COMINCO LTD.

EXPLORATION

NTS: 82 L/4W

WESTERN DISTRICT

May 8, 1979

ASSESSMENT REPORT

GEOLOGICAL, GROUND MAGNETICS, I.P., ROCK AND SILT GEOCHEMICAL AND PERCUSSION DRILLING WORK ON THE

DOBBIN PROPERTY

(TAD 1-6)

TADPOLE LAKE AREA, VERNON M.D.

Work performed

May 28 - October 27, 1978

LATITUDE: 50°01'N

LONGITUDE: 119°46'W

part 1 of 2

REPORT BY: M.J. OSATENKO

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SUMMARY

The Dobbin property is located 27 km northwest of Kelowna, B.C. Work in 1978 over the Mo area, in the central and northern part of the property, consisted of mapping, silt geochem, ground magnetics, I.P. and 2560' of percussion drilling while mapping, ground magnetics, rock geochem and 590' of percussion drilling was done in the vicinity of the copper showings in the southern part of the property.

The best MoS_2 mineralization found to date occurs in the central part of the property near Tadpole Lake. In this area a quartz porphyry complex, about 1.5x greater than 3 km, contains a quartz stockwork that is at least 1,000 x 1,500 m. Here, minor MoS_2 and traces of pyrite occur with pink, secondary K-feldspar in quartz veinlets. Mo soil anomalies are centered on this stockwork and cover an area greater than 2,500 x 1,000 m. This anomalous area is open to the west and to the south and east into the Tadpole Lake valley where a quartz boulder containing about 2% Mo was found. Percussion drilling over the quartz veined area (9 holes over an area 1,500 x 1,000 m) showed the favourable quartz porphyry rock at depth with 0.004 - 0.017% Mo in a low grade cap that is about 70-300' thick. Below these depths and to the bottom of 8 of 9 holes grades of 0.017 - 0.041% Mo were encountered with the best intersections consisting of 180' of 0.061% Mo (30' of 0.144% Mo) and 50' of 0.054% Mo in two holes. Alteration in the low grade cap is weak to moderate chlorite with the lower, higher grade parts of the holes showing moderate to strong chlorite and weak to strong sericite.

MoS_2 mineralization is also reported in drilling by previous workers at the main Dobbin copper showing (20' of 0.014% Mo) and was seen by us in chips from one of our percussion holes, about 1120 m to the northeast. This mineralization is in quartz veinlets with traces of pyrite that are associated with late stage, radially arranged quartz diorite dykes that cut an ultramafic-monzonite complex. Mo silt anomalies together with the above two showing areas define a favourable Mo belt greater than 6 x 4 km.

Copper mineralization is found only in the vicinity of the main Dobbin showing. In this area pyrite, chalcopyrite and magnetite are found in or near the hornblende pyroxenite phase of a complex consisting of hornblende gabbro, mafic monzonite, biotite pyroxenite and monzonite. Four

areas of copper mineralization are recognized with all showing significant coincident copper soil and I.P. anomalies that are either untested or poorly tested. Two of these targets were partially tested with one hole each in 1978, one drilled on the west side of main showing encountered 215' of 400 ppm Cu with an intersection of 20' below this of 1800 ppm Cu while the second gave only 150 ppm Cu over the 342' length of the hole.

It is recommended for the Tadpole Lake Mo area to test the extent of MoS_2 mineralization with percussion drilling to define the best area to work and then to begin diamond drilling of selected sites to greater depth. Mo soil and silt anomalies over the whole property must be investigated by mapping and further soil sampling. For the area of copper showings at least 20 percussion holes are required to begin testing of the four located targets.

INTRODUCTION

The Dobbin property was initially staked in May 1977 to cover two targets, one an alkaline porphyry copper and the other a porphyry Mo, both of which were located by previous workers. Work in this year and in 1978 necessitated the staking of an additional nine claims to protect extensions of developed targets.

Mapping, ground magnetics, rock and silt geochem were done by M.J. Osatenko and D. Mehner between May 28th and September 12th, 1978. Data collected are presented at scales of 1:5,000 and 1:20,000 with mapping control from 40 line km of surveyed grid, 1:15,800 airphotographs and blow-ups of a 1:50,000 topographical map. The I.P. survey was done by G. Niemeyer and crew between August 20th and 29th, 1978. Percussion drilling was carried out by A. Miller and F. Ferguson between September 8th and 27th, 1978 while stream silt samples were collected by M.J. Osatenko and R. Ryziuk between August 20th and October 25th, 1978.

LOCATION AND ACCESS

The property is situated 27 km northwest of Kelowna, B.C. along a good system of logging roads which are in part owned by Crown Zellerbach (Plate 1). It takes about 45 minutes to drive from Kelowna to the property. The working season is from mid June to the end of September.

TOPOGRAPHY AND VEGETATION

The property varies in elevation from 1650 to 1850 m with gentle to moderately steep slopes. It is covered by a thick blanket of mature spruce and fir which has been extensively logged over the past six years. Water for drilling is available from Tadpole Lake, a small pond 1200 m to the southeast or from numerous streams which cross the main road to the east of Tadpole Lake.

PROPERTY AND OWNERSHIP

The Dobbin property (Vernon Mining Division) is 100% owned by Cominco and consists of the following claims (Plate 2). The Esperon group, which was staked in late 1978, is also shown on this plate.

CLAIM	RECORD NUMBER	NUMBER OF UNITS	DUE DATE
Tad 1	316	16	May 13, 1989
Tad 2	317	3	May 13, 1982
Tad 3	318	10	May 13, 1982
Tad 4	319	20	May 13, 1983
Tad 5	340	3	June 16, 1982
Tad 6	377	4	Sept. 2, 1983
Tad 7	532	15	Oct. 6, 1979
Tad 8	552	16	Nov. 7, 1979
Tad 9	553	8	Nov. 7, 1979
Tad 10	554	8	Nov. 7, 1979
Tad 11	520	10	Nov. 7, 1979
Tad 12	521	8	Nov. 7, 1979
Tad 14	584	6	Dec. 18, 1979
		127	

PREVIOUS WORK

The first known mention of copper mineralization in the Dobbin area appeared in the Annual Report of the Minister of Mines, B.C. 1929, p. 249. Some work was done in the area shortly after publication of the above account, however, work was limited and appears to have been confined to the area east or southeast of the principal Dobbin copper showing. In 1955, a grid was cut over the Northern end of the property but the nature of the work is not known.

In 1967 Phelps Dodge carried out a reconnaissance stream silt geochemical survey in the area and obtained a strong Mo anomaly in stream silts just to the west of Tadpole Lake. They apparently did a little soil geochemistry but dropped the ground the following year. It was taken up in 1968 by Texas Gulf Sulfur who conducted an extensive Mo soil geochemical program (assessment report 1896).

Work by I. Greg and G. Shell on the main Dobbin copper showing commenced in 1968 with three short holes being drilled (0.38% copper/43', 0.18% copper/26' and 0.32% copper/112'). The property was then optioned to Atlas Exploration in 1969 who performed soil geochemical (Cu, Mo and Ni), ground magnetic, geological, and I.P. surveys (assessment report 2255).

In 1972 Geoquest Resources drilled a vertical hole to 400' in the middle of the main Cu showing which returned about 0.3% copper over the full extent of the hole. They continued work in 1974 under Rockel Mines and drilled three diamond drill holes in the vicinity of their hole in 1972. Grades encountered were in the range 0.1 to 0.4% copper (up to 0.017% Mo) with silver about 0.1 oz/ton over intersections of up to 147' (assessment report 5568). The property was allowed to lapse in early 1977 and staked by Cominco in May of that same year. Work by Cominco in 1977 consisted of mapping, ground magnetics and rock and soil geochemistry to check previous work.

