

DRILLING

REPORT

ON THE

OK PROPERTY

NR. POWELL RIVER, BRITISH COLUMBIA

VANCOUVER MINING DIVISION

50°02' N

124°39' W

NTS 92K/2E

FOR

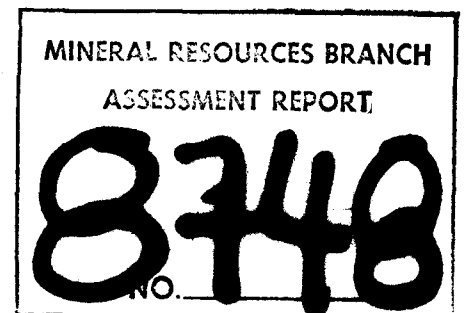
AQUARIUS RESOURCES LTD.

EDMONTON, ALBERTA.

BY

A. S. ASHTON, P.ENG.

MARCH 25, 1980.



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AQUARIUS RESOURCES LTD.

OK PROPERTY

Vancouver Mining Division

SUMMARY

Aquarius Resources Ltd. holds under option 129 claims and 22 fractions of the OK group, 14 miles north-west of Powell River in the Vancouver Mining Division. Access is by motor vehicle from Powell River and the north boundary of the property is on tide water, Theodosia Inlet.

Copper and molybdenum mineralization has been intermittently found over a length of three miles in an area of strong alteration. This alteration occurs in younger intrusives in the Coast Range granodiorites.

Work programmes have concentrated on a limited grid area covering most of the presently held claims. Limited drilling has confirmed widespread mineralization, but only one zone, the North Lake zone, has had sufficient drilling to indicate any potential 'ore' tonnage.

The tonnage indicated by drilling is 54,000,000 grading 0.3% Cu and 0.016% MoS₂. A further 21,000,000 million tons is geologically inferred, which grades 0.26% Cu and 0.012% MoS₂.

Many anomalous zones have yet to be completely tested. In 1979 a new showing was drilled approximately 400 metres south of the south zone. In three or four trenches north of this zone, copper values were noted, although rock trenching must be carried

out to complete the picture. This adds considerably to the potential mineralized area.

A program in two stages has been recommended with the first stage, consisting of surface work and drilling, to cost \$215,280.00, and the second stage, consisting of drilling and preliminary feasibility study, to cost \$644,000. The total of \$860,000 spent will indicate the viability of bringing the property to production.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "A. S. Ashton".

A. S. Ashton, P. Eng.

Delta,
British Columbia.

March 25, 1980.

INTRODUCTION

The following report is a brief summary of the work that has been carried out on the OK property since its discovery by Mr. R. Mickle in 1965 up to and including the limited surface work and diamond drilling carried out in the fall of 1979. The property, comprising 129 full claims and 22 fractions, is owned by Mr. R. Mickle and Mrs. M. Boylan, and is under option to Aquarius Resources Ltd.

The object of the report is to provide a resume of the work completed by several different companies and to assess their results, and to determine the most practical method of further evaluating the widespread copper and molybdenum mineralization located to date. The work in 1979 located new showings, which are the most southerly to date, with interesting values in copper, molybdenum and silver. This area requires further investigation and attention must be paid to previous metal values.

LOCATION & ACCESS

The OK property is located 23 km. north north-west of Powell River in the Vancouver Mining District. The geographic location is $50^{\circ}03'$ north latitude and $124^{\circ}40'$ west longitude. The property extends south of Theodosia Inlet and 3.2 km. east of Okeover Inlet.

The property is readily accessible from Powell River. Travel north on highway 101 towards Lund for approximately 8 km., then turn to the right at West Road. This secondary road will lead to the property, a distance of just over 23 km.



PROPERTY

AQUARIUS RESOURCES LTD.

OK PROPERTY

LOCATION MAP

PROPERTY

The following claims, which make up the property are currently held by the prospectors, M. Boylan and R. Mickle. These claims were in good standing as of March 20th, 1980. They are indicated on claim map 92K2E.

