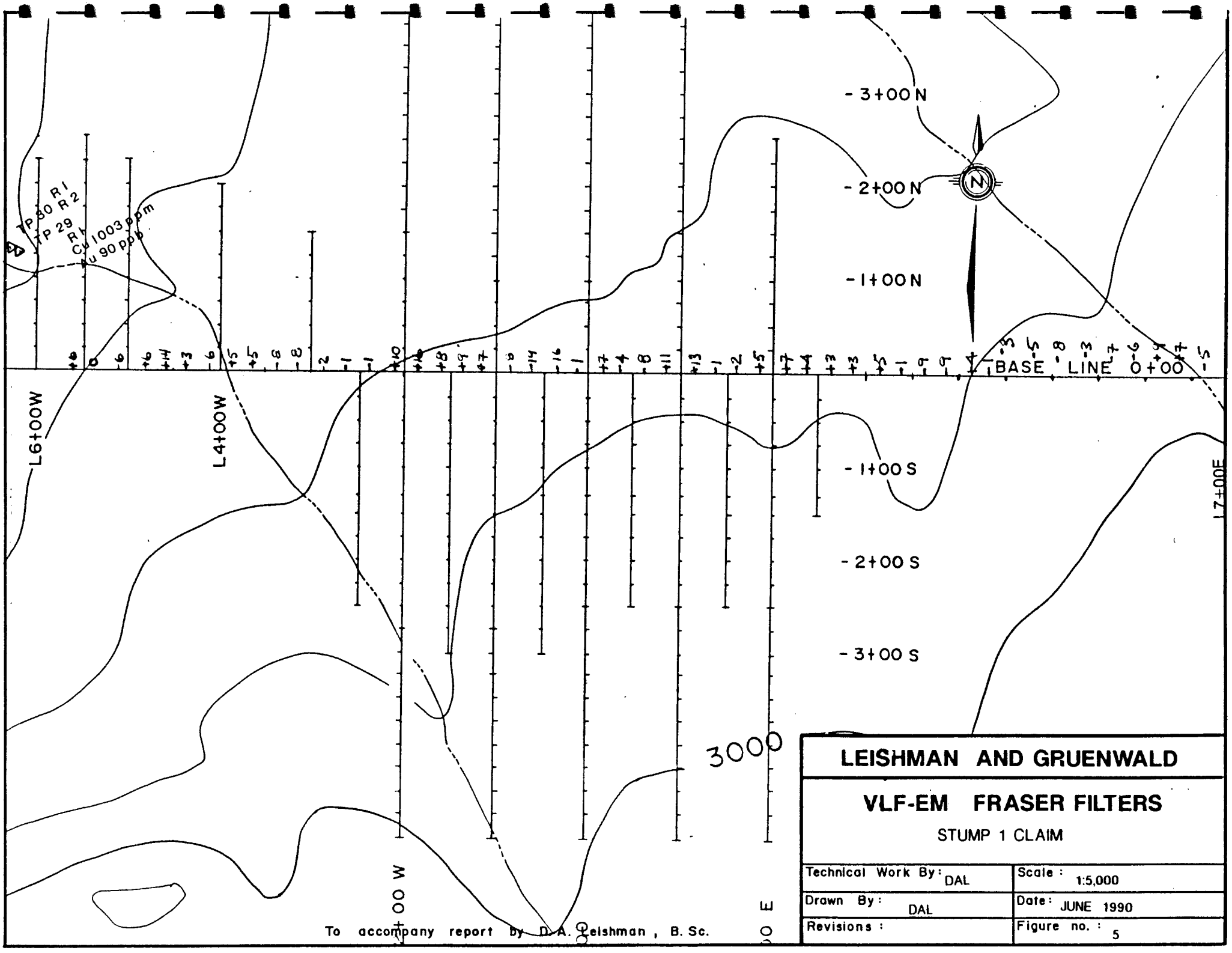
Geophysical Survey

VLF-EM Survey

Instrumentation and Survey Method

The baseline of the Stump 1 mineral claim was surveyed with a Sabre Electronics VLF-EM unit, model 27, with readings taken at 25 metre intervals. The direction of the line was west to east, with theSeattle transmitting station used as the source of the primary field. A total of 1.3 line kilometres were surveyed during the 1989 assessment period.