REGIONAL GEOLOGY

The oldest rocks in the Dobbin property area are gneiss and schist of Proterozoic to Paleozoic age (Plate 1, Unit 1). They are overlain by a sequence of argillaceous rocks with minor limestone, basalt and rhyolite of presumed Upper Paleozoic age or possibly in part of Upper Triassic age (Unit 2). To the south of the property these rocks are cut by Jurassic granodiorites (Unit 3) which have been radiometrically dated by K/Ar and Rb/Sr methods at 165-170 m.y. Mineralization at the Brenda Mine (177 m.t. at 0.049% Mo and 0.18% Cu) is in these rocks but K/Ar dating of the secondary biotites gives ages of about 140 m.y. Following this event was a period of Jurassic-Early Tertiary plutonism which formed plugs and stocks of the alkaline composition (ultramafic - monzonite, Unit 4a) and small bodies of quartz porphyry and quartz monzonite (Unit 4b). It is with this event that the Cu-Pt and Mo mineralization at the Dobbin property is related. The final event in the area was an outpouring of large volumes of Tertiary acid volcanic rocks (Unit 5) that may be coeval with some of the youngest phases of Unit 4b.

DOBBIN COPPER SHOWING AREA

(1) Geology

The geology of the Dobbin copper showing area (Cu grid) is shown in Plate 3. Mapping was done by D. Mehner who is making this area the subject of a M.Sc. thesis. It is being done at the University of Manitoba and should be completed by August of this year.

The rocks in the vicinity of the Dobbin copper showings are mainly undersaturated to weakly oversaturated ultramafic to monzonite rocks with minor cross-cutting quartz diorite dykes. Mapping has now covered most of the stock but its eastern limits remain undefined. In plan it is somewhat tooth-shaped, being about 2 km in an east-west direction and up to 4 km northeast-southwest. On the basis of cross-cutting relationships the oldest rocks in the area are the sediments followed by a quartz monzonite unit. Rocks of the ultramafic-monzonite complex are next in the sequence with the gabbroic unit the oldest in this complex. These rocks are followed by successively younger pyroxenite, porphyritic monzonite, porphyritic monzonite with K-feldspar phenocrysts greater than 4 cm and finally by leucocratic monzonite. Rocks of a very young quartz diorite complex cut all units of the ultramafic-monzonite complex.

The sediments (Unit 1) consist of argillite, greywacke and impure quartzite and trend northwesterly (dips steeply to west) but locally the bedding follows the contact of the stock. These sediments contain pyrite in amounts up to 4 percent as disseminations and along fractures. However, to the west and south of the Dobbin copper showing the sediments are not obviously pyritic. Elsewhere on the property basaltic flows and tuffs, rhyolitic tuffs and limestones are present but in minor amounts (Plate 4). Rocks of Unit 2 are medium grained quartz monzonites that often contain quartz veinlets and minor pyrite. They occur just to the east of the eastern boundary of the property and typically contain 39% plagioclase, 40% K-feldspar, 13% quartz and 8% mafics. The rocks of Unit 3 are diverse but consist mainly of hornblende gabbro and mafic monzonite (formerly called syenodiorite but redefined using major element and petrographic data). It appears that the mafic monzonite only occurs in small patches within the hornblende gabbro. Mafics in these rocks are hornblende and minor magnetite and comprise 40 percent of the rocks.

The pyroxenite (Unit 4) is widespread in the southern part of the property and occurs in half moon-shaped plugs and in small dykes. In this unit biotite pyroxenite (locally biotitite) predominates with minor highly epidotized, green porphyritic hornblende pyroxenite. Hornblende phenocrysts in the latter rock often reaches sizes of 8-30 mm with local zones of hornblendite. Dykes of pyroxenite clearly cross-cut the gabbro rocks of Unit 3. All the significant copper-magnetite mineralization found to date occurs in or near areas of hornblende pyroxenite. Besides the main showing area six others show this rock type (Plate 3).

Porphyritic monzonite (Unit 5) occurs mainly on the east side of the stock and typically has 18% mafics and about 40% each of plagioclase and K-feldspar, the remainder is magnetite with traces of quartz. K-feldspar phenocrysts (microcline) range from 0.5 to over 2 cm and occur as long bladed crystals. In two areas, one just north of the main showing and the other in the northeast corner of the stock, the phenocrysts (15-25 percent) reach sizes of 4-15 cm (Unit 6). Here, they show large bladed to blocky crystals that have good zoning. Typically they contain 28% plagioclase, 46% K-feldspar and 26% mafics (some magnetite). Composite dykes composed of an alkaline amphibole, microcline and plagioclase with some zircon are associated with the monzonites of Units 5 and 6. Rocks of Unit 7 are leucocratic monzonites and occur only in the northern part of the stock. They are medium grained and typically contain 44% plagioclase, 37% K-feldspar, 9% quartz and 10% mafics. Texturally and mineralogically they resemble the quartz monzonites of Unit 2.

The last and youngest unit in the ultramafic-monzonite stock area comprises leucocratic quartz diorite (granodiorite?) dykes that cut most rock types and are arranged in a distinct radial pattern. These dykes are fine grained and have 5-10% hornblende and 1-10% plagioclase phenocrysts. Chemically they are similar to some of the granitic rocks near Tadpole Lake and most certainly do not belong to the ultramafic-monzonite suite.

(2) Rock and Silt Geochemistry

Forty-four rock samples were collected and analysed for Cu, Pt and Pd (Plate 3)*. No new areas of anomaly were found. The Pt and Pd values are generally below detection limits (100 ppb Pt and 20 ppb Pd) but two samples (166 and 179) returned 200 ppb Pt and 40 Pt and 140 ppb Pd respectively. These values are from the main copper showing area and are about half of what the 1977 samples returned. It would appear that the platinoid elements are associated with the copper mineralization.

Plate 4 shows the Mo silt data. Anomalous values range from 3-45 ppm and are found to the north of the copper area.

(3) Geophysics

Ground magnetic work (13.25 line km) was done over the southern part of the property at a 50 m spacing using a MP-2 total field magnetometer. This was done to better define the southern limit of the stock and to help in the mapping of the extensively drift-covered area in the central part of the area (Plate 5).

In addition to the ground magnetics 4.5 line km of I.P. was done on lines 6N, 4S and 8S to check the anomalies reported by Atlas in 1970 (assessment report 2255). The results are given in an attached report by A.R. Scott. The positions and intensities of these anomalies are confirmed. It seems that the main showing mineralized area occurs along the flank of a chargeability anomaly.

(4) Mineralization

Pyrite, chalcopyrite and magnetite mineralization occurs as disseminations in hornblende pyroxenite and along epidote-albite veinlets, in these rocks or in adjacent rocks (Plate 3). The main Dobbin copper showing drill intersections obtained by other companies are discussed in the PREVIOUS WORK part of this report (page 3). Surface samples collected in 1977 and this year confirm the 0.2 to 0.4% drill indicated copper grades over an area at least 150 x 30 m. Gold and silver values are typically low i.e. 40 ppb (0.001 oz/ton) and 2.0 ppm (0.06 oz/ton) respectively. Platinum and palladium from six rock chip samples from the 1977 work returned 390 ppb (0.012 oz/ton) and 265 ppb (0.008 oz/ton) respectively. However, the two samples collected in 1978 in this area gave only about half of the above values.

The mapping in 1978 did not locate any new areas of copper mineralization. Last year, besides the main showing, copper mineralization was noted 1120 m to the northeast (300-1400 ppm copper/2 m; pyrite-chalcopyrite-magnetite in epidotized hornblende pyroxenite - no Pt or Pd), 1050 m to the southeast (up to 2250 ppm copper/2 m; chalcopyrite-pyrite in hornblende pyroxenite) and 800 m north of the main showing (161 ppm Cu; chalcopyrite-pyrite in hornblende pyroxenite). All three areas show good chargeability responses with two of the three showing weak to moderate copper soil anomalies.

* Cu by aqua regia digestion and then analysed by atomic absorption (Cominco Laboratory, Vancouver). Pt and Pd by Chemex using a fire assay concentration and then atomic absorption.

(5) Percussion Drilling

Two vertical percussion holes were drilled (DP-78-9 to 350' and DP-78-11 to 240'). These two holes are located in Plate 3 with the copper, Pt and Pd analyses given in Tables 1 and 2 on pages 11 and 12. Logging of the chips for DP-78-9 shows the rock to be biotite pyroxenite with euhedral quartz crystals, pyrite (less than 1%) and grains of quartz with MoS_2, epidote and traces of pyrite. This hole was intended to test a chargeability anomaly adjacent to minor copper showings. Besides this area of MoS_2 mineralization grades of 0.017% Mo over 20' are reported in one of the drill holes at the main copper showing.