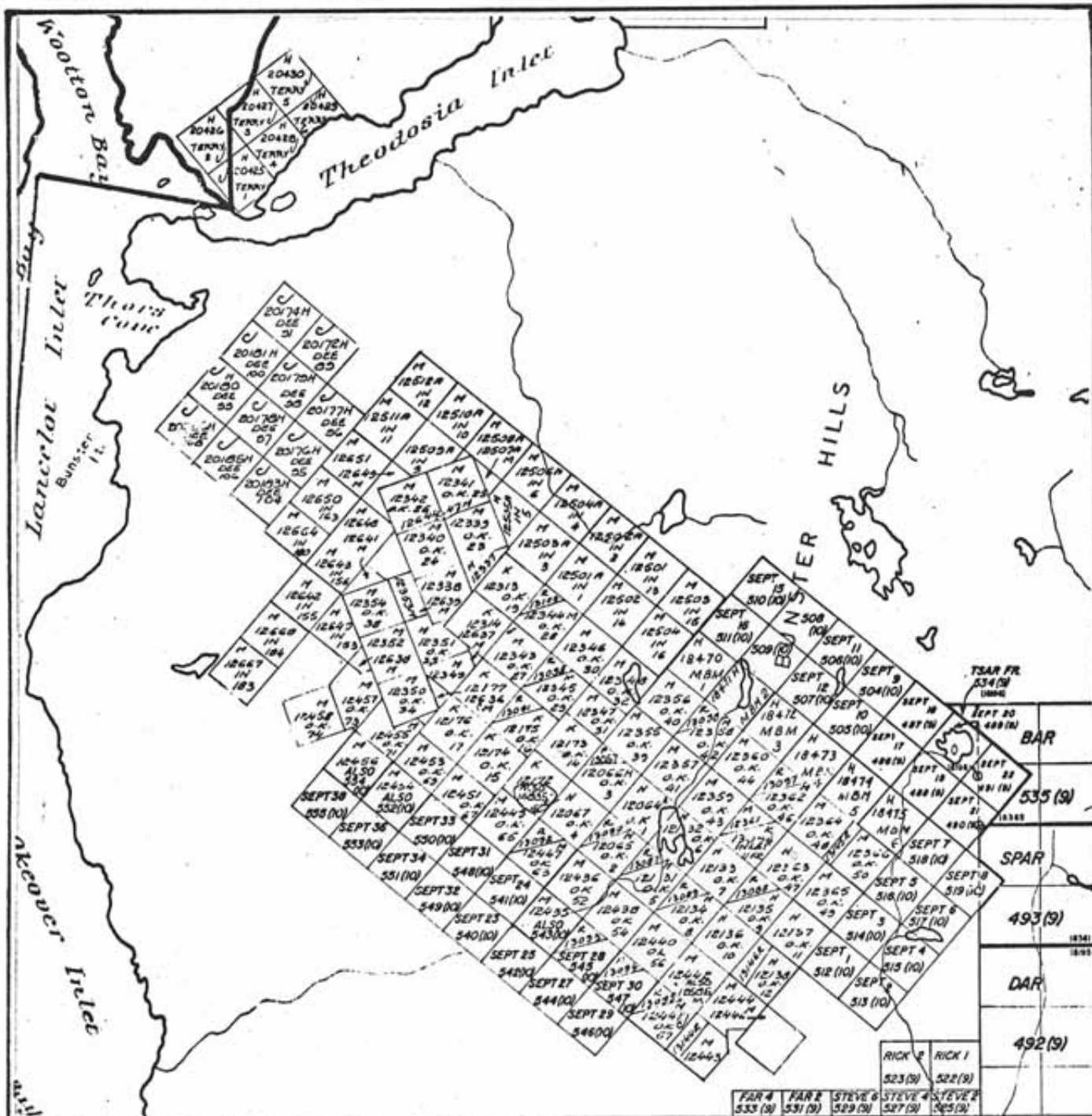
<u>Name</u>	<u>Number</u>	<u>Expiry Date</u>	<u>Recorded Date</u>
OK 1	12064A	1987	Jul 7
OK 2	12065	1987	Jul 7
OK 3	12066	1989	Jul 7
OK 4	12067	1987	Jul 7
OK 5	12131	1988	Jul 22
OK 6	12132	1980	Jul 22 *
OK 7	12133	1990	Jul 22
OK 8	12134	1980	Jul 22 *
OK 9	12135	1987	Jul 22
OK 10	12136	1979	Jul 22 *
OK 11	12137	1987	Jul 22
OK 12	12138	1987	Jul 22
OK 13	12172	1987	Aug 1
OK 14	12173	1989	Aug 1
OK 16	12175	1989	Aug 1
OK 17	12176	1987	Aug 1
OK 18	12177	1991	Aug 1
OK 19	12313	1980	Aug 26 *
OK 20	12314	1992	Aug 26
OK 21	12337	1980	Sep 6 *
OK 22	12338	1980	Sep 6
OK 23	12339	1980	Sep 6 *
OK 24	12340	1980	Sep 6 *
OK 25	12341	1980	Sep 6 *
OK 26	12342	1980	Sep 6 *
OK 27	12342	1980	Sep 6 *
OK 28	12344	1980	Sep 6 *
OK 29	12345	1989	Sep 6
OK 30	12346	1988	Sep 6
OK 31	12347	1989	Sep 6
OK 33	12349	1980	Sep 6 *
OK 34	12350	1980	Sep 6 *
OK 35	12351	1980	Sep 6 *
OK 36	12352	1980	Sep 6 *
OK 37	12353	1980	Sep 6 *

<u>Name</u>	<u>Number</u>	<u>Expiry Date</u>	<u>Recorded date</u>
OK 38	12354	1981	Sep 13
OK 39	12355	1989	Sep 6
OK 40	12356	1988	Sep 6
OK 41	12357	1987	Sep 6
OK 42	12358	1988	Sep 6
OK 43	12359	1987	Sep 6
OK 44	12360	1988	Sep 6
OK 45	12361	1987	Sep 6
OK 46	12362	1989	Sep 6
OK 47	12363	1988	Sep 6
OK 48	12364	1989	Sep 6
OK 49	12365	1989	Sep 6
OK 50	12366	1988	Sep 6
OK 52	12436	1985	Sep 13
OK 54	12438	1985	Sep 13
OK 56	12440	1985	Sep 13
OK 58	12442	1985	Sep 13
OK 60	12444	1988	Sep 13
OK 63	12447	1985	Sep 13
OK 65	12449	1985	Sep 13
OK 67	12451	1989	Sep 13
OK 69	12453	1987	Sep 13 *
OK 70	12454	1980	Sep 13 *
OK 71	12455	1980	Sep 13 *
OK 72	12456	1980	Sep 13 *
OK 73	12457	1987	Sep 13 *
OK 74	12458	1980	Sep 13
IN 1	12501A	1986	Sep 16
IN 2	12502A	1981	Sep 16
IN 3	12503A	1980	Sep 16 *
IN 4	12504A	1981	Sep 16 *
IN 5	12505A	1985	Sep 16
IN 6	12506A	1984	Sep 16
IN 7	12507A	1984	Sep 16
IN 8	12508A	1984	Sep 16
IN 9	12509A	1985	Sep 16
IN 10	12510A	1985	Sep 16
IN 11	12511A	1985	Sep 16
IN 12	12512A	1985	Sep 16
IN 13	12501	1980	Sep 16 *
IN 14	12502	1986	Sep 16
IN 15	12503	1980	Sep 16 *
IN 16	12504	1986	Sep 16
IN 150 (Fr.)	12637	1984	Sep 30
IN 151	12638	1983	Sep 30