The Sabre Electronics VLF-EM unit and method of reading is similar to other VLF-EM equipment. The method of reading is to locate the orientation of the transmitting station (in this case Seattle) from the null of the field strength. From orientation at right angles to the transmitting station, the maximun field strength (100%) is adjusted by a gain control knob. Turning back and facing the



To accompany report by D. A. Leishman, B. Sc.

LEISHMAN AND GRUENWALD

VLF-EM FRASER FILTERS

STUMP 1 CLAIM

Technical Work By: DAL	Scale: 1:5,000
Drawn By: DAL	Date: JUNE 1990
Revisions :	Figure no. : 5

transmitter station, the unit is then held vertical. The coil now at right angles to the transmitting station is rotated to locate the field strength null position. The angle of rotation is then recorded either to the right (+) or left (-).

Lines were recorded in field notes as if all lines were surveyed in a west to east direction. This was done to facilitate the use of the Fraser Filter Method in order to calculate and display anomalies. The following calculation illustrates the Fraser Filter Method:

West a_____b_____c_____d East where a, b, c, d are station readings. F is the Filtered Value with F = (a + b) - (c + d).

The Fraser Filter Method serves three useful purposes in the display and interpretation of results:

(1) Crossovers (normal anomaly interpretation) are displayed as high positive numbers, which may be contoured to correlate the varying strength of a conductor along its axis , and to enhance interpretation and display of the better conductors.

(2) Topography has a major effect in the reading of ground EM equipment. Steep hills will influence either the positive or negative orientation of the hill. Consequently ridges will be displayed as apparent crossovers. The Fraser Filter Method helps to smooth out some of the topographic effect, consequently apparent anomalies are not as enhanced as if they had been shown as profiles of the raw data.

(3) For the same topographic reasons, strong anomalies may in fact not produce an actual crossover in steep terrain. The Fraser Filter Method enhances these anomalies to their proper perspective.

Presentation of Results

Calculated Fraser Filtered values are shown in Appendix II with the original field notes. Figure 5 shows the Fraser Filtered values plotted in plan form.

Discussion of Results

There are a number of Fraser Filter anomalies located on the Baseline. These are centred on 4+75W, 1+87W and 0+87E. There are no calculated values greater than +16° . More significant anomalies are usually associated with an increase in Field Strength. In this survey the more interesting anomaly appears to be located at 0+87E where a definite Field Strength increase is associated with a small amplitude Fraser Filter anomaly (+13°).

Further work is necessary to determine whether there are any cross structures of signifcance cutting the east trending shear/alteration zone. Further surveys along east to west lines would be necessary.

Conclusions and Recommendations

A wide area extending from Line 0+50E to west of Line 3+00W and from the Baseline as far south as 2+25S on Line 1+00W (Figure 4) has been demonstrated to host significant values in copper, zinc, gold and silver. These values were obtained primarily from hand dug test pits (less than 1 metre depth) and two small areas of outcrop. Previous drilling in this area has indicated overburden could be up to 6 metres thick.

This data combined with previous drilling results from Newconex (1973) indicate that further trenching and drill testing is necessary along this shear/alteration structure.

The target would be a low grade, open pit, porphyry copper-gold prospect. The logistics, topography and local infrastructure make the Stump 1 claim a very cost effective claim group to explore and develop. This combined with the strong geochemical, structural signature and right geological ingredients make the Stump 1 claim a very prospective exploration target.

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Consulting Geologist

July 2, 1990
Kamloops, B. C.

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Appendices

Appendix I

Analytical Data
Rock and Soil Samples

KAMLOOPS
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B.C. CERTIFIED ASSAYERS

912 - 1 LAVAL CRESCENT, KAMLOOPS, B.C. V2C 5P5 PHONE (604) 372-2784 FAX 372-1112

CTA

** GEOCHEMICHAL ANALYSIS **

To: Geoquest Consulting Ltd.
R.R. #3, site 11, Comp. 180
Vernon, B.C.
V1T 6L6

Attn:

Number: G 2244

Date: May 11, 1990

Proj.:

No.	Description	Au ppb	
1	TP1 R1	60	
2	TP2 R1 ROCK	260	DUP
3	TP2 R1 BAG	180	DUP
4	TP3 R1 ROCK	40	DUP
5	TP3 R1 BAG	<5	DUP
6	TP4 R1 ROCK	30	DUP
7	TP4 R1 BAG	40	DUP
8	TP5 R1 ROCK	200	DUP
9	TP5 R1 BAG	190	DUP
10	TP5 R2 ROCK	50	DUP
11	TP5 R2 BAG	100	DUP
12	TP7 R1 BAG	10	
13	TP8 R1 ROCK	<5	DUP
14	TP8 R1 BAG	<5	DUP
15	TP10 R1 BAG	40	DUP
16	TP10 R1 ROCK	90	DUP
17	TP11 R1 ROCK	80	DUP
18	TP11 R1 BAG	220	DUP
19	TP12 R1 ROCK	480	DUP
20	TP12 R1 BAG	580	DUP
21	TP13 R1 BAG	<5	
22	TP15 R1 BAG	70	DUP
23	TP15 R1 ROCK	40	DUP
24	TP16 R1 BAG	200	
25	TP17 R1 BAG	110	
26	TP18 R1 BAG	280	
27	TP18 REP A	320	
28	TP18 REP B	115	
29	T 21 1R BAG	10	DUP
30	TP21 R1 ROCK	5	DUP
31	TP22 R1 BAG	40	
32	TP23 1R BAG	35	

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To: Geoquest Consulting Ltd.
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Vernon, B.C.
V1T 6L6

Attn:

Number: G 2244

Date: May 11, 1990

Proj.:

No.	Description	Au ppb
33	TP24 R1 BAG	40
34	TP27 R1 BAG	55
35	TP29 R1 BAG	90
36	TP30 R1 BAG	<5
37	TP30 R2 BAG	5
38	TP 1 S1	10
39	TP 2 S1	<5
40	TP 2 S2	<5
41	TP 5 1S	160
42	TP 5 2S	55
43	TP 6 S1	60
44	TP 8 S1	30
45	TP 8 S2	55
46	TP 9 1S	65
47	TP 9 2S	120
48	TP11 1S	25
49	TP13 S1	45
50	TP14 S1	50
51	TP15 S1	100
52	TP16 S1	40
53	TP19 S1	25
54	TP20 1S	10
55	TP22 S1	10
56	TP23 1S	5
57	TP24 S1	95
58	TP24 S2	90
59	TP26 1S	<5
60	TP26 S1	<5
61	TP27 S1	25
62	TP28 S1	25
63	L 2E 1+75S	70
64	L 2E 2+00S	30
65	L 2E 2+25S	<5
66	L 2E 2+50S	<5

ME YTI LA TOR LTI E. FIN ST. COUV B.C V6A PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Kamloops Research & Assay Lab. PROJECT G 2244 File # 90-1241 Page 1

912 - 1 Laval Crescent, Kamloops BC V2C 5P5

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
TP1-S1	1	1008	26	333	.8	32	12	603	3.30	9	5	ND	1	86	.7	4	2	65	.62	.087	11	29	.84	163	.12	7	2.10	.03	.36	1
TP2-S1	2	409	19	170	.4	33	15	711	5.36	14	5	ND	1	64	1.1	6	2	97	.82	.136	12	28	1.01	129	.08	7	1.54	.02	.31	1
TP2-S2	3	330	31	168	.8	34	16	778	5.25	18	5	ND	2	55	.8	7	2	98	.97	.108	9	28	1.21	125	.11	4	1.57	.03	.44	1
TP5-1S	7	663	25	136	4.6	4	5	86	10.12	6	5	ND	3	159	.2	4	2	104	.05	.212	16	5	.11	54	.13	4	.78	.33	.54	1
TP5-2S	6	1069	169	261	1.7	3	8	640	4.91	5	5	ND	1	67	.5	6	5	126	.83	.145	3	7	.83	7	.15	2	2.79	.18	.44	1
TP6-S1	7	280	22	177	1.1	3	3	953	3.19	2	5	ND	1	19	.3	2	2	178	.20	.053	3	6	1.61	70	.21	2	1.66	.02	.85	1
TP8-S1	2	4298	15	2198	1.1	37	3	611	2.83	5	5	ND	2	158	4.0	5	2	63	5.08	.072	6	18	.65	69	.11	7	1.67	.06	.35	1
TP8-S2	1	7034	10	953	.6	33	18	1119	2.98	8	5	ND	1	108	2.1	7	2	66	2.64	.083	13	31	.69	82	.13	4	1.93	.04	.23	1
TP9-1S	4	1274	69	452	1.2	14	10	611	4.41	9	5	ND	1	110	1.5	8	2	81	.43	.107	8	22	.71	138	.13	2	2.11	.09	.42	1
TP9-2S	2	2072	34	625	1.3	26	12	676	3.79	9	5	ND	1	102	1.6	6	2	76	.92	.090	9	29	.96	121	.13	3	2.11	.11	.30	1
TP11-1S	5	1202	38	160	8.1	4	5	756	4.08	7	5	ND	1	50	.4	6	3	165	.78	.076	4	5	1.85	59	.20	2	2.25	.04	1.00	1
TP13-S1	1	329	13	108	.6	3	2	528	4.22	4	5	ND	1	32	.2	3	2	116	.09	.081	4	5	1.25	17	.15	2	1.65	.03	.55	1
TP14-S1	4	866	111	201	1.5	8	8	467	5.50	4	5	ND	1	82	.6	4	2	129	.39	.095	5	13	1.12	75	.19	6	2.03	.06	.61	1
TP15-S1	16	248	6	86	.4	1	3	182	5.23	4	5	ND	1	28	.2	3	5	226	.54	.105	4	5	2.12	123	.26	2	1.73	.10	1.15	1
TP16-S1	2	551	26	155	1.3	2	5	928	7.03	2	5	ND	1	59	.2	3	2	147	.36	.111	5	7	1.81	32	.23	2	2.35	.13	.70	1
TP19-S1	7	187	47	69	1.0	3	3	169	5.22	7	5	ND	1	55	.2	4	4	141	1.77	.095	4	6	1.14	73	.11	9	1.17	.15	.85	1
TP20-1S	3	99	18	17	.1	3	2	26	3.07	19	5	ND	1	59	.2	2	2	15	2.26	.103	2	8	.12	29	.01	2	.61	.16	.08	1
TP22-S1	3	257	7	43	.5	3	5	119	7.65	2	5	ND	2	108	.2	4	4	86	.64	.112	4	7	.71	99	.02	5	1.68	.15	.41	2
TP23-1S	9	369	2	74	.4	6	10	157	5.99	2	5	ND	1	139	.3	4	3	110	.20	.097	4	6	1.11	154	.06	6	1.72	.09	.51	1
TP24-S1	149	117	7	25	1.3	2	4	138	5.19	8	5	ND	1	100	.2	3	2	21	2.12	.081	5	3	.47	7	.01	2	.86	.25	.09	1
TP24-S2	149	101	9	20	1.0	1	4	92	6.33	7	5	ND	1	99	.2	2	8	14	1.23	.058	4	2	.31	10	.01	2	.57	.30	.14	1
TP26-1S	1	38	7	40	.1	23	8	338	2.18	5	5	ND	4	115	.4	3	4	49	6.43	.084	9	29	.75	80	.10	5	1.14	.03	.14	2
TP26-S1	1	92	3	62	.1	41	12	570	3.58	4	5	ND	1	98	.2	4	3	73	.86	.079	10	42	1.15	90	.13	3	1.55	.05	.23	1
TP27-S1	2	632	48	180	.7	26	13	657	4.95	8	5	ND	1	87	.9	5	2	120	.76	.112	8	25	1.52	156	.14	3	1.80	.05	.61	1
TP28-S1	2	2460	54	420	.6	35	20	1078	3.93	5	5	ND	1	106	1.6	7	4	89	.85	.123	11	34	1.12	148	.14	6	2.17	.04	.43	1
L2E 1+75S	6	878	151	572	1.5	16	24	1458	5.45	6	5	ND	2	67	1.8	5	9	205	1.42	.128	5	11	1.78	69	.19	2	3.06	.04	.79	1
L2E 2+00S	3	610	35	266	.9	4	5	764	6.78	4	5	ND	1	87	.6	4	7	151	.48	.094	4	5	1.60	47	.19	5	3.40	.06	.76	1
L2E 2+25S	1	133	12	139	.2	32	11	516	3.30	2	5	ND	1	57	.7	3	4	71	.49	.069	10	36	.85	110	.14	2	1.85	.05	.33	1
L2E 2+50S	1	54	2	52	.1	39	11	484	2.78	4	5	ND	1	76	.2	4	5	59	1.27	.062	11	36	1.17	111	.13	2	1.56	.09	.21	1
STANDARD C	18	57	37	132	7.0	67	30	1055	4.01	43	17	8	38	47	17.7	19	23	58	.51	.097	38	56	.94	176	.08	36	1.92	.06	.14	11

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: Pulp

DATE RECEIVED: MAY 10 1990 DATE REPORT MAILED: May 11/90 SIGNED BY ..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

561 P02

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
TP1-R1	2	455	6	165	.1	12	11	229	3.57	7	5	ND	2	111	.7	2	2	72	.76	.101	4	23	.60	163	.19	7	.96	.09	.32	1
TP2-R1 s } DUP	2	2706	124	1528	4.0	17	20	1486	1.64	14	5	ND	4	59	8.1	10	2	77	4.86	.291	5	16	.87	255	.13	4	1.29	.12	.30	1
TP2-R1 b } DUP	2	2640	99	977	2.0	15	15	1220	1.26	6	5	ND	2	55	5.4	3	2	66	4.44	.234	4	10	.57	68	.13	2	1.18	.12	.14	1
TP3-R1 s } DUP	1	206	86	318	11.6	7	8	1045	3.27	11	5	ND	2	68	.4	45	2	140	.78	.094	3	26	2.22	327	.23	6	3.41	.16	1.43	1
TP3-R1 b } DUP	1	173	22	159	1.8	7	9	1195	3.42	10	5	ND	2	83	.3	8	2	140	.98	.097	2	21	2.00	408	.23	2	3.32	.18	1.22	1
TP4-R1 s } DUP	1	1841	74	2123	1.4	12	4	2349	.67	5	5	ND	2	79	12.6	4	2	6	6.02	.001	3	99	.09	47	.01	2	.21	.01	.03	1
TP4-R1 b } DUP	2	10234	304	8435	1.4	37	25	6388	.96	5	5	ND	3	146	33.2	3	2	11	6.85	.002	11	59	.13	17	.01	2	.64	.01	.21	1
TP5-1R s } DUP	6	360	29	117	4.4	3	3	73	2.10	4	5	ND	1	17	.6	9	2	17	.14	.090	2	18	.06	67	.05	2	.47	.06	.28	1
TP5-1R b } DUP	5	712	13	73	2.8	2	5	86	3.81	3	5	ND	2	29	.2	2	2	42	.11	.081	4	25	.07	68	.10	9	.46	.15	.28	1
TP5-R2 s } DUP	4	408	49	244	1.6	6	17	919	3.44	7	5	ND	2	49	1.0	8	2	110	3.69	.134	2	21	.75	69	.12	3	4.04	.26	.63	1
TP5-R2 b	3	1031	39	256	1.1	8	15	1290	4.54	4	5	ND	2	106	1.3	2	2	126	3.81	.106	2	28	1.32	50	.16	4	5.48	.33	.94	1
TP7-R1	1	220	13	659	.6	9	12	1671	.66	3	5	ND	1	78	4.4	3	2	6	2.80	.005	2	144	.06	9	.01	2	.14	.01	.03	1
TP8-R1 s } DUP	1	4711	9	1470	.8	27	7	1018	2.70	3	5	ND	3	83	4.2	2	2	64	1.46	.074	8	62	1.11	148	.18	2	1.51	.12	.38	1
TP8-R1 b } DUP	1	2412	3	652	.2	22	10	683	2.61	2	5	ND	1	34	1.5	2	2	63	1.11	.084	4	47	1.22	110	.15	4	1.63	.09	.30	1
TP10-R1 s } DUP	1	416	59	212	13.4	5	4	447	1.32	17	5	ND	2	23	1.3	59	2	87	2.17	.066	4	20	1.03	89	.25	12	1.04	.07	.48	1
TP10-R1 b	1	429	26	116	.7	6	7	656	1.40	2	5	ND	3	34	.8	3	2	100	4.60	.084	4	15	.98	64	.23	2	.98	.06	.49	1
TP11-R1 s } DUP	2	2580	30	316	5.2	10	5	820	1.20	8	5	ND	1	60	2.1	8	2	26	2.52	.019	2	111	.18	18	.04	2	.97	.06	.08	1
TP11-R1 b } DUP	4	3157	23	152	8.3	6	4	447	1.86	9	5	ND	1	47	1.0	3	2	59	1.30	.025	2	71	.37	25	.07	3	1.37	.09	.21	1
TP12-R1 s } DUP	15	7425	128	1043	15.1	5	4	1771	3.96	18	5	ND	3	59	6.2	9	2	57	5.38	.060	2	41	.60	27	.08	3	2.33	.13	.36	1
TP12-R1 b } DUP	14	7657	128	876	14.7	3	5	1357	4.15	19	5	2	4	59	5.7	10	2	83	3.87	.065	3	28	.88	45	.11	7	3.19	.17	.56	1
TP13-R1	2	505	17	55	1.7	4	3	191	2.69	5	5	ND	2	28	.2	5	7	48	.48	.071	3	34	.21	43	.20	4	.72	.09	.18	1
TP15-1R s } DUP	8	251	36	39	1.1	3	9	49	2.54	5	5	ND	1	257	.4	8	2	31	3.72	.054	2	40	.15	28	.11	2	5.79	.43	.05	1
TP15-1R b } DUP	13	420	57	48	1.7	3	12	55	4.29	3	5	ND	2	122	.6	6	2	36	2.78	.069	3	28	.23	41	.12	4	2.99	.26	.11	1
TP16-R1	3	765	28	58	2.2	2	5	495	3.74	6	5	ND	1	43	.2	3	2	60	1.26	.096	3	27	.56	44	.17	2	1.84	.12	.22	1
TP17-1R	3	1258	75	557	2.1	9	15	1152	4.64	5	5	ND	2	80	1.7	5	2	156	2.66	.098	3	24	1.59	50	.19	2	5.11	.26	.73	1
TR18-R1 s } DUP	3	796	83	329	3.8	5	14	1185	5.44	11	5	ND	2	74	1.5	12	2	169	3.81	.107	3	33	1.44	55	.19	10	6.30	.24	.83	1
TR18-R1 b } DUP	3	751	130	452	3.8	8	14	995	4.95	9	5	ND	2	72	1.7	10	2	163	3.52	.100	3	32	1.30	50	.16	8	5.92	.24	.81	1
TR18-R1B s	4	1108	61	334	3.4	8	15	910	5.29	13	5	ND	2	66	1.1	9	2	126	1.56	.085	4	20	1.45	35	.22	6	3.71	.15	.53	1
TR21-1R } DUP	3	107	15	25	.6	6	11	308	5.13	5	5	ND	2	27	.2	2	2	94	.24	.020	2	28	1.66	49	.01	2	1.61	.09	.13	2
TP21-R1 } DUP	1	67	14	30	1.1	4	9	238	4.88	6	5	ND	1	26	.2	2	2	110	.15	.023	2	19	1.33	34	.01	2	1.09	.09	.08	1
TP22-R1	1	529	15	40	.2	1	6	140	12.58	9	5	ND	2	40	.2	2	2	114	.18	.181	2	9	.80	111	.01	9	2.09	.06	.21	1
TP23-1R	6	163	2	43	.4	4	3	163	2.16	4	5	ND	1	28	.2	3	2	61	.09	.031	2	13	1.30	92	.01	2	1.63	.05	.16	1
TP24-R1	12	22	5	18	.4	1	1	175	.55	2	5	ND	1	8	.2	2	2	14	.11	.005	6	10	.80	40	.01	2	1.03	.03	.16	1
TP27-R1	1	690	74	469	1.3	4	11	514	3.82	8	5	ND	1	97	3.2	3	3	68	1.52	.104	3	18	.63	68	.20	2	2.53	.17	.33	1
TP29-R1	1	1003	8	85	7.1	5	10	754	2.84	18	5	ND	4	100	1.8	82	2	40	14.93	.060	4	10	.31	42	.05	2	1.51	.10	.12	1
TP30-R1	1	113	17	135	.3	8	19	1215	5.61	4	5	ND	1	135	.5	2	2	199	2.67	.088	2	25	2.44	89	.12	2	6.47	.31	.70	1
TP30-R2	1	4	4	45	.1	1	2	4033	.58	2	5	ND	1	682	.9	2	2	8	25.26	.007	2	17	.28	6	.01	2	.29	.01	.02	1
STANDARD C	18	59	43	132	6.7	67	31	1058	4.01	42	19	7	36	48	17.9	16	22	58	.51	.091	38	56	.94	175	.08	38	1.98	.06	.13	11

Appendix II

Geophysical Data

Stump #1 Claim

SEATTLE TX. USED.

Transmitter Used: Seattle, Washington.

LINE	STN	DIP L	FILTER	F.S.	APRIL 1970 GAIN
B/L 0+00	6+00W	+11		45	
	5+75	+16	+6	53	
	5+50	+10	0	59	
	5+25	+11	-6	55	
	5+00	+15	+6	54	
	4+75	+12	+14 X	57	
	4+50	+8	+3	65	
	4+25	+5	-6	65	
	4+00	+12	+5	60	Inquity heads NNW
	3+75	+7	+5	68	
	3+50	+5	-8	60	
	3+25	+9	-8	60	
	3+00	+11	-2	58	
	2+75	+11	-1	62	
	2+50	+11	-1	61	
	2+25	+12	+10	60	
	2+00W	+11	+16 X	55	
	1+75	+2	+8	50	
	1+50	+5	+9	52	
	1+25	0	+7	52	
	1+00	-2	-8	44	
	0+75	0	-19	45	
	0+50	+6	-16	45	
B/L	0+25W	+11 >	-1	50	

LINE	STATION	DIP L	FILTER	F.S.	GAIN
	0+00	+12	+7	48	
	0+25E	+6	-4	55	
	0+50	+8	-8	60	
	0+75	+14	+11	60	
	1+00	+8	+13 X	65	
	1+25	+3	-1	56	
	1+50	+6	-2	52	
	1+75	+6	+5	53	
	2+00	+5	+7	50	018
	2+25	+2	+4	22	
	2+50	+2	+3	25	
	2+75	+1	+3	25	
	3+00E	0	+5	42	012
	3+25	0	-1	44	
	3+50	-4	-9	40	Gully
	3+75	+5	-9	35	
	4+00E	+8	+4	37	Fence (N-S)
	4+25	+2	-1	40	
	4+50	+7	-3	40	
	4+75	+4	-5	40	
	5+00E	+8	-8	37	
	5+25	+8	-3	37	
	5+50	+10	-7	40	
	5+75	+9	-6	40	Most resist of gully - source gully 120° @ 5+00
	6+00	+16 >	+9	41	
	6+25E	+8	+7	42	
	6+50	+8	-5	38	
	6+75	+9		40	
	7+00E	+17		40	

Appendix III

List of Personnel

D. A. Leishman, B.Sc.	April 14, 15, 16, 1990	(3 days field)
	May 12, 13, July 2, 3, 1990	(3 days office)
W. Gruenwald, B. Sc.	April 14, 15, 16, 1990	(3 days field)

Appendix IV

Statement of Costs

Labour

D. A. Leishman, B.Sc. 6.0 days @ $300./day	$1,800.00
W. Gruenwald, B.Sc. 3.0 days @ $300./day	900.00
Total	**$2,550.00**

Expenses and Disbursements

Geoquest Expenses

Kamloops Research and Assay Laboratories Ltd.	$795.65
Photocopies, Phone, Shipping etc.	37.00
Drafting (6 hours @ $25./hour)	150.00
Truck Rental (2 days) @$45./day plus fuel	135.00
Meals	45.00
Total Geoquest	$1,162.65

D. A. Leishman

Truck Rental (2 days) @ $45./day plus fuel	$140.00
Reproduction, copying, printing	75.00
Phone, shipping, etc.	55.00
Meals, food, etc.	38.00
Total D. A. Leishman	$308.00
Total	**$1,470.65**

Total Costs Incurred **$4,020.65**

Appendix V

Certificate of Qualifications

DOUGLAS A. LEISHMAN, B.Sc., A.R.S.M.
Consulting Geologist
Suite 2-423 First Avenue, Kamloops, B. C.

Mailing Address: P. O. Box 1288 M.P.S. Kamloops, B.C. V2C 6H3
Telephone or Fax 604-828-6150

I, DOUGLAS A. LEISHMAN, of Kamloops, British Columbia, Do Hereby Certify That:

(1) I am a self employed Consulting Geologist residing at the above address.

(2) I am a graduate of the Northern Alberta Institute of Technology, Exploration Technology (Minerals Option), 1971, Edmonton, Alberta.

(3) I am a graduate of the Imperial College of Science and Technology, Royal School of Mines, London, England, B.Sc. (Hons.) Mining Geology, 1981. I have been actively involved in mineral exploration since 1971.

(4) I am an Fellow of the Geological Association of Canada (F4606) and a member of the Institute of Mining and Metallurgy (London, England).

(5) I am the author of this report which is based on field work performed by myself and Werner Gruenwald during the 1990 field season.

Douglas A. Leishman

Douglas A. Leishman, B.Sc.

Consulting Geologist

Kamloops, B. C.
July 2, 1990