Percussion hole DP-78-11 was drilled to test the westerly extent of the mineralization at the main showing. Quartz diorite and skarn(?) were intersected to 70' with abundant chlorite, quartz veining and pyrite. Hornblende pyroxenite and hornblende gabbro predominate from 70' to the bottom of the hole. In this section epidote and pyrite are common with only traces of quartz. Grades from 5-220' are 400 ppm copper and from 220-240' it increases slightly to 1800 ppm copper.

TADPOLE LAKE MOLYBDENUM AREA

(1) Geology

The geology of the Tadpole Lake Mo area (Mo grid) is shown in Plate 6.

The rocks that host the Mo mineralization occur in an elongated quartz porphyry stock at least 3 km north-south and 1.5 east-west. The sediments (Unit 1) are the oldest rocks and are described on page 5. Age relationships of the various felsic units are difficult to determine but the oldest rocks are thought to be the diorites followed by successively younger units of granodiorite-quartz monzonite, quartz porphyry I and quartz porphyry II. Minor aplite dykes were noted in the southwest corner of Tadpole Lake and cut quartz porphyry I rocks.

Diorite (Unit 2) occurs in a small area in the southern part of the stock. It is fine grained and contains 70% plagioclase and 30% hornblende with traces of pyrite. Rocks of Unit 3 form a border to the stock that is about 250 m wide. They are medium grained with the granodiorite (Unit 3a) typically consisting of 60% plagioclase, 2% K-feldspar, 30% quartz and 8% biotite. Quartz monzonites (Unit 3b) have 47% plagioclase, 20% K-feldspar, 30% quartz and 3% biotite. The quartz porphyries (Units 4 and 5) comprise the bulk of the stock and are divided into two types on the basis of the amount of quartz phenocrysts. Quartz porphyry I rocks contain 2-5% quartz phenocrysts while quartz porphyry II rocks have 10-20%. Both rock types are medium to coarse grained and contain about 60% plagioclase, 4% K-feldspar, 32% quartz and 4% biotite. Aplites are fine grained and consist of equal amounts of plagioclase, K-feldspar and quartz.

The above rocks are cut by a number of major inferred faults that trend east-west through Tadpole Lake and northeast and northwest along Lambly Creek (Plate 4). In the vicinity of the MoS_2 mineralization quartz vein-

lets and fractures trend east-west, northeast, north and northwest, paralleling some of the major inferred faults. Dips of both are from 30-90° with steep dips predominating.

The most obvious alteration type is a quartz stockwork that is at least 1000 x 1500 m (Plate 6). These quartz veinlets (typically ½ - 1 cm), where mineralized, contain pink, secondary K-feldspar with chlorite selvages and disseminated pyrite. Some pyrite occurs along fractures. Detailed alteration patterns with depth are discussed in the PERCUSSION DRILLING section of this report (page 9).

(2) Silt Geochemistry

Mo silt values are shown in Plate 4. Anomalous values (3-45 ppm) occur over an area greater than 6 x 4 km and certainly identifies the area of MoS_2 mineralization at Tadpole Lake.

(3) Geophysics

Ground magnetics were done over 9.5 line km using a total field MP-2 magnetometer (Plate 7). This plot shows a magnetic low that is centered over Tadpole Lake and is open to the south and southeast. The better grade holes are located in or adjacent to this anomaly.

I.P. data (chargeability and resistivity over 13.5 line km) are reported in an attached report by A.R. Scott but geological comments on this data are summarized in this report. Chargeability values over the sediments are high (about 20-86 mv/V) and are due to several percent pyrite both along fractures and as disseminations. Values over the granitic rocks are generally very weakly anomalous (5-8 mv/V) and are consistent with the small amount of widespread pyrite noted in these rocks. Chargeability values at the surface in the vicinity of Tadpole Lake and at depth in many profiles show slightly higher values (8-17 mv/V). Mo grades and alteration intensity also increase with depth. Mo values of greater than 0.02% Mo occur in a chargeability range of 6.5 - 21.0 mv/V.

Apparent resistivity values for the sediments are generally less than 500 ohm metres (typically about 300 ohm metres) while the granitic rocks have values from about 500-2300 but more typically in the 600-1100 ohm metre range. Very low resistivity values (about 300-500 ohm metres) occur in granitic rocks over an area 300x greater than 700 m on the west side of the baseline on lines 8, 10, 12 and 14N. Percussion holes drilled on the fringe of this area returned 0.02% and 0.03% Mo for 50' sections at the bottoms of these holes. Mo values of greater than 0.02% Mo occur in a resistivity range of 500-1200 ohm metres.

(4) Mineralization

MoS_2 mineralization is seen only in quartz veinlets with traces of pyrite and pink, secondary K-feldspar in a large quartz stockwork (Plate 6). Mo content of outcrops rarely exceeds 0.02% but rounded surface exposures make

observations of Mo content difficult. The best mineralization is seen at the north end of Tadpole Lake where a quartz boulder with about 2% Mo occurs with minor pink, secondary K-feldspar and pyrite.

(5) Percussion Drilling

Nine holes were drilled (2560') over an area 1500 x 1000 m (Plate 6). Mo results for 10' sections are shown in Table 3 on page 13. Plate 8 shows two vertical sections through the drilled area. Mo grades for the low grade cap rock range from 0.004 - 0.017% with the better grades at the bottoms of most holes (0.017 - 0.041% Mo). The best holes were DP-78-3 and 8 which gave 0.061% Mo over 180' and 0.054% Mo over 50' respectively. Alteration in the low grade cap is weak to moderate chlorite with the lower, higher grade parts of the holes showing moderate to strong chlorite and weak to strong sericite.

CONCLUSIONS

1. MoS_2 mineralization occurs in a quartz stockwork cutting quartz porphyries over an area greater than 1500 x 1000 m in the Tadpole Lake area of the property. It also occurs 1500 m to the south of this area and is related to radially arranged quartz diorite dykes. In addition to these two showings numerous stream silt and soil anomalies combine to make an area of potential at least 6 x 4 km.

2. Percussion drilling at the main MoS_2 occurrence at Tadpole Lake showed a low grade cap zone, about 70-300' thick, with Mo grades from 0.004-0.017% with better Mo grades at the bottoms of most holes (0.017-0.041%). The best intersections are 180' of 0.061% Mo and 50' of 0.054% Mo in two holes. Alteration in the low grade cap is weak to moderate chlorite with the lower, higher grade parts of the holes showing moderate to strong chlorite and weak to strong sericite.

3. MoS_2 mineralization in the vicinity of the main Dobbin copper showing is found in two areas. The first, at the main showing (20' of 0.017% Mo), is reported from old previously drilled holes while the second is from a percussion hole by Cominco, about 1120 m northeast of the first area.

4. Copper mineralization is found principally in hornblende pyroxenite and occurs in four poorly tested areas that have coincident copper soil and I.P. anomalies.

RECOMMENDATIONS

1. To test the extent of Mo mineralization in the Tadpole Lake area with percussion drilling to define the best area to work and then to do diamond drilling to better test the depth potential and more accurately determine the Mo grades.

2. To better define existing Mo silt and soil anomalies on the property and to complete Mo soil coverage over the whole property.

3. To percussion drill the four areas of indicated copper mineralization in the vicinity of the main Dobbin copper showing (20 holes required).

Report by: M.J. Osatenko
Project Geologist

Endorsed by: F.L. Wynne
Senior Geologist

Approved for Release by: G. Harden
Manager, Exploration
Western District

MJO/pcl

TABLE 1

Cu ASSAYS OF PERCUSSION DRILL SAMPLES

FROM THE

DOBBIN PROPERTY

HOLE	Cu (ppm)	HOLE	Cu (ppm)
DP-78-9		DP-78-11	
8-20'	157	5-20'	269
20-30'	295	20-30'	1580
30-40'	325	30-40'	576
40-50'	187	40-50'	390
50-60'	62	50-60'	353
60-70'	31	60-70'	213
70-80'	234	70-80'	171
80-90'	98	80-90'	357
90-100'	85	90-100'	201
100-110'	64	100-110'	500
110-120'	219	110-120'	226
120-130'	231	120-130'	355
130-140'	130	130-140'	290
140-150'	33	140-150'	284
150-160'	75	150-160'	180
160-170'	76	160-170'	311
170-180'	61	170-180'	185
180-190'	47	180-190'	161
190-200'	72	190-200'	245
200-210'	158	200-210'	372
210-220'	183	210-220'	642
220-230'	186	220-230'	2270
230-240'	121	230-240'	1260
240-250'	90		
250-260'	206		
260-270'	206		
270-280'	177		
280-290'	340		
290-300'	150		
300-310'	123		
310-320'	186		
320-330'	180		
330-340'	139		
340-350'	129		

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TABLE 2

Pt AND Pd ANALYSES OF COMPOSITE PERCUSSION DRILL HOLE SAMPLES

FROM THE

DOBBIN PROPERTY

Hole	Pt (ppb)	Pd (ppb)
DP-78-9		
8-50'	<100	<20
50-100'	<100	<20
100-150'	<100	20
150-200'	<100	<20
200-250'	<100	<20
250-300'	<100	<20
300-350'	<100	<20
DP-78-11		
5-50'	<100	<20
50-100'	<100	<20
100-150'	<100	<20
150-200'	<100	<20
200-240'	<100	40

TABLE 3

Mo ASSAYS OF PERCUSSION DRILL HOLE

SAMPLES FROM THE

DOBBIN PROPERTY

Hole	% Mo	Hole	% Mo
DP-78-1		DP-78-2	
16-30'	.0050	30-40'	.0050
30-40'	.0060	40-50'	.0130
40-50'	.0130	50-60'	.0170
50-60'	.0140	60-70'	.0140
60-70'	.0390	70-80'	.0090
70-80'	.0260	80-90'	.0140
80-90'	.0220	90-100'	.0120
90-100'	.0170	100-110'	.0130
100-110'	.0160	110-120'	.0330
110-120'	.0210	120-130'	.0160
120-130'	.0200	130-140'	.0100
130-140'	.0150	140-150'	.0100
140-150'	.0330	150-160'	.0190
150-160'	.0210	160-170'	.0140
160-170'	.0210	170-180'	.0240
170-180'	.0140	180-190'	.0120
180-190'	.0190	190-200'	.0130
190-200'	.0160	200-210'	.0250
200-210'	.0170	210-220'	.0180
210-220'	.0210	220-230'	.0240
220-230'	.0250	230-240'	.0590
230-240'	.0170	240-250'	.0560
240-250'	.0180	250-260'	.0240
250-260'	.0340	260-270'	.0250
260-270'	.0280	270-280'	.0260
270-280'	.0220	280-290'	.0270
280-290'	.0130	290-300'	.0350

TABLE 3 continued

Hole	% Mo
DP-78-3	
20-30'	.0010
30-40'	.0060
40-50'	.0400
50-60'	.0260
60-70'	.0130
70-80'	.0060
80-90'	.0050
90-100'	.1060
100-110'	.2540
110-120'	.0720
120-130'	.0620
130-140'	.0270
140-150'	.0340
150-160'	.0160
160-170'	.0170
170-180'	.0200
180-190'	.0130
190-200'	.0470
200-210'	.0340
210-220'	.0960
220-230'	.1630
230-240'	.0430
240-250'	.0460
250-260'	.0260
260-270'	.0190
270-280'	.0090
280-290'	.0090
290-300'	.0090

Hole	% Mo
DP-78-4 *	
30-40'	.0040
40-50'	.0070
50-60'	.0030
60-70'	.0030
70-80'	.0020
80-90'	.0150
90-100'	.0060
100-110'	.0050
110-120'	.0040
120-130'	.0050
130-140'	.0090
140-150'	.0140
150-160'	.0150
160-170'	.0090
170-180'	.0060
180-190'	.0070
190-200'	.0600
200-210'	.0220
* 8-20'	.0030
20-30'	.0020

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TABLE 3 continued

Hole	% Mo	Hole	% Mo
DP-78-5		DP-78-6	
15-30'	.0030	15-30'	.0020
30-40'	.0020	30-40'	.0020
40-50'	.0070	40-50'	.0040
50-60'	.0030	50-60'	.0030
60-70'	.0030	60-70'	.0060
70-80'	.0020	70-80'	.0090
80-90'	.0110	80-90'	.0020
90-100'	.0050	90-100'	.0060
100-110'	.0050	100-110'	.0030
110-120'	.0040	110-120'	.0020
120-130'	.0060	120-130'	.0070
130-140'	.0030	130-140'	.0020
140-150'	.0140	140-150'	.0040
150-160'	.0070	150-160'	.0020
160-170'	.0130	160-170'	.0040
170-180'	.0080	170-180'	.0100
180-190'	.0080	180-190'	.0020
190-200'	.0040	190-200'	.0020
200-210'	.0030	200-210'	.0170
210-220'	.0030	210-220'	.0160
220-230'	.0030	220-230'	.0040
230-240'	.0020	230-240'	.0040
240-250'	.0090	240-250'	.0020
250-260'	.0330	250-260'	.0050
260-270'	.0130	260-270'	.0060
270-280'	.0220	270-280'	.0090
280-290'	.0200	280-290'	.0190
290-300'	.0130	290-300'	.0150

TABLE 3 continued

Hole	% Mo
DP-78-7	
58-70'	.0010
70-80'	.0300
80-90'	.0270
90-100'	.0160
100-110'	.0120
110-120'	.0100
120-130'	.0090
130-140'	.0040
140-150'	.0050
150-160'	.0040
160-170'	.1000
170-180'	.0360
180-190'	.0210
190-200'	.0210
200-210'	.0080
DP-78-8	
15-20'	.0030
20-30'	.0040
30-40'	.0040
40-50'	.0030
50-60'	.0200
60-70'	.0180
70-80'	.0080
80-90'	.0040
90-100'	.0080
100-110'	.0060
110-120'	.0040
120-130'	.0040
130-140'	.0080
140-150'	.0050
150-160'	.0210
160-170'	.0940
170-180'	.0280
180-190'	.0340
190-200'	.0580
200-210'	.0480
210-220'	.0380
220-230'	.0260
230-240'	.0230
240-250'	.0180
250-260'	.0160
260-270'	.0170
270-280'	.0160
280-290'	.0130
290-300'	.0230

Hole	% Mo
DP-78-10	
34-50'	.0060
50-60'	.0090
60-70'	.0080
70-80'	.0060
80-90'	.0040
90-100'	.0060
100-110'	.0030
110-120'	.0030
120-130'	.0020
130-140'	.0040
140-150'	.0030
150-160'	.0040
160-170'	.0020
170-180'	.0030
180-190'	.0030
190-200'	.0040
200-210'	.0030
210-220'	.0020
220-230'	.0060
230-240'	.0030
240-250'	.0020
250-260'	.0090
260-270'	.0080
270-280'	.0070
280-290'	.0110
290-300'	.0120
300-310'	.0100
310-320'	.0480
320-330'	.0310
330-340'	.0200
340-350'	.0220

COMINCO LTD.

EXPLORATION WESTERN DISTRICT

APPENDIX "A"

STATEMENT OF EXPENDITURES FOR

GEOLOGICAL, GROUND MAGNETICS, I.P., ROCK AND SILT GEOCHEM AND

PERCUSSION DRILLING WORK ON THE

TAD 1-6 MINERAL CLAIMS

Permanent Salaries

M.J. Osatenko	- May 28th, August 12-29th, September 1-10th, 1978 (31 days @ $161/day)	$ 4,991.
	- report writing, drafting (12 days @ $161/day)	1,932.
F.J. Ferguson	- September 8th - 27th, 1978 (20 days @ $115/day)	2,300.
R. Ryziuk	- October 25-27th, 1978 (3 days @ $90/day)	270.

Temporary Salaries

D. Mehner	- May 28th, August 12-31st, September 1-12th, 1978 (33 days @ $93/day)	3,069.

Supervision

F.L. Wynne	- 7 days @ $180/day	1,260.

Drilling

Percussion drilling 3150' @ $3.77/foot	11,880.
Mobilization of drill equipment	432.
Site preparation	3,106.
Sample bags	300.

Linecutting

34 line km by D. Martinson	3,672.

APPENDIX "C"

COMINCO LTD.

EXPLORATION WESTERN DISTRICT

STATEMENT OF QUALIFICATIONS

I, MYRON J. OSATENKO, OF THE CITY OF VANCOUVER, BRITISH COLUMBIA, HEREBY CERTIFY:

1. THAT I AM A GEOLOGIST, RESIDING AT 6437 - 116th STREET DELTA, BRITISH COLUMBIA WITH A BUSINESS ADDRESS AT 700-409 GRANVILLE STREET, VANCOUVER, BRITISH COLUMBIA.

2. THAT I GRADUATED WITH B.Sc. AND M.Sc. DEGREES IN GEOLOGY FROM THE UNIVERSITY OF BRITISH COLUMBIA IN 1965 AND 1967 RESPECTIVELY.

3. THAT I HAVE PRACTISED GEOLOGY WITH COMINCO LTD. FROM 1967 TO PRESENT.

DATED THIS 5th day of May, 1979 at Vancouver, British Columbia.

SIGNED M. Osatenko

Myron J. Osatenko, M.Sc.

Geophysics

13.5 line km I.P.	$11,549.
magnetometer rental	482.

Assays

295 Mo assays @ $6.00/sample	1,770.
57 Cu assays @ $3.50/sample	200.
56 Pt, Pd assays @ $10.70/sample	600.
44 Cu assays @ $2.30/sample	100.
42 Mo stream silts @ $3.00/sample	126.

Truck

55 days @ $30/day	1,620.

Domicile

87 man days @ $40/day	3,480.

Miscellaneous

maps, photos, flagging, phone	300.
	$53,439.

M. Osatenko

M.J. OSATENKO

APPENDIX "B"

IN THE MATTER OF THE

B.C. MINERAL ACT

AND

IN THE MATTER OF A GEOLOGICAL, GROUND MAGNETIC, I.P., ROCK AND SILT GEOCHEM AND PERCUSSION DRILLING PROGRAM CARRIED OUT ON THE TAD 1-6 MINERAL CLAIMS

Located in the Vernon Mining Division

of the Province of British Columbia

More particularly N.T.S. 82 L/4W

A F F I D A V I T

I, MYRON J. OSATENKO OF THE CITY OF VANCOUVER IN THE PROVINCE OF BRITISH COLUMBIA, MAKE OATH AND SAY:

1. THAT I AM EMPLOYED AS A PROJECT GEOLOGIST BY COMINCO LTD. AND AS SUCH HAVE A PERSONAL KNOWLEDGE OF THE FACTS TO WHICH I HEREINAFTER DEPOSE;

2. THAT ANNEXED HERETO AND MARKED AS "EXHIBIT A" TO THIS MY AFFIDAVIT IS A TRUE COPY OF EXPENDITURES OF A GEOLOGICAL, GROUND MAGNETICS, I.P., ROCK AND SILT GEOCHEM AND PERCUSSION DRILLING PROGRAM CARRIED OUT ON THE TAD 1-6 MINERAL CLAIMS;

3. THAT THE SAID EXPENDITURES WERE INCURRED BETWEEN THE 28th DAY OF MAY 1978 AND THE 27th DAY OF OCTOBER, 1978 FOR THE PURPOSE OF MINERAL EXPLORATION ON THE ABOVE NOTED CLAIMS.

M. Osatenko

MYRON J. OSATENKO

LEGEND

TERTIARY

5 — *Basalts and rhyolite – flows and tuffs.*

JURASSIC — EARLY TERTIARY

4a | 4b — *4a: Pyroxenite, monzonite. 4b: Quartz monzonite, quartz porphyry*

JURASSIC

3 — *Granodiorite*

PALEOZOIC

2 — *Argillite, basalt, and limestone.*

PROTEROZOIC

1 — *Gneiss, schist.*

○ — *Mineral showing.*

– – – *Line denotes division of responsibility.*

BRENDA MINE
177 Million Tons at
0.049% Mo, 0.18% Cu

WIT PROPERTY (COMINCO)

ESPERON PROPERTY (COMINCO)

DOBBIN PROPERTY (COMINCO)

WOODSDALE PROPERTY (COMINCO)

ISINTOK PROPERTY (COMINCO)

VERNON

KELOWNA

PENTICTON

LAKE

Hwy 97

Shuswap Complex

WPA

MJO

NAGANATO

49° 40'

119° 25'

MAIN Mo TRENDS AS DEFINED BY SHOWINGS, ANOMALOUS STREAM SILTS, AND LINEAMENTS.

AREA OF PROPOSED Mo RECCE. FOR 1979.

0 5 10 15 20
250 000
Kilometers

DOBBIN PROPERTY

NTS 82L 82E

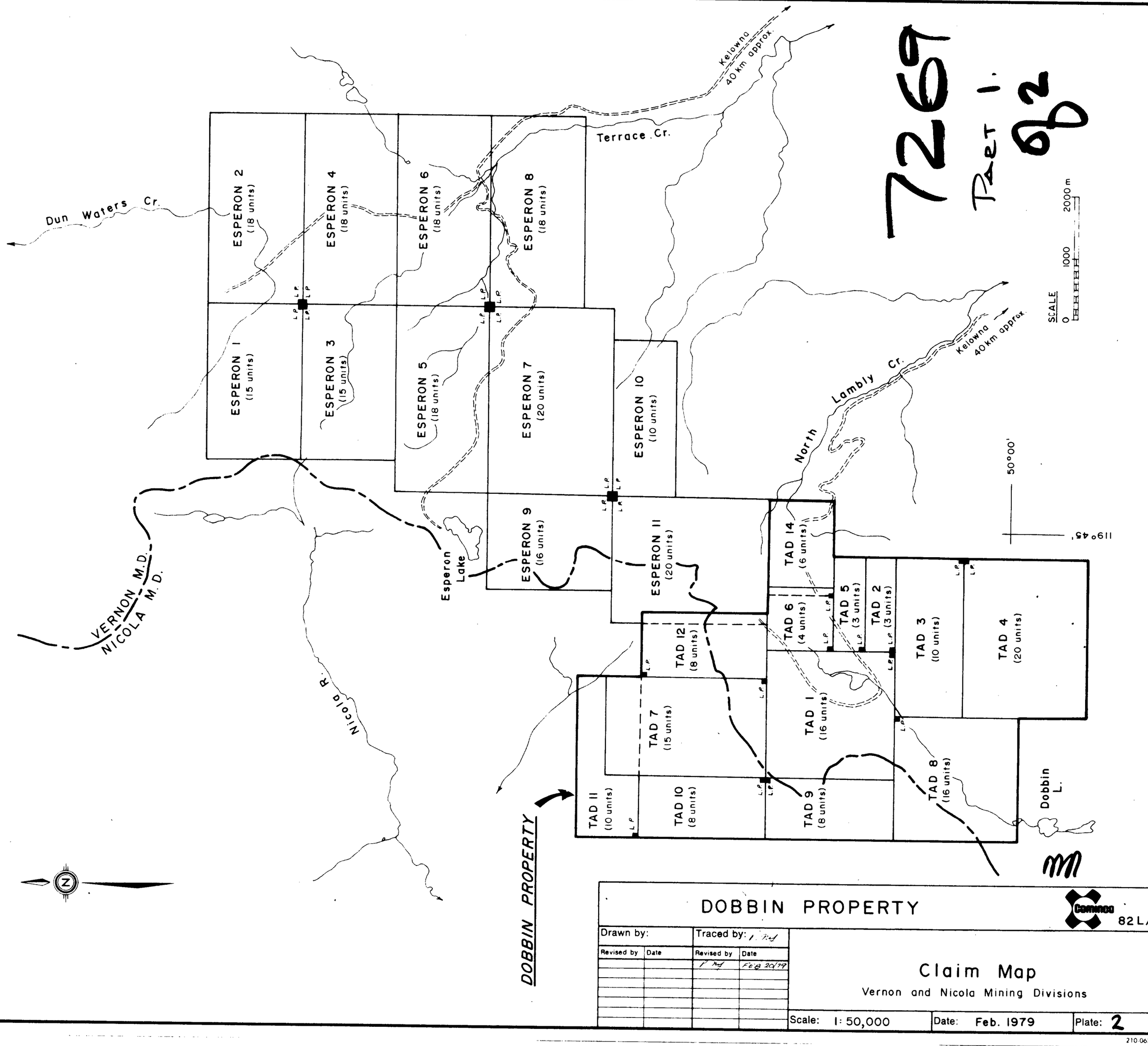
Drawn by:		Traced by: RAR	
Revised by	Date	Revised by	Date

REGIONAL GEOLOGY

Scale: 1 250,000 | Date: November 10, 1978 | Plate: 1

7269
PART 1 of 2
MO

7269
PART 1.
82



DOBBIN PROPERTY

COMINCO 82 L/4

Drawn by:		Traced by:	
Revised by	Date	Revised by	Date

Claim Map

Vernon and Nicola Mining Divisions

Scale: 1:50,000 | Date: Feb. 1979 | Plate: 2

210-0620

DOBBIN PROPERTY

GEOLOGY and ROCK GEOCHEMISTRY (Cu, Pt, Pd)

- Cu Grid -

82L/4W

Drawn by: M.J.O. Traced by: [illegible]
Revised by: [illegible] Revised by: [illegible]

Scale: 1:5000 Date: February, 1979 Plate: 3

FORM 312 5000

7269
PART 1
OF 2

ROCK GEOCHEMISTRY

Sample Location No.	ppm Cu	ppb Pt	ppb Pd	Sample Location No.	ppm Cu	ppb Pt	ppb Pd
39	28	<100	20	164	122	<100	<20
58	210		<20	166	957	200	40
68	161			170	170	<100	20
71	296			175	310		40
105	56			176	620		40
107	11			177	120		20
109	73			178	1820	<100	40
119a	76			179	5560	200	140
119b	108		<20	182	4	<100	<20
124	590		40	187	134		
128a	784		<20	188	2		
128b	1120			189	98		
130	43			190	172		
134	115			191	182		
136	34			192	2		
137	12		<20	194	440		
146	187		20	196	387		
150	237		<20	197	330		<20
152	65			198	246		20
153	6			199	173		<20
157	59			201	248		40
160	212	<100	<20	202	148	<100	<20

LEGEND

LOWER CRETACEOUS — JURASSIC

Calc-alkaline complex

8 — Leucocratic quartz diorite

Ultramafic - monzonite complex

7 — Leucocratic monzonite (6-12% quartz)

6 — Porphyritic monzonite with K-feldspar phenocrysts greater than 4 cm

5 — Porphyritic monzonite

4 — Ultramafic rocks

4a — Hornblende pyroxenite

4b — Biotite pyroxenite

3 — Hornblende gabbro and mafic monzonite

Calc-alkaline complex

2 — Quartz monzonite

PALEOZOIC or TRIASSIC

1 — Argillite, impure quartzite

Foliation

Strike and dip

Geological contact - defined, approximate, assumed

Py Pyrite
Cpy Chalcopyrite
Mag Magnetite

DP 78-11 — Percussion drill hole - Cominco Ltd.

PH-TGS — Percussion drill hole - Texas Gulf Sulphur Co.

Sample location number - rock geochemistry

SCALE:

0 100 200 300 400 500 METERS

Contours are shown in meters

Mo Grid

Cu Grid

DOBBIN COPPER SHOWING

DOBBIN PROPERTY

Tadpole Lake

Lambly Ck

Whiterocks Mtn.

To Kelowna - 40 km

LEGEND

JURASSIC — LOWER CRETACEOUS

Calc-alkaline complex

- 10 Alaskite (?)
- 9 Quartz porphyry II
- 8 Quartz porphyry I
- 7 Quartz monzonite
- 6 Leucocratic quartz diorite
- 5 Diorite

Ultramatic-monzonite complex

- 4 Porphyritic monzonite
- 3 Pyroxenite
- 2 Hornblende gabbro, mafic monzonite

PALEOZOIC or TRIASSIC

Cache Creek or Nicola Group

- 1 Sedimentary and volcanic rocks
  - 1a Argillite, impure quartzite, limestone
  - 1b Basalt flows and tuffs
  - 1c Rhyolite tuffs

A-127 6 — Stream silt sample, Mo ppm (background <2)

Assumed fault

Geological boundary (approximate, assumed)

Py Pyrite

Q Quartz veining

Cpy Chalcopyrite

MoS_2 Molybdenite

SCALE

0 500 1000 1500 m

NOTE: Topographic contours are in meters

7269
part 1 of 2

DOBBIN PROPERTY

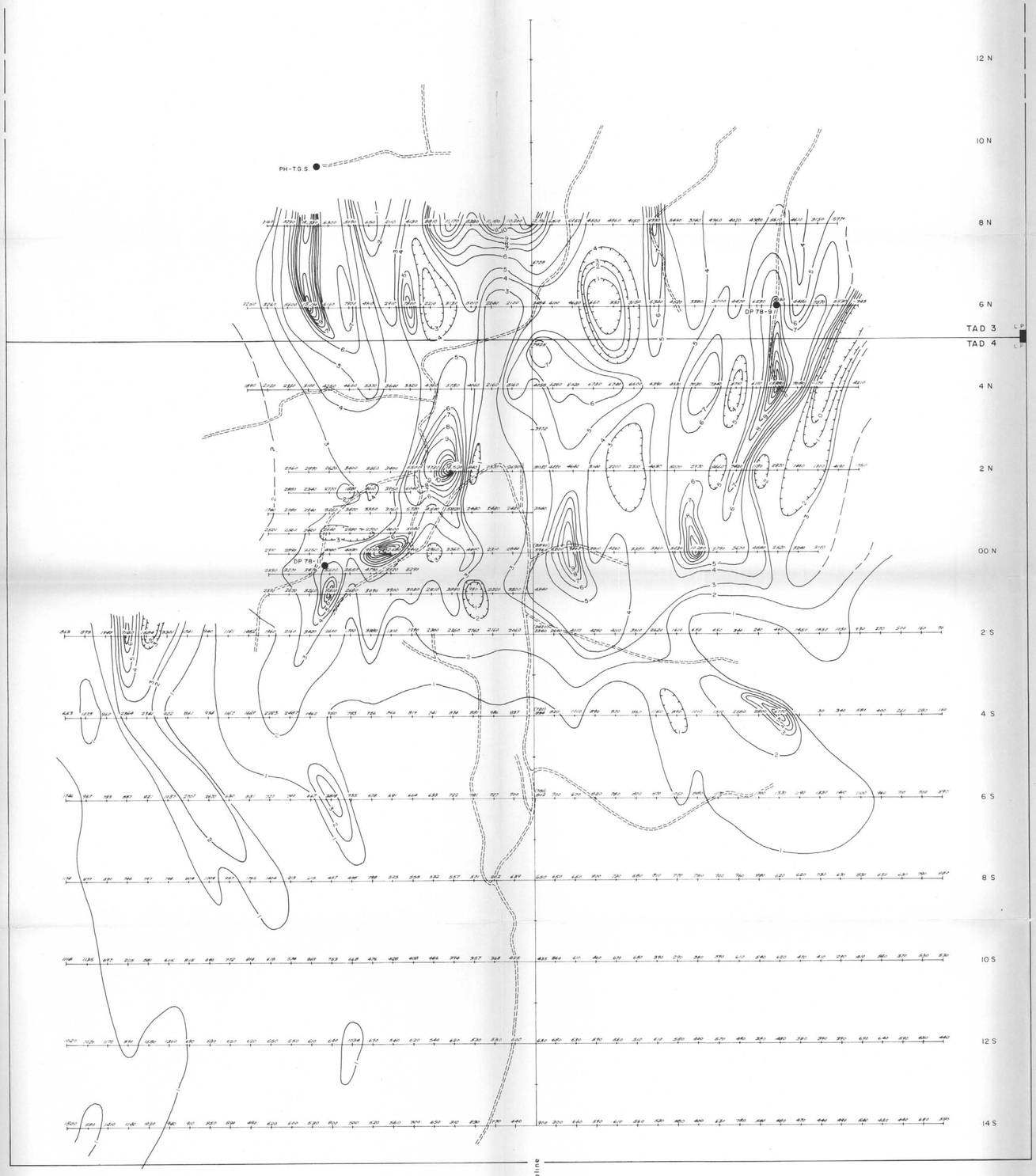
82 L/4 W

Drawn by: MJO	Traced by:
Revised by / Date	Revised by / Date

GEOLOGY and STREAM SILT GEOCHEMISTRY

Scale: 1:20,000 | Date: Feb., 1979 | Plate: 4

NCI-229-C.L.



LEGEND

DP 78-11 — PERCUSSION DRILL HOLE - COMINCO LTD.

PH-TGS — PERCUSSION DRILL HOLE - TEXAS GULF SULPHUR CO.

L.P. — LEGAL CLAIM POST

SCALE:

0 100 200 300 400 500 METERS

7269 PART 1

-Cu Grid-

DOBBIN PROPERTY

82 L/4

Drawn by:	Traced by:
Revised by / Date	Revised by / Date

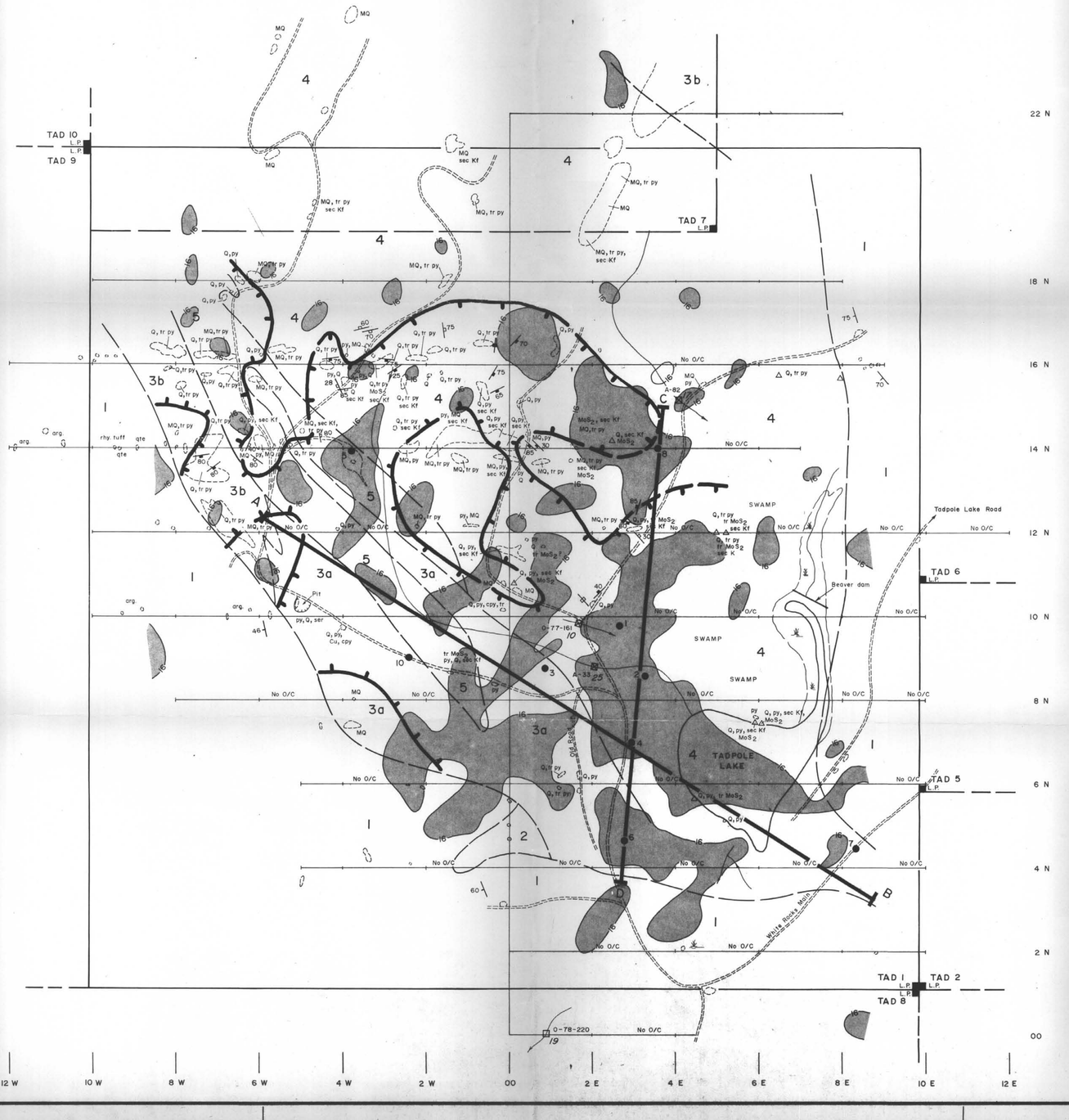
GROUND MAGNETICS

Readings in gammas Contour interval = 1000 γ

Scale: 1:5000 Date: February, 1979 Plate: 5

NCI-118-C.L.

FORM 310-0870



LEGEND

LOWER CRETACEOUS

- 5 Quartz porphyry II - (10-20% quartz phenocrysts)
- 4 Quartz porphyry I - (2 - 5% quartz phenocrysts)
- 3 3a Equigranular granodiorite; 3b Equigranular quartz monzonite
- 2 Diorite

PALEOZOIC or TRIASSIC

- 1 Argillite, impure quartzite, minor rhyolite tuff

- Outcrop, boundary — No O/C No outcrop
- Geological boundary, approximate
- Percussion hole
- Quartz veinlet
- Fracture
- Q Quartz veining (1-3% of O/C)
- MQ Minor quartz veining (1% of O/C)
- py Pyrite (1/4 - 1/2% of O/C)
- tr py Tr pyrite (1/4% of O/C)
- sec Kf Secondary K-feldspar

Area of abundant quartz veining

16 Greater than 16 ppm Mo in soil (Texas Gulf Sulphur Co. - Geochemical Survey - 1968)

A-33 / 25 Stream silt sample, Mo ppm (background <2)

SCALE:

0 100 200 300 400 500 METERS

7269
PART 1 of 2 MM

-Mo Grid-

DOBBIN PROPERTY

82 L/4

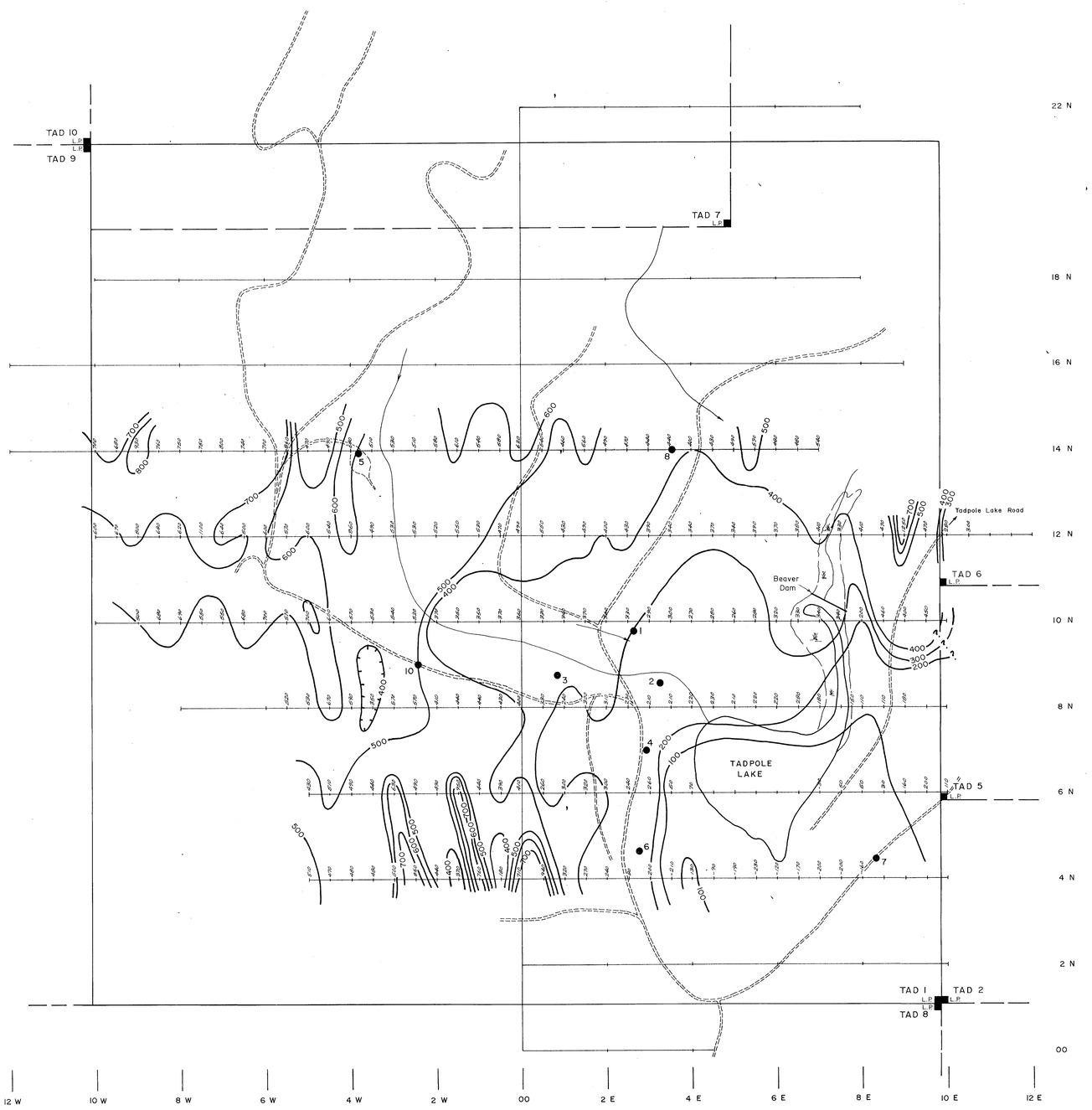
GEOLOGY MAP
showing
Mo Geochemical Soil Anomalies

Drawn by: MJO	Traced by: PM	Scale: 1:5000	Date: February, 1979	Plate: 6

Revised by / Date

NCI-119-G.L.

FORM 210-0680



SCALE:
0 100 200 300 400 500 METERS

7269 PART 1 of 2 mm

– Mo Grid –

DOBBIN PROPERTY

82 L/4

Ground Magnetics

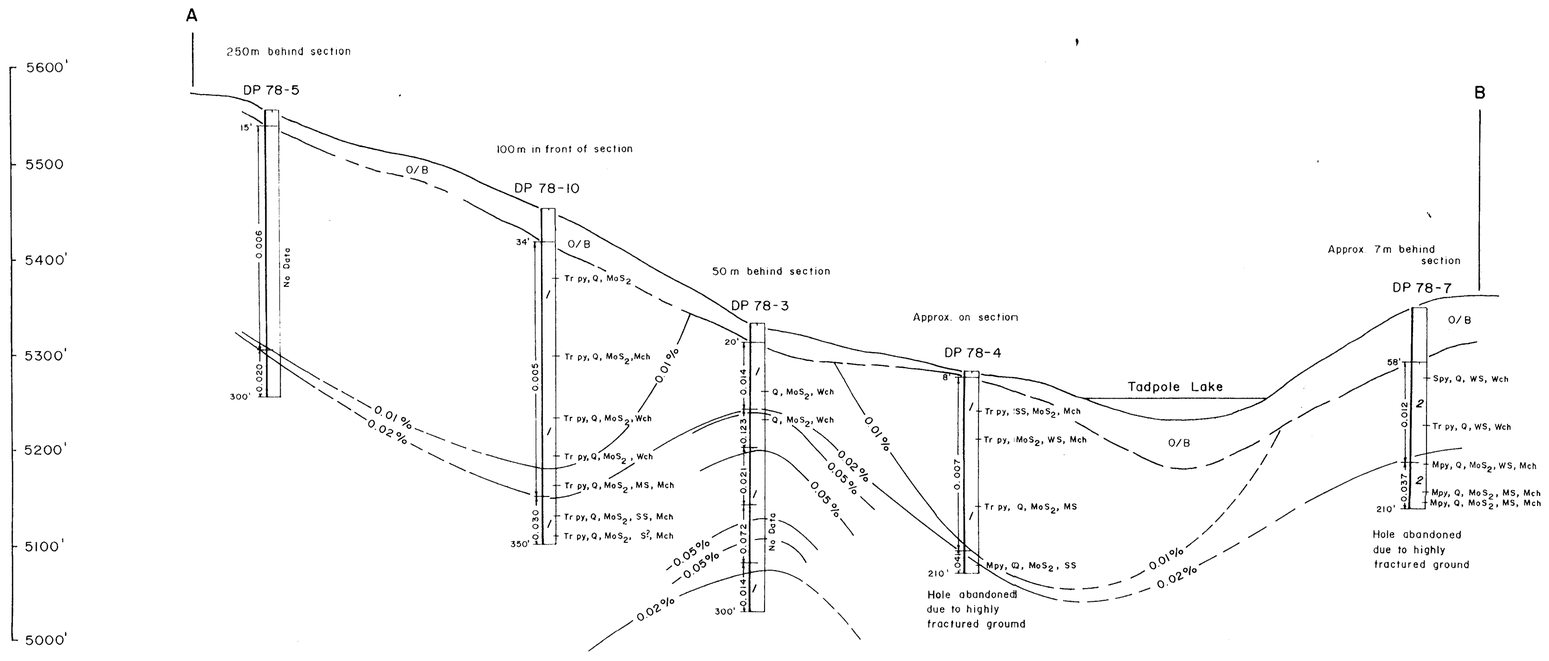
Readings in gammas

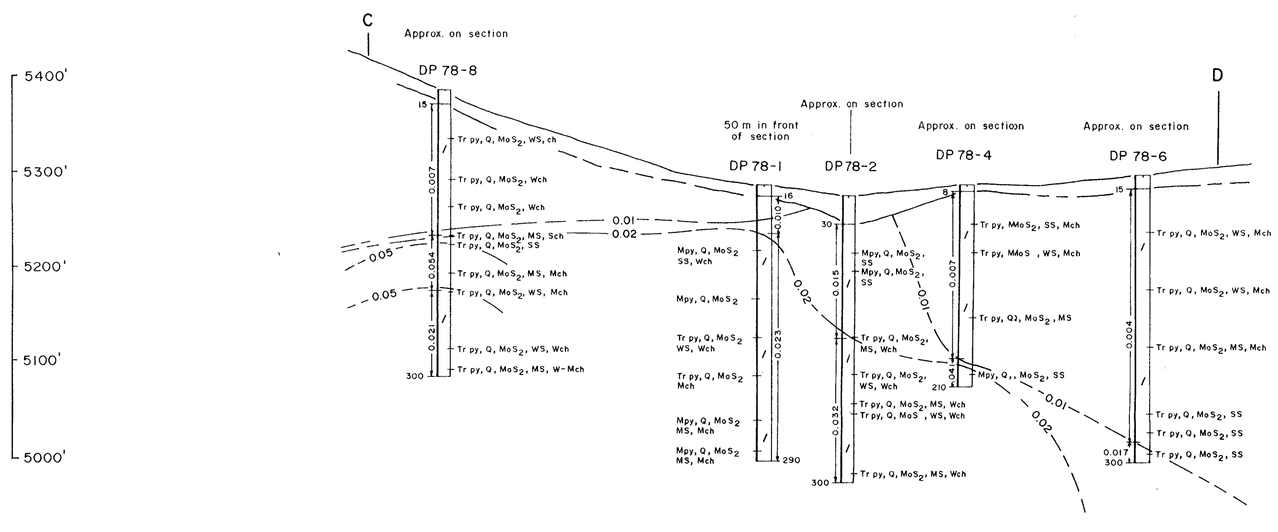
Drawn by: MJO	Traced by:	Scale: 1:5000	Date: February, 1979	Plate: 7

Revised by	Date	Revised by	Date

FORM 210-0680

NCI - 119 - G.L.





LEGEND

1	Quartz porphyry
2	Granodiorite
Tr py	Trace pyrite (1/4%)
M py	Moderate pyrite (1/4% - 2%)
S py	Strong pyrite (+2%)
Q	Quartz

ALTERATION

WS	Weak sericite
MS	Moderate sericite
SS	Strong sericite
Wch	Weak chlorite
Sch	Strong chlorite

7269
PART 1
mm 8 of 2

- Mo Grid -

DOBBIN PROPERTY

82 L/4

Drawn by: MJO	Traced by:
Revised by / Date	Revised by / Date

SECTIONS A-B & C-D
Showing
GEOLOGY, ALTERATION & GRADES Mo

Scale: Horizontal - 1:5000
Vertical - 1" = 100'

Date: APRIL, 1979

Plate: 8