<u>Name</u>	<u>Number</u>	<u>Expiry Date</u>	<u>Recorded Date</u>
IN 152	12639	1983	Sep 30
IN 153	12640	1983	Sep 30
IN 154	12641	1984	Sep 30
IN 155	12642	1989	Sep 30
IN 161	12648	1985	Sep 30
IN 162	12649	1989	Sep 30
IN 163	12650	1985	Sep 30
IN 164	12651	1985	Sep 30
IN 180	12664	1985	Sep 30
IN 183	12667	1982	Sep 30
IN 184	12668	1982	Sep 30
MBM 1	18470	1992	Jul 6
MBM 2	18470	1992	Jul 7
MBM 3	18472	1992	Jul 7
MBM 4	18473	1992	Jul 7
MBM 5	18474	1992	Jul 7
MBM 6	18475	1992	Jul 7
Fraction at NE OK 28		1989	
Inlet Fr. 1	13057	1988	Nov 5
" " 2	13087	1993	Dec 7
" " 3	13088	1988	Dec 7
" " 4	13089	1988	Dec 7
" " 5	13090	1986	Dec 7
" " 6	13091	1988	Dec 7
" " 7	13092	1982	Dec 7
" " 8	13093	1981	Dec 7
" " 9	13094	1981	Dec 7
" " 10	13095	1983	Dec 7
" " 11	13096	1984	Dec 7
" " 12	13097	1984	Dec 7
" " 13	13098	1984	Dec 7
" " 14	13099	1988	Dec 7
" " 15	13100	1987	Dec 7
" " 16	13146	1986	Dec 7
Kydidle Fr. 1	13144	1986	Dec 16
" " 2	13145	1986	Dec 16
Sept 1	512	1980	Oct
" 2	513		
" 3	514		
" 4	515		
" 5	516		
" 6	517		
" 7	518		
" 8	519		
" 9	504		

Sept	10	505		
"	11	506		
"	12	507		
"	13	508		
"	14	509		
"	15	510		
"	16	511		
"	17	486	1980	Sep
"	18	487		
"	19	488		
"	20	489		
"	21	490		
"	22	491		
"	23	540		
"	24	541		
"	25	542		
"	27	544		
"	28	545		
"	29	546		
"	30	547		
"	31	548		
"	32	549		
"	33	550		
"	34	551		
"	36	553		
"	38	555		
Also		543	1980	Oct
Also		552	1980	Oct
Also		554	1980	Oct

Totalling 129 claims and 22 fractions.



AQUARIUS RESOURCES LTD.

OK PROPERTY

CLAIM MAP

Scale 1-50,000

TOPOGRAPHY

The property extends south from Theodosia Inlet up rugged, steep gradients to a plateau-like area, which is ring-like, being surrounded by hills rising from 1000 m. to 1100 m. A.S.L., while the plateau area is from 760 m. to 850 m. A.S.L.

Several lakes occur on the property, which are separated by elongated sloughs and swamps, which in turn are separated by northerly trending dikes 30 m. to 60 m. wide and 5 m. to 15 m. high.

In the north, the drainage is towards Theodosia Inlet, while the remainder drains to the south and south-west.

Approximately 85% of the ground is covered by relatively thin glacial drift.

HISTORY

Mr. R. Mickle located the property in 1965 using a geochemical stream sampling method. Since that date, several major mining companies have conducted exploration programs on the property. To date, some 44,533 feet of diamond drilling and 2,380 feet of percussion drilling has been carried out as well as numerous geochemical, geological and geophysical surveys.

The following table indicates the companies and the extent of their work on this property.

	<u>Year</u>	
Mickle and Boylan	1965	Discovery.
Noranda Mines Ltd.	1966-67	D.D. - 8,429 feet; geological & geochemical surveys.
Asarco	1968	D,D, - 3,290 feet; geological & geochem. surveys.
Falconbridge	1967-70	D.D. - 1,996 feet; geological & geochem. surveys.
Duval Corporation	1971	Percussion Drilling, 2,380 ft.
Granite Mountain Mines Ltd.	1972	D.D. - 14,031 feet; geological, geophysical and geochemical surveys.
Sierra Empire	1973	D.D. - 2,092 feet.
Western Mines Ltd.	1974	D.D. - 12,695 feet.
Western Mines Ltd.	1977	D.D. - 1,995 feet.
Aquarius Resources Ltd.	1979	D.D. - 205 metres and surface trenching.

In all, a total of 83 diamond drill holes totalling 13,778.7 metres and 12 percussion holes totalling 725.5 metres have been completed.

GEOLOGY

The property is underlain by a diorite-gabbro complex which, in the central part of the property has been intruded by two stages of igneous rocks, namely a central core of quartz monzonite surrounded by a granodiorite. The whole has been cut by a swarm of north-trending dikes occupying late fractures.

The quartz monzonite is elliptical in shape, about 1.6 km. long and 600 metres wide. It strikes north towards Theodosia Inlet. The granodiorite which surrounds the monzonite is about 8 km. in length and 1.6 km. in width with a strike of N 15° E.

The age is believed to be Cretaceous or Tertiary, but there is no clear evidence for the date.

The mineralization, that is the chalcopyrite with minor pyrite, appears to be related to the quartz monzonite. Higher grades of chalcopyrite with minor molybdenite occur around the flanks in the granodiorite. Molybdenite with minor chalcopyrite occurs in the pyrite halo outside the above zone.

A report by Meyer, Gale and Randall, which was prepared for inclusion in the Charles S. Ney Volume, Special Volume 15, pp. 311-316 published by the C.I.M.M., has the most concise, comprehensive information on the OK property. A copy is included at the end of this report.

MINERALIZATION

The primary sulphide mineralization consists mainly of pyrite, chalcopyrite and molybdenite. Traces of bornite and sphalerite have been reported.

In the latest assaying, the samples showed low gold values, i.e. 0.057 oz/ton to 0.001 oz/ton and silver values averaged from 22 samples gave 0.31 oz/ton from a high of 1.57 oz. to a low of 0.05 oz/ton.

Oxidation does not appear to penetrate deeper than 6 metres. In this oxidation zone are mainly limonite with minor malachite and azurite in some surface exposures.

The minerals of economic significance, that is the chalcopyrite and molybdenite, occur in fractures, in quartz stringers, in small irregular veinlets, in blebs and some disseminations.

This mineralization is primarily peripheral to the quartz monzonite core and the inner alteration halo. Pyrite primarily occurs in the outer halo zone, varying from 2 to 5% in grade.

GEOPHYSICS

Several types of geophysical surveys have been carried out, including magnetometer, self potential, V.L.F. Ronka E.M. 16 and induced polarization.

The effectiveness of the various techniques is of questionable value unless more geology is available. The difference in magnetic response in various rock types was not sufficient to be of value to indicate either as highs or lows any zones of economic importance. The self potential was tried in limited areas, but results were inconclusive. It may have some value in areas of low relief.

The E.M. survey was primarily of value in outlining major structural features, such as the faults, but was of no value in the search for economic minerals due to their disseminated nature.

The I.P. survey, while costly, probably indicated the potential zones, but these have to be used in conjunction with good geological interpretation.

GEOCHEMISTRY

Each company which has optioned the property has carried out some geochemical surveying, expanding and detailing the first grid. Basically, the samples were run for copper and molybdenum.

From work done to date, it is considered that 50 p.p.m. for copper is background, and consequently 100 p.p.m. and up are anomalous zones. These anomalies vary from 200 metres to 1500 metres long, and 70 metres to 400 metres wide.

For molybdenum, the background is considered at 10 p.p.m. Many anomalous zones were encountered; some coincided with copper, but some areas were low in copper. It is possible these may have been closer to the pyrite halo zone. The anomalous zones are 70 metres to 1050 metres in length and 30 metres to 300 metres in width.

DRILLING

A total of 13,778.7 metres of diamond drilling and 725.5 metres of percussion drilling have been carried out. It appears from the drill logs that recovery has been in excess of 95%. The size of core varied from AQ to NQ. Holes were drilled both vertically and at angles across potential zones. The percussion drilling was in vertical holes and results were disappointing.

The core shack was in part destroyed by vandals and much of the core is lost. A few holes have been salvaged and the core from the new drilling has been stored on the property of Jon Stewart, Black Point, just south of Powell River, B.C.

TONNAGE

In 1973, Mr. W. Meyer, in his report dated February 1973, estimated in one zone, the North Lake zone, a large area of mineralization with reserves of 90,000,000 tons grading 0.32% Cu and 0.02% MoS₂, using a 0.25% Cu cut-off, assuming no dilution. The reserves and grades required further confirmation.

The tonnage for the North Lake zone was re-calculated in the 1974 report by Mr. A.W. Randall, and indicated 54,000,000 tons grading 0.3% Cu and 0.016% MoS₂, with geologically inferred reserves of 21,000,000 tons grading 0.26% Cu and 0.012% MoS₂.

The following assumptions were used in the latter calculations:

1. All dikes greater than 3 metres are considered as mineable waste.
2. The rates of ore to waste determined for each section is representative of that ratio for the whole block of ore represented by the section.
3. The lower limit of 'ore' was taken as roughly 30 metres below the deepest intersection.
4. The cut-off grade used was 0.2% Cu.

This gave a strike length of 480 metres with a depth of approximately 213 metres and a width in excess of 213 metres.

Insufficient drilling has been carried out in other mineralized zones to indicate the complete potential of the property.

1979 PROGRAM

In the summer of 1979 when a logging company was building a decking area, two new showings were discovered on claim OK 47. These new showings are the most southerly to date on the property. Subsequently trenching and sampling were carried out indicating good copper and molybdenum values with interesting silver values. The values from two of the trenches are as follow:

<u>Approx. Location</u>	<u>Length</u>	<u>Cu</u>	<u>MoS₂</u>	<u>Ag</u>	<u>Au</u>	<u>Remarks</u>
22+50N 70+50E	5.5 m	0.59	0.005	0.30	0.002	Leached
25N 64E	9 m	0.24	0.048	0.12	0.002	

While the silver values are not high, they could substantially add to the economic picture of ore reserves.

Three NQ diamond drill holes totalling 205 metres were subsequently drilled. Limited sampling was carried out on the core. Assay results were higher than had been estimated in the logging process and consequently more core should be split.

<u>Hole #</u>	<u>Footage</u>	<u>Cu%</u>	<u>Mo%</u>	<u>Ag/oz/ton</u>
K 79-1	104.5-114.5	0.448	0.009	0.19
K 79-2	0-31	1.5		0.29
K 79-3	216-226	0.070	0.011	0.11

While the foregoing work was being carried out, lines 20N to 36N east of the base line were cleared and re-chained. This work has extended the southern boundary of mineralization by some 400 metres and, in consequence, adds a significant area of potentially economic mineralization to the value of the property.

CONCLUSIONS

Widespread copper-molybdenum mineralization occurs on the OK claim group. The zones as yet are ill-defined and relatively small, except the North Lake zone. This zone has had sufficient drilling to attempt ore calculations.

The best grades occur in the altered granodiorite adjacent to the quartz monzonite.

The abundance of north-striking dikes is one of the problems in developing ore reserves. The dikes are irregular and vary from 3 metres to 30 metres in width. It is not known whether the dikes could be mined as waste, since from the drilling it is impossible to correlate the dikes between holes.

The property warrants geological, geochemical, geophysical and diamond drilling in order to further explore the property and drill off the potential zones so that tonnages can be calculated. Initial work would be carried out in the area of the zones partially drilled, in order to be able to calculate further tonnages and grades.

In the past, insufficient assays have been made for precious metals and preliminary indications are that there could be a relationship between copper and silver values. These silver values could add appreciably to the economic value of the property.

RECOMMENDATIONS

After a further study of the literature and a limited examination of the property, the following program is recommended. It is broken into two stages with some general work, but drilling should be concentrated in the North Lake Area, where initial tonnage has been calculated.

STAGE I

- (a) Stake a further 32 claims in the north-east area to cover the Malachite Hills and some small showings outside the current boundaries.
- (b) Complete the cleaning and re-chaining of the previous grid. It will have to be re-established over newly cut areas.
- (c) The trenches, i.e. stripped areas, should be drilled and blasted in order to carry out mapping and property sampling.
- (d) Proposed drilling in the North Lake Area at the following sites:

North Lake Area

124 N	72+00E grid west -45°
120 N	69+00E grid west -45°
120 N	74+00E grid west -45°
120 N	79+00E grid west -45°
116 N	72+00E grid west -45°
112 N	76+00E grid west -45°
108 N	76+00E grid west -45°

Each hole will be approximately 200 metres in length.

- (e) Trenching, where feasible, in the North Lake Area for mapping and to ascertain type of mineralization.

STAGE II

- (a) Drill program to investigate further mineralized zones. The locations are as follow and each hole is projected at a length of approximately 200 metres.

North Area

L 182	77+00E grid west -45°
L 180	77+00E grid west -45°

Central Area

54 N	54+00E grid east -45°
56 N	55+50E grid east -45°

South Area

32 N	62+00E grid west -45°
32 N	68+00E grid west -45°
40 N	62+00E grid west -45°
44 N	67+00E grid west -45°

- (b) Bulk sample from the North Lake Area in order to ascertain the metallurgy of the mineralization.
- (c) Preliminary feasibility study.

COSTS

Stage I

Stake 32 claims	1,800.00
Improve access road	10,000.00
Line clearing and chaining 32 km @ \$140.00	4,480.00
Establish Camp, food, etc.	25,000.00
Diamond drilling, 1400 m. @ \$73.00/m.	102,000.00
Tractor - D7	10,000.00
Core boxes, assays etc.	7,000.00
Engineering, logging, maps etc.	7,000.00
Drilling & blasting 1979 trenches	20,000.00
	<hr/>
	187,280.00
Contingencies 15%	28,000.00
	<hr/>
	\$ 215,280.00

Stage II

Diamond drilling 3000 m. @ \$73.00/metre	219,000.00
D7 Tractor	25,000.00
Core boxes and assays	15,000.00
Camp, food, etc.	20,000.00
Engineering, logging, etc.	20,000.00
Bulk Sample	100,000.00
Preliminary Feasibility & Metal Testing	200,000.00
	<hr/>
	599,000.00
Contingencies 15%	45,000.00
	<hr/>
	\$ 644,000.00

Total of Stages I and II	859,280.00
say	\$ 860,000.00

Respectfully submitted,


A. S. Ashton, P. Eng.

Delta,
British Columbia.

March 25, 1980.

REFERENCES

- Osborne, W.W., OK Claims, Western Mines Nov 1977
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Dec 1974
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Feb 1973
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- Wares, R., OK Property for Falconbridge Apr 1971
- Wares, R., Petrographic Report, Apr 1971
- Brand, R.B., Geochemical Report, Aug 1970
- Irvine, J.R., and W. Schuur, Induced Polarization Report
Nov 1967
- Falconbridge Nickel Mines, Geological Maps, Aug 1969
- Falconbridge Nickel Mines, Magnetometer Survey Maps
Oct 1969
- Noranda Mines, Map, Geology Okeover Property Oct 1966 and
Jun 1967
- Noranda Mines, Geochemical Survey, Copper, Molybdenum
Oct 1966

CERTIFICATE OF QUALIFICATIONS

I, Arthur Sydney Ashton, do hereby certify that:

1. I am a practising geological engineer with a residence at 5441 - 7B Avenue, Delta, British Columbia.
2. I am a graduate of the University of Toronto and have been granted the degree of Bachelor of Applied Science.
3. I have been practising my profession as a geological engineer for thirty-one years.
4. I am a member of the Association of Professional Engineers of British Columbia and a member of the Association of Professional Engineers of Ontario.
5. The report is based on supervision of the program in 1979, plus a review of published literature.
6. I have no interest in Aquarius Resources Ltd., nor in the mining property.


A. S. Ashton, P. Eng.

Delta,
British Columbia.

March 25, 1980.

TRANS-PACIFIC ENGINEERING & MANAGEMENT LTD.

DIAMOND DRILL-HOLE LOG

DATE November 23, 1979.

Length 92.6 metres Location OK PROPERTY

Bearing 001° Claim OK 47 Hole No. 79-3

Dip -45° 21 + 75 N Start _____

69 + 40 E Stop A. S. ASHTON

Logged By _____

Depth	Core	Formation	Core Recovery	Assays				Core Samples	
				Cu	Mo	Au	Ag	Length	No.
				%	%	oz	oz		
0.6		Casing							
1.2		Dike diorite.							
69.5		Granodiorite, altered, brecciated in part, medium grained, light grey, pyrite with traces of chalcopyrite and MoS ₂ , sericitized and chloritized in part.							
		3.8-4.1 Dike dioritic							
		15.8 trace chalclo							
		39.6 trace chalco							
		40.1 trace chalco							
		porphyritic in places.							
		Sample 65.8-68.9	99%	.07	.011	.002	.11		1267
73.2		68.3 trace MoS ₂							
		70.3 Fault							
92.6		Granodiorite as before							
		81.6-81.8 dike andesite							
		92.6 End of hole.							

MIN-EN LABORATORIES LTD.

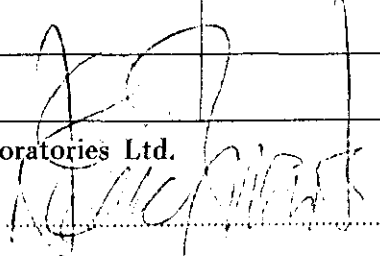
705 WEST 15TH STREET
NORTH VANCOUVER, B.C.
Phone: 980-5814

Certificate of Assay

TO: Cochrane Consultants/Aquarius
4882 Delta St.,
Delta, B.C.

PROJECT No. 2046
DATE Nov. 23/79.
File No. 9-861

SAMPLE No.	Cu %			
1223	3.640			
24	.679			
1225	.303			

MIN-EN Laboratories Ltd.
CERTIFIED BY 

MIN-EN LABORATORIES LTD.

705 WEST 15TH STREET
NORTH VANCOUVER, B.C.
Phone: 980-5814

Certificate of Assay

TO: Cochrane Consultants
4882 Delta,
Delta, B.C.

PROJECT No. 2046
DATE Dec. 28/79
File No. 9-861R

SAMPLE No.	Ag	Au		
	oz/ton	oz/ton		
1223	0.62	0.001		
1224	0.14	0.001		
1225	0.10	0.001		

MIN-EN Laboratories Ltd.
CERTIFIED BY [Signature]

THE O.K. PROPERTY

by

Meyer, Gale and Randall

1

ABSTRACT

The O.K. Property, situated near Powell River, B.C., was discovered in 1965 by a prospector using a rubianic acid field kit. Since that time six companies have spent approximately \$1,000,000.00 carrying out preliminary technical surveys and diamond drilling on the property.

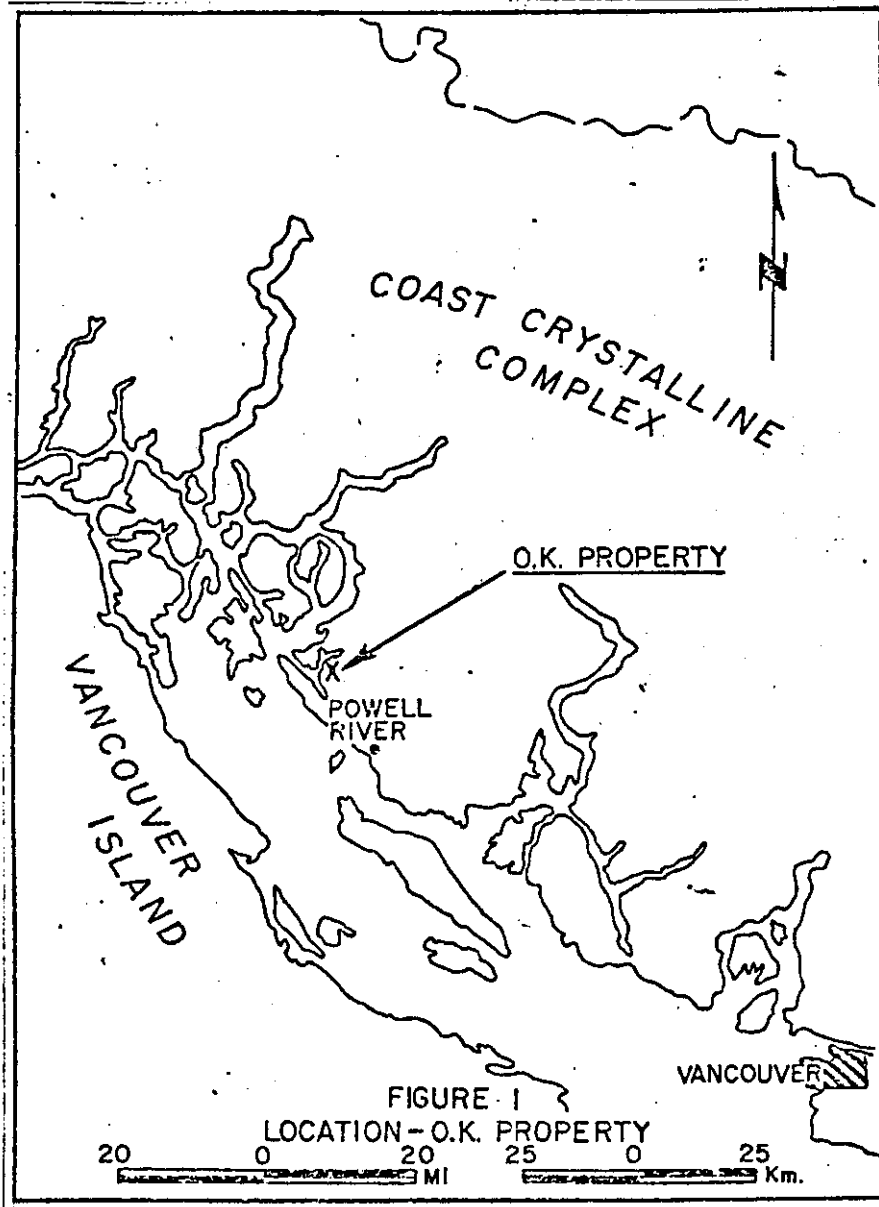
Widespread copper and molybdenum mineralization, associated with a quartz stockwork, occurs in granodiorite peripheral to a dyke-like core of leucogranodiorite porphyry. Copper sulphides and molybdenite mineralization grade outward into a pyrite halo.

Silicification and minor seritization decrease outward from the porphyry core to a zone of chlorite and epidote alteration.

The largest mineralized zone outlined to date contains drill indicated and inferred reserves of 75,000,000 tons grading 0.30% copper and minor molybdenite.

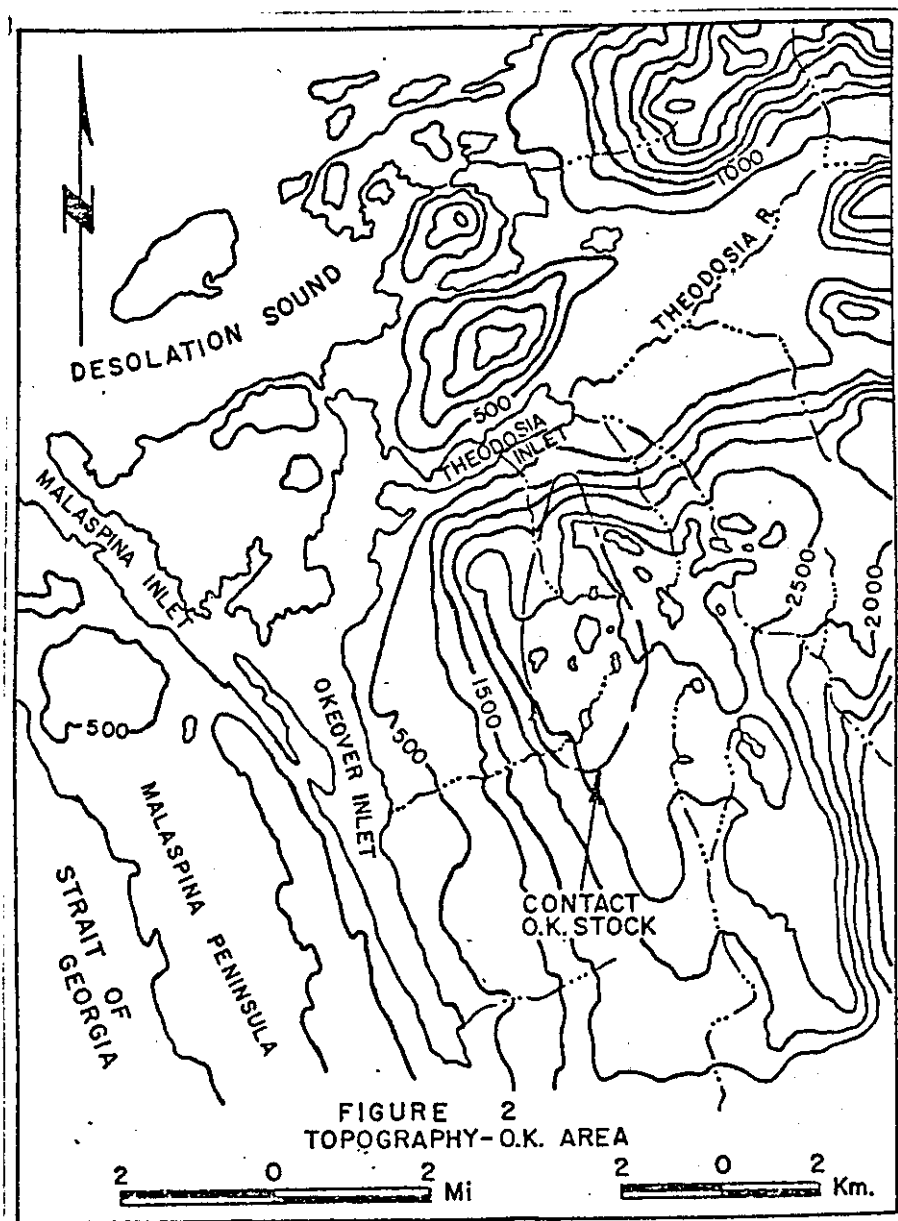
LOCATION

The O.K. Property comprises 344 contiguous mineral claims and fractions located 5 miles northwest of Powell River on the mainland coast of British Columbia. The 344 claims under study cover an area of about 25 square miles extending 5.7 miles south from Theodosia Inlet, centred about Long. $124^{\circ} 40'N$, Lat. $50^{\circ} 03'E$ (NTS 92-K-2). (Figure 1)



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The claims are accessible from the Powell River-Lund Highway, 14 miles northeast by 4-wheel drive vehicle onto the property. The grades are gentle. Base camp is located in the south-central part of the property. An access road extends 2 miles further north from the camp terminating 1.7 miles from Theodosia Inlet.



The O.K. property extends south from Theodosia Inlet, up rugged steep gradients to a gently irregular, plateau-like surface, ringed by hills to the east and west. The topography on the property appears to be controlled by a series of ring structures expressed as a series of hills and raised areas. The central plain, ranging in elevation from 2500-2800 feet above sea level, has a generally subdued relief. The hills to the east and west have long, steep slopes rising to between 3300 and 3600 feet above sea level. (Figure 2)

Approximately 85% of the area is covered by a thin veneer of glacial till. Recent glaciation has resulted in hog's back features and glacial striations trending in a north-south direction.

HISTORY

The O.K. property is owned by Mrs. M.V. Boylan and Mr. R. Mickle, Powell River, B.C. prospectors. The occurrence was discovered in the fall of 1965 by Mr. Mickle using a combination of prospecting and soil testing by the Rubianic Acid method.

Previous optionees (Noranda Mines Ltd., American Smelting & Refining Co., Falconbridge Nickel Mines Ltd. and Duval International Corp.) carried out geological, geophysical and geochemical surveys over the key claim area during the period 1966 to 1971. Anomalous areas were tested by approximately 16,000 feet of diamond and percussion drilling. Expenditures by the four companies are estimated to be in the order of \$400,000.

The property was again optioned in June 1972 by Granite Mountain Mines Ltd. (N.P.L.) a Vancouver based junior company and re-optioned to Western Mines Ltd. in late 1973. During the period June 1972 to September 1973, Granite Mountain Mines Ltd. incurred expenditures of approximately

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\$350,000 primarily in drilling 26 holes aggregating approximately 16,000 feet of H.Q. drilling. Other activities included prospecting, extension of the geochemical and I.P. surveys and re-mapping of the geology of the key claims.

During the 1974 exploration season, Western Mines Ltd. incurred expenditures of \$250,000 primarily in drilling 22 BQ holes aggregating 12,700 feet.

Total exploration costs on the O.K. property to date by all optionees aggregate about \$1,000,000 which expenditure includes approximately 45,000 feet of drilling.

Reserves at the end of 1974 above a 0.20% cut-off have been estimated by Western Mines Ltd. at:

drill indicated:	54,000,000 tons	grading	0.30%Cu - 0.016% MoS ₂
inferred:	21,000,000	" "	0.26%Cu - 0.02% MoS ₂

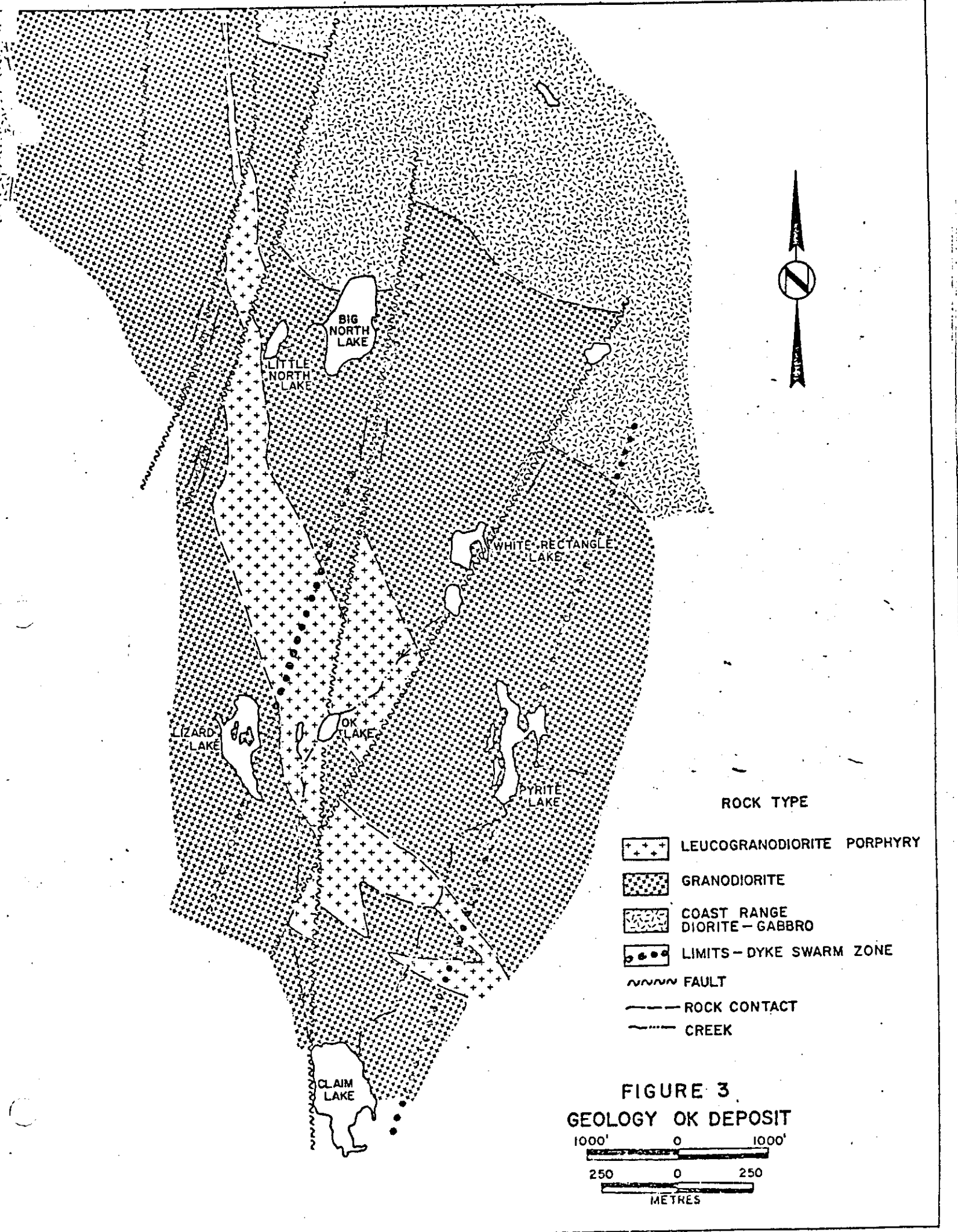
The amount of mineralized rock present in relation to barren dyke material varies from 69% to 100% but averages 80%.

GEOLOGY

Regional Geology

The O.K. property lies on the western flank of the Coast Crystalline Complex, a 50 mile wide mass of granitic and metamorphic rocks which forms the rugged 500 mile long coastline of British Columbia.

The Coast Crystalline Complex has been an area of positive uplift intermittently since the early Paleozoic and has been affected by mid Paleozoic, late Jurassic, Cretaceous and Laromide orogenies. Intrusions accompanying orogeny occurred as late as upper Cretaceous time or possibly as late as Eocene time.



ROCK TYPE








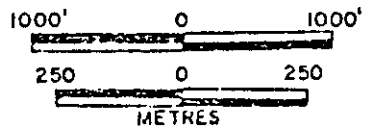
-  LEUCOGRANODIORITE PORPHYRY
-  GRANODIORITE
-  COAST RANGE DIORITE - GABBRO
-  LIMITS - DYKE SWARM ZONE
-  FAULT
-  ROCK CONTACT
-  CREEK

FIGURE 3
GEOLOGY OK DEPOSIