A GEOLOGICAL REPORT ON THE

DORA, PEE WEE AND CLUB CLAIMS

SPOUT LAKE, LAC LA HACHE AREA

BRITISH COLUMBIA

CLINTON MINING DIVISION

92P/14W

Dora	2391
Dora 1	2392
Pee Wee 1	2428
Pee Wee 2	2430
Pee Wee 3	2429
Club 15	2504

For

Queenstake Resources Ltd.
1000-900 West Hastings St.
Vancouver, British Columbia
V6

by

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Euro-Canadian Geological Service Inc.

October, 1990

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SUMMARY

At the request of Queenstake Resources, Ltd., the author carried out an examination from September 7 to 16, 1990 of the Dora, Pee Wee and Club claims located on the south shore of Spout Lake, British Columbia. The claim group is 19 km north of Lac La Hache and is readily accessible by good gravel roads.

The property is situated within the Quesnel Trough and is underlain by Nicola Group volcaniclastic and sedimentary rocks of Triassic and Lower Jurassic age. These rocks are intruded by a number of plutons, stocks and dykes of varying ages. The geology on this property is of the same age and rock types as that at the Imperial Metals - Corona Mt. Polley deposit and Placer Dome's QR deposit. However, mineralization is quite different at the Spout Lake Property.

The Dora claims include the old WC showing, which was discovered and explored by Amax Exploration Ltd. (now known as Canamax Resources Inc.) during the period 1971 to 1973. Their programs consisted of geochemical sampling, induced polarization and magnetometer surveys and packsack, percussion and diamond drilling. They found two zones of mineralization consisting of magnetite and chalcopyrite skarn replacing Triassic-Jurassic limestone-sedimentary and calcic volcanic rocks. The better defined North Zone was estimated to contain in part 1.5 million tons averaging 0.54% Cu, 0.01 oz/ton Au and 0.01 oz/ton Ag. The less well defined South Zone was found to host more erratically distributed mineralization, the potential was suggested for several million tons of 0.1 - 0.3% Cu.

In 1974 additional drilling on the North Zone was carried out by Craigmont Mines Ltd. This work extended the known mineralized strike length to 660 metres and indicated the possibility of a mineralized zone parallel to the North Zone.

After the claims were allowed to lapse by Canamax, the property was restaked in 1987 for Peach Lake Resources. During 1988, a program consisting of geochemical soil sampling, VLF-EM and magnetometer surveys was carried out by them. The results of those surveys indicated a number of additional areas of interest and probable extensions to the North and South Zones. In 1989 Peach Lake Resources carried out some backhoe trenching as follow up to the 1988 recommendations.

In 1990 Queenstake Resources Ltd. acquired the right of first refusal to option the Spout Lake property by carrying out a reconnaissance geological mapping program. From the results of that program it was again concluded that the property hosts two significant copper-bearing magnetite zones that remain open along strike and untested at depth, as well as a proximal third area of

interest. It was also concluded that there are three anomalous areas which require physical work for further investigation. The magnetite and copper mineralization were found to occur in sufficient grade to be of economic interest if increased tonnage can be developed.

It has been recommended that an instrument survey be made of all claim posts, drill holes and roads on the property. The present various grids on the property should be tied onto this survey and all information compiled onto a topographic base map. Detailed induced polarization and magnetometer surveys should be conducted over the North Zone, South Zone, the South Zone extension and the Pyrite Zone. A diamond or percussion drill program should then be implemented to test those areas with anomalous results.

A program of diamond or percussion drilling, geophysical surveys, backhoe trenching and soil sampling has been recommended at an estimated cost of $230,000.

INTRODUCTION

The following report was prepared from information obtained during a reconnaissance geological mapping program from September 7 to 16, 1990 and from a review of the literature listed under "References" in this report.

Location and Access

Figure 1 is a regional location and claim map for the Spout Lake property, which consists of the Dora, PeeWee and Club claims.

51° 58′ 30" north latitude) to
121° 21′ 15" west longitude)
approximate center of the claim group

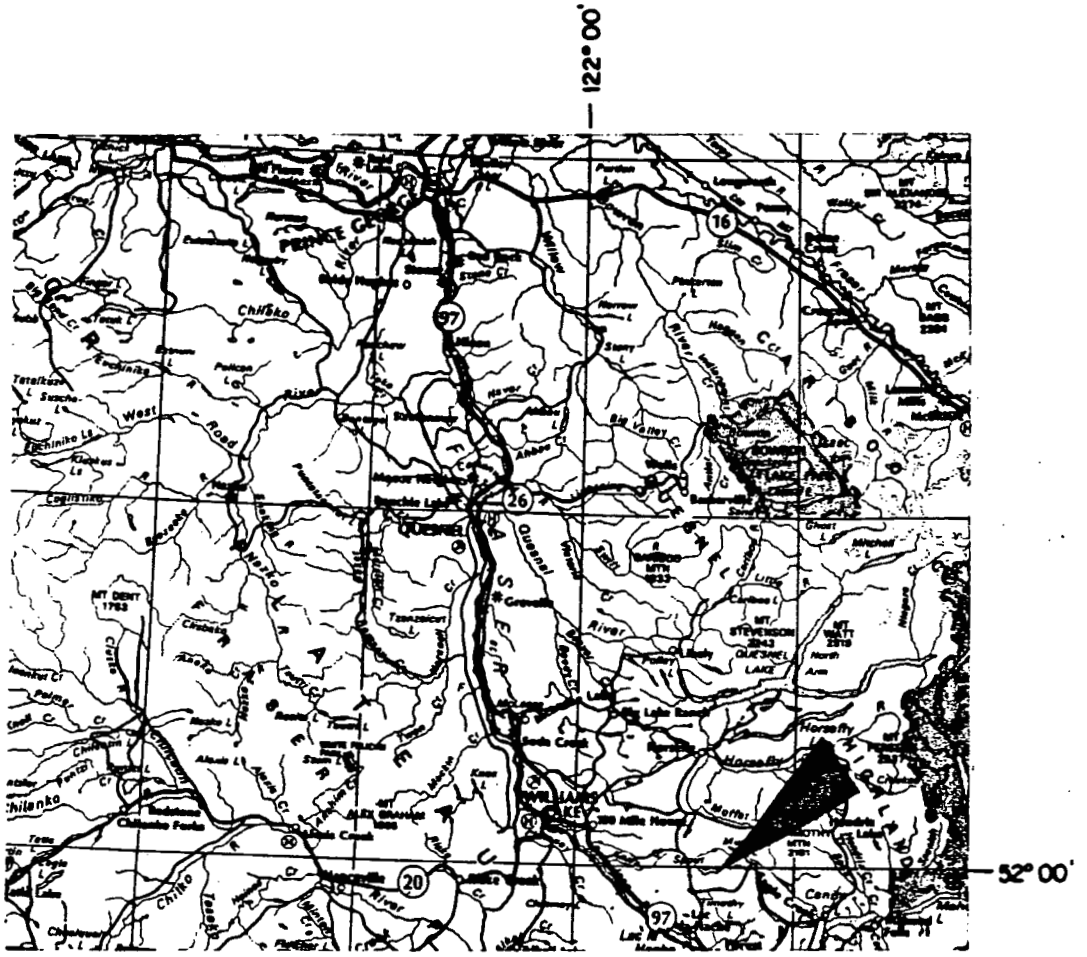
The claims are located in the Clinton Mining Division of south-central British Columbia. They are approximately 320 kms north-northeast of Vancouver and 19 kms north of Lac La Hache, lying on the south shore of Spout Lake and just west of Peach Lake.

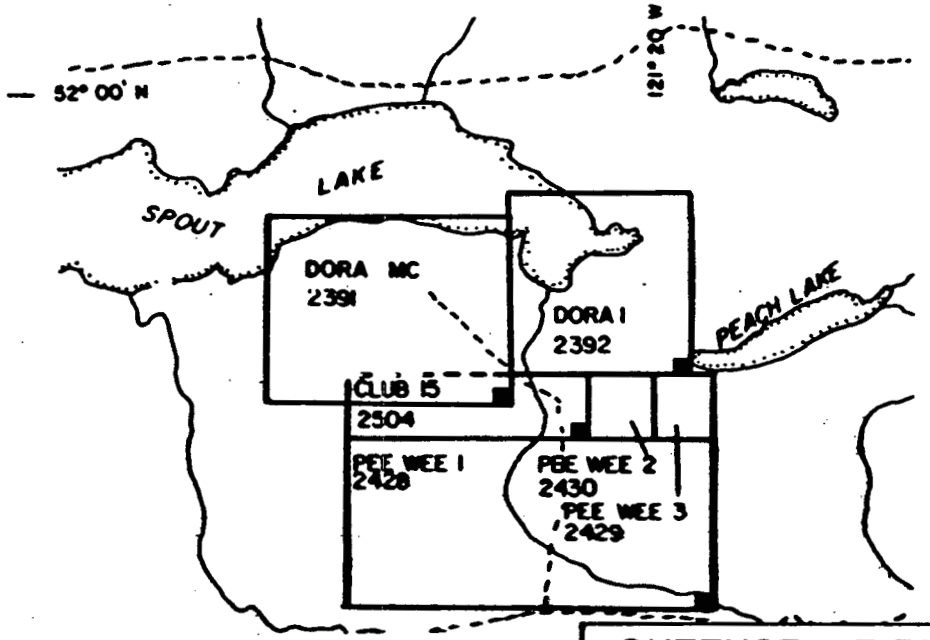
The claim area is readily accessible by good gravel roads from Lac La Hache, a small community on Highway 97 approximately 50 kms southeast of Williams Lake. Access within the property can be limited due to local swampy areas along old drill roads. The main access road on the property was corduroyed and graded in 1989 and was still in good condition at the time of the examination.

Topography and Vegetation

The property is located within gentle moderate terrain typical of the Interior Plateau - Quesnel Highlands. The topography consists of low, elongated hills and ridges that rise out of damp low ground, swamps and/or small ponds. Higher ground is well vegetated with aspen and commercial Douglas fir while lower lying areas have stands of cottonwood, balsam and black spruce.

The North and South copper-magnetite zones occupy a moderate sized hill at elevation 1,135 metres which rises abruptly from the south shoreline of Spout Lake at elevation 1,072 metres. The highest point on the property is a small hill within the Pee Wee 1 claim that reaches 1,220 metres.





QUEENSTAKE RESOURCES INC.

SPOUT LAKE PROPERTY

LAC LA HACHE AREA

GENERAL CLAIMS AREA

N.T.S. 92P/14W CLINTON M.D., B. C.

SEPTEMBER, 1990

EURO-CANADIAN GEOLOGICAL LTD. FIG. 1

Property

The Peach Lake property is in the Clinton Mining Division of British Columbia in NTS map area 92P/14W. It consists of six claims which together comprise 53 units as follows:

Claim Name	Unit	Record No.	Expiry Date*
Dora	20	2391	September 18, 1992
Dora 1	9	2392	September 18, 1992
Pee Wee 1	18	2428	November 5, 1991
Pee Wee 2	1	2430	November 5, 1992
Pee Wee 3	1	2429	November 5, 1992
Club 15	4	2504	December 31, 1992

*Pending acceptance of assessment work filed in 1990.

HISTORY OF EXPLORATION

Exploration in the Peach Lake area first began in 1967 under the direction of J. R. Woodcock on behalf of the Coranex Syndicate. This program consisted of reconnaissance mapping and prospecting of a large aeromagnetic anomaly that was associated with copper-bearing alkalic diorite-monzonite intrusives. This work resulted in the staking of the Coranex "Peach Lake" claims, which lie immediately to the east of the present Peach Lake property.

In 1970, while conducting exploration through the Quesnel Trough, Amax Exploration Ltd. learned of the Coranex property and decided to conduct work in this area. The following field season they conducted geological-geochemical surveys over those areas of the aeromagnetic anomaly not held by Coranex. This led them to the discovery of magnetite-chalcopyrite veins and skarning in intrusive and volcanic rock near the south shore of Spout Lake. Amax immediately staked the WC claims and others to cover the area of mineralization. (Jones, 1989). From 1971 to 1973 they carried out exploration programs which included geological mapping, airborne and ground magnetometer surveys, induced polarization and geochemical surveys and bulldozer trenching. This was followed by packsack, percussion and diamond drilling of the anomalous areas. Drilling eventually comprised six packsack holes totalling 136 metres, ten percussion holes totalling 843 metres and seven diamond drill holes totalling 959 metres (Jones, 1989).

The results of this work have been described by Howard M. Jones (1989) as follows:

> "Results of all of the above exploration by Amax Exploration indicated the presence of two mineralized zones. The North Zone was a vertical zone 1.2 to 50 metres wide, 365 metres long and at least 90 metres deep. Within this zone the best holes outlined a well mineralized section 185 metres long by 25 metres wide (average true width) by 90 metres deep containing an estimated 1.5 million tons averaging 0.54% Cu, 0.10 oz/ton Ag and 0.01 oz/ton Au. They concluded that there was considerable potential for increasing tonnage along strike and at depths below 90 metres (Hodgson and DePaoli, 1973).
>
> The South Zone measured 245 metres by 300 metres by 60 metres thick and dips gently at 15° to the southeast. They concluded that it was premature to estimate the grade in this zone (0.1 - 0.3% Cu?) since copper appeared to be more erratically distributed and the drill holes were more widely spaced than in the North Zone. They suggested that there was still room in the South Zone for several million tons of better grade (0.5 - 1% Cu?) material. Their recommendations were for additional magnetometer surveying and drilling (Hodgson and DePaoli, 1973)."

In 1974 Craigmont Mines Ltd. optioned the property and drilled six diamond drill holes totalling 1,210 metres into the North Zone. Significant copper and magnetite mineralization was found in each drill hole over a strike length of 660 metres (Table One). However, Craigmont decided to terminate their option and the claims became dormant and were allowed to lapse by Amax (now Canamax Resources Inc.).

The Spout Lake property was re-staked in 1987 for Peach Lake Resources, who then began a grassroots exploration program on the property. In 1988 they gridded the entire property and conducted geochemical soil surveys over the grid. White Geophysical Inc. was contracted to conduct VLF-EM and magnetometer surveys over the grid. The results of this work are described by Glen E. White in his 1988 report on the property. This was followed in 1989 by 115 metres of excavator trenching in the North and South Zones to expose copper-magnetite skarn mineralization in altered calcic volcanics and volcanic breccias. Additionally, culverts and log corduroy were put into the main road to preserve and maintain access throughout the property.

Copper mineralization related to that of Spout Lake has been found along the trend of the regional aeromagnetic anomaly. It has been described by Jones (1989) as follows:

> "Copper showings are also known on claims immediately east of the Spout Lake property. These were located by the Coranex Syndicate which explored the ground in 1966-88. Exploration was continued on this ground by Asarco in 1969 and by Amax Exploration in 1972. This work identified three main mineral occurrences, the Peach, Tim and Miracle (Figure 4). They consisted of chalcopyrite-pyrite and lesser magnetite in syenodiorite and/or altered andesite, near syenodiorite intrusive contacts. The best results from Coranex sampling on the Peach showing in 1967 was 0.33% Cu and 0.02 oz/ton Au over 12 metres and 0.5% Cu and 0.04 oz/ton Au over 3 metres from two trenches 27 metres apart; and 0.50% Cu and 0.04 oz/ton Au over 3 metres and 0.937 Cu and 0.01 oz/ton Au over 3 metres in two trenches 15 metres apart."

Stallion Resources Ltd., in 1984, drilled a mineralized showing on the Tim claim that was located on and adjacent to a small stock of syenodiorite breccia. Their best results were in D-84-1 which averaged 4.6% Cy, 1.7 oz/ton Ag and 0.097 oz/ton Au over 10.7 metres (Butler, 1984). In 1987 these claims were purchased by Liberty Gold Corporation.

Further drilling on the Tim claims was carried out by Liberty Gold Corporation in 1990. Drilling consisted of seven percussion drill holes totalling 736 metres and twelve diamond drill holes totalling 1,245 metres.

In the Quesnel Trough there are two very significant mineral

properties and each is associated with syenitic to dioritic intrusive rocks. These are the QR deposits, reported to have reserves of 1.5 million tons averaging 0.2 oz/ton Au in three deposits and the Mt. Polley Deposit which has proven reserves of 117 million tons grading 0.31% Cu and 0.012 oz/ton Au. Imperial Metals-Corona announced a production decision for the Mr. Polley deposit during July of 1990 after completion of successful feasibility studies.

GEOLOGY

Regional Geology

The regional Geology of the Spout Lake property is depicted on Figure 2, which is an extract from G.S.C. Map 1278A, Bonaparte Lake Map Area, 1972. The property is located on the west side of the Quesnel Trough, close to the Pinchi Fault marked boundary with the Cache Creek Group. The Quesnel Trough is a north- westerly trending fault-bounded structural belt that consists of mainly upper Triassic and lower Jurassic Nicola Group volcani-clastic and sedimentary rocks. It is flanked on the east by Proterozoic and Paleozoic strata of the Omineca Geanticline and on the west by Upper Paleozoic rocks of the Pinchi Geanticline. The west side of the Quesnel Trough, especially to the west and south of Horsefly, are overlain by Tertiary sediments and Eocene age plateau basalt flows (Jones, 1989).

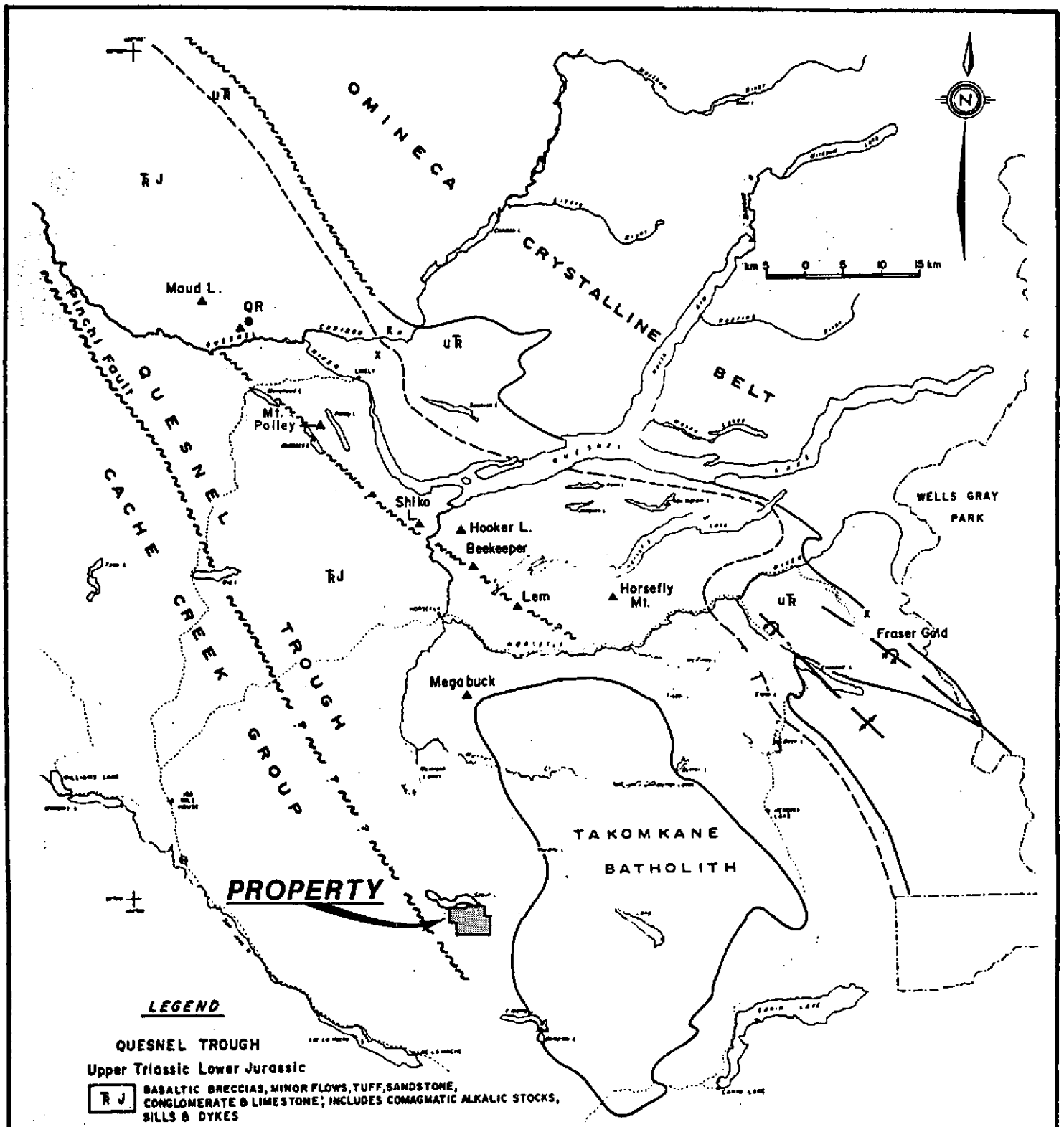
A number of intrusive rocks are located within the Quesnel Trough which are comagmatic in age with the volcanic rocks. These include: Triassic and/or Jurassic plutons and batholiths which vary in composition from granodiorite to quartz diorite and small alkali stocks which very in composition from syenite through diorite to pyroxenite; and Tertiary plutons of biotite quartz monzonite and granodiorite composition. The Late Jurassic-Cretaceous granodiorite Takomkane batholith intrudes the volcanic-sedimentary rocks along the east side of Spout Lake.

As mentioned before, Mt. Polley and QR deposits are related to syenodiorite intrusive rocks within the Quesnel Trough. The better known QR deposit is somewhat atypical of other mineralization in the Quesnel Trough because the copper content is relatively low, pyrite is more abundant and the gold grades are relatively higher with some occurrence of free gold. The Mt. Polley deposit more closely follows the model of mineralization developed by Saleken and Simpson for the Quesnel Trough.

The three other main mineral occurrences in Spout Lake region, the Peach, Tim and Miracle also show an association with the syeno-diorite intrusive rocks, but consist of chalcopyrite-pyrite and lesser magnetite in syenodiorite and/or altered andesite, near syenodiorite intrusive contacts. The sulfides and magnetite are in disseminated rather than in massive form as at North and South Zones, and the alteration is mainly pink feldspar, tremolite with lesser quartz-calcite and hematite (Gale, 1988).

Property Geology

The Spout Lake property was first mapped by Amax Exploration Ltd. from 1971 to 1973. They found that the property is underlain by a



LEGEND

QUESNEL TROUGH

Upper Triassic Lower Jurassic

TRJ — BASALTIC BRECCIAS, MINOR FLOWS, TUFF, SANDSTONE, CONGLOMERATE & LIMESTONE; INCLUDES COMAGMATIC ALKALIC STOCKS, SILLS & DYKES

Upper Triassic

uTR — ARGILLITE, AUGITE-PORPHYRY BRECCIA, BASALTIC TO ANDESITIC TUFF POSSIBLE DYKES & SILLS

Modified from Saleken & Simpson, 1984

GOLD OCCURRENCES

▲ Cu–Au Porphyry

● Au Stratabound

X Cu and Cu–Au Occurences

After H.M. Jones, 1989

QUEENSTAKE RESOURCES INC.

SPOUT LAKE PROPERTY

LAC LA HACHE AREA

GENERAL GEOLOGY

N.T.S. 92P/14W CLINTON M.D., B. C.

SEPTEMBER, 1990

EURO-CANADIAN GEOLOGICAL LTD. FIG. 2

generally moderate to steeply northeast dipping sequence of the Upper Triassic - Lower Jurassic Nicola Group volcanic flows and volcaniclastic sediments. These have been intruded by a syenodiorite to syenite dykes and sills (Figure 4), possibly as satellites on the southwestern flank of the syenite-monozonite Takomkane Batholith. A predominant set of north to northeast trending faults and a subordinate east to west trending fault set slightly complicate the geology.

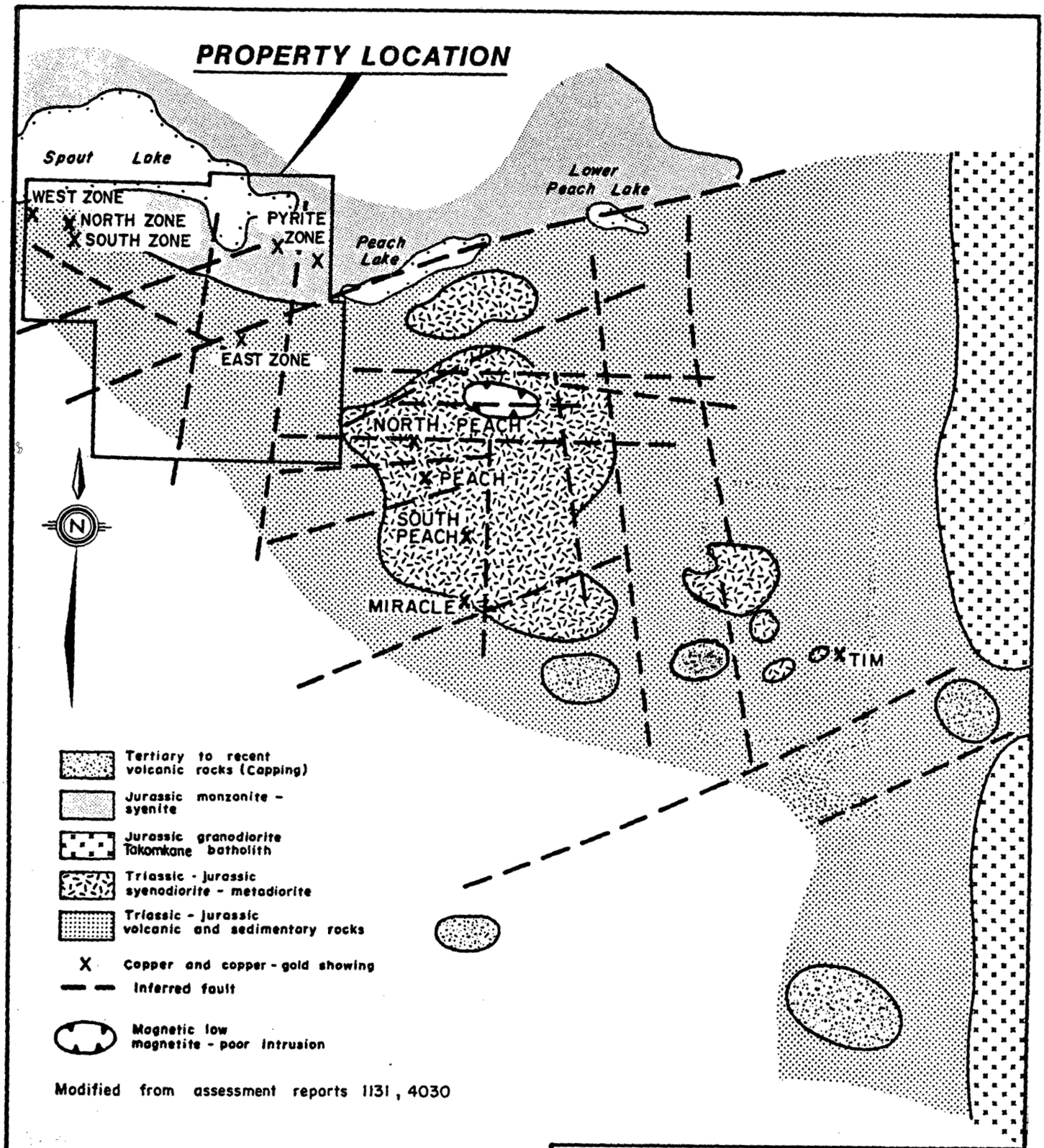
Due to the scarcity of outcrop as a result of the damp low lying topography and/or swamps, detailed geological mapping is available only for the North and South Zones and for the southeast area of the property (Figure 6). Work by Amax Exploration resulted in the Nicola Group rocks being subdivided into three predominant suites for the Spout Lake region:

a) **Triassic-Jurassic Volcanic Flows:** include augite porphyry andesite, plagioclase porphyry andesites and fine grained andesites (chilled varieties of the first two). All three types may be amygdaloidal, but amygdules are more common in the fine grained andesites.

b) **Triassic-Jurassic Volcanic Sediments:** include limestone breccia, limy andesite breccia and polymictic breccia and conglomerate. The limestone breccia consists of large blocks of andesite in a white limestone matrix; the limy andesite breccia has better sorting and roundness of fragments, a limy siltstone matrix, no large patches of limestone; and the polymictic breccia shows improved sedimentary reworking, few and smaller fragments consisting of andesite, augite porphyry, pink intrusive rocks and minor limestone.

c) **Jurassic-Cretaceous Intrusive Rocks:** include microdiorite and porphyritic monzonite dykes. The property is bordered to the east and northeast by respectively the granodiorite Takomkane batholith and a large northwest trending monzonite-syenite body (Jones, 1989). The magnetite poor intrusion of monzonite or syenite which occurs within the syenodiorite is probably a younger phase of the syenodiorite. Presumably it is also Jura-Cretaceous in age.

d) **Upper Tertiary (Miocene-Pliocene):** very fine grained, maroon weathering, maybe amygdaloidal, basaltic plateau lavas. Occur as scattered remnants of much larger sheets and unconformably overly the Triassic-Jurassic rocks.



QUEENSTAKE RESOURCES INC.

SPOUT LAKE PROPERTY

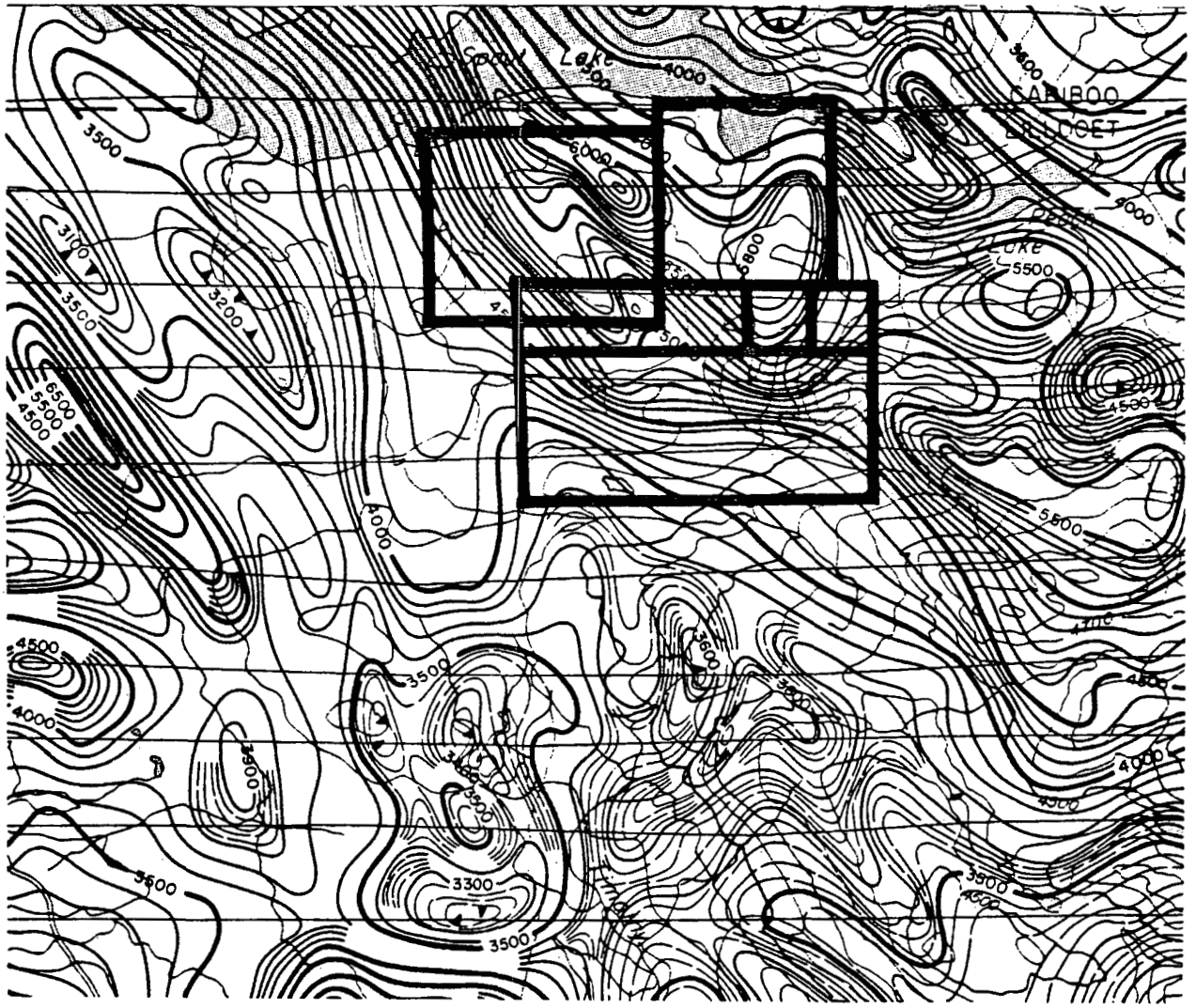
LAC LA HACHE AREA

LOCAL GEOLOGY

N.T.S. 92P/14W CLINTON M.D., B. C.

SEPTEMBER, 1990

EURO-CANADIAN GEOLOGICAL LTD. FIG. 3



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SCALE = 1: 63 360

QUEENSTAKE RESOURCES INC.

SPOUT LAKE PROPERTY

LAC LA HACHE AREA

AIRBORNE MAGNETIC SURVEY

N.T.S. 92P/14W CLINTON M.D., B. C.

SEPTEMBER, 1990

EURO-CANADIAN GEOLOGICAL LTD. FIG. 4

STRUCTURE

As a result of the lack of outcrop much of the structural data for the low lying areas of the property has been interpreted from VLF EM and Magnetic surveys carried out by White Geophysical Inc. in 1988. Three major fault sets trending northeast, north and northwest were found from VLF conductors and magnetic linears. These geophysical interpretations are corroborated by physical features such as drainage patterns and geologic discontinuities found by surface mapping. Numerous, small faults trending east to west were found on the north and south flanks of the ridge in Area 7 of the property (Figure 6).

A north-south fault was inferred lying to the west of the North and South mineralized zones. A 122 metre right lateral displacement of the North zone is evident on this fault near Spout Lake (Hodgson & DePaoli, 1973).

A main structural feature is present in the South zone area. Based on drilling and magnetic data, Amax inferred a gentle easterly plunging synclinal structure, the north limb of which is truncated against the above mentioned northwesterly trending fault (Hodgson & DePaoli, 1973).

Based upon VLF EM data and physical examination the writer infers an additional northeast trending fault as separating the South Zone and South Zone Extension.

ALTERATION

Throughout the Spout Lake area the orientation of the intrusive stocks, dykes and sills is the dominant control on alteration and mineralization. At the North Zone and South Zone there is sufficient trenching and outcrop to show that alteration and mineralization cut the sedimentary and volcanic strata parallel to or at a slight angle to their northwest trend.

A very good mineralogical description of the skarning has been written by H.M Jones, 1989, and is included here as follows:

> "The two mineralized zones, referred to above, are approximately 150-200 metres apart (Figure 4). Both are underlain by the same geology which shows variable skarn alteration. Skarning of the volcanic flows is limited to garnet-epidote development in amygdules while in the volcanic sediments it is much more intense. In limestone breccia beige grossularite garnet is the most dominant silicate, associated in the South zone with chalcopyrite. In limy andesite breccia the matrix is altered to a mixture of epidote, pink feldspar, garnet, scapolite and tourmaline. The polymictic volcanic conglomerate is similarly skarnified and where alteration is intense, the composition of the fragment types is obscure such that it is impossible to distinguish between andesite breccias and polymictic breccias."

MINERALIZATION

Two distinct types of mineralization have been identified at the Spout Lake property, the above described magnetite-chalcopyrite skarn zones and a zone of disseminated pyrite associated with a dyke-like intrusive body. The skarn mineralization consists of chalcopyrite associated with magnetite, pyrite and rarely specular hematite. Chalcopyrite occurs as disseminated coarse blebs in skarn and in the magnetite, very little chalcopyrite was found as fracture fillings. Pyrite is always subordinate to the content of chalcopyrite in the skarning. This extent of skarn is atypical for copper mineralization in the Quesnel Trough, the known strike length is 660 metres and it remains open in each direction.

The pyrite mineralization has been found in only sporadic outcrops and preliminary induced polarization surveys, its inferred dimensions and orientation are shown on the Interpretation Map (Figure 6). Samples collected from outcrops consisted of 1% to 10% fracture and disseminated pyrite with trace amounts of chalcopyrite in dark green massive Andesite (map unit 4).

Following is a more detailed description of the three main zones and several areas of relative interest for further investigation.

1. North Zone

This area was discovered by Amax as a result of a coincident magnetic high and induced polarization anomaly. The geophysics "inferred a northwest elongate, vertically tabular body concordant with the strata but entirely buried and with a domed top" (Leary, 1973).

Percussion drilling began in 1972 to test the geophysical anomalies and augment the geology of this zone. Vertical drill hole SL-72-2 was collared in the coincident anomalies, it intersected the top of the mineralization at 43 m (140 feet) and averaged 1.63% copper to end of hole at 300 feet. Inclusive to this was a 25 m (80 feet) section at 2.28% copper, values for the content of magnetite are not available. On the basis of these results, Amax decided to conduct additional percussion drilling and to commence diamond drilling in their 1973 program.

Following upon the 1972 and 1973 drilling by Amax, Craigmont carried out further diamond drilling in 1974. They concluded that the North Zone was at least 660 metres long, up to 50 metres wide and projected downward past the deepest drill intersection at a depth of 150 metres. No further drilling has been carried out, the zone remains open along strike and to depth. For drill hole and trench locations please refer to figure 5.

Following are tables of significant drill intersections compiled by Jones in 1989:

(a) by Amax Exploration Ltd.

Hole No.	Type	Interval (ft)	Length (ft)	% Cu
SL 73-10	Diamond Drill Hole	325 - 335	10	1.0
SL 73-12	Diamond Drill Hole	322 - 333	11	1.86
		340 - 345	5	1.24
SL 73-13	Diamond Drill Hole	65 - 150	85	0.58
		65 - 300	235	0.47
		155 - 180	25	0.42
		192 - 198	6	1.00
		217 - 220	3	3.40
		220 - 235	15	0.32
		252 - 256	4	2.20
		280 - 300	20	1.15
SL 73-14	Diamond Drill Hole	206 - 275.5	69.5	0.68
		291 - 292	1	0.98
SL 73-15	Diamond Drill Hole	235.5 - 272	36.5	0.63
		290 - 312.5	22.5	0.38
SL 73-16	Diamond Drill Hole	178 - 184	6	2.00
SL 72-8	Percussion Hole	20 - 70	50	0.29
		140 - 300	160	1.63
		200 - 280	80	2.28

(b) by Craigmont Mines Ltd.

Hole No.	Type	Interval	Feet	% Cu	% Fe
74 - 17	Diamond Drill Hole	97 - 107	10	0.48	19.50
		175 - 182	7	1.00	54.80
		196 - 206	10	2.17	37.00
		206 - 216	10	3.77	36.80
		260 - 280	20	0.45	6.65
74 - 18	Diamond Drill Hole	329 - 337	7	0.19	6.50
74 - 19	Diamond Drill Hole	153 - 165	12	1.23	28.20
		214 - 224	10	0.44	8.40
		634 - 654	20	0.43	11.70
		664 - 674	10	0.73	22.50
		674 - 684	10	1.88	44.00
74 - 20	Diamond Drill Hole	214 - 224	10	0.87	18.65
		224 - 234	10	0.50	12.35
		334 - 340	6	0.58	24.25
		600 - 610	10	0.40	18.50
		610 - 618	8	0.66	17.00
		700 - 707	7	0.27	No assay
		731 - 741	10	0.37	31.50
74 - 21	Diamond Drill Hole	200 - 210	10	0.22	12.40
		210 - 220	10	0.24	16.30
		220 - 230	10	0.58	38.00
		230 - 241	11	0.49	51.80
74 - 22	Diamond Drill Hole	247 - 255	8	1.29	29.60

All sections which ran 0.5% Cu or better were assayed for gold and silver, these averaged 0.01 oz/ton Au and 0.14 oz/ton Ag. These results are comparable with trench sample results from the 1990 sampling.

Outcrops are very limited in this zone, but an understanding of the geology has been augmented by surface trenching to increase exposure. The strata of calcareous volcanic flows and volcanic sediments have a northwest trend and steep northerly dip and are cut by syenodiorite dykes and sills. In addition to the volcanics, some interbedded pure limestone may be present as fresh limonitic limestone float with boxwork cavities can be found on surface. The North Zone lies on top of a steeply sloped domed ridge rising up from the shore of Spout Lake. It is plausible that the doming is the result of an underlying buried intrusive.

2. South Zone

The South Zone is approximately 200 metres south to southwest of the North Zone. Amax determined that the strata are gently dipping and have been folded into an open southeast trending syncline. As with the North Zone, mineralization consists of predominantly calcareous andesite breccia altered along fracture zones at contacts with dykes or sills to skarn accompanied by magnetite-chalcopyrite mineralization.

The South Zone was identified from geological mapping of induced polarization-magnetic anomalies. Subsequent targets were tested with packsack, percussion and diamond drilling.

The following mineralized drill intersections were compiled as follows:

Hole No.	Type	Interval (ft)	Length (ft)	% Cu
SL 72-2	Percussion	8 - 40	32	0.37
	Hole	8 - 80	72	0.23
SL 72-3	Percussion	12 - 30	18	0.79
	Hole	12 - 50	38	0.47
		12 - 150	138	0.22
SL 72-4	Percussion	30 - 150	120	0.15
	Hole			
SL 72-9	Percussion	120 - 160	40	0.30
	Hole			
PSH-1	Packsack DDH	0 - 10	10	0.53
		0 - 30	30	0.32
		0 - 82.5	82.5	0.15
PSH-2	Packsack DDH	0 - 10	10	0.75
		0 - 20	20	0.42
PSH-4	Packsack DDH	10 - 110	100	0.12
SL 73-11	Diamond Drill	75 - 200	125	0.12
	Hole			
Outside South Zone Proper				
SL 72-1	Percussion	0 - 60	60	0.13
	Hole			
SL 72-5	Percussion	2 - 40	38	0.16
	Hole	2 - 90	88	0.18
		250 - 290	40	0.37
PSH-6	Packsack DDH	20 - 30	10	0.14

Amax estimated the South Zone to be approximately 245 metres long, 300 metres wide by 60 metres thick, but as with the North Zone, the

SECT. A
SECT. B
SECT. C
SECT. D
SECT. E
SECT. F
SECT. G
SECT. H
SECT. I

Spout Lake
W.L. 3535'

3600'
3700'

74-21
74-18
P72-5
74-17
73-10
74-19
73-13
74-22
S72-8
P72-3
73-12
S72-7
S72-7A
73-15
73-14
73-16
P72-6
S72-5
S72-6
P72-1
P72-2
74-20
Ref. line
73-11
S72-9
S72-3
S72-2
P72-4
S72-4
S72-1

N

LEGEND

Road

Drill hole (locations approx., data compilation
Amax Exploration - 1972,73 &
Craigmont Mines - 1974)

P = Packsack drill hole
S = Percussion " "

1973,74 = Diamond drill hole

QUEENSTAKE RESOURCES INC.

SPOUT LAKE PROPERTY

LAC LA HACHE AREA

DRILLING PLAN

N.T.S. 92P/14W CLINTON M.D., B. C.

SEPTEMBER, 1990
EURO-CANADIAN GEOLOGICAL LTD. FIG. 5

CHONG

dimensions have not been determined.

3. South Zone Extension

Lying 60 m south to southeast of the South Zone is a strong magnetic high designated as the South Zone Extension. It is semi-triangular in shape with dimensions of 300 m northeast to southwest and 200 m from northwest to southeast. The extension is separated from the South Zone proper by an abruptly sloped northeast trending gulley coincident with a VLF-EM conductor. This is inferred to represent a high angle normal fault, typical of the property wide northeast trending fault set. No outcrops were observed during traverses through the South Zone Extension as the area is heavily vegetated damp and generally low lying. Exceptions to the general topography are small, 30 metre to 50 metre, dome-like hills. These may be the result of numerous small satellite stocks analogous to that proposed above for the North Zone, and with similar skarn mineralization. Underlying massive magnetite with disseminated chalcopyrite would account for the magnetic anomaly of this area.

4. Pyrite Zone

This 200 m wide zone trends 1,000 m northwest from the centre of the claim block's eastern boundary. The topography is very damp and low lying, outcrop has only been located at the northern end of the Pyrite Zone and in a 30 metre trench and road cut on the southwestern edge. Mineralization was found to consist of 1% to 10% pyrite with trace chalcopyrite disseminated and in fractures in a massive, dark green, andesite. No associated intrusive bodies were located in the vicinity.

The I.P survey on this area (Amax) indicated this zone to be largely buried (60 - 180 metres). They tested it with two percussion holes to determine if the zone was cupriferous. Drill results indicated significant intersections of ≥ 0.05% Cu. These were:

Hole No.	Type	Interval (ft)	Length (ft)	% Cu
PL 73 - 13	Percussion Hole	90 - 100	10	0.11
		140 - 150	10	0.10
		70 - 150	80	0.07
		200 - 260	60	0.08
PL 72 - 14	Percussion Hole	70 - 140	70	0.05
		210 - 300	90	0.07
		280 - 290	10	0.14

5. Tennantite Zone

In 1988 an east-west trending mineralized shear was excavated on the adjacent Ann claims, approximately 200 metres from the eastern boundary of the Spout Lake property. The trenching exposed massive tennantite, with chalcopyrite, azurite and molybdenite in a 30 centimetre wide shear within steeply north dipping plagioclase porphyry andesite volcanics. Chip samples of the mineralization produced values as high as 47715 (4.7%) ppm copper with 1333 (0.13%) ppm molybdenum and 43583 (4.4%) ppm copper with 2586 (0.26%) ppm molybdenum. Unfortunately no precious metal values were found. It is possible that similar mineralization is present on the Spout Lake property's southeast Area 7 (Figure 6) as the geology is identical and the VLF-EM survey indicates several east-west shears that extend from Ann Claims.

6. South West Zone

The South West Zone comprises areas 1, 2 and 3 on the Interpretation Map (Figure 6). It is of interest primarily because of area 3 where a moderate magnetic anomaly overlies the intersection of three linear VLF-EM conductors. There is also a coincident zinc geochemical anomaly, but as this area is well vegetated damp and low lying, it is probably due to organic enrichment. Only one small outcrop was found in the South West Zone and it was of the Recent maroon plateau basalt. Along a road cut at the very western edge of the property, some float or subcrop of a very limonitic and polymictic limestone breccia was found. The geochemical sampling in 1988 produced some signifi- cant copper anomalies such as 319, 570 and 785 ppm copper. However, these values were not reproduced by carefully taken soil horizon samples from test pits in undisturbed (non-logged) areas. Upon inspection, many of the geochemical soil anomalies in the South West Zone were found to be in logged portions of the property where the natural soil profiles have been utterly disturbed by scarification. The writer considers these to be wholly unreliable as indicators of underlying mineralization.

EXPLORATION BY QUEENSTAKE RESOURCES LTD IN 1980

During the period of exploration by Queenstake Resources Ltd., September 7 to 16, 1990 the author carried out a geological examination of the Spout Lake property on behalf of Queenstake Resources Inc. The objectives of the program were to complete a 1:5000 scale reconnaissance mapping of some areas of the property, to chip sample the most recent trench exca- vations and to determine the validity of geochemical and geo- physical anomalies from previous exploration programs.

1. Reconnaissance Mapping

The results of sampling and mapping traverses have been compiled onto the Interpretation Map (Figure 6), which is included in pocket to this report. The property wide grid, established by Peach Lake Resources in 1988, was utilized for control to locate the outcrops and samples.

The greatest amount of exposure was found near the eastern margin of the property on the top and northern side of a moderately sloped east to west ridge. The outcrops consisted of occasionally plagioclase porphyritic andesite flows and interbedded tuffs. Strikes were very constant at 10° to 20° from east to west and dips were generally steep to the north. An exception to this is the gentle 30° south dip found in a large ridge crest outcrop of volcanic grey waste on line 600 W at 1000 N. As mentioned before, very little outcrop is present on the property due to its low-lying topography. Most exposure in the main exploration area of the North and South Zones is from machine excavations and road building.

A total of five rock samples and 13 soil horizon samples in three pits were collected from this area and sent for analysis. The sample locations are on Figure 6 and the analytical results are in Appendices I and IV of this report.

Three predominant fault/shear sets for the property have been interpreted from the VLF-EM surveys. It was found that these conductors coincided with topographic features such as gullies and stream drainages. Additionally, an east-west trending set of parallel faults with vertical displacement on the order of 5 metres was found in map Area 7 (Figure 6).

2. Trench Sampling

A total of 37 rock chip samples were collected from trenches on or adjacent to the Spout Lake property. Of these, the first 30 samples are divided between four recently excavated trenches in the North Zone and the remaining seven are from a mineralized shear

within the Ann claims near to the property boundary. Sample boundaries were determined by geologic break or five metres length with sample weights of approximately six to ten kilograms. Analysis was by Induced Coupled Plasma at Acme Analytical Laboratories in Vancouver and the results are contained in Appendix I.

(a) Trench at L 23 + 10 W at 16 + 00 N
Samples 76901 to 76908

Twenty metre long trench is oriented east to west to along the mineralization. Mineralization consists of massive magnetite skarn with up to 5% bleb chalcopyrite as replacement in medium green re-crystallized limestone.

Sample No.	Cu ppm	Au ppm	Fe %	Length
76901	700	ND	6.74	
76902	7290	ND	32.18	
76903	7371	ND	39.65	
76904	3322	ND	26.23	
76905	8864	ND	30.32	
76906	521	ND	6.51	
76907	168	ND	6.31	
76908	14867	ND	42.82	

(b) Trench at L 24 + 00 W at 15 + 25 N
Samples 76909 to 76921

Sixty three metre long trench gently curves from an east-west to a north-south orientation on the flank of a 30 metre by 20 metre intrusive dome. Intensive magnetite with chalcopyrite skarn replacing limestone in centre of trench with weakly mineralized syenodiorite at each end.

Sample No.	Cu ppm	Au ppm	Fe %	Length
76909	1447	ND	8.45	
76910	1539	ND	15.44	
76911	1227	ND	21.15	
76912	4772	ND	26.60	
76913	2559	ND	13.25	
76914	1792	ND	12.24	
76915	1269	ND	6.79	
76916	1010	ND	6.78	
76917	402	ND	6.64	
76918	394	ND	6.37	
76919	228	ND	6.13	
76920	285	ND	5.93	
76921	380	ND	6.64	

(c) Trench at L 22 + 50 W at 14 + 50 N

Samples 76922 to 76925

Eighteen metre long trench oriented north-south on crest of small domed hill. Magnetite and chalcopyrite mineralization is present within fractures in thinly bedded volcanic sediments intruded by several one metre dykes of medium grained hornblende rich monzonite.

Sample No.	Cu ppm	Au ppm	Fe %	Length
76922	376	ND	9.11	
76923	5640	ND	25.50	
76924	6396	ND	28.45	
76925	392	ND	8.25	

(d) Road Cut Exposure at L 24 + 15 W at 13 + 50 N
Samples 76926 to 76930

Minor to 5% disseminated magnetite with chalcopyrite in calcareous volcanic sediments and volcanic breccia. Road cut is east to west along the base of a 25 metre long cliff.

Sample No.	Cu ppm	Au ppm	Fe %	Length
76926	1226	ND	18.02	
76927	3403	ND	17.39	
76928	3608	ND	17.90	
76929	704	ND	13.16	
76930	1369	ND	6.45	

(e) Trench on Ann Claims
Samples 76934 to 76939

Trench is 18 metres long and oriented to follow along a 30 cm wide shear striking 280° and dipping 80° to the north. This is parallel to sub-parallel to the orientation of the plagioclase porphyry andesite volcanics. Mineralization is contained within the shear and consists of massive tennantite with minor molybdenite, pyrite, chalcopyrite and trace azurite.

Sample No.	Cu ppm	Au ppm	Fe %	Length
76934	84	ND	4.63	
76935	123	ND	4.59	
76936	47715	ND	4.61	
76937	783	ND	5.07	
76938	378	ND	4.40	
76939	3012	ND	4.17	

3. Soil Horizon Geochemical Samples

In order to confirm the reliability of previous sampling, nine orientation soil profiles totalling 31 samples were taken. The sample numbers and locations are shown on the Interpretation Map (Figure 6). The sample sites were chosen within the previous geochemical anomalies to determine, by soil horizon profile samples, if the previous samples were collected from a suitable horizon and if mineralization varies with depth. The analyses for all of the samples were carried out by Min-En Laboratories, using acid digestion with gold detection by atomic absorption and all other elements by induced coupled plasma. The analyses results are contained in Appendix II of this report.

A very complete report on the soil orientation sampling was prepared by J.R. (Dick) Woodcock for Queenstake Resources Ltd. It is included herein in its entirety as Appendix IV to this report and the reader is referred to it for a more complete discussion.

TABLE I

ORIENTATION SAMPLES

Sample Number		Ag ppm	As ppm	Ca ppm	Cu ppm	Pb ppm	Zn ppm	Au ppb	
1.W90-81	L24W,15+30N 1.5 - 2"	.9	1	4430	394	23	58	5	grey,below moss
W90-82	2 - 4"	1.1	1	4950	514	16	50	10	4grey, in roots and rocks
W90-83	10"	1.0	1	4900	458	17	39	20	grey, in roots and rocks, start of hardpan
2.W90-84	L24W,14+50N 1"	.3	1	3260	16	16	51	5	grey with hints of brown
W90-85	8"	.6	1	4350	25	15	45	5	grey and buff
W90-86	13"	.4	1	5710	37	10	31	10	grey soil
3.W90-87	L24W,14+12N 1 - 2"	.3	1	3320	12	14	32	5	grey soil (A_3 </2")
W90-88	7"	.4	1	3940	27	13	43	5	grey,with some buff material
W90-89	10"	.4	1	4370	29	13	26	5	grey soil, some hardpan
W90-90	14.5"	.5	1	5180	34	9	22	5	grey hardpan
4.W90-91	L10W,12+25N 3 - 4"	.5	1	3790	12	13	36	5	light grey A_3
W90-92	10"	.8	1	5010	17	10	50	5	light grey bleached
W90-93	14"	.9	1	5950	24	14	25	5	light grey
W90-94	18"	1.0	1	7160	31	13	27	5	light grey with rusty spots (sandy soil)
5.W90-95	L17W, 3+00N 0 -7.5"	1.2	1	7260	175	20	79	5	grey,somewhat rusty
W90-96	7.5-13"	.9	1	8310	83	15	25	5	grey, rusty pockets
W90-97	13 - 20"	.7	1	9610	160	15	41	10	rusty
W90-98	20 - 30"	.8	1	10530	167	17	47	5	dark grey and cobbles of dark volcanics
6.W90-99	L 1W, 1+75N 6"	.4	13	7950	164	11	23	5	brown organic-rich soil
W90-100	16"	.4	14	7420	137	12	20	5	black organic soil
W90-101	30"	1.5	10	26400	338	13	35	10	grey gleyed (?) soil-sandy
W90-102	36"	.8	16	23010	107	17	18	5	grey gleyed (?), rusty pockets, syenite boulders
7.W90-104	L 0W, 2+00N 1 - 2"	.1	7	2610	9	16	15	5	bleached grey A_3
W90-105	2 - 4"	.1	1	3680	17	9	28	5	buff, sandy
W90-106	21"	.3	1	4000	19	9	25	5	buff to rusty
8.W90-110	L 3W, 5+50N 4 - 8"	.7	1	5440	20	11	33	5	B horizon
W90-111	12"	.5	24	4280	19	12	18	5	grey, sandy, nearly hardpan
W90-112	18"	.5	16	4540	21	15	14	5	grey, sandy, pebbles somewhat indurated
9.W90-113	L27W, 4+50N 2"	.7	1	4730	8	23	32	5	grey A_3 horizon
W90-114	10"	1.0	1	7220	33	18	45	5	buff soil
W90-115	15"	1.0	1	7070	42	18	35	5	hardpan at 12"

* </= 5 ppb

DISCUSSION OF RESULTS

The interpretation map (Figure 6) depicts the magnetic anomalies, previous geochemical anomalies, sample and outcrop locations for the Spout Lake property.

The area of primary interest is the North Zone, South Zone and the South Zone extension magnetic anomalies. Mineralization within the North and South Zones has been outlined but its full extent has not been determined, it is likely that the physically untested South Zone Extension has similar skarn mineralization. The physiography of the three zones is suggestive of underlying satellite intrusives that have resulted in the low domed elongate ridges caused by uplift of the calcareous volcanic and limy volcaniclastic strata. Trenches excavated at grid co-ordinates L23 + 10W at 16 + 00N and L24 + 00W at 15 + 25 N are on top of such hills and expose contacts between the intrusive and the skarn volcanics. Previous drilling has located mineralization within magnetic lows, these lows may be the result of local magnetic reversals or simply "screening" from surrounding stronger magnetic highs.

The rock chip samples from the North and South Zone trenches did not contain any gold values whatsoever. This is unusual as other deposits in the Quesnel Trough have minor gold values accompanying copper mineralization. It is possible that gold mineralization could be present at depth in the magnetic anomaly in Area 9 of the Interpretation map. THis magnetic anomaly and VLF-EM conductor is interpreted as representing an extension of syenodiorite from the Peach Lake stock along a north-west trending fault. Association of gold with calc-alkalic intrusives is very common and reportedly a prospector sample taken from the Peach Lake stock ran 1.5 oz/ton Au (R.E. Gale pers. comm. 1990).

Area 8 of the Interpretation Map represents a deeply buried induced polarization target interpreted as a propylitic alteration zone with up to 10% pyrite. The topography of this area is generally low lying, therefore outcropping of the pyrite mineralization has been found in only two peripheral locations of the zone. The four rock samples collected displayed up to 5% disseminated and fracture pyrite with trace chalcopyrite in andesitic volcanics, assays were 440 ppm Cu.
As described before, Amax drilled two percussion holes into this target and obtained results of up to 0.14% Cu at 280 feet depth.

The results of the orientation soil profile geochemical samples show a large discrepancy in comparison with the 1988 geochemical survey. Although background values are comparable between the surveys, values differ widely at anomalous areas. At orientation sample site 1 values as high as 514 ppm Cu were obtained approx-imately 6 m from exposed mineralization in trenching, yet prior soil sampling had obtained values of only 21 ppm Cu and 24 ppm Cu for

the two closest sample sites. Conversely, orientation sample site 9 has values of 8 ppm Cu near surface to 42 ppm Cu at 35 cm depth versus 319 ppm Cu from the earlier survey. The difference in values of the two surveys would seem to indicate that soil sampling carried out by Peach Lake Resources in 1988 cannot be considered indicative of sub-surface mineralization. Part of the difficulty may lie with the carbonate-rich nature of the soils, but incorrect sampling procedures are suspected by the writer.

CONCLUSIONS

The Spout Lake property contains two significant copper bearing magnetite skarn zones with a proximal third zone of magnetic mineralization. These areas are known as respectively: the North Zone, the South Zone and the South Zone Extension. Both the North Zone and the South Zone are only partially delimited by drilling and remain open along strike and at depth; the South Zone Extension has not received any physical work. Preliminary reserve calculations for the North Zone estimated 1.5 million tons at 0.54% Cu, 0.10 oz/ton Ag and 0.01 oz/ton Au, the South Zone has drill possible indications of several million tons at 0.1% to 0.3% Cu. The 1990 sampling of the North and South Zone trenches gave a mean average value of 0.28% Cu but without any precious metal values. The content of magnetite mineralization could be very significant since magnetite is used in coal washing plants by the coal mines in British Columbia. The magnetite-chalcopyrite mineralization may be economic if sufficient tonnage can be developed from these three cones.

In addition to the above main zones, there are three other areas of interest that merit physical work for further investigation. Area 9 and Area 8 of the Interpretation Map both warrant percussion or diamond drilling to test their respective magnetic and induced polarization anomalies. Area 9 may have gold values analogous to those from similar mineralization on the adjacent property and Area 8 has produced near economic copper mineralization in exploratory drilling. Lastly Area 7 has VLF-EM conduc-tors that may represent mineralized shears the same as that of the Tennantite Zone on the adjacent Ann claims.

RECOMMENDATIONS

Further exploration work on the Spout Lake property will require an improved basis of information. Therefore it is recommended that a professional legal survey be made of all claim posts and claim lines as well as all drill holes and roads on the property. The present various grids should be tied on to this survey and all of this information compiled onto a topographic base map. Then detailed magnetometer and induced polarization surveys be carried out over the North Zone, the South Zone, the South Zone Extension and the Pyrite Zone. Profile and plan sections should be prepared and then correlated with geological information from the previous drilling programs. A diamond or percussion drill program can then be effectively implemented to test those areas with anomalous results.

COST ESTIMATE

Stage I - Diamond Drilling, Geological - Geochemical - Geophysical Surveys	
Diamond drilling - say 5,000 ft. at $20/ft. NQ by contract	$ 100,000
Rock assays, 550 samples for Cu,Au,Ag at $15.00/sample	8,250
Geochemical soils samples say 1,000 samples for Au,Ag,Cu,Pb,Zn at $12 per sample	12,000
Detailed I.P. survey say 20 km at $2,000/km including grid, by contract	40,000
Fill-in VLF-EM magnetometer surveys at $235/km for 30 line kms, including Spout Lake, by contract	7,050
Field assist, 2 months at $3,750/mo.	7,500
Geologist, 2 months at $6,000/mo.	12,000
Room and board, 2 men at $100/man/day for 60 days	12,000
Vehicle, at $2,250/mo. including fuel, mileage, insurance etc.	4,500
Report preparation	8,000
Sub-total	204,250
Contingencies at 10%	25,750
Total Stage I	**$ 230,000**

STATEMENT OF COSTS

Personnel	Dates	Wages per Diem	Total
L. Rowan	Sept. 7-16	$350.00	$3500.00

Mobilization and Demob	1300.00
Truck 10 days @ 100/day	1000.00
Room and Board 10 days @ 75/day	750.00
Report writing 7 days @ $350/day	2450.00
Geochemical analysis	267.50
Typing, drafting, reproduction and binding	1500.00
Total	**$10,767.50**

Statement of Expenditures

Agreement dated August 21, 1990
Between Peach Lake Resources Inc.
and
Queenstake Resources Ltd.

Statement of expenditures for the 1990 exploration program conducted by Queenstake Resoruces Ltd. on the Spout Lake , B.C. property

Gordon Gutrath field trip expenses	$ 859.67
J.R. Woodcock field trip expenses and verbal report	3,463.98
EuroCanadian field trip expenses and written report	10,767.50
Total cost of program	$15,091.15

REFERENCES

Campbell, R.B. (1978) - G.S.C. Open File Map 574 - Quesnel Lake A Map Area.

DePaoli, G.M. and Allan, J.E. (1973) - Spout Lake Copper Property (WC Claims), 1973 Geophysical Report, for Amax Explorations Ltd.

Gale, R.E. (1989) - Spout Lake Property, B.C. Clinton M.D., 92P/14W for Peach Lake Resources Inc.

Hodgson, C.J. and Depaoli, G.M. (1972) - Spout Lake Copper Property, 1971 Geochemical and Geophysical Report, for Amax Explorations Ltd.

Hodgson, C.J. and Depaoli (1973) - Spout Lake Copper Property, Final 1973 Property Report, for Amax Explorations Ltd.

White, G.E. (1988) - Geochemical Geophysical Report, Dora, Club and Pee Wee Claims, Clinton M.D., Lac La Hache Area, B.C., for Peach Lake Resources Inc.

STATEMENT OF QUALIFICATIONS

I, Lorne G. Rowan, do hereby certify:

1. That I am a self-employed geologist with an office at 32595 Dalhstrom Avenue, Abbotsford, B.C.

2. That I graduated from the University of British Columbia in 1985 with a degree of Bachelor of Science in Geology.

3. That I have practised my profession since graduation in British Columbia and the Yukon Territory.

4. That I am a member in good standing of the Geological Association of Canada.

5. That I personally conducted the work program described in this report dated October 15, 1990.

6. That written permission from the author is required to publish this report in any Prospectus or Statement of Material Facts.

Dated at Vancouver, British Columbia this 15 day of October of 1990.

Lorne Rowan

Lorne G. Rowan, B.Sc.
Geologist

[redacted] LABORATORIES LTD. [redacted] 85[redacted] E. HASTINGS ST. VANCOUVER B.C. [redacted] 1R[redacted] PHONE (604) 253-3[redacted] FAX (604) [redacted] 171[redacted]

GEOCHEMICAL ANALYSIS CERTIFICATE

White Geophysical File # 90-4612 Page 1

11751 Bridgeport Road, Richmond BC V6X 1T5

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
D 76901	1	700	8	97	.6	15	27	920	6.74	13	5	ND	1	57	1.2	3	2	170	1.78	.163	6	47	1.72	144	.21	6	2.55	.44	.72	2
D 76902	1	7290	13	249	2.1	25	55	947	32.18	22	5	ND	2	42	2.1	5	2	96	1.93	.106	2	48	.85	19	.05	9	1.85	.03	.05	1
D 76903	1	7371	2	198	4.2	25	55	660	39.65	21	5	ND	1	31	1.2	2	2	106	1.09	.058	2	35	.56	16	.01	5	1.22	.04	.04	1
D 76904	24	3322	10	286	1.5	20	45	977	26.23	17	5	ND	1	83	1.9	5	2	112	4.32	.097	2	66	.91	13	.05	4	1.36	.03	.05	1
D 76905	1	8864	5	178	5.8	32	76	604	30.32	79	5	ND	2	32	1.8	6	2	129	1.12	.078	3	46	.49	31	.06	8	1.21	.22	.12	1
D 76906	1	521	11	132	.3	30	29	969	6.51	10	5	ND	1	25	.7	5	2	162	1.82	.110	4	54	2.29	202	.24	6	2.28	.12	.54	2
D 76907	1	168	7	90	.3	12	23	760	6.31	11	5	ND	1	31	.9	5	2	166	1.82	.161	7	29	2.01	303	.25	8	2.36	.38	.60	1
D 76908	1	14867	9	148	7.4	32	62	497	42.82	*46	5	ND	1	22	1.7	5	2	118	1.09	.046	2	31	.31	17	.02	6	.86	.03	.03	1
D 76909	4	1447	12	81	.9	15	18	2003	8.45	20	5	ND	1	77	.5	5	2	106	5.45	.148	6	42	1.24	33	.10	5	2.40	.09	.08	3
D 76910	4	1539	14	80	1.1	18	19	1314	15.44	16	5	ND	1	54	1.1	7	2	122	3.31	.133	6	44	.96	39	.10	15	1.84	.09	.20	4
D 76911	7	1227	11	51	.7	14	22	1459	21.15	21	5	ND	2	53	1.2	3	2	117	3.71	.107	5	44	.64	18	.08	20	1.53	.09	.07	9
D 76912	4	4772	2	51	3.7	24	51	1122	26.60	20	5	ND	2	44	1.8	3	2	110	2.76	.091	4	40	.62	10	.07	18	1.25	.04	.05	4
D 76913	1	2559	8	52	1.6	21	40	1897	13.25	20	5	ND	1	63	1.4	6	2	108	5.52	.140	6	48	.98	10	.09	10	2.32	.03	.03	4
D 76914	1	1792	8	57	1.0	21	37	1508	12.24	16	5	ND	1	69	1.2	5	2	114	4.15	.137	6	50	1.04	25	.08	5	1.83	.04	.03	3
D 76915	1	1269	6	60	.9	16	25	2199	6.79	24	5	ND	1	68	.8	5	2	106	6.33	.156	7	44	1.09	31	.11	5	2.22	.04	.02	6
D 76916	1	1010	4	54	.7	14	16	1850	6.78	23	5	ND	1	81	.4	4	2	105	5.54	.161	7	41	.89	21	.10	6	1.97	.03	.04	7
D 76917	1	402	10	49	.2	15	15	756	6.64	14	5	ND	1	140	1.0	3	6	140	2.47	.172	7	47	.92	26	.11	10	2.12	.46	.08	12
D 76918	1	394	14	71	.4	19	18	783	6.37	15	5	ND	1	138	.6	3	2	147	2.10	.178	8	43	.96	32	.14	9	1.73	.23	.11	2
D 76919	2	228	7	54	.2	16	14	654	6.13	15	5	ND	1	131	.8	2	5	148	2.67	.178	7	50	.71	23	.12	14	2.28	.50	.11	2
D 76920	1	285	10	60	.4	16	15	907	5.93	22	5	ND	1	118	.3	3	3	144	2.98	.177	8	45	.65	25	.12	18	2.10	.36	.08	3
D 76921	1	380	13	47	.3	14	12	1353	6.64	19	5	ND	1	92	.4	3	3	118	4.15	.171	6	49	.85	17	.12	6	2.19	.43	.08	3
D 76922	1	376	9	91	.1	17	24	860	9.11	13	5	ND	1	58	1.2	6	2	149	3.10	.137	6	43	1.40	42	.15	6	2.06	.23	.29	1
D 76923	4	5640	11	158	2.9	18	43	716	25.50	10	5	ND	2	41	2.5	6	2	140	1.44	.117	7	58	.96	29	.11	7	1.58	.19	.14	4
D 76924	3	6396	2	113	4.5	17	36	582	28.45	21	5	ND	2	56	2.2	6	2	136	1.22	.101	6	48	.56	20	.09	15	1.50	.38	.12	13
D 76925	1	392	11	82	.5	21	25	763	8.25	16	5	ND	1	75	.7	8	2	167	2.58	.143	5	44	1.46	63	.16	15	2.18	.21	.33	1
D 76926	4	1226	17	53	1.1	12	17	945	18.02	13	5	ND	2	67	.6	4	2	132	3.57	.134	5	42	.70	33	.10	12	1.50	.19	.20	1
D 76927	4	3403	8	40	2.1	21	18	896	17.39	20	5	ND	1	74	1.1	5	3	126	3.14	.138	4	42	.50	26	.09	17	1.25	.10	.10	2
D 76928	3	3608	10	49	2.0	20	34	881	17.90	18	5	ND	1	81	.7	4	3	115	3.15	.129	3	44	.73	22	.09	11	1.43	.16	.11	1
D 76929	3	704	10	52	.5	15	19	1156	13.16	20	5	ND	1	91	.5	8	2	113	4.24	.140	4	54	.86	28	.09	10	1.44	.06	.07	1
D 76930	1	1369	5	59	.8	16	28	1280	6.45	41	5	ND	1	108	.4	5	2	100	6.67	.142	3	41	1.04	132	.12	9	2.31	.23	.17	2
D 76931	1	411	12	50	.5	10	15	379	5.15	18	5	ND	1	100	.3	3	2	118	1.85	.163	4	31	.76	52	.18	9	1.43	.07	.15	19
D 76932	1	440	11	49	.5	7	23	481	6.65	30	5	ND	1	92	.2	3	2	109	2.00	.149	5	20	.70	43	.17	8	2.00	.05	.19	3
D 76933	1	161	10	96	.4	21	19	1266	7.27	38	5	ND	1	90	.4	9	2	159	3.28	.204	2	89	1.69	24	.16	9	2.18	.21	.35	1
D 76934	1	84	10	43	.2	3	12	480	4.63	17	5	ND	1	132	.2	2	3	137	1.91	.162	6	7	.48	50	.12	10	1.61	.16	.14	2
D 76935	5	123	6	37	.2	2	10	595	4.59	34	5	ND	1	55	.2	4	3	152	1.39	.190	6	6	.20	39	.04	11	1.21	.08	.13	2
D 76936	1333	47715	52	51	37.1	5	27	1528	4.61	1482	5	ND	1	32	3.6	10	5	129	1.24	.208	41	3	.14	52	.01	6	.75	.02	.08	1
STANDARD C	18	59	38	130	7.0	71	31	1058	3.99	39	16	7	37	53	18.8	15	21	55	.52	.098	36	61	.90	180	.07	36	1.90	.06	.14	13

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: ROCK

DATE RECEIVED: SEP 20 1990 **DATE REPORT MAILED:** Sept 25/90 **SIGNED BY** C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

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
D 76937	111	783	7	79	.6	6	21	1371	5.07	98	5	ND	1	40	.4	4	2	153	1.47	.147	8	2	.19	79	.01	7	.57	.03	.08	1
D 76938	9	378	5	53	.1	3	13	738	4.40	17	5	ND	2	85	.3	2	2	142	1.84	.162	7	1	.40	49	.09	6	1.28	.09	.12	1
D 76939	78	3012	8	50	2.0	3	15	1024	4.17	52	5	ND	2	34	.3	2	2	137	1.13	.158	7	2	.16	42	.03	5	.77	.04	.09	1
D 76940	2586	43583	23	94	28.3	6	23	2079	4.39	54	5	2	1	63	3.5	2	2	68	8.00	.023	8	10	2.21	35	.01	2	.20	.02	.02	1
D 76941	6	266	8	76	.3	6	11	1149	3.24	24	5	ND	2	38	.6	2	2	87	5.17	.146	8	15	.36	10	.11	2	1.15	.03	.04	2
D 76942	11	415	3	35	.3	11	13	474	4.89	20	5	ND	1	100	.3	2	3	162	1.49	.133	5	23	1.03	72	.25	4	1.59	.07	.41	1
STANDARD C	18	62	37	129	7.2	72	31	1050	3.98	41	20	7	39	56	18.8	15	23	59	.52	.097	39	60	.90	182	.09	37	1.91	.06	.14	11

ASSAY RECOMMENDED for Mo > 1000 ppm
Cu > 1%

TABLE I

ORIENTATION SAMPLES

	Sample Number			Ag ppm	As ppm	Ca ppm	Cu ppm	Pb ppm	Zn ppm	Au ppb	
1.	W90-81	L24W,15+30N	1.5 - 2"	.9	1	4430	394	23	58	5*	grey, below moss
	W90-82		2 - 4"	1.1	1	4950	514	16	40	10	grey, in roots and rocks
	W90-83		10"	1.0	1	4900	458	17	39	20	grey, in roots and rocks, start of hardpan
2.	W90-84	L24W,14+50N	1"	.3	1	3260	16	16	51	5	grey with tints of brown
	W90-85		8"	.6	1	4350	25	15	45	5	grey and buff
	W90-86		13"	.4	1	5710	37	10	31	10	grey soil
3.	W90-87	L24W,14+12N	1 - 2"	.3	1	3320	12	14	32	5	grey soil (A_3 < 1/2")
	W90-88		7"	.4	1	3940	27	13	43	5	grey, with some buff material
	W90-89		10"	.4	1	4370	29	13	26	5	grey soil, some hardpan
	W90-90		14.5"	.5	1	5180	34	9	22	5	grey hardpan
4.	W90-91	L10W,12+25N	3 - 4"	.5	1	3790	12	13	36	5	light grey A_3
	W90-92		10"	.8	1	5010	17	10	50	5	light grey bleached
	W90-93		14"	.9	1	5950	24	14	25	5	light grey
	W90-94		18"	1.0	1	7160	31	13	27	5	light grey with rusty spots (sandy soil)
5.	W90-95	L17W, 3+00N	0 -7.5"	1.2	1	7260	175	20	79	5	grey, somewhat rusty
	W90-96		7.5-13"	.9	1	8310	83	15	25	5	grey, rust pockets
	W90-97		13 - 20"	.7	1	9610	160	15	41	10	rusty
	W90-98		20 - 30"	.8	1	10530	167	17	47	5	dark grey and cobbles of dark volc
6.	W90-99	L 1W, 1+75N	6"	.4	13	7950	164	11	23	5	brown organic-rich soil
	W90-100		16"	.4	14	7420	137	12	20	5	black organic soil
	W90-101		30"	1.5	10	26400	338	13	35	10	grey gleyed (?) soil - sandy
	W90-102		36"	.8	16	23010	107	17	18	5	grey gleyed (?), rusty pockets, syenite boulders
7.	W90-104	L 0W, 2+00N	1 - 2"	.1	7	2610	9	16	15	5	bleached grey A_3
	W90-105		2 - 4"	.1	1	3680	17	9	28	5	buff, sandy
	W90-106		21"	.3	1	4000	19	9	25	5	buff to rusty
8.	W90-110	L 3W, 5+50N	4 - 8"	.7	1	5440	20	11	33	5	B horizon
	W90-111		12"	.5	24	4280	19	12	18	5	grey, sandy, nearly hardpan
	W90-112		18"	.5	16	4540	21	15	14	5	grey, sandy, pebbles somewhat indurated
9.	W90-113	L27W, 4+50N	2"	.7	1	4730	8	23	32		grey A_3 horizon
	W90-114		10"	1.0	1	7220	33	18	45		buff soil
	W90-115		15"	1.0	1	7070	42	18	35		hardpan at 12"

* < = 5 ppb

APPENDIX III

PEACH LAKE MAPPING PROJECT

HAND SPECIMEN DESCRIPTIONS

a) 3+40W/14+00N

- medium green coloured matrix, 40: 2 - 4 mm plag crystals, very weak argillic alteration, very minor mafics.

b) 3+15W/14+00N

- fine to medium grained, medium green on fresh surface volcanic rock

- very magnetic with abundant limonite and manganese oxide staining

c) L2+00W/8+25N

- fine grained medium green volcanics or micro-diorite

- very fine sub 1 mm plag crystals

- trace of pyrite dissemination in matrix

-mild limonite staining on weathered surface

d) L1+00W/11+10N

- coarse grained volcanic greywacke?

- weak argillic alteration of 1 mm plag crystals

- minor magnetite and Fe-oxide stain

- medium green fresh surface weathering to grey

e) L6+25W/9+80N

- fine grained, light green/grey colour on fresh surface

- some 2 mm x 0.5 tourmaline crystals

- weathers rusty green brown colour

f) L4+25W/14+00N

- fine to medium grained volcanics

- 1 to 3 mm plag crystals in medium green matrix

- trace of pyrite, abundant Fe-oxide

- weathers rusty brown

g) L1+00W/12+00N

- coarse grained volcanic grey wacke

- 2 - 3 mm plag crystals with minor pink (K-spar?) alteration in weak argillic altered green matrix

- trace of pyrite << 1 mm crystals

h) 1+00W/9+65N

- coarse grained volcanic grey wacke

- 1 - 3 mm weak argillic altered plag crystals in dark green matrix

- weathers rusty brown

i) L4+00W/12+25N

- coarse grained volcanic grey wacke

- pink stain (K-spar alteration?) of 1 mm plag crystals in mediem green matrix

- abundant Fe-Oxide on fracture surfaces

- trace of << 1 mm pyrite

j) L2+25W/8+00N

- medium green volcanic grey wacke, 1 mm plag crystals, minor biotite

trace of pyrite and chalcopyrite

- minor magnetite

- weathers rusty brown

k) L1+10W/9+50N

- clastic volcanics, clasts rounded to sub-angular and up to 3 cm in size

- matrix fine grained and dark grey

- clasts have pinkish buff colour (K-spar alteration?)

- matrix resembles the micro-diorite

l) L27+00W/9+00N

- fine grained, medium grey basalt

- 0.5 mm plates of biotite

- weathers bright rusty brown, pockmarked with 1 - 3 mm rectangular cavities

m) L27+00W/5+00N

- dark grey basalt, minor 1 mm plag and biotite crystals

- weathers rusty brown

APPENDIX IV

THE SPOUT LAKE PROPERTY

INTRODUCTION

Between September 14 and September 15 I made a visit to the Lac La Hache area to review certain aspects of the Spout Lake Prop- erty with Mr. Lorne Rowan. Emphasis during this trip was on taking soil samples for geochemical orientation studies. We also visited the site of the magnetite-copper deposit and examined exposures in some trenches and the core that was available in the core rack. In order to gain some impression of the rock types and alteration associated with this magnetite zone, we briefly logged the core that was in the racks for Holes 73-10, 73-11, 73-12, 73-13, 73-14, 73-15, 73-16, and 74-17.

In addition there are about 95 trays of core stacked on the ground and a pile of core that has been dumped on the ground.

Outcrops are very scarce; we took specimens from any outcrops we encountered. These, in addition to other ones collected by Lorne Rowan, can be used in further studies in an attempt to outline the rock types and alteration distribution on the property.

We spent about one hour checking the core of Liberty Gold from the Tim claims in order to resolve some questions pertaining to the general geology of the area.

SUMMARY OF PREVIOUS WORK

In 1971 Amax Exploration conducted geological-geochemical surveys over a prominent aeromagnetic anomaly. This work led to the discovery of a magnetite-copper zone and to further work including geological mapping, airborne and ground magnetometer surveys, induced polarization and geochemical surveys, bulldozer trenching and drilling. In 1974 Craigmont Mines Ltd. did additional drill- ing on the same zone.

In 1988 Peach Lake Resources conducted surveys including VLF, magnetometer and soil sampling, followed by some trenching in 1989. The control lines were placed using compasses. Because of the erratic and severe deflections in this magnetic terrain, lines were considered inaccurate and therefore some lines were subsequently placed using picket control.

Discussions with one of the soil samplers indicate that samples were of shallow grey soil, just below the plant debris. In the traverses made by Lorne Rowan and by myself, we did not encounter old sample sites. This could be because we were following the new lines.

GEOLOGY

The rock types noted in the core of the magnetite-copper zone are mainly volcanic with a limited number of thin intrusive dikes (maximum intersection 30 feet). The skarn zone of alteration includes a buff brownish type with lime silicates, some pink alteration which may be K-feldspar or hematitic dusting, and some epidote, in addition to the magnetite and minor chalcopyrite. The dark volcanic rock adjacent to the magnetite-rich zone is also highly magnetic and probably has considerable disseminated magnetite. Outside of this chlorite is the predominant alteration in the surrounding rock.

Although epidote is associated with the magnetite zone and does in places occur in considerable concentration, it is not wide-spread throughout the property as it is on parts of the Peach Lake (Dora) and the Tim properties further to the east.

In a number of places small porphyritic intrusions occur, generally with a pinkish colour, called monzonite as a field term. Also just east of the property is a small stock of microdiorite which hosts the small tetrahedrite vein.

GEOCHEMISTRY

We took nine orientation soil profiles. The sites are shown on the accompanying map. Locations and analytical data are given in Table I. In addition, two twig samples were taken. Analyses for all samples were done at Min-En Laboratories using acid digestion. Gold detection was with A.A.; all other elements were with ICP.

Forest around the property includes mainly lodgepole pine, fir, spruce, and trembling aspen. Areas of very good drainage underlain by sand and gravel are mainly covered by lodgepole pine. Flat areas especially on the north slope where the drainage is very poor are covered with spruce. Intermediate areas of drain-age can have all three evergreens. The trembling aspen occurs scattered throughout in the more open areas.

Most of the property is not covered by the usual podsol soil that occurs throughout much of British Columbia. In order to emphasize the differences, a simplified descriptive profile of a podsol and of the soil on the Spout Lake property will be presented.

Podsol Horizons:

A_1 Decaying plant debris.

A_2 Black organic-rich soil.

A_3 Grey leached horizon, generally < 4" thick.

B Buff to rusty horizon which has accumulated the leached metals

from above. These include iron in the form of oxide.

C Partially weathered till.

The soil profile at the Spout Lake property by contrast is as follows:

(1) Plant debris, generally a very small amount of decayed material.

(2) Black soil which occurs only in the areas of the wet spruce flats.

(3) The leached A_3 horizon is generally absent or very thin (< 1"); also in most places it is indistinguishable from the underlying grey soil.

(4) The B horizon is generally absent. Only the sample from Site 8 had a reasonable rusty B horizon.

(5) Grey somewhat sandy soil.

(6) Hardpan or indurated soil.

In a few places rusty material occurs within the grey soil; However this is generally related to little pebbles that may be iron-rich. This rusty appearance is not pervasive as in a B horizon.

The content of soluble calcium (mainly from carbonate) in all profiles confirms that these are carbonate-rich soils and that the carbonate content increases downward to the hardpan where values are highest.

A review of my geochemical results shows that all of the lead and zinc values are background and that generally the values decrease with depth towards the hardpan. Even the black soil of Site 6 does not have anomalous values.

By contrast, if one excludes the anomalous copper values, the background copper values increase downward towards the hardpan where the highest values are found. Generally in carbonate-rich soils, the anomalous copper values start to show up at the hard-pan; however in this case anomalous sites seem to be anomalous throughout the complete grey soil profile.

Arsenic values are generally </= 1 ppm; however a few somewhat anomalous values (up to 24 ppm) occur and a number of these correspond to the anomalous copper values overlying the so-called pyrite zone. Silver values < 0.7 ppm generally correspond with anomalous copper values.

Gold values are background </= 5 ppb, with three 10 ppb and one 20 ppb. The copper-rich sample at Site 1 had above average values; but none can be considered significantly anomalous.

Additional notes on some of the sampled sites are as follows:

Site 1 - This sample site is a tree-covered area six meters north of a trench which exposes copper mineralization. Undisturbed moss covers the forest floor. All samples were anomalous in copper. By contrast the geochemical map for Peach Lake Resources shows 21 ppm and 24 ppm to the north and to the south respect-ively of this site; however the line 100 meters to the east does have some highly anomalous values. The trench which exposed copper mineralization was made in 1988 subsequent to the geo-chemical survey. One could suggest contamination of my sample site during blasting; however there are no rock fragments from the trenching at my site, also my anomalous values continue to greater than 10 inches of depth.

Site 2 - This is on the same line, 120 meters to the south of Site 1. The sampling pit was dug beside a bulldozed area just west of the line. Copper value at the surface is 16 ppm versus 28 ppm indicated on the survey. A search for the sample site of the survey indicated a small indentation in the soil. This is on material removed from the bulldozed pit.

Site 3 - This is close to Site 2 in a flat undisturbed area of pine, fir and aspen. Soils and results are similar to Site 2.

Site (4) - This sample pit was supposed to check the magnetic anomaly (Area 9); however I plot it about 50 meters south of the magnetic anomaly. It is on a relatively flat area of mainly fir and pine trees indicating fairly good drainage. Copper values are background and similar to those of Site 2, both profiles showing an increase down to the hardpan. Such values are gener-ally in the order of 12 to 16 at the surface and 31 to 37 in the upper hardpan.

Site 5 - At this site a very long trench extends to depths up to four feet; However it did not reach bedrock. A visual survey of the topography and of the trench material indicates a dark green volcanic debris generally quite fine and containing rounded boulders of volcanic rock. Although near the surface this material is somewhat grey, it differs from the usual grey soil found on other parts of the property. It is probably volcanic debris from till that has been washed into this flat area along with the rounded small boulders and pebbles out of glacial deposits. A low hill occurs to the south of the deposit and one might suspect that some of the debris was supplied by this hill or by the glaciers which, in this region, moved westerly.

Because of its relatively flat nature, the area has been used as a log landing which was bulldozed prior to the trenching. Thus there are about 2.5 feet of transported material overlying the surface forest debris in the trench wall. My sample profile in this trench started below this covered debris horizon. However, the original soil sampling could have been carried out after the bulldozing in which case the sample material would be transpor-ted.

The trench was placed to follow up a gold anomaly. The highest

value was 40 ppb at the trench. Corresponding copper value was 46 ppm. The orientation samples show anomalous copper values (up to 175 ppm) throughout the profile. Gold values are mostly </= 5 ppb with one value at 10 ppb.

Site 6 - Site 6 was used to check the pyrite zone which itself follows a very wet gently inclined or flat area covered by spruce. The southwest contact of the "pyrite zone" corresponds to the foot of a somewhat steeper but still gentle incline. The top of the soil profile is very organic-rich with the upper six inches including partly decayed wood and peat. Underlying this is a thick layer of black organic-rich soil which changes quite abruptly downward to the grey soil The grey soil is somewhat sticky and therefore may be gleyed; however it is not as sticky as most of the gleyed soils that I have sampled in this region. Near the bottom of the pit the grey soil has rusty pockets (pro-bably from rock fragments) and also large sharply angular boul-ders of coarse grained grey syenite. The syenite is unaltered and barren of sulphides.

The organic material, the organic-rich soil and the grey underlying soil are all anomalous in copper. The highest copper value (338 ppm) occurs at the top of the grey soil and the value decreases sharply downward from this point. Slightly anomalous arsenic values (10 to 16 ppm) correspond to the anomalous copper. Whether these anomalous values represent in situ underlying cop-per mineralization or whether they represent transported metals from seepages upslope is not known.

Site 7 - Although this site is on another line, it is topographically higher than Site 6, being on a small mound. The soil throughout the profile is buff to rust coloured sand containing no glacial boulders or rock fragments. Thus this could be a small outwash layer or lens lying on this northern slope. The soil profile contains a thin grey leached A_3 horizon underneath the moss changing down to the buff or rusty sandy material. This continues downward more than 21 inches. The upper part of this buff material might be assigned to the B horizon; however all of the iron oxide throughout the profile might have been deposited by seepages off the hillsides rather than through downward move-ment of iron in the soil profile.

Additional soil sampling in pits is needed to try to determine the relationship between this possible acquifer and the anomalous copper values found in Site 6.

Site 8 - This is at the north end of the indicated pyrite zone and the only site where a reasonable B horizon was obtained. This B horizon (down to 4") is underlain by grey sandy material which is partly indurated and which in itself changes to somewhat indurated grey material containing pebbles. Copper values are background throughout. However, some slightly anomalous arsenic values (16, 24 ppm) occur in the grey material.

Site 9 - This site is in the southwest corner of the property on a

slope that is mainly covered by aspen and fir. The soil is a poorly developed podsol with some leached surface material underlain by some buff soil. Some talus material on the slope about 100 meters to the northeast is composed of porphyritic basic volcanics which resemble the Eocene basalts of the region. How-ever, whether this is a remnant of the flat-lying Eocene basalts or whether it is part of the Mesozoic volcanic sequence is not known. The site is part of a reported copper anomaly with values of 222 and 319 ppm respectively north and south of Site 9. Geo-chemical results from my orientation survey show values at sur-face of 8 ppm increasing to 42 ppm at a depth of 15 inches.

A comparison of the geochemical copper results from the survey and from the orientation sites indicates a reasonable correlation in the background areas; however this is to be expected. Of the three anomalous areas (Sites 1, 5, and 6) only the value at Orientation Site 6 shows reasonable correlation. The lack of correlation at Site 5 might be attributed to the survey sample coming from bulldozed material off the log landing whereas my samples were all taken below this transported material. There is a great discrepancy at Site 1 and this is difficult to explain; however the changes in position of survey lines (see p.1, para. 7) might account for it. The copper anomaly at Site 9 is fairly large and has values up to 319 ppm Cu, whereas my value at surface was 8 ppm. This is hard to rationalize, even with some shift in position of lines. I suggest that the soil survey was poorly done and is not very reliable.

CONCLUSIONS AND RECOMMENDATIONS

1. The area of the Spout Lake, Peach Lake (Dora), and Tim properties has potential for alkalic copper deposits. Copper mineralization is associated with small intrusions of pinkish orange fine-grained monzonite and grey microdiorite. Alteration associated with these is mainly epidote and pink feldspar which could be secondary K-feldspar or hematitic dusting in the pre-existing feldspar. The magnetite-rich skarn zone on the Spout Lake property is somewhat different than the other mineralization found in the area; however rock types and alteration are similar.

Mineralization found to date is generally associated with outcrop areas or rocky knolls because of the more resistant nature of the intrusive stocks and dikes. However it has also been found in overburden areas by drilling anomalies. The mineralization to date is erratic and of insufficient size and grade to be econo-mic. The area has been thoroughly prospected and any new disco-veries will have to be under the extensive overburden.

2. Before any further work is done on the Spout Lake property all of the available data from the Amax work should be obtained and appraised, especially the geophysical work such as the in-duced polarization. This should be correlated with the more recent work of Toodoggone Mines Ltd. with the reservation that the geochemical survey of the latter is probably not very reli-able.

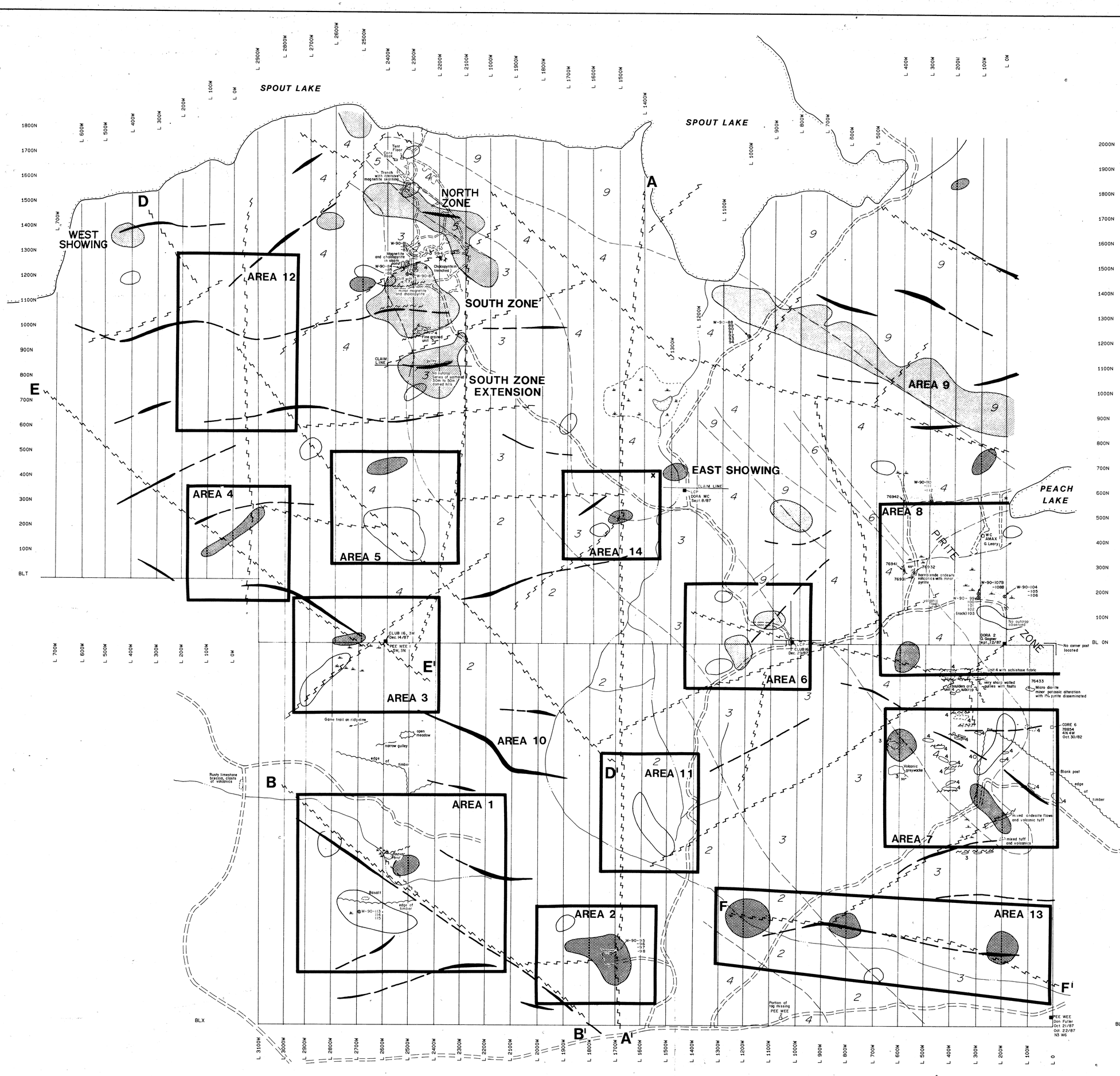
3. Soil sampling in this area of carbonite-rich soils and variable depths of overburden, some of which can be considerable, will not be definitive; but it could be a useful tool in places if done properly. Induced polarization work will probably be the most useful tool but one should try to restrict the areas thus surveyed by obtaining and incorporating the results of Amax's geophysical work.

4. After completing the compilations and correlations of selected geophysical surveys, and experienced field geologist should visit the area to do considerable orientation geochemical surveys over the anomalous areas. This follow up phase of the work could be aided but must be followed by backhoe work. Backhoe trenching over any resulting anomalies might then expose bedrock and give information on the merits of the targets.

J.R. Woodcock, P.Eng.

Sept 28, 1990

JRW:me

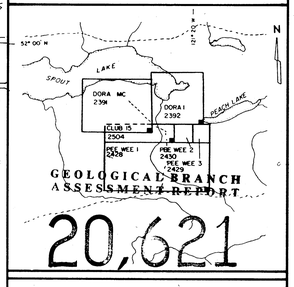


LEGEND

- VLF - EM CONDUCTOR
- INFERRED FAULT
- MAGNETIC ZONE
- GEOCHEMICAL
  - COPPER
  - GOLD
  - ZINC
- NICOLA GROUP
  - 2 — BASALTIC FLOWS, BRECCIAS AND SEDIMENTS, ANDESITE
  - 3 — VOLCANIC GREYWACKE; SYENODIORITE VOLCANIC BRECCIA
  - 4 — THINLY BEDDED FINE SEDIMENTS; MASSIVE BASALTIC SEDIMENTS; ANDESITE TUFFS, BRECCIAS AND FLOWS
- ALKALIC INTRUSIVE COMPLEX
  - 5 — MEDIUM GRAINED MONZONITE
  - 6 — TRACHYTIC MICRO-SYENODIORITE
  - 9 — MAFIC-RICH MONZONITE
- ROAD
- GEOLOGIC CONTACTS
- OUTCROPS
- STRIKE AND DIP
- TRENCH
- EDGE OF TIMBER
- BOUNDARY POSTS
- LCP CLAIM POST
- SWAMP
- GEOCHEM SOIL SAMPLE
- ROCK SAMPLES

SCALE : 1:5000

Metres 0 100 200 300 400 Metres



QUEENSTAKE RESOURCES INC.

SPOUT LAKE PROPERTY

LAC LA HACHE AREA

INTERPRETATION MAP

N.T.S. 92P/14W CLINTON MINING DIVISION, B.C.

SEPTEMBER, 1990

EURO-CANADIAN GEOLOGICAL LTD. FIG. 6