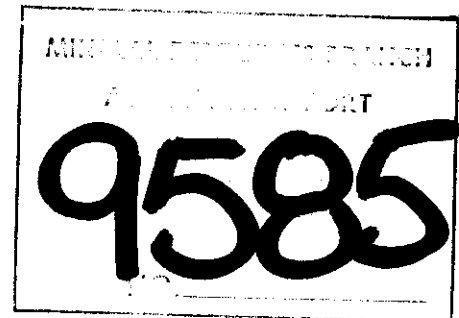


An Assessment Report Detailing  
the 1980 Diamond Drilling Program  
on the MAL Claims

Located in the

Revelstoke Mining Division, N.T.S. 82L/15  
3 km. North of Malakwa, B.C.  
at Latitude  $50^{\circ}58'N.$ , Longitude  $118^{\circ}47'W.$



The MAL Claims (20 units) are Owned and  
Operated by BP Minerals Limited

M.D. Bradley (Geologist, BP Minerals Limited)  
E. Meszaros

July 30, 1980

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SUMMARY:

During the period May 27 to June 3, 1980 - 177.5m of diamond drilling was completed in two holes designed to test molybdenite mineralization in a sheared metagranitoid rock exposed along "Adit Creek" on the MAL 1 claim (20 units), near Malakwa, B.C. The adit zone of the creek was geologically mapped and an 0.5 km long "tote trail" was constructed to provide access for a diamond drill to the adit area.

The drill holes cored quartzo-feldspathic gneiss, altered granodiorite gneiss, augen gneiss and altered shear zones. The metagranitoid was not intersected but the shear zone (unmineralized locally) was encountered at the projected downdip depth.

Subeconomic Cu-Mo values obtained from core, are attributed to visible molybdenite and chalcopyrite in cross-cutting quartz veins and structures.

Further work is recommended for the claim.

INTRODUCTION:

During the period from May 17 to June 3, 1980 an 0.5 km long tote trail was constructed to provide access to the adit zone on "Adit Creek" where 177.5 m (585') of drilling was completed in 2 diamond drill holes.

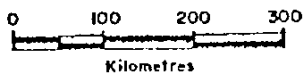
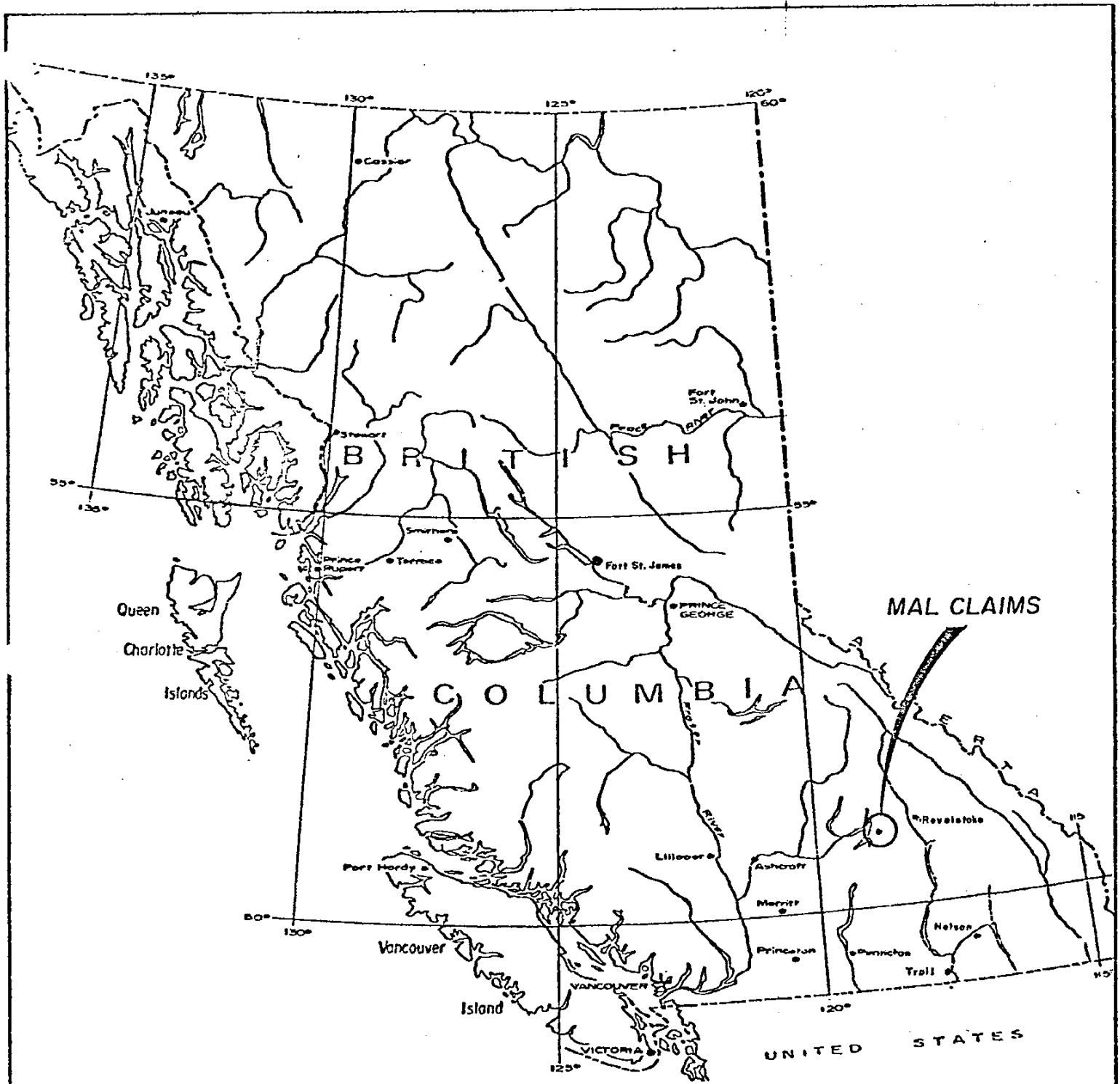
The objective of the program was to test the nature and downdip continuity of a molybdenite bearing shear zone in altered granitoid rock, which is exposed in "Adit Creek".

The following assessment report supplies details of completed physical work and diamond drilling to a total of \$25,000.

LOCATION AND ACCESS: (See Figure 1 and 2)

The MAL 1 claim is located 3 km due north of Malakwa, a small town located on the Canadian Pacific Railway and Trans Canada Highway, some 60 km west of Revelstoke, B.C. The claim is in the Revelstoke Mining Division, at 50° North Latitude and 118° West Longitude, within N.T.S. 82L/15.

Access to the claim is by a good quality, private log haulage road (B.R. 4000) which originates at Drew Sawmills No. 2 burner on Willis Lake and winds north and west 6 km to the MAL 1 legal corner post. Access to the adit and



BP Minerals Limited

**LOCATION MAP  
MAL CLAIMS**

MALAKWA, B.C.

SCALE	NTS 82 L	FIG. 1
DWG NO. 80-145	DATE JULY 1980	PROJ. 519
To accompany report:		

diamond drillsites on the west side of Adit Creek is by an 0.5 km long tote trail which trends north from the 5.6 km point on B.R. 4000.

CLAIM STATUS AND OWNERSHIP: (See Figure 2)

The MAL claim (record #704) comprises 20 units which were staked in July 1979 and recorded August 20, 1979. The claim is wholly owned and operated by BP Minerals Limited of Vancouver, B.C.

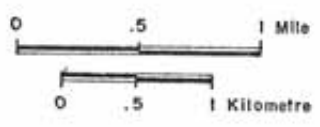
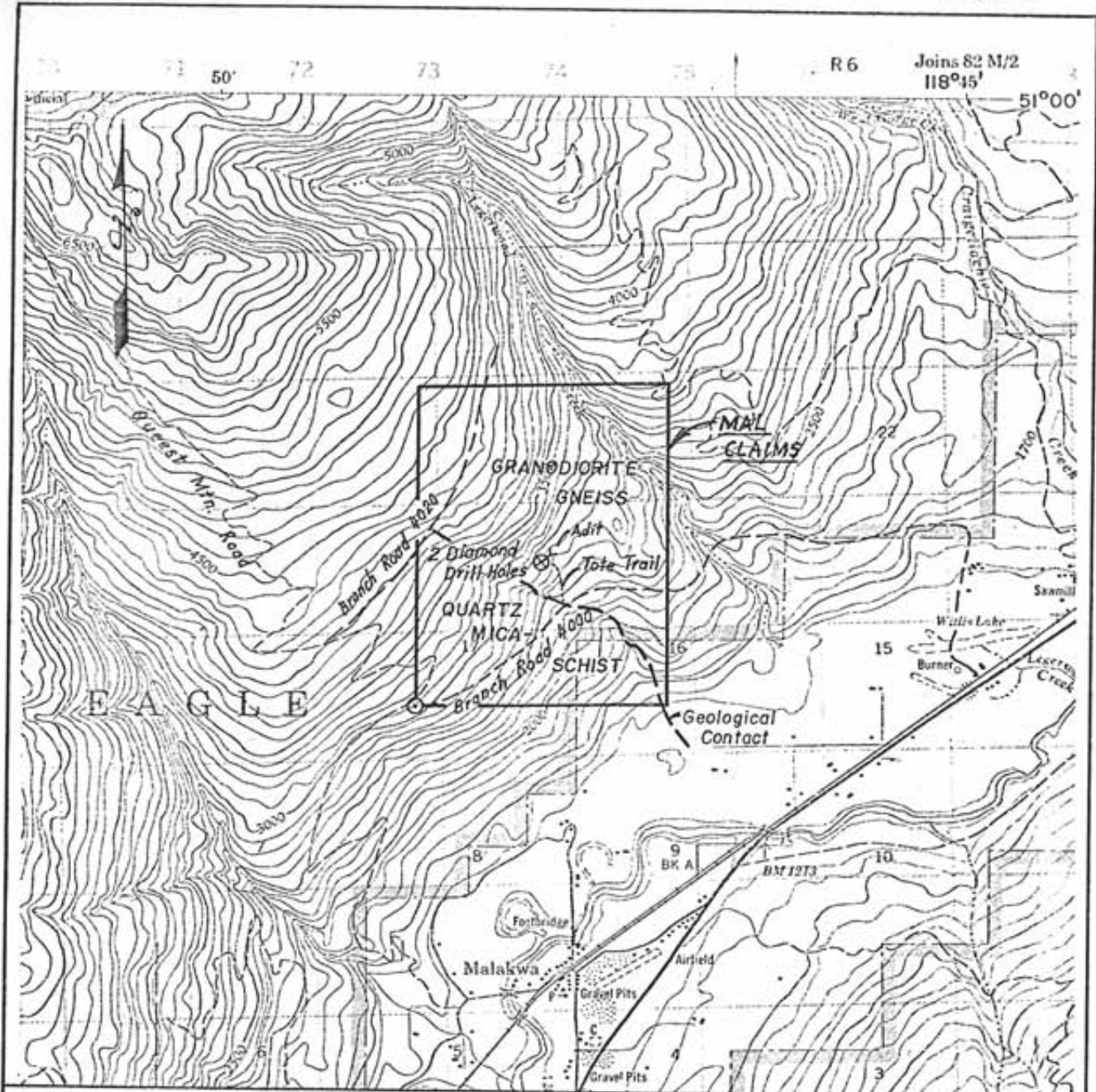
A total of \$22,000 or 7 years assessment credit is applied to the claims. The new expiry date on the MAL claim is August 20, 1987.

TOPOGRAPHY AND VEGETATION:

The MAL claim is situated on the lower southeastern flank of Quest Mountain (elevation 2087 m) which rises rather steeply from the floor of the Eagle River Valley (elevation 366 m). The local topography dips steeply ( $\geq 25^{\circ}$ ) east and southeast and is broken by occasional, relatively narrow, gently rolling bench lands and swamps. Maximum elevation on the claims is 1493 m and minimum elevation is 732 m. The area is dissected by 3 major south-east trending creeks; Legerwood Creek and locally "Adit" and "Gorge" Creeks.

The claim is forested with mixed stands of Western





BP Minerals Limited

**MAL CLAIMS  
DIAMOND DRILL HOLE  
LOCATION MAP**

MALAKWA, B.C.

SCALE 1:50,000	NTS 82 L/15	FIG. 2
DWG No 80-170	DATE JULY 1980	PROJ. 519
To accompany report:		

Hemlock, Douglas Fir and White Pine. Cedar swamps containing seasonably lush growths of swamp grass, ferns and devil's club occur in small pockets throughout the claim area. The cedar was logged off in the 1950's and skid roads which criss-cross these areas are overgrown with willow and alder. Devil's club is found at all elevations to timberline but is particularly prolific and bothersome in swampy glades and along creek channels.

#### HISTORY:

The molybdenite bearing shear zone in Adit Creek was located and staked as the L.H. claims by two prospectors (W. Lynes and O. Hoglund) in 1938. At the time of his visit to the property in August 1939, J.S. Stevenson (Molybdenite Deposits of British Columbia, B.C.D.M. Bulletin No. 9, pp. 67-70, 1940) noted workings consisting of a 6 m long adit on the southwest side of the creek and shallow open-cuts on the north-east side.

The prospect was held by Amax Exploration in 1959, who completed a program of reconnaissance mapping and 42.7 m of packsack drilling. The ground was restaked by Darva Resources Limited in 1971 as the MOLY claims. A two year program of linecutting, geochemical sampling and ground magnetometer survey was completed and the claims were allowed to lapse.

The adit zone was examined in 1979 by R. Wong of BP Minerals Limited, who staked 20 units to secure the area for further evaluation. In May 1980, BP Minerals mapped the adit zone, constructed an 0.5 km long tote trail to provide drill access to the adit from B.R. 4000 and completed 177.4 m of diamond drilling in 2 holes.

In May 1980 Hudson's Bay Oil and Gas staked the Coyote claims around the MAL claims and to the north and west.

#### GENERAL GEOLOGY:

The Monashee Group, as described by A.G. Jones (Vernon Map-Area, B.C., G.S.C. Memoir 296, 1959) has a total thickness in excess of 15,250 m. The bulk of the assemblage is composed of gneiss with schist and quartzite common and locally abundant.

Principal minerals in the gneiss are quartz, feldspar, and biotite with lesser hornblende, calcite and accessories. All varieties of gneiss from clearly meta sedimentary quartzites and schists to granitoid gneiss are represented. The varieties are distinguished by the relative proportions of quartz, feldspar and micas.

Augen gneiss is a variant of normal gneiss and occurs throughout the area. Textures vary from fine-grained

to very coarse-grained, as in the gneissic pegmatites.

Quartzite is common throughout the Monashee Group as layers and beds from 2 cm to 2 m thick. The quartzites contain variable amounts of feldspar and mica and commonly are found to grade imperceptibly into granitoid gneiss. The quartzite is coarsely crystalline and most often milky white to gray in colour with occasional opaline white, feldspar-rich layers.

Schist is found interbedded with gneiss in wide spread areas of the Monashee Group. It is commonly found as thin layers, rarely more than a few metres thick, in quartzitic gneiss or granitoid. The schist and gneiss are intergradational; the main difference being abundant mica which marks the more fissile schists. Muscovite, and biotite-hornblende schist are most common and locally may contain garnet and sillimanite.

Lamprophyre dykes are found cutting Monashee Group rocks in the Quest Mountain area. The dykes are unfoliated and commonly are unaltered and therefore post date the Shuswap metamorphic complex. The lamprophyres have a composition approximating that of a spessartite. The dykes commonly strike north-northwest and dip steeply both east and west. Contacts with the Monashee gneiss are everywhere sharp and weakly altered.

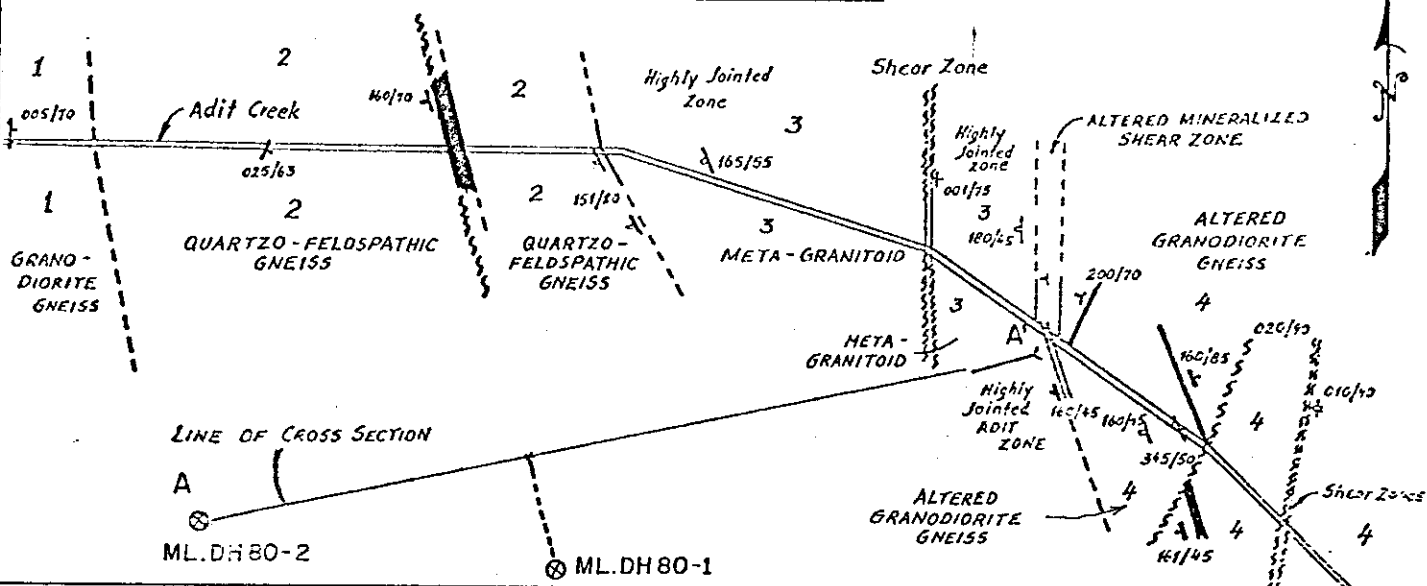
GEOLOGY OF THE ADIT ZONE ON ADIT CREEK: (See Figure 3)

Detailed geological mapping of the Adit Zone along "Adit Creek" at a scale of 1:500 was completed by the authors in late May 1980. The adit is located on the southwest side of "Adit Creek" at an elevation of approximately 850.6 m. The banks of the creek in this area are steep and the adjacent hillsides are heavily forested and contain extensive overburden.

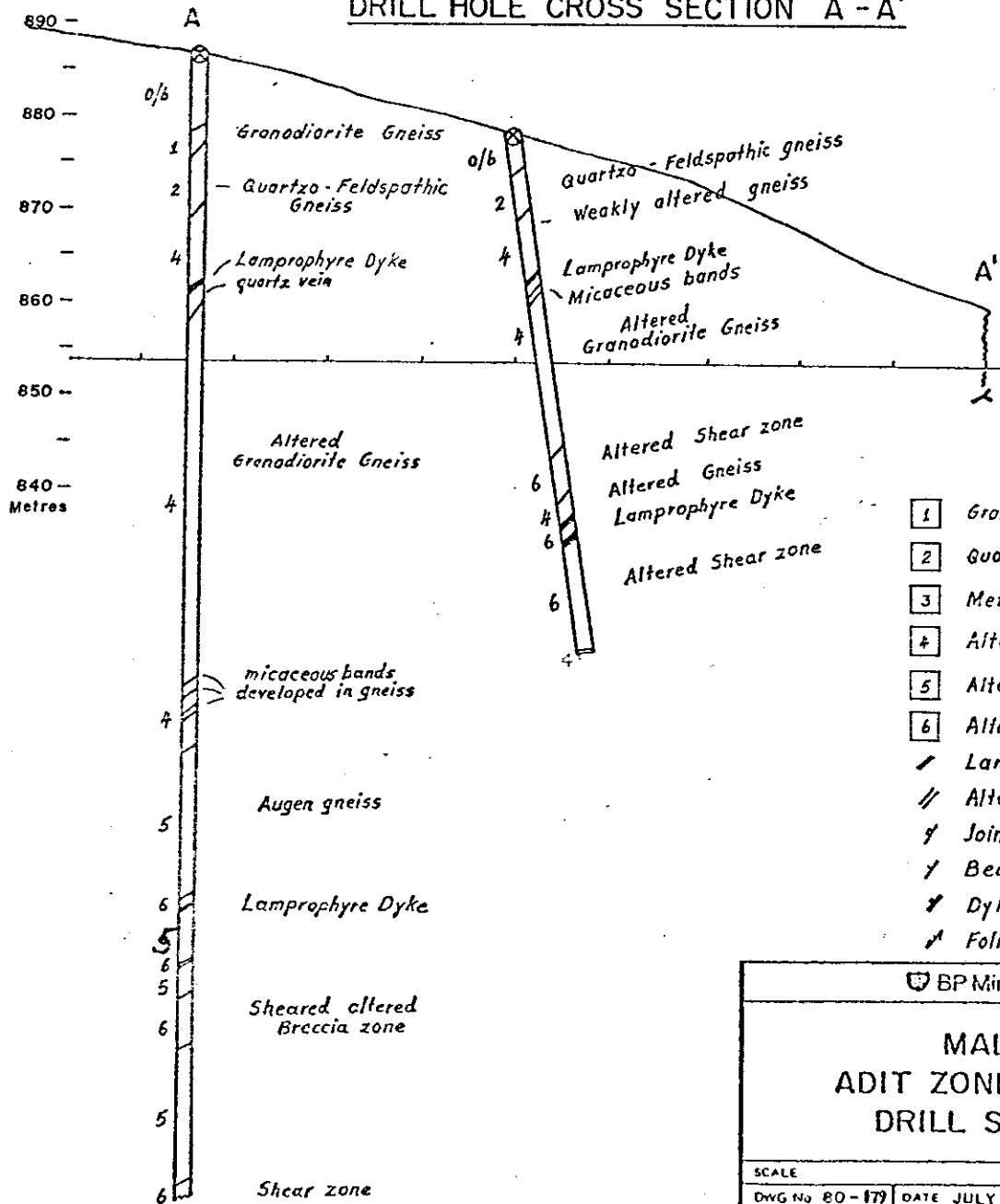
Downstream, below the adit, is extensive outcrop of altered granodiorite gneiss. The gneiss is gray-green in colour, moderately foliated and contains 20% quartz, 40% feldspar, 20% chlorite, 15% sericite, 4% saussurite and 1% opaques. The folia are well marked by chlorite which derives from altered biotite. Feldspars are commonly totally altered to sericite and saussurite. An occasional weak salmon-pink colouration in the gneiss is due to an increase in microcline. The gneiss is moderately well jointed and locally forms bluffs and cliffs along the creek.

The gneiss is intruded by 3 lamprophyre dykes: one just below the adit portal strikes  $160^{\circ}/45^{\circ}$  W and is altered to sericite, saussurite, calcite, and ankerite; another dyke across the creek from the adit is unaltered and strikes  $20^{\circ}/70^{\circ}$  W. A third dyke downstream strikes  $161^{\circ}$  and has been offset by a vertical cross-fault which strikes  $20^{\circ}$ . The lamprophyre dykes are unfoliated

### DRILL HOLE PLAN



### DRILL HOLE CROSS SECTION A - A'



BP Minerals Limited

**MALAKWA  
ADIT ZONE GEOLOGY &  
DRILL SECTIONS**

SCALE	NIS 82 L	Fig. 3
DWG No 80-179	DATE JULY 1980	
To accompany report.		

and have a composition near that of the spessartites.

The adit has been driven 6 m on a bearing of 255°. The initial 1.5 m of the adit cuts a molybdenite, chalcopyrite and pyrite mineralized, altered shear zone and passes into relatively massive metagranitoid rock. The metagranitoid continues 47 m upstream of the adit portal. In outcrop the unit is closely and prominently jointed and weathers to a light orange-brown colouration. Megascopically, the unit resembles a fine-grained to aplitic granite. In thin section the rock has a granoblastic texture with a weak preferred orientation and elongation of quartz and feldspar grains. Quartz comprises 50% of the matrix and occurs as anhedral to subrounded grains exhibiting sutured boundaries, triple point junctions and undulose extinction. The rock contains 35% feldspar as subangular to subrounded grains which are almost totally altered to sericite. Chlorite comprises 10% and biotite 5% of the rock. The unit is thought to have an igneous origin. The evidence of recrystallization, strain features (e.g. undulose extinction) and weak schistosity suggest emplacement during a later stage in the evolution of the metamorphic complex.

The metagranitoid passes insensibly in appearance and composition into quartzo-feldspathic gneiss (impure quartzite) 47 m upstream of the adit. The contact although gradational is apparently conformable. The unit contains 60% quartz, 40% feldspar and trace chlorite, biotite and magnetite. The quartz feldspars and micas are elongated

and oriented to impart a foliation in the unit. In outcrop the unit is moderately well jointed, light gray-brown in colour and contains a few micaceous bands and schistose layers.

Quartzo-feldspathic gneiss is in sharply gradational contact with unaltered granodiorite gneiss 96 m above the adit portal. The granodiorite gneiss is variably but commonly weakly foliated, is light gray in colour and contains 50% feldspar, 30% quartz, 10% biotite, 5% epidote and minor calcite, hornblende and opaques. The unit contains interbeds and layers of quartz-biotite schist.

Foliation in the granodiorite gneiss strikes  $5^{\circ}$ - $20^{\circ}$  and dips  $70^{\circ}$ - $90^{\circ}$  east. Schist interbeds in the quartzo-feldspathic gneiss strike  $25^{\circ}$ - $35^{\circ}$  and dip  $10^{\circ}$ - $60^{\circ}$  southeastward. The contact between metagranitoid and granodiorite gneiss at the adit is obscured by the molybdenite bearing, sericitized shear zone, which strikes northerly across the creek and dips  $20^{\circ}$ - $45^{\circ}$  to the northwest. The metagranitoid is cut by 2 highly jointed but sparsely mineralized zones upstream from the adit; the lower zone strikes north and dips  $75^{\circ}$  east, the upper zone strikes  $165^{\circ}$  and dips  $55^{\circ}$  south-west.

The molybdenite bearing shear zone is 1.2 m wide, occurs wholly within the metagranitoid and is distinguished in part by a prominent creamy-white colouration due to compact sericite and clay. The shear zone contains subrounded



to subangular fragments (augen?) of strained quartz up to 5 mm in diameter and weakly foliated granodiorite gneiss (?) up to 2 cm in diameter. The molybdenite, with trace quantities of fine-grained chalcopyrite, occurs as smears and coatings on shear fractures and as fine to medium-grained flakes and blebs in metagranitoid between shears. Chip samples of visibly mineralized areas of the main shear zone indicate values of molybdenite from 0.01 to 0.4 per cent over narrow intervals.

#### PHYSICAL WORK:

An 0.5 km long "tote trail" was constructed from "Gorge Creek" on Drew Sawmills Branch Road 4000, to the adit on Adit Creek to provide access for a diamond drill. The trail is 3 m wide and follows a steep grade in clay-rich soil for the upper 300 m. The access trail was contracted to MacKay Logging of Merritt, B.C., who completed the work with a Caterpillar D6-C bulldozer during the period May 23rd to 25th. The drill and equipment were skidded behind the Cat to drill site 1 on May 26, to drill site 2 on May 28 and demobilized to B.R. 4000 on June 1, 1980.

All felled fir trees were choked down to B.R. 4000, water bars were erected along the tote trail and all downed timber was bucked and slashed before leaving the property.

DIAMOND DRILLING REPORT:a) Introduction:

The diamond drilling was contracted to Wright Drilling Ltd., of Kamloops, B.C. The drill employed was a Boyles P-25 driving BQ diameter rod. The drill was mobilized and demobilized from Kamloops by truck. Food and accommodation for the drill crew was obtained in Sicamous for the duration of the program.

Drilling in hole MLDH-80-1 commenced May 26 and terminated in caved ground at 56.7 m on May 27, 1980. Drilling in hole MLDH-80-2 commenced May 28 and terminated May 31 at 122.2 m due to caving ground located uphole.

b) Diamond Drill Hole Geology: (See Figure 3)

- i) MLDH-80-1: (56.7 m; Azimuth  $065^{\circ}$ , Decline -  $80^{\circ}$ ; Elevation 878.05 m)

Diamond drill hole MLDH-80-1 was sited southwest of the adit, to intersect the projected downdip extension of the molybdenite bearing shear zone at approximately 40 m. A synopsis of the hole follows:

- 0-3 m : Overburden.
- 3-9 m : Quartzo-Feldspathic Gneiss (quartzite) - gradational contact to:
- 9-34.2 m : Altered Granodiorite Gneiss (quartzose - chloritic gneiss) - includes 16.4 - 17.1 m; Lamprophyre Dyke with sharp contacts @  $52^{\circ}$  t.c.a.

- 34.2-39.4 m : Altered Shear Zone - quartz fragments boudins and aguen.
- 39.4-42 m : Altered Granodiorite Gneiss - highly fractured.
- 42 -42.9 , 43.1-44.5: Lamprophyre Dykes: shear zones at base of dykes, also ankerite alteration of narrow portion of the dykes footwall.
- 42.9-56.5 m : Altered Shear Zone.
- 56.5-56.7 m : Altered Granodiorite Gneiss.

The quartz-feldspathic gneiss is weakly foliated at  $30^{\circ}$  t.c.a. but in part, is well fractured and cut by cross-cutting quartz veinlets at  $10^{\circ}$ - $30^{\circ}$ ,  $70^{\circ}$  and  $90^{\circ}$  t.c.a. Fine-grained disseminated magnetite in quantities up to 4% and trace quantities of visible pyrite, pyrrhotite, chalcopryrite and molybdenite, are associated with microfractures.

Matrix biotite in the granodiorite gneiss is altered to chlorite in variable degree. Foliation is weakly to moderately well developed at  $35^{\circ}$  t.c.a. The gneiss is commonly moderately fractured. Several quartz veins and micro veinlets, with associated minor quantities of pyrite and pyrrhotite and trace amounts of chalcopryrite and molybdenite, occur above 36 m. Pyrite and pyrrhotite also occur as matrix disseminations. Molybdenite occurs as fine-grained films on "dry" fractures in certain quartz veins (as at 10-12 m, 14-16 m, 23m) occurring subparallel to foliation and also as a massive vein in a breccia zone at 11.75 - 11.85 m. The altered shear zone occurs in granodiorite

gneiss which has been deformed and strongly altered to chlorite, sericite and saussurite. Calcite (+ pyrite) and sericite veinlets in certain sections cut the foliation at angles up to  $70^{\circ}$ .

The hole was producing a high rate of flow of water from the top of the shear zone at 34.2 m and washed caved material downhole. The hole could not be stabilized and was abandoned at 56.7 m.

ii) MLDH-80-2: (122.2 m; Vertical, Elevation 887.2 m)

Hole MLDH-80-2 was sited 35 m west and 6 m north of hole 1 to redrill the section. A synopsis of the hole follows:

0-7.6 m	:	Overburden
7.6-9.45 m	:	Pebbles of granodiorite gneiss; 5% recovery.
9.45-9.80 m	:	Granodiorite Gneiss; sheared contact with -
9.8-17.5 m	:	Quartzo-Feldspathic Gneiss (impure quartzite), cut by an "aplite" (now lamprophyre) dyke 13.3-13.6 m @ $80^{\circ}$ t.c.a.
17.5-64 m	:	Altered Granodiorite Gneiss including: 24.6-25.4: Lamprophyre Dyke @ $90^{\circ}$ to foliation - sharp contacts with ankerite alteration of dyke on footwall. 25.45-28.6 m: Massive white quartz-magnetite vein on foliation containing internal veinlets of pyrite.
64-74 m	:	Transition Zone - Pink Granodiorite (Monzonite) with interbands of Quartz-Mica Schist.

- 74-119.45 m : Altered Augen Gneiss including:  
89.5-90 m; Altered Shear Zone with  
narrow lamprophyre dyke containing  
pyrite.
- : 97-97.2, 101.1-106, 114.63-115.9m -  
Altered Shear Zones.
- 119.45-122.2 m : Altered Shear Zone.

The Granodiorite Gneiss at the top of the hole is not appreciably altered. The contact with underlying quartzo-feldspathic gneiss is marked by a narrow chlorite-mica rich shear zone.

The Quartzo-Feldspathic Gneiss contains numerous fine laminations of biotite and sericite which highlight a foliation at  $25^{\circ}$  t.c.a. The unit does not exhibit the quartz veining noted in hole 1. An "aplitic" dyke noted at 13.3 m was examined in thin section. The dyke is a spessartite altered to ankerite and contains minute quantities of disseminated fine-grained pyrite.

The Altered Granodiorite Gneiss exhibits weak to moderate alteration of biotite to chlorite and of feldspars to saussurite. The unit is weakly foliated at  $50^{\circ}$  t.c.a. except in more micaceous zones which are markedly schistose. Widely spaced quartz veins containing minor quantities of pyrite, pyrrhotite or molybdenite are found subparallel to and cross-cutting the foliation.

A large, massive quartz-magnetite vein, from 25.45-28.6 m parallels the foliation and contains veinlets of pyrite. The gneiss is cut at  $90^{\circ}$  to the foliation, by a Lamprophyre Dyke from 24.6-25.4 m. Contacts with the

gneiss are sharp and the footwall of the dyke is altered to ankerite.

The Transition Zone encountered from 64-74 m is marked by a gradual increase in k-feldspar, chlorite and saussurite content and by the presence of numerous inter-bands of quartz-mica schist. The granodiorite gneiss in this zone becomes increasingly cataclastic and augens of quartz, feldspar and chlorite are present. The contact with augen gneiss is broadly gradational.

The Augen Gneiss is medium salmon pink in colour; reflecting a higher k-feldspar content than in the granodiorite gneiss. The augens are well developed, phacoidal crystals of quartz and saussuritized feldspars, outlined by numerous shear zones which are intensively altered to sericite and saussurite. The lower shear zone contains fragments of altered gneiss, quartz and feldspar in a friable matrix of sericite and clay and finely disseminated pyrite. Minor disseminated pyrite occurs throughout the unit but is more abundant in sheared zones. Very few quartz veins occur in the unit.

The MLDH-80-2 produced copious quantities of water at approximately 114 m which washed caving ground downhole. The hole could not be stabilized and was terminated at 122.2 m, due to caving ground uphole.

RESULTS: (See Table 1 and 2)

- 1) Drilling completed in holes MLDH-80-1 and 2 substantially confirms the downdip persistence of gross lithology exposed in Adit Creek. A noticeable thickening of the quartzo-feldspathic and granodiorite gneiss in hole 2 as compared to hole 1, suggests that the units dip and thicken towards the west.
- 2) The metagranotoid unit explored in the adit zone was not intersected in the drilling and this fact may confirm its dyke-like nature. Alteration and a weak foliation in the unit suggests the rock was emplaced at a late stage in the evolution of the Shuswap terrain. The metagranotoid may be related to granitic dykes of the Silver Star intrusion (c.f. Jones).
- 3) The extensive, altered shear zone toward the bottom of hole 1, subparallels foliation in the gneiss. The shear zone intersected in hole 2 is not as wide. The presence of augen gneiss at approximately the expected level (assuming a  $30^{\circ}$  dip on the shear zone in hole 1) may indicate the zone of shearing, which is locally dissipated in small scale, braided disruptions of the unit.
- 4) An overall increase in the degree of metamorphism is noted with depth in both holes.

TABLE 1  
GEOCHEMICAL ANALYSES OF DIAMOND DRILL CORE  
ML.D.H.80-1

METRIC INTERVAL (m)	ASSAY TAG #	SAMPLE LENGTH (m)	TRACE ELEMENT ANALYSES (ppm)							
			Mo	Cu	Pb	Zn	Ag	F	W	
3.84-6	579320	2.16	33	60	10	16	0.2	365	0	
6-6.25, 6.5-9	579321	2.75	95	76	4	12	0.2	345	0	
6.25-6.5	579324	0.25	30	282	2	30	0.4	315	0	
9-11.75, 11.85-12	579322	2.9	176	190	2	28	0.4	510	0	
11.75-11.85	579325	0.1	1150	84	18	20	0.2	500	0	
12-15	579323	3.0	148	496	2	24	0.4	460	0	
15-16.5, 17.1-18	579326	2.4	18	302	4	28	0.4	550	0	
16.5-17.1	579327	0.6	2	32	4	84	0.2	1300	0	
18-21	579328	3.0	2	320	10	24	0.4	630	0	
21-24	579329	3.0	18	326	2	24	0.2	820	0	
24-24.5, 24.7-27	579330	2.8	5	270	2	18	0.2	720	0	
24.5-24.7	579333	0.3	8	580	8	16	0.2	1100	1600	
27-30	579331	3.0	2	370	2	20	0.4	720	0	
30-31.5, 32-33	579332	2.5	3	264	2	26	0.2	700	0	
31.5-32	579334	0.5	11	146	2	38	0.2	660	0	
33-36	579335	3.0	2	220	2	28	0.2	670	2	
36-39	579336	3.0	3	118	2	32	0.2	960	0	
39-40.8, 40.95-42	579337	2.85	48	64	2	34	0.2	700	0	
40.8-40.95	579339	0.15	6	780	14	60	0.6	450	0	
42-42.75, 43-45	579338	2.75	2	24	6	84	0.2	1300	0	
42.75-43	579340	0.25	2	22	6	46	0.2	900	0	
45-45.3, 45.6-46.9, 46.3-48	579341	3.30	8	66	12	24	0.2	940	0	
45.3-45.6	579342	0.30	3	232	6	20	0.4	1100	0	
46-46.3	579343	0.30	44	98	4	32	0.2	620	0	
48-51	579344	3.00	7	36	8	18	0.2	880	0	
51-54	579345	3.00	23	52	8	20	0.2	800	0	
54-55.1, 55.45-56.71	579346	2.36	24	36	8	24	0.2	980	0	
55.1-55.45	579347	0.35	2	28	8	20	0.2	1250	0	



5) The lamprophyre dykes are little altered and definitely postdate the Shuswap metamorphic complex. They intrude along younger, northwest trending structures, which cross-cut foliation in the gneiss.

6) The assay of core, including selective assay of narrow intervals over dykes, veins and structure are presented for hole 1 in Table 1 and for hole 2 in Table 2.

The quartzo-feldspathic gneiss and the upper zone of granodiorite gneiss down to 15 m contain enhanced but subeconomic values of Mo and Cu. The interval 11.75-11.85 m. covers a breccia zone healed by molybdenite, quartz and chlorite veinlets and returned a value of 11.50 ppm Mo. Enhanced values of Mo and Cu in this upper zone are attributed to cross-cutting quartz veins and microveinlets and to shear fractures containing visible molybdenite, pyrite, pyrrhotite and chalcopyrite. The interval from 15-36 m is enhanced in Cu, which is attributed to chalcopyrite occurring with pyrite in quartz veins and as disseminations in shears and in altered zones. The 1600 ppm W value in the interval 24.5-24.7 m is associated with a very high sulphide content in a chloritic shear zone.

Lamprophyre dykes in holes 1 and 2 are characterized by low trace metal content and relatively high levels of fluorine.

TABLE 2

## GEOCHEMICAL ANALYSES OF DIAMOND DRILL CORE

ML.D.H.80-2

METRIC INTERVAL (m)	ASSAY TAG #	SAMPLE LENGTH (m)	TRACE ELEMENT ANALYSES (ppm)						
			Mo	Cu	Pb	Zn	Ag	F	W
8.9-9,9.6-10.8,11.1-11.8	579348	2.0	2	40	2	44	0.2	630	0
9-9.6	579349	0.60	7	22	2	54	0.2	1000	0
10.8-11.1	579350	0.30	2	6	2	130	0.2	1050	0
11.8-12.3	579351	0.50	6	24	2	12	0.2	500	0
12.3-13,14-15	579352	1.70	21	74	2	4	0.2	400	0
13-14	579353	1.00	2	16	2	8	0.2	370	0
15-17.5	579354	2.50	3	34	2	12	0.2	660	0
17.5-18.2	579355	0.70	4	90	4	42	0.4	960	2
18.2-21	579356	2.80	6	30	2	10	0.2	740	0
21-24	579357	3.00	6	72	2	30	0.2	930	2
24-24.5	579358	2.50	10	92	2	52	0.2	900	2
24.5-24.6,25.3-25.5	579359	0.30	2	262	4	40	0.4	1100	2
24.6-25.3	579360	0.70	1	30	4	84	0.2	1050	0
25.5-28.6	579361	3.10	1	1400	2	32	1.2	160	0
28.6-30	579362	1.40	5	74	16	42	0.2	500	0
30-33	579363	3.0	11	64	2	18	0.2	360	0
33-35,35.3-36	579364	2.7	7	34	2	16	0.2	390	0
35-35.3	579365	0.3	14	620	6	20	0.8	200	0
36-39	579366	3.0	27	76	2	16	0.2	300	0
39-42	579367	3.0	6	80	2	14	0.2	380	0
42-45	579368	3.0	37	34	2	14	0.2	350	0
45-48	579369	3.0	3	30	2		0.2	540	2
48-50.9	579370	2.9	47	50	2		0.2	550	2
50.9-51.2	579392	0.3	53	52	2		0.2	375	0
51.2-54	579371	2.8	11	72	2		0.2	640	5
54-57	579372	3.0	5	112	2		0.2	640	10
57-60	579373	3.0	2	90	2		0.2	860	0
60-63	579374	3.0	3	124	2		0.2	1000	2
63-66	579375	3.0	2	18	2		0.2	810	0
66-69	579376	3.0	2	12	2		0.2	810	10
69-70,70.6-72	579377	2.4	4	16	2		0.2	1000	15
70-70.6	579378	0.6	3	30	2		0.2	950	0

ML.D.H.80-2 - Continued

METRIC INTERVAL (m)	ASSAY TAG #	SAMPLE LENGTH (m)	TRACE ELEMENT ANALYSES (ppm)						
			Mo	Cu	Pb	Zn	Ag	F	W
72-75	579380	3.0	21	118	2		0.2	940	0
76-77	579379	1.0	3	8	4		0.2	800	0
75-76,77-78	579381	2.0	4	14	4		0.2	970	0
78-81	579382	3.0	2	38	4		0.2	960	0
81-84	579383	3.0	2	22	4		0.2	880	15
84-87	579384	3.0	3	24	2		0.2	930	0
87-89.6	579385	2.6	4	28	2		0.2	730	0
89.6-90.1	579386	0.5	6	22	8		0.2	1000	0
90.1-93	579387	2.9	3	14	4		0.2	850	2
93-95	579388	2.0	2	12	4		0.2	1050	0
95-96	579389	1.0	2	32	2		0.2	830	0
96-97,98-99	579390	2.0	1	44	2		0.2	940	0
97-98	579391	1.0	1	10	4		0.2	770	0
99-100,101-101.5	579393	1.5	8	10	2		0.2	760	0
100-101	579394	1.0	1	18	4		0.2	1200	0
101.5-102	579395	0.5	1	24	8		0.2	1100	0
102-106	579396	4.0	2	20	8		0.2	1350	0
106-108	579397	2.0	1	22	2		0.2	660	0
108-111	579398	3.0	1	30	2		0.2	760	0
111-114	579399	3.0	1	148	2		0.2	840	0
114-114.1,114.4-116	579400	1.7	1	20	2		0.2	740	0
114.1-114.4	579406	0.3	1	316	4		0.4	870	0
116-119	579401	3.0	2	20	2		0.2	800	0
119-119.6	579402	0.6	1	20	2		0.2	730	0
119.6-120.65	579403	1.05	2	72	2		0.2	800	0
120.65-121.2	579404	0.55	2	44	18		0.2	850	0
121.2-122.26	579405	1.06	1	28	6		0.2	1050	0

Assay values for Mo in hole 2 are of lower tenor than in hole 1. Somewhat higher values from 35-39 m and from 48-54 find a source in quartz veins containing visible molybdenite and pyrite. The massive quartz-magnetite vein at 25.5-28.6 m contains 1400 ppm Cu and 1.4 ppm Ag. Other high Cu values as at 35-35.3 m and 114.1-114.4 are directly attributable to visible sulphides in quartz veins and in pyrite veinlets healing an altered fractured zone.

CONCLUSIONS:

The 1980 diamond drilling program successfully cored the geological section exposed in "Adit Creek". The metagranitoid explored by the adit was not intersected in either drill hole, although its indicated stratigraphic position (between quartzo-feldspathic and altered granodiorite gneiss) was cored. Shear zones occurring in the lower portions of both holes are thought to represent the locally unmineralized downdip continuation of the mineralized shear zone in "Adit Creek".

Assay values confirm the presence of subeconomic Cu-Mo sulphides occurring in cross-cutting quartz veins and structures parallel to and cross-cutting foliation in the gneiss complex.

The lamprophyre dykes are not a widespread phenomenon in the Vernon mapsheet. They may represent a local end member of an as yet undiscovered and relatively young "granitic" source, for sulphides in quartz veins cutting the gneiss.

Additional geological mapping and geochemical sampling are recommended on the claim, in search of a postmetamorphic intrusive source for economic sulphides indicated in the adit zone.

APPENDIX 1

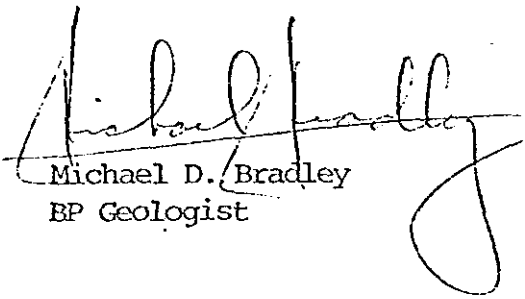
STATEMENTS OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Michael D. Bradley of #1007-1111 West Hastings Street, in Vancouver, in the Province of British Columbia, Do Hereby State:

1. That I am a graduate of the University of British Columbia, Vancouver, B.C., where I obtained a B.Sc. degree in Physics-Geology in 1973.
2. That I obtained an M.Sc. degree in 1975 from Scripps Institute of Oceanography, La Jolla, California.
3. That I am a member in good standing of The Canadian Institute of Mining and Metallurgy and the Prospectors and Developers Association.
4. That I have been active in mineral exploration since 1968.
5. That I have practiced my profession continuously as a staff geologist for BP Minerals Limited, since 1975

Vancouver, B.C.

  
Michael D. Bradley  
BP Geologist

STATEMENT OF QUALIFICATIONS

I, Ernie E. Meszaros, of 749 Scenic Drive, Hamilton,  
in the Province of Ontario, do hereby state that:

- 1) I obtained a B.Sc. degree in Geology  
from McMaster University, Ontario in  
May, 1980.
- 2) I have been active in exploration as  
a geological assistant during the  
summers of 1977, 1978 and 1979.

E. Meszaros

July 30, 1980, Vancouver, B.C.



APPENDIX 2

STATEMENT OF COSTS

STATEMENT OF COSTS  
FOR THE MAL CLAIMS - 1980

1. Contractors:

a) Diamond Drilling (Wright Drilling Ltd.)

i) Coring: Hole ML.D.H.80-1:176'  
Hole ML.D.H.80-2:371'  
547' @ \$15.50/ft = \$8479.00

ii) Overburden and Caving Ground:

Casing: Hole ML.D.H.80-1: 10'  
Hole ML.D.H.80-2: 25'  
35' @ \$16.00/ft = \$ 560.00

Labour: 14 hrs @ \$16.50 \$ 231.00

Equipment: Drill - 7 hrs @ \$18.00/hr \$ 126.00  
Truck - 7 hrs @ \$ 6.00/hr \$ 42.00

iii) Mobilization: (Kamloops-Malakwa, B.C.)

Labour: 32 hrs @ \$16.50 \$ 528.00  
4 x 4 truck: 4 hrs @ \$6.00 \$ 24.00  
Gasoline: \$181.20 \$ 181.00

iv) Demobilization:

Labour: 40 hrs @ \$16.50 \$ 660.00  
4 ton truck: 116 mi. @ \$2.60/mi. \$ 302.00  
4 x 4 truck: 116 mi. @ \$1.00 \$ 116.00  
Fuel \$ 112.00

v) Setup and Moves on ML.D.H.80-1, 2:

Labour: 52 hrs @ \$16.50 \$ 858.00  
Travel Time: 20 hrs @ \$16.50 \$ 330.00  
Drill: 12 hrs @ \$18.00/hr \$ 216.00  
Truck: 12 hrs @ \$6.00/hr \$ 72.00

vi) Equipment Lost or Damaged Downhole:

25% of 100 Series Bit @ \$340.77 \$ 85.00  
25% of Reaming Shell @ \$364.00 \$ 91.00  
25% of Outer Barrel @ \$128.86 \$ 32.00

1 B.W. Casing Shoe	\$ 135.00
15% overhead on \$343.00	\$ 51.00
1 B.W. Drill Rod	\$ 70.00
Kutwell Oil (separate billing)	\$ 117.00

vii) Core Boxes:

25 boxes @ \$4.32/box	\$ 108.00
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viii) Meals:

4 drillers for 7 days	\$ 383.00
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ix) Accommodation: (separate billing)

8 days in 2 rooms	\$ 353.00
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Total Diamond Drilling Costs	<u>\$14,154.00</u>
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b) Tote Trail Construction: (MacKay Logging)

i) D6-C Caterpillar: 42 hrs @ \$45.00/hr	\$1890.00
ii) Lowbed Mobilization:	\$ 100.00
iii) Meals:	\$ 16.00
iv) Gas:	\$ 40.00
v) Chokers damaged:	\$ 45.00

Total Invoices	<u>\$2,091.00</u>
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2. Labour:- BP Personnel

M. Bradley - Project Geologist (May 17-June 3) 18 days @ \$126/day	\$2268.00
E. Meszaros - Property Geologist (May 17-June 3) 18 days @ \$83/day	\$1494.00

B. McCarthy - Technician (May 17-June 5)		
20 days @ \$53/day		\$1060.00
		<hr/>
Total Labour		\$4,822.00
		<hr/>
3. <u>Travel and Subsistence:</u>		
19 days accommodation for a BP crew of 3 in 2 motel rooms		\$ 713.00
Meals for BP Crew		\$ 762.00
Groceries		\$ 125.00
		<hr/>
Total Travel and Subsistence		\$1,600.00
		<hr/>
4. <u>Materials and Supplies:(Consumables)</u>		
Gas for 4 x 4 truck rental		\$ 148.60
Gas and Oil for chain saw		\$ 10.52
1 sheet plywood		\$ 9.68
Drill Log Photocopies		\$ 14.75
Postage		\$ 10.38
11 canvas bags		\$ 40.15
		<hr/>
Total Materials and Supplies		\$ 234.00
		<hr/>
5. <u>Truck Rental:</u>		
3 weeks @ \$762.00/month		\$ 572.00
6. <u>Drill Core Sample Assay:(Rossbacker Laboratory Ltd.)</u>		
87 core samples for Mo, Cu, Pb, Ag, W, F		
Mo, Cu, Pb, Ag (\$1.50 for first element + \$.50/element additional) = \$3.00/sample		

W	\$3.00/sample
F	\$3.50/sample
Sample Preparation	\$2.25/sample

87 samples @ \$11.75/sample	<u>\$1,022.00</u>
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7. <u>Report Preparation:</u>	<u>\$ 500.00</u>
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TOTAL COST	<u><u>\$24,995.00</u></u>
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MOBILIZATION

30 HRS @ \$16.50	\$495.00 ✓	
TRUCK RENTAL		
PICKUP 4 HRS @ \$6.00	24.00 ✓	
GAS	181.20 ✓	
BOARDING SLOOP	32.00 ✓	\$732.20

MOVE IN + SET UP

LABOR 24 HRS @ \$16.50	396.00 ✓	
EQUIP 5 HRS @ 18.00	90.00 ✓	
TRUCK 5 HRS @ 6.00	30.00 ✓	\$516.00

DRILLING HOLE ML-DH 80-1

CASING 0-10'-10' @ 16.00	\$160.00 ✓	
REAMING		
LABOR 4 HRS @ \$16.50	66.00 ✓	
EQUIP 2 HRS @ 18.00	36.00 ✓	
TRUCK 2 HRS @ 6.00	12.00 ✓	
CORING 10-186-176' @ \$15.50	2,728.00 ✓	\$3,002.00

MOVING TO HOLE ML-DH 80-2

LABOR 28 HRS @ 16.50 ✓	\$462.00 ✓	
EQUIP 7 HRS @ 18.00	126.00 ✓	
TRUCK 7 HRS @ 6.00	42.00 ✓	\$630.00

DRILLING HOLE ML-DH 80-2

CASING 0-25-25' @ 16.00	400.00	
25' OVER		
LABOR 4 HRS @ 16.50	66.00	
EQUIP 2 HRS @ 18.00	36.00	
TRUCK 2 HRS @ 6.00 ✓	12.00	
1 B.W CASING SHOE	135.20	
15% OF \$35.20	5.28	
CORING 30-401-371' @ 15.50	\$5,750.50	\$6,419.98
REAMING THROUGH CASING GROUND		
LABOR 6 HRS @ \$16.50 ✓	99.00	
EQUIP 3 HRS @ 18.00 ✓	54.00	
TRUCK 3 HRS @ 6.00 ✓	18.00	
25% OF 100 SFRITS BIT @ \$40.77	85.19	
25% REAMING SHOE @ \$364.00	91.00	
25% OUTER BARREL @ 128 \$6	32.22	
15% OF 208.41	31.26	\$410.67

TRAVEL TIME 20 HRS @ 16.50

		\$330.00
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TEAR DOWN AND MOVE OUT

LABOR 40 HRS @ \$16.50	660.00	
TRUCK 4 TON 116 MILES @ 2.60	301.60	
PICKUP 116 MILES @ 1.00	116.00	\$1,077.60

MEALS

383.05  
112

FUEL

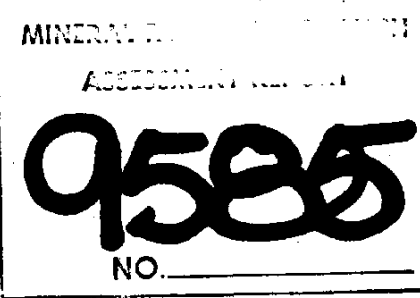
1 B W DRILL ROD

70

\$13,685.15

APPENDIX 3

DRILL CORE ASSAY RESULTS



90165-2

# GEOCHEMICAL LABORATORY REPORT

LABORATORY: Rossbacher labs

REPORT No. ....

DATE: June 4/80

BP MINERALS LIMITED  
TORONTO ONT.

PAGE 2 OF 4

SAMPLE	YEAR				PROJECT NO.				DUPL	I.D. SAMPLE						CARD	# Mo					CU					PB					Co		Zn		Ni Ag					S P					W					REMARKS									
	1	2	3	4	5	6	7	8		9	10	11	12	13	14		15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48		49	50	51						
1	8	7	8	0	5	1	9			579320	2			3	3							6	0				1	0							0		2				3	6	5																	
2	8	7	8	0	5	1	9			579321	2			9	5							7	6					4								0		2				3	4	5																
3	8	7	8	0	5	1	9			579322	2			1	7	6						1	9	0				2								0		4				5	1	0																
4	8	7	8	0	5	1	9			579323	2			1	4	8						4	9	6				2								0		4				4	6	0																
5	8	7	8	0	5	1	9			579324	2				3	0						2	9	2				2								0		4				3	1	5																
6	8	7	8	0	5	1	9			579325	2			1	1	5	0						8	4				1	8							0		2				5	0	0																
7	8	7	8	0	5	1	9			579326	2				1	8						3	0	2				4								0		4				5	5	0																
8	8	7	8	0	5	1	9			579327	2				2							3	2					4								0		2			1	3	0	0																
9	8	7	8	0	5	1	9			579328	2				2							3	2	0				1	0							0		4				6	3	0																
0	8	7	8	0	5	1	9			579329	2				1	8						3	2	6				2								0		2				8	2	0																
1	8	7	8	0	5	1	9			579330	2				5							2	7	0				2								0		2				7	2	0																
2	8	7	8	0	5	1	9			579331	2				2							3	7	0				2								0		4				7	2	0																
3	8	7	8	0	5	1	9			579332	2				3							2	6	4				2								0		2				7	0	0																
4	8	7	8	0	5	1	9			579333	2				8							5	8	0				8								0		2				1	1	0	0				1	6	0									
5	8	7	8	0	5	1	9			579334	2				1	1						1	4	6				2								0		2				1	6	0																
6	8	7	8	0	5	1	9			579335	2				2							2	2	0				2								0		2				6	7	0																
7	8	7	8	0	5	1	9			579336	2				3							1	1	8				2								0		2				9	6	0																
8	8	7	8	0	5	1	9			579337	2				4	8							6	4				2								0		2				7	0	0																
9	8	7	8	0	5	1	9			579338	2				2								2	4				6								0		2				1	3	0	0															
0	8	7	8	0	5	1	9			579339	2				6								7	8	0				1	4							0		6				4	5	0															

ALL VALUES ARE REPORTED IN PARTS PER MILLION UNLESS SPECIFIED OTHERWISE. ALL VALUES ARE BELIEVED TO BE CORRECT TO THE BEST KNOWLEDGE OF THE ANALYST BASED ON THE METHOD AND INSTRUMENTS USED.



# GEOCHEMICAL LABORATORY REPORT

LABORATORY: Rossbacher Labs

REPORT No. \_\_\_\_\_

DATE: June 4/80

BP MINERALS LIMITED  
TORONTO ONT.



PAGE 3 OF 4

SAMPLE	YEAR				PROJECT NO.			DUPL	I.D.	SAMPLE	CARD	# Mo					CU					PB					Co Zn					Ni Ag					SPT					W					REMARKS																									
	1	2	3	4	5	6	7					8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42		43	44	45	46	47	48	49	50	51																
1	8	7	8	0	5	1	9			579340	2						2						2						6						4						0						2						9						0						0							
2										579341	2					8							6						1						2						0						2						9						0													
3										579342	2					3							2												4						0						2						9						0													
4										579343	2					4							8												4						0						2						1						0													
5										579344	2					7							6												2						0						2						6						2													
6										579345	2					2							5												2						0						2						8						0													
7										579346	2					3							6												2						0						2						8						0													
8										579347	2					4							8												2						0						2						9						0													
9										579348	2					2							8												2						0						2						1						2						5						0	
0										579349	2					7							4												2						0						2						6						3						0							
1										579350	2					2							2												2						0						2						1						0						0							
2										579351	2					6							4												2						0						2						1						0						5						0	
3										579352	2					2							7												2						0						2						5						0													
4										579353	2					1							4												2						0						2						4						0													
5										579354	2					2							6												2						0						2						3						7						0							
6										579355	2					3							4												2						0						2						6						6						0							
7										579356	2					4							9												2						0						4						9						6						0							
8										579357	2					6							3												2						0						2						7						4						0							
9										579358	2					1							0												2						0						2						9						3						0							
0										579359	2					2							2												2						0						2						9						0													
1										579360	2					2							2												2						0						4						1						1						0							

# GEOCHEMICAL LABORATORY REPORT

LABORATORY: Rosbacher Labs.

REPORT No. ....

DATE: June 4/80

BP MINERALS LIMITED  
TORONTO ONT.



PAGE 4 OF 4

SAMPLE	YEAR				PROJECT NO.			DUPL	I.D. SAMPLE							CARD	Mo					CU					PB					Zn					Ag					S.F.					W					REMARKS				
	1	2	3	4	5	6	7		8	9	10	11	12	13	14		15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49		50	51		
1	8	7	8	0	5	1	9			5	7	9	3	6	0	2					1					3	0					4					8	4			0		2					1	0	5	0					0
2										5	7	9	3	6	1	2					1		1	4	0	0					2					3	2			1		2					1	6	0					0		
3										5	7	9	3	6	2	2					5					7	4			1	6						4	2			0		2					5	0	0					0	
4										5	7	9	3	6	3	2					1					6	4					2					1	8			0		2					3	6	0					0	
5										5	7	9	3	6	4	2					7					3	4					2					1	6			0		2					3	9	0					0	
6										5	7	9	3	6	5	2					1		6	2	0					6					2	6			0		8					2	0	0					0			
7										5	7	9	3	6	6	2					2					7	6					2					1	6			0		2					3	0	0					0	
8										5	7	9	3	6	7	2					6					8	0					2					1	4			0		2					3	0	0					0	
9										5	7	9	3	6	8	2					3					7	4					2					1	4			0		2					3	5	0					0	
0										5						2																																								

ALL VALUES ARE REPORTED IN PARTS PER MILLION UNLESS SPECIFIED OTHERWISE. ALL VALUES ARE BELIEVED TO BE CORRECT TO THE BEST KNOWLEDGE OF THE ANALYST BASED ON THE METHOD AND INSTRUMENTS USED.

# GEOCHEMICAL LABORATORY REPORT

LABORATORY: Rosbacher Labs

Keppeler's: REPORT No. ....  
note: column interval.

DATE: JUNE 10/80

BP MINERALS LIMITED  
TORONTO ONT.



PAGE 1 OF 2

SAMPLE	YEAR				PROJECT NO.				DUPL.	I.D.	SAMPLE					CARD	Mo					CU					PB					Zn					Ag					S F					W					REMARKS			
	1	2	3	4	5	6	7	8			9	10	11	12	13		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48		49	50	51
1	8	7	8	0	5	1	9			579369						2					3					3	0					2						0	.	2						5	4	0					2		
2										579370					2					4	7					5	0					2						0	.	2						5	5	0					2		
3										579371					2					1	1					7	2					2						0	.	2						6	4	0					5		
4										579372					2					.	5					1	1	2					2						0	.	2						6	4	0					1	0
5										579373					2						2					9	0					2						0	.	2						8	6	0					0		
6										579374					2						3					1	2	4					2						0	.	2						6	0	0					2	
7										579375					2						2					1	8					2						0	.	2						8	0	0					0		
8										579376					2						2					1	2					2						0	.	2						8	0	0					1	0	
9										579377					2						4					1	6					2						0	.	2						1	0	0	0					1	5
10										579378					2						3					3	0					2						0	.	2						2	5	0					0		
11										579379					2						3						8					4						0	.	2						6	5	0					0		
12										579380					2					2	1					1	1	8					2						0	.	2						4	4	0					0	
13										579381					2						4					1	4					4						0	.	2						7	7	0					0		
14										579382					2						2					3	8					4						0	.	2						2	6	0					0		
15										579383					2						2					2	2					4						0	.	2						2	2	0					1	5	
16										579384					2						3					2	4					2						0	.	2						4	3	0					0		
17										579385					2						4					2	8					2						0	.	2						7	3	0					0		
18										579386					2						6					2	2					8						0	.	2						1	3	0	0					0	
19										579387					2						3					1	4					4						0	.	2						8	5	0					0		
20										579388					2						2					1	2					4						0	.	2						1	5	0					0		

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# GEOCHEMICAL LABORATORY REPORT

LABORATORY: Pearshocher Labs

REPORT No. ....

DATE: JUNE 14/80

BP MINERALS LIMITED  
TORONTO ONT.



PAGE 2 OF 2

SAMPLE	YEAR				PROJECT NO.			DUPL	I.D.	SAMPLE	CARD	Mo					CU					PB					Zn					Ag					S F					W					REMARKS							
	1	2	3	4	5	6	7					8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42		43	44	45	46	47	48	49
1	8	7	8	0	5	1	9			579389	2																																											
2										579390	2																																											
3										579391	2																																											
4										579392	2										5	3																																
5										579393	2											8																																
6										579394	2											1																																
7										579395	2												1																															
8										579396	2												2																															
9										579397	2																																											
10										579398	2																																											
11										579399	2													1	4	8																												
12										579400	2																																											
13										579401	2													2																														
14										579402	2																																											
15										579403	2																																											
16										579404	2													2			4	4																										
17										579405	2																																											
18	✓	✓			✓					579406	2																																											
19											2																																											
20											2																																											

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APPENDIX 4

GEOLOGICAL LOGS for  
DIAMOND DRILL HOLES

ML.D.H. 80-1, 2.

(in pockets)



Overburden 0-4 m		CO-ORDINATES		NORTH		EAST		ELEVATION		SHEET NO.	
LOCATION MAI CIATMS								878.05 m		1	7
DATE STARTED		DATE COMPLETED		SURVEYS		HOLE SIZE		TOTAL DEPTH		HOLE NO. MLDH	
May 26, 1980		May 27, 1980		Az. 065° -80°		BQ		56.7 m		80-1	
DEPTH		CORE		LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE				
From	To	Length	%Rec				F	V/Ft	F/Ft	Groph Log	
4 m	6 m	2 m	97%	Quartzite: Greenish white impure cryptocrystalline qtzite. The quartzite is well fractured in places, and crosscut by numerous qtz veins. Veins are oriented 20-70° to c.a. These veins exhibit a small alteration halo. In places the rock becomes quite fractured, with qtz and chlorite veins being quite dominant. In places the qtz takes on a more pinkish hue.	- little alteration - recrystallization of qtz grains - cross-cutting qtz veins.	Pyrite, chalcopyrite, magnetite, trace moly. - generally found along microfractures in Qzite. Pyrite .5% Moly - trace cpy - trace Magnetite - .1%	40				20
6 m	8 m	2 m	95%	Quartzite: as above. Well fractured, and crosscut by qtz veins, at 10, 20, 30, 70, 90°. Sericite development is observed near the qtz veins. A faint foliation in the quartzite is observable at 30° to c.a.?	- as above	as above	10				15
8 m	10 m	2 m	98%	Quartzite: as above. Here chlorite content becomes more dominant with chlorite present as distinct porphyroblasts, but also as thin wisps. The chlorite is found at 30-70° to c.a. At 8.2 m a sericite-muscovite zone exists at 20° to c.a. Some veins, and shear-zones? show signs of brecciation with angular fragments of qtz and/or chlorite.	As above	Fracture related? blebs of po, py, mag, moly. po - trace py - .5% moly - trace Magn. - 2%	60	>25			
10 m	12 m	2 m	98%	Quartzose Gneiss - as above, but now with chlorite becoming quite dominant. Microfractures are still present at various angles. Fractures often crosscut one another. There is a weak foliation at 30° t.c.a. Some fractures are qtz filled, others are suspected shear planes with muscovite development along them. Some qtz veins do contain sulphides, others not. Some veinlets of moly observed at 20, 40° t.c.a. At 11.8 m a brecciated zone containing moly, qtz, chlorite is observed at 40° t.c.a. In addition to finding sulphides and moly in the veins, some grains finely disseminated in the rock itself exist. A calcite vein exists at 11.4 m at 40°	chloritization of Biotite grains microfracturing and qtz veining quite evident. Shearing, generally at 30-70° to c.a.	Mineralization in veinlets and disseminated in the rock. Veinlets Dissem py .5% .1% moly .5% trace cpy trace .5% po trace trace	30			15	20
											40

9585

LOCATION		MAL CLAIMS		CO-ORDINATES		NORTH		EAST		ELEVATION		SHEET NO.	
												2	7
DATE STARTED		DATE COMPLETED		SURVEYS						HOLE SIZE	TOTAL DEPTH	HOLE NO.	
May 26, 1980		May 27, 1980										D.D.H.	
DEPTH		CORE		LITHOLOGY		ALTERATION		MINERALIZATION		STRUCTURE			Graph Log
From	To	Length	%Rec							F	V/FI	F/FI	Log
12 m	14 m	2 m	95%	Quartzose Gneiss - as above. Weakly foliated. The chlorite present is a ter Biotite. A fracture zone exists at 12.5 m @ 20°. The chloritization precedes the fracturing and qtz veining, due to crosscutting relationships. Foliation is weak at 30		- qtz has a somewhat milky texture chloritization extensive - epidote alteration is also observed.		mineralization split between obvious vein relationship and disseminations possible remobilization Vein Dissem py 1% .5% po .5% trace		20 20 20 30 40 80 70		15	20° 40° appx 6
14 m	16 m	2 m	95%	Quartzose-Gneiss, as above. Quartz rich with mafics altered to chlorite. The chlorite clots show a weak foliation @ 70°. These blebs of chlorite range in size from .1-.5 cm in size. Some chlorite has been remobilized along micro-veinlets. There is also extensive qtz veining, some of which have py mineralization.		Extensive qtz fractures chlorite alter'n still evident clay alter'n present in some fractures		As above: with minerals forming in some cases as blebs in a line. Vein Dissem po trace .1%		20 20 30 40 40		>25	.1° 20°
16 m	18 m	2 m	95%	Quartzose Gneiss - as above from 16.0 - 16.4 m. At 16.4 m a lampophyre dike @ 52° cuts the c.a. The dike is dark green-black fine grained. The contacts are sharp, with a slight reaction zone. The dike is .7 m thick. The dike also becomes a lighter green (aplitic)? towards its periphery. At 17.1 the rock is again as above, with slightly less chlorite alteration, and foliation slightly better developed		epidote alter'n also present in these shears As above with fracturing not as pervasive sericite developm't on shear planes shearing subparallel to foliation.		As above Microvein Dissem cpy trace trace po .1% trace py .5% .1%		50 70 30 20 30 40 50 50 70		12	
18 m	20 m	2 m	95%	Quartzose-Chloritic Gneiss.- as above. Poorly foliated. Here the rock is subjected to some shearing, causing fracturing and shear zones to develop.		As above - somewhat blotchy appearance due to annealing of qtz. Breccia zones & shear zones have been welded together by silica.		As above. Veins Dissem py .2% 1% po 1% 1% cpy trace trace Moly - trace		40 30 20 30 30		12	

DRILL LOG

LOCATION MAL CLAIMS		CO-ORDINATES		NORTH		EAST		ELEVATION		HOLE NO.	
										3	7
DATE STARTED		DATE COMPLETED		SURVEYS		HOLE SIZE		TOTAL DEPTH		HOLE NO. D.D.H.	
May 26, 1980		May 27, 1980									
DEPTH		CORE		LITHOLOGY	ALTERATION	MINERALIZATION		STRUCTURE			Gr L
From	To	Length	%Rec					F	V/FI	F/FI	
20 m	22 m	2 m	95%	<p>Quartzose Chloritic Gneiss                      Alteration here is minimal. The gneis is composed of qtz, biotite, plagioclase feldspar, some amphibole. Overall mafic composition is 20%. Foliation is on a fine scale. Numerous examples of augened qtz porphoblasts. Examples of crenulated mica flakes also exist.</p>	<p>As above - qtz fractures less evident., frequent qtz augens, chloritization not as pervasive as above. No other alteration observed.</p>	<p>As above - both as micro-veinlets or minute dissemination.                      Vein Diss.                      py 1% 1%                      po .5% .1%                      cpy trace trace                      moly - -</p>				5	



DRILL LOG

SHEET NO.

LOCATION		CO-ORDINATES		NORTH		EAST		ELEVATION		HOLE NO. MLDH	
										4 7	
DATE STARTED		DATE COMPLETED		SURVEYS		HOLE SIZE		TOTAL DEPTH		D.D.H.	
May 26, 1980		May 27, 1980				BQ		56.7 m		80-1	
DEPTH		CORE		LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE		Graph Log		
From	To	Length	%Rec				F	V/FI		F/FI	
22 m	24 m	2 m	98%	Quartose-Chlorite Gneiss - alteration is more extensive. Foliation is less well developed and the degree of chloritization has increased. Quartz veining and fracturing have also increased. Foliation is poorly developed at 30° Moly veinlet at 23 m @ 20 to c.a.	Chloritization of mafics some brecciation present with sericite development.	Increases in the sulphide and moly content over previous section. Veinlets Dissem py 1% 1% po 5% 5% cpy - - moly 1% trace	30 30	10	??		
24 m	26 m	2 m	98%	Quartose-Chlorite-Gneiss. The rock is weakly foliated. Chloritization is still present, with some talc-clay development in some fractures @ 20° The foliation is weak at 20-30° with mafic constituents forming a blotchy pattern in matrix of greenish quartz and feldspar. The rock on the whole has quite a milky and clouded texture. The porphroblasts of mica & chlorite & amphibole range in size from, 1 to 1 cm. Fracturing is moderate. From 24.6 - 24.8 m a dark chloritic shear zone exists. Sulphide concentration here is quite high. This shear is at 30°	Chloritization still quite evident - qtz fracturing and remobilized chlorite as well as talc & clay development along fractures are all observed, though not to a great degree.	Generally disseminated grains in qtz matrix of gneiss. Some fracture-related grains as well. Microstringers at 30° Veins Dissem po .5% 1% py 1% 2% moly - - cpy - -	30 20				
26 m	28 m	2 m	98%	Quartose-Chlorite Gneiss - very weakly foliated here, with only moderate chloritization. Fracture density is also low. The rock is blotchy due to prophoblastic development of the micas. Felsics = 70% Mafics 30%. In some places qtz microveinlets have crosscut the foliation at 30° to c.a. Little to no mineralization is found along these, and the few chloritic microveinlets that occur. These qtz veins are post chloritization as they crosscut the foliation.	chloritization is weak little else in the form of alteration	Generally disseminated sulphides Dissem Vein py 2% .5% po .1% .1% cpy trace - No moly.	30 30 20 35 50 50	4			
28 m	30 m	2 m	99%	Identical to above.	As above	As above	As above				

LOCATION MAL CLAIMS		CO-ORDINATES		NORTH		EAST		ELEVATION		5	7		
DATE STARTED		DATE COMPLETED		SURVEYS				HOLE SIZE		TOTAL DEPTH		HOLE NO. MLDH	
May 26, 1980		May 27, 1980						80		56.7 m		D.D.H. 80-1	
DEPTH		CORE		LITHOLOGY		ALTERATION		MINERALIZATION		STRUCTURE		Graph Log	
From	To	Length	%Rec							F	V/F1	F/F1	Log
30 m	32 m	2 m	99%	Quartzose-Chlorite Gneiss - rock is as above but with a slightly better developed foliation. Also there is an increase in chloritization. The blotchy appearance is quite evident and foliation is moderate at 20-30°. At 30.9 m a 10 cm thick qtz vein exists with some minor wisps of chlorite. This vein is at 30°. At 31 m. the rock becomes dominated quartz and feldspar augens. These are oriented subparallel to the 30° foliation observed throughout the section. At 31.2 m an introduction of K-feldspar is evident by creating a more pinkish color to the augened gneiss.		30-31.2 m Chloritization of micas moderate. Qtz veining moderately developed. Boudinage of qtz blebs observed. 31.2-32.0 m Chlorite alteration stronger and more pervasive. Also an introduction of K-spar. Strong development of augens of qtz & feldsp.		30-31.2 As above Generally finely disseminated grains. Dissem Veins po .5% trace py 1% ace cpy trace trace moly none none		30		8	
								31.2 - 32.0 As above but drop in conc. Dissem Veins po trace - py trace - cpy trace -		30		8	
32 m	34 m	2 m	99%	Quartzose-K-Feldspar?-Augened Gneiss - possibly a more granitic composition due to the presence of K-spar. Well augened. This rock grades into a qtz-mica schist at 32.8 m. This schistose foliation is at 30° to c.a. This schist in turn grades into a more granodioritic gneiss at 33.4 m and then back into the more K-spar rich granitic gneiss at 33.8m. The gneisses are both weakly foliated and moderately altered. but the sulphide content is best in the granodioritic gneiss. At 33.9 m a highly altered shear zone of talc-clay is observed. Some fragments of qtz & feldspar are observed in the shear.		chloritization is well developed - giving entire rock a greenish hue fracture density is moderate In the shear alteration to clay ± epidote + talc is extensive.		no moly Sulphide content is low and found only as disseminated grains and only in the granodiorite gneiss po .1% py .5% cpy trace moly nil		30		8	
34 m	36 m	2 m	95%	Granitic Gneiss? as above - from 34.0 - 34.2 m. From 34.2 - 36.0 m the rock is a highly kaolinized qtz, talc rich shear zone. Here the structures of the rock are all but destroyed by the shearing with only the soft greenish clay-talc resulting. The material is intersected by qtz-feldspathic veins at 20-30°. There are numerous fragments of qtz-feldspathic material		In shear zone there is extreme talc-clay alteration. No mafics remain at all - only qtz - felds fragments		In gneiss - as above. Micrograins of py and py may be present in the shear zone? Otherwise quite bare.		30		?	
										20		>20	
										40		?	
										35			
										10			

DRILL LOG

SHEET NO.

LOCATION		CO-ORDINATES		NORTH		EAST		ELEVATION		HOLE NO.	
										86	87
DATE STARTED		DATE COMPLETED		SURVEYS		HOLE SIZE		TOTAL DEPTH		HOLE NO.	
						BQ		56.7		D.D.H. 80-1	
DEPTH		CORE		LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE			Graph Log	
From	To	Length	%Rec				F	V/Ft	F/Ft		
36M	38M	2M	90%	As above. Highly Kaolinized - altered clay sheared zone.	As above.	As above.					
38M	40M	2M	90%	Highly Kaolinized shear zone - as above from 38-39.4m. From 39.4 to 40.0m the rock is an altered, chlgritized granitic? gneiss. Foliation is moderate at 30°. Fracturing to pervasive at 30-70°. Quartzo-feldspathic material occupies these micro fractures. Chlorite has also remobilized into these fractures. Qtz fragments, boudins & augens are also observed.	- chloritization is pervasive fractures quite pervasive and cross-cut the folia.	- sulphides found in microveins as well as disseminated grains. Total py 1% po .5% cpy Nil moly Nil	40 30 50 - >25 - 10 70				
				Granitic Gneiss? Alteration is quite extensive. Foliation is in places completely destroyed. Augen & Boudin development quite common. Grain boundaries difficult to distinguish due to annealing. The rock has an overall greenish color due to chlorite alteration. Fracturing is intense. The pinkish color may be due to K-spar (granitic?). Foliation is at 25°.	- chloritization is pervasive silicification? Epidote alteration may be present. Sericite alteration in shears.	- sulphides are generally fracture controlled. po 1% py 2% cpy - Nil Moly - Nil	10 25 - >20 - 30 30				
				At 41.1 m an intense zone of fracturing exists. Here a quartz vein is @ 15° to c.a., which is crosscut by the shear zone, the shear zone contains a massive 1 cm bounded band of pyrite.							
42M	44M	2M	99%	Lamprophyre dykes - from 42 - 42.1 there is the alteration halo of the lamp dykes. This zone is well fractured and altered with gneissosity almost totally destroyed. From 42.1-42.9 is the typical green-black fine grained Lamprophyre dike. From 42.7 - 42.9 the dike is aplitic?? From 42.9 to 43.1 the altered and fractured granitic							

LOCATION		CO-ORDINATES		NORTH	EAST	ELEVATION		67 67		
DATE STARTED	DATE COMPLETED	SURVEYS					HOLE SIZE	TOTAL DEPTH	HOLE NO. MLDH	
							BQ	56.7M	D.D.H. 80-1	
DEPTH		CORE		LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE			Groph Log
From	To	Length	%Rec				F	V/FI	F/FI	
				gneiss is present. From 43.1 - 44.0m another lamprophyre dike is present. Again the light colored aplitic? phase is present from 44.2-44.0m. Quartz-feldspathic veins crosscut the dyke - at angles of 10, 70, 30°. At the base of both dykes is a talc rich shear zone of minor thickness.	- chlorite alteration and epidote alteration pervasive in the brecciated gneissic zones some silification?	- sulphides found as minute disseminations in sheared & brecciated zones. py - .2% po - .1% moly in talc zone? 1%?	50	30	-	
44M	46M	2M	95%	44.0M - 44.5M - Lamprophyre dike (aplitic phase)? 44.5 - 46.0M - highly altered sheared, brecciated, quartz-feldspar, talc, epidote rich rock. Crosscutting veins at 25°.	Extensive & pervasive brecciation and talc and epidote alteration	- sulphides found in fractures & veins between breccia clasts. py - 2% po - .5% moly - .1%?	BRECCIATED	-	?	?
46.0M	48.0M	2M	93%	As above. A well brecciated highly altered quartz, epidote, chlorite, talc, feldspar rock. Dominant fracturing appears to be at 30°.	As above.	As above.	BRECCIATED	-	?	?
48M	56.7M	8.7	93%	As above. Well brecciated altered clay rich rock. The protolith may have been a gneiss? Fractures mostly trend 50° to 30°. This clay rich pasty material is colored greyish yellowish green. From 56.5 to 56.7 - here the rock has remnant gneissic textures. Alteration is less pervasive as in above section, but still quite evident giving the gneiss a greenish yellow overprint. End of Hole.	As above.	As above. Moly may be present in grey quartz rich paste found as sheared material.	As	above		



**DRILL LOG** Logged by E. Meszaros

SHEET NO.

LOCATION		MAL CLAIMS		CO-ORDINATES		NORTH		EAST		ELEVATION		HOLE NO.		MLDH	
Overburden 0-9.45 m										N 887.20 m		1		13	
DATE STARTED		DATE COMPLETED		SURVEYS						HOLE SIZE		TOTAL DEPTH		D.D.H.	
May 28, 1980		May 31, 1980		VERTICAL		-90°				BQ		122.2m		80-2	
DEPTH		CORE		LITHOLOGY				ALTERATION		MINERALIZATION		STRUCTURE			Groph
From	To	Length	%Rec									F	V/Ft	F/Ft	Log
9.45 m	10 m	1.1m	100%	Moderately to weakly foliated gneiss - the rock varies from a pinkish granitic gneiss? to a more white-Granodioritegneiss. The primary mafic mineral is biotite ± hornblende. Some chlorite is present. Foliation is at 50-60° to c.a. At 9.7 m a lamphyre dike may be present, however core recovery is poor here. At 9.8 m the contact between the gneiss and quartzite exists. This quartzite is impure with chlorite being present. At 9.8 m a shear zone exists. Here biotite and chlorite flake develop, with a halo of pur qtz on either side of the shear. No sulphides or moly in this shear. shear at 20 t.c.a.				Alteration is minimal Minor chloritization		Sulphides present as disseminated grains but only in trace amount. po - trace py - trace chalco - nil moly - nil					
10 m	12 m	2 m	85%	Quartzite. The quartzite is impure with a greyish-green color. There are numerous fine laminations of biotite, sericite, and chlorite throughout. In places the mafic content is so high that a distinct schistose texture results such a zone is at 10.8-11.2 m. This foliation is at 25° t.c.a. The micas often exhibit crenulations, with the quartz grains often showing strain and augen development.				Sericitic development along shear planes. Possible alteration of biotite to chlorite		Sulphides present as disseminated grains but only in trace amounts. py - trace chalco - nil po - trace moly - nil Some minor magnetite also observed as dissem. grains		5°	20°	20°	
12 m	14 m	2 m	90%	Quartzite - Identical to above. At 13.3 m a 30 cm "aplite" dike cuts the core at 80°. This dike is identical to that found in Adit Creek.				As above		As above Dike contains disseminated grains of py, po.		5°	10°	20°	

ASSESSMENT REPORT

**9585**

NO.

LOCATION MAL CLAIMS		CO-ORDINATES		NORTH		EAST		ELEVATION		SHEET NO.	
										2	13
DATE STARTED		DATE COMPLETED		SURVEYS		HOLE SIZE		TOTAL DEPTH		HOLE NO.	
May 28, 1980		May 31, 1980								D.D.H. 80-2	
DEPTH		CORE		LITHOLOGY		ALTERATION		MINERALIZATION		STRUCTURE	
From	To	Length	%Rec							F	V/Ft
14 m	16 m	2 m	90%	Quartzite - as above		As above		As above			
16 m	18 m	2 m	90%	<p>Quartzite-as above from 16 m - 17.5 m. Granodiorite Gneiss-from 17.5 m - 18 m. Foliation is moderately developed at 50° to c.a. Quartz and feldspar augens are frequent. The dominant mafic is suspected to be chlorite. The contact between the gneiss and quartzite is fairly sharp, and appears conformable. Approx. 10 cm above the contact a gneissic band exists within the quartzite.</p> <p>The overall color of the rock is dark green, rather than the more typical greenish-grey-white color of the typical gneiss.</p>		Possible alteration of biotite to chlorite, Epidote alteration may also be present as well as clay alteration of the feldspars.		Sulfide content and moly content is weak to nonexistent.			
18 m	20 m	2 m	90%	<p>Granodiorite Gneiss-as above, with local variations in grain size. At 19 m the gneiss becomes more fine grained, qtz rich, becomes less chloritic and takes on a pinkish hue. Foliation is at 50° to c.a. A qtz vein exists from 19.8 - 19.85 m. This vein is quite pure with minor chloritic clots and possible epidote.</p>		Chlorite and epidote alteration seen most dominant. Clay alteration also present in places causing the rock to become quite friable.		Pyrite is found in minor amounts as disseminated grains. No moly.		100 500 300 100 200 450	- 12 -
20 m	22 m	2 m	90%	Granodiorite Gneiss-as above. Foliation at 50° to c.a. Fractures developed both parallel to the foliation and at various angles to it. Development of augens or boudins crinkling of micas, rotated grains all observed. Rock color is quite dark from chlorite content, unlike the more typical whitish gneiss.		Chlorite alteration epidote alteration and clay development all present.		As above.		200 300 200	- 10



# DRILL LOG

SHEET NO.

LOCATION		MAL CLAIMS		CO-ORDINATES		NORTH		EAST		ELEVATION		HOLE NO.			
												3	13		
DATE STARTED		DATE COMPLETED		SURVEYS						HOLE SIZE		TOTAL DEPTH		HOLE NO.	
May 28, 1980		May 31, 1980												D.D.H.	
DEPTH		CORE		LITHOLOGY		ALTERATION		MINERALIZATION		STRUCTURE			Group Log		
From	To	Length	%Rec							F	V/FI	F/FI			
22 m	24 m	2 m	95%	Granodiorite Gneiss - as above - foliation development varies from well foliated on a fine scale to moderately well-foliated on a larger scale. Foliation is still at 50° to c.a. In places the qtz grains are quite clouded, with diffuse grain boundaries, due to possible recrystallization and/or silicification.		Again as above, with chloritic alteration of biotite, epidote alt'n of feldspar, as well as clay alteration. Clay alteration best developed near fractures.		Weak - trace amounts of py as minute disseminations. No moly.		10°	<10				
24 m	26 m	2 m	90%	Granodiorite Gneiss - 24 m to 24.6 m. Foliation at 50° t.c.a. and moderately developed. Some foliations offset by fractures at 20° t.c.a.		As above		As above		10°			10°		
				Lampophyre dike from 24.6 m to 25.4 m. Dark green-black in color, fine grained with greenish phenocrysts of 1 mm in size. As in the case of other dikes observed, the foot wall of the dike become lighter in color and grades to the "aplitic" material. The orientatign is 47°, but at 90° to the foliation, which is also at 50° to c.a. The contact is sharp. Some hairline fractures occur in the dike at 15° to c.a.											
				Granodiorite Gneiss - chloritic rich as above, from 25.4 to 25.45 m. Quartz vein - from 25.45 to 26.0 m. A massive white vein with pervasive fracturing and massive magnetite. In addition, numerous veins of pyrite exist within the qtz vein, as well as a massive turquoise co'eval mineral. In places the qtz vein shows brecciation, and as a result overall recovery is poor. The vein is at 50° to c.a.				In quartz vein mg - 20% py-- 5%							

LOCATION MAL CLAIMS		CO-ORDINATES		NORTH		EAST		ELEVATION		SHEET NO.	
										4	13
DATE STARTED		DATE COMPLETED		SURVEYS		HOLE SIZE		TOTAL DEPTH		HOLE NO.	
May 28, 1980		May 31, 1980								D.D.H.	
DEPTH		CORE		LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE			Graph Log	
From	To	Length	%Rec				F	V/FI	F/FI		
26 m	28 m	2 m	90%	Quartz vein - as above							
28 m	30 m	2 m	90%	Quartz vein - from 28 m to 28.6 m. Granodiorite Gneiss - 28.6 m to 30 m. similar to gneiss above. A chloritic rich qtz-feldspar, moderately foliated gneiss. In places, the degree of chloritization, degree of clay alteration, degree and scale of foliation, presence of K-feldspar, and degree of boudinage and augen development vary. Foliation is at 50° to c.a. From 28.6 m to 30 m the rock is quite friable, with clay and epidote alteration totally destroying the rock.	Again chloritization of biotite, epidote alteration of feldspars, sericite alteration of feldspars are all present.	pyrite found in low quantities as disseminated grains in the qtz-feldspar matrix of the gneiss. py - trace to .1% No moly.	10° 20° 30° 50°		10		
30 m	32 m	2 m	95%	Granodiorite Gneiss - as above. Foliation at 50°	As above	As above	10° 20° 30° 50°		10		
32 m	34 m	2 m	95%	Granodiorite Gneiss - as above. Foliation moderate at 50° Blotchy appearance due to boudined porphoblast of qtz and feldspar. Zone of shearing at 32.2 m. This zone is offset by a reverse fault. Fault at 45° and ⊥ to foliation. Movement 2.5 cm.	As above	As above	10° 20° 30° 50°		10		



LOCATION MAL CLAIMS		CO-ORDINATES		NORTH		EAST		ELEVATION		SHEET NO.	
										5	13
DATE STARTED		DATE COMPLETED		SURVEYS		HOLE SIZE		TOTAL DEPTH		HOLE NO. D.D.H.	
May 28, 1980		May 31, 1980									
DEPTH		CORE		LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE			Graph Log	
From	To	Length	%Rec				F	V/Fi	F/Fi		
34 m	36 m	2 m	95	Granodiorite Gneiss - as above. Foliation variable from well developed medium grained to poorly developed medium grained. Orientation varies from 40-50°. At 35.0 m. a 15 cm. qtz vein at 30° exists. Here chlorite has been remobilized into the vein.	As above	As above In qtz vein: po found, about 5%.	30° 30° 10° 50°		10		
36 m	38 m	2 m	95	Granodiorite Gneiss - as above. Blotchy appearance with foliation moderately developed at 50° to c.a.	As above	Trace py found as disseminated grains. No moly.	As above				
38 m	40 m	2 m	95	Granodiorite Gneiss - as above. Foliation at 50°. At 39.2 m an impure quartzite band exists. This band is 15 m thick and is parallel to foliation. From 38.35 m to 40 m the rock is well fractured and clay altered giving rise to a soft friable rock.	As above	As above	20° 30° 50° 10° 50°		15		
40 m	42 m	2 m	95	Granodiorite Gneiss - as above. Foliation at 50° but varies from moderately developed to poorly developed. Chloritic porphyroblasts range from .05 - .5 cm. At 41.5 m a highly micro-fractured quartz vein cuts the core at 40° this vein is subparallel to the foliation. The qtz has a slight purple hue, and the vein causes an alteration halo in the gneiss. The vein is devoid of sulphides.	As above	As above	20°		10		
42 m	44 m	2 m	95	Granodiorite Gneiss - as above. Moderate to poor foliation at 50° to c.a. Medium grained, somewhat equigranular here.. A qtz vein at 43.7 - 43.75 m, parallel to foliation exists. This vein is somewhat purplish, but devoid of sulphides.	As above	py present in disseminated grains in gneiss at ≈ .1%	30° 50° 20°		5		

LOCATION		MAL CLAIMS		CO-ORDINATES		NORTH		EAST		ELEVATION		6		13	
DATE STARTED		DATE COMPLETED		SURVEYS						HOLE SIZE		TOTAL DEPTH		HOLE NO.	
May 28, 1980		May 31, 1980												D.D.H.	
DEPTH		CORE		LITHOLOGY				ALTERATION		MINERALIZATION		STRUCTURE			Graph Log
From	To	Length	%Rec									F	V/Ft	F/Ft	
44 m	46 m	2 m	95	Granodiorite Gneiss - as above - moderately foliated at 50° to.c.a. Good evidence of augen development, and porphroblast rotation. Chlorite grains are .7-1.0 cm in size.				As above Here chlorite alteration is not as well developed with the presence of biotite still evident.		As above Disseminated py at approx. .1%		20		5	
46 m	48 m	2 m	95	Granodiorite Gneiss - as above. Moderate foliation at 50° to.c.a. Here the rock takes on a pinkish hue, due to possible K-feldspars. Some zones of chlorite concentration sub-parallel to foliation. possible shearing. Grains are medium in size .7 cm.				Chlorite alteration is moderate to strong, clay alteration of feldspars as well as epidote alteration all being present.		As above py = .1-.2%		20		10	
48 m	50 m	2 m	95	Granodiorite Gneiss - As above. Foliation is moderate at 50°. The pinkish color fades out at 49.0 m. At 49.55 m a qtz vein 1-2 cm thick at 50°. This vein is suspected to contain blebs of moly 2-8 mm in size? This vein marks the beginning of a well altered friable zone in the gneiss.				As above		As above, with pyrite also found as blebs in the qtz vein. Moly also suspected in this vein. Total py = .1% Moly in vein = .1%?		20		10	
50	52 m	2 m	95	Granodiorite Gneiss - as above. Foliation is moderate at 55°. At 50.95 m - 51.20 m another qtz vein containing py and moly exists at 70° t.c.a.				As above		As above py in gneiss + vein = .1% moly in vein = .1%?		50		5	1
52 m	54 m	2 m	95	Granodiorite Gneiss - as above. Foliation is moderate at 50° to.c.a Good evidence of porphroblast rotation and boudinage development. At 52.2 - 52.3 a well fractured clay-altered zone exists. At 53.5 m a 3 cm thick qtz vein cuts core at 20°.				Chlorite alteration is low. Epidote alteration still present. Clay alteration most developed in fractured friable zones.		As above The qtz vein contains blebs and veinlets of pyrite associated with the chlorite. The moly found in the qtz vein is as a single bleb		50		10	1

py in vein = 1%; py dissem = .5%

LOCATION MAL CLAIMS		CO-ORDINATES		NORTH		EAST		ELEVATION		7		13	
DATE STARTED		DATE COMPLETED		SURVEYS						HOLE NO.		D.D.H.	
May 28, 1980		May 31, 1980											
DEPTH		CORE		LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE			Graph Log			
From	To	Length	%Rec				F	V/F1	F/F1				
54 m	56 m			Granodiorite Gneiss - as above. Foliation moderate at 50° to c.a. Two qtz veins observed, one at 50° is devoid of sulphides, one at 30° has minor pyrite.	As above	As above pyrite as disseminated grains 1%. Pyrite in veins .5%	30 30		15				
56 m	58 m			Granodiorite Gneiss - as above. In places the gneiss becomes quite mica rich, resulting in a schistose foliation. Biotite content is high, but chlorite alteration is still evident. Foliation is at 50°. The gneiss has poorly developed foliation, and a quite blotchy appearance. A shear zone is found from 56.6 m to 57.0 m at 20° to c.a.	As above	Sulphides & moly found in individual grains, or blebs; however, only in trace amounts.	30 20 10		10	1?			
58 m	60 m			Granodiorite Gneiss - as above. Foliation is poorly developed. In places, the rock is excessively fragmented. Hairline wisps of chlorite are found in these fractures. As a result, the rock is very friable in places. Foliation is still at 50°.	Clay alteration appears to dominate, with epidotes and chlorite alteration still present.	pyrite found as disseminated grains and as blebs in the micro-fractures. Total py = .1% No moly.	20 70 50		20				
60 m	62 m			Granodiorite Gneiss - as above. Foliation is poor and blotchy appearance is pervasive with clots of qtz and feldspar in a chloritic-quartzose "matrix". Fracturing is well developed at various angles. Again a qtz vein containing some pyrite is observed at 60.5 m cutting the axis at 15°. Grain size, as in all the highly sheared zones is 1m - .4 cm.	As above	As above. pyrite in gneiss as disseminated grains = .1% pyrite in qtz veins = .1% No moly!	15 20 50		20				
62 m	6 m			Granodiorite Gneiss - 62 m - 63.5 m. as above. Clay alteration strong, resulting in a friable rock. Foliation is poor at 50°. At 63.5m the rock becomes more siliceous. The clay alteration becomes less prominent. Foliation remains at 50° and moderately developed.	As above.	Pyrite found in trace amounts as disseminated grains.	30 20 10 20 10		10				

LOCATION MAL CLAIMS		CO-ORDINATES		NORTH		EAST		ELEVATION		SHEET NO.	
										8	13
DATE STARTED		DATE COMPLETED		SURVEYS		HOLE SIZE		TOTAL DEPTH		HOLE NO.	
May 28, 1980		May 31, 1980								D.D.H.	
DEPTH		CORE		LITHOLOGY		ALTERATION		MINERALIZATION		STRUCTURE	
From	To	Length	%Rec							F	V/FI
										F/FI	Groph Log
64 m	66 m	2 m	99%	Chloritic Monzonitic Gneiss? - here the gneiss is milky in overall texture, with foliation moderately developed. Porphyroblasts of medium size chlorite set in a "matrix" of milky qtz & epidotized feldspars. The rock is quite homogeneous. A faint pink hue is taken on by some of the feldspars. Augen development is present as well.		As above. Clay alteration, epidote alteration and chlorite alteration all moderately developed.		As above		30 20 10 20	5
66 m	68 m	2 m	97%	Chloritic Monzonitic Gneiss - as above, from 66 m-67 m. Quartz mica schist 67 m - 68 m. Here the biotite-chlorite content is high. Qtz/mica = 50/50. Foliation is at 47°. Crenulation of the micas, and augen development of the qtz is easily observed.		As above		As above. Found as dissemination in the gneiss and schist. po = .1% py = .05% No moly.		20	4
68 m	70 m	2 m	97%	Quartz-Mica-Schist. 68.0 m to 68.2 m. As above, grading back into monzonite gneiss. The gneiss is distinctly developing augens. Periodically the rock becomes more schistlike. In places the augens grade into a more cataclastic breccia-like rock. Augens are about 1-2 cm in size, subparallel to foliation at 50°.		As above		As above - sulphides found as disseminations in both gneiss and schist py - trace po - trace No moly		20 15 20	5
70 m	72 m	2 m	98%	Quartz Mica Schist from 70.0 to 70.6 m. As above schist. Foliation at 47% to c.a. laminations on mm scale. Augened gneiss - 70.6 to 71 m as above. Quartz mica schist 71.0 to 72.0 m as above.		As above		No mineralization observed at all.			
72 m	74 m	2 m	95%	Highly Fractured and Deformed Zone of Quartz Mica Schists & Gneisses. The schists are in places quite altered and very friable. Evidence of brecciation exists. Foliation is poor, almost totally obliterated. Core recovery is poor due to fragmentation. Foliation ≈ 50° ?		Chlorite, epidote and clay alteration all well developed. Silicification has in places annealed the rock.		Sulphide, found as blebs in rock may or may not be related to fractures? py - trace po - trace		20 20 60 10	20

**DRILL LOG**

SHEET NO.

LOCATION MAL CLAIMS		CO-ORDINATES		NORTH		EAST		ELEVATION		9		13	
DATE STARTED		DATE COMPLETED		SURVEYS		HOLE SIZE		TOTAL DEPTH		HOLE NO. D.D.H.			
May 28, 1980		May 31, 1980											
DEPTH		CORE		LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE						
From	To	Length	%Rec				F	V/Ft	F/Ft	Graph Log			
74 m	76 m	2 m	98%	Augen Gneiss - a pinkish monzonite & gneiss, with strong augen development. The "matrix" is fine grained epidote + chlorite + qtz + feldspar, with augens of qtz and feldsp. Grain size is 1 mm in the matrix to 1 cm augens. Foliation is at 50°. Some qtz veins parallel to the foliation are also present.	Chloritic alteration and epidote alteration present to a fair degree. Clay alteration less prominent. Some qtz. veining. Well fragmented.	Little mineralization fine disseminated py at .1% No po No moly	20						
76 m	78 m	2 m		Augen Gneiss - as above	As above	As above							
78 m	80 m	2 m		Augen Gneiss - as above. Possible presence of blebs of cinnabar?	As above Well fragmented	py - 1% cpy - .1% both found as minute disseminated grains, sometimes related to microfractures.	10 <sup>0</sup>					>20	
80 m	82 m	2 m		Augen Gneiss - from 80 m - 81.0 m the gneiss is well fragmented as above. From 81 - 82 m the rock is less fragmented, more pinkish in color (K-feldspar?) with augen development less pronounced. Foliation is still 50°. Chlorite content is lower here than above.	As above, not as fragmented.	py 1% cpy .1% Both found as disseminated grains x 1 mm in size.	30					10	
82 m	84 m			Augen gneiss - as above	As above	As above	As above						

**DRILL LOG**

SHEET NO.

LOCATION		MAL CLAIMS		CO-ORDINATES		NORTH		EAST		ELEVATION		SHEET NO.	
												10	13
DATE STARTED		DATE COMPLETED		SURVEYS						HOLE SIZE	TOTAL DEPTH	HOLE NO.	
May 28, 1980		May 31, 1980										D.D.H.	
DEPTH		CORE		LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE			Graph Log			
From	To	Length	%Rec				F	V/Ft	F/Ft				
84 m	86 m	2 m	100%	Augen Gneiss - here the chlorite content appears quite high. The rock is well foliated. Augens are still present but less dominant. Foliation is at 80° and finely developed. Augens are up to 1 cm in size. A qtz vein cuts the core at 30°	Chlorite alteration epidote alteration and sericitization are all quite extensive	Pyrite found as dissem's in the gneiss. cpy also found as fine dissem's py = .1% cpy = .1% No moly	10			70		10	
86 m	88 m	2 m	98%	Augen Gneiss - as above. Foliation is moderate to poor at 40 - 80°. There is a blotchy appearance with a strong development of porphoblasts. The chlorite content is still high, not quite as high as 84m - 86 m.	As above	As above						As above	
88 m	90 m	2 m	98%	Augen Gneiss. - As above. At 89.5 - 90 m a highly altered yellow-green clay rich "shear zone" exists. This zone is highly friable, and fragmented. A grey siliceous material is also present in this shear zone. An "aplitic" dike is also found within the zone.	Clay alteration and epidote alteration are quite strong in the shear zone. chlorite alteration also present in gneiss.	As above for gneiss. Shear zone has fine dissemination of py. py in shear = 1% Aplitic dike contains 3% pyrite disseminated						As above	
90 m	92 m	2 m	100%	Augen Gneiss - the sheared zone grades into the altered gneiss. Foliation is vague at 50-80°. Augen development gives rise to a blotchy appearance.	Chlorite alteration is pervasive. Epidote alteration present to a lesser degree, and variable - clay alter'n of feldspars also present.	Disseminated grains of py and cpy in gneiss py - 7% cpy - trace No moly	5			80		15	
92 m	94 m	2 m	100%	Augen Gneiss - as above. Foliation is moderate. Augen development is good. Porphroblasts are 1-2 cm. Rock has overall a pinkish-red-green color, due to K-feldspar? + chlorite.	As above	As above						As above	

LOCATION MAL CLAIMS		CO-ORDINATES		NORTH		EAST		ELEVATION		11	13
DATE STARTED		DATE COMPLETED		SURVEYS						HOLE NO.	
May 28, 1980		May 31, 1980								D.D.H.	
DEPTH		CORE		LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE			Graph Log	
From	To	Length	%Rec				F	V/Fi	F/Fi		Log
94 m	96 m	2 m	98	Augen Gneiss - as above	As above	As above					
96 m	98 m	2 m	98	Augen Gneiss - as above from 96-97 m. At 97 m a highly fractured brecciated Augen Gneiss exists and this grades into the altered, fractured, clay rich shear zone at 97.1 m. The clay rich zone has distinct fragment of the qtz augens of the gneiss. This zone is at 60° to c.a. This clay shear zone grades back into the augen gneiss proper.	As above for gneiss In shear zone clay alteration is dominant.	In shear zone disseminated grains of py-qtz small in size-but euhedral py = 2% No moly No cpy	30	60°	20		
98 m	100 m	2 m	96%	Augen Gneiss - poorly foliated, blotchy augen gneiss. Quartz and feldspar augens in a chlorite-epidote, quartzo-feldspathic matrix. Pinkish in color of the feldspar is quite evident.	As per normal for augen gneiss	pyrite found as disseminations in gneiss py = .1%	70	30	10	50	10
100 m	102 m	2 m	97%	Augen Gneiss - Identical to above from 100 - 101.1 m. At 101.1 once again the gneiss grades into the yellow-green clay altered zone. The shear zone maintains a faint foliation similar to that of the gneiss 12.50°. Again a grey siliceous clay is present, which <u>may</u> contain moly.	Shear zone is excessively clay altered, and epidote altered. Minute fractures of qtz-calcite cut through the shear parallel to the foliation.	py found in the shear zone as disseminated grains. py = 4% NOTE.	10	70	30	50	2-
102 m	104 m	2 m	95%	Shear zone as above	As above	As above	As above				

LOCATION MAL CLAIMS		CO-ORDINATES		NORTH			EAST			ELEVATION		SHEET NO.				
												12	13			
DATE STARTED		DATE COMPLETED		SURVEYS			HOLE SIZE			TOTAL DEPTH		HOLE NO. D.D.H.				
May 28, 1980		May 31, 1980														
DEPTH		CORE		LITHOLOGY			ALTERATION			MINERALIZATION		STRUCTURE			Graph Log	
From	To	Length	%Rec									F	V/FI	F/FI		
104 m	106 m	2 m	95%	Shear Zone - clay rich as above			As above			As above		As above				
106 m	108 m	2 m	96%	Augen Gneiss 0 milky textured augens are pervasive. Foliation is poor at 50-to 60°. Pinkish color is less dominant in this section, and chlorite content is moderately high.			As per typical augen gneiss			Pyrite found as disseminated grains py = .1%		50				
											30			10		
											70					
											10					
108 m	110 m	2 m	95%	Augen Gneiss - as above			As above			As above		As above				
110 m	112 m	2 m	95%	Augen Gneiss - as above foliation poor at 50°			As above			As above		As above				
112 m	114 m	2 m	95%	Augen Gneiss - as above foliation poor at 50°			As above			As above		As above				



DRILL LOG

SHEET NO.

LOCATION		MAL CLAIMS		CO-ORDINATES		NORTH		EAST		ELEVATION		SHEET NO.	
												13	13
DATE STARTED		DATE COMPLETED		SURVEYS						HOLE SIZE		TOTAL DEPTH	
May 28, 1980		May 31, 1980										HOLE NO. D.D.H.	
DEPTH		CORE		LITHOLOGY		ALTERATION		MINERALIZATION		STRUCTURE			Graph Log
From	To	Length	%Rec							F	V/Fi	F/Fi	
114	116	2 m	96%	Augen Gneiss - as above. At 114.63 the gneiss grades into the yellow-green clay altered shear zone. The shear zone grades back into the augen gneiss by 116 m.		As above Pervasive clay alteration in shear zone		As above for gneiss shear zone has approx. 3% disseminated py.		10		20	
116	118	2 m	98%	Augen Gneiss - as above. Typical chlorite, milky qtz augen gneiss. Foliation poor at 50°		As above		As per augen gneiss					
118	120	2 m	96%	Augen Gneiss - as above. At 119.45 the gneiss grades into the yellow-green altered clay rich shear zone. Fragments of gneissic material, in clay matrix. The zone is pervasively fragmented, quite friable.		pervasive clay alteration in shear zone.		As above					
120	122.2 END OF HOLE	2.2	95%	Shear Zone - here the zone becomes quite brecciated, with a grey soft clay silica matrix, existing between the fragments. The zone grades back into a weakly foliated, clay altered gneiss. Foliation at 50°		Pervasive clay and epidote alteration		disseminated py throughout at 3%		10		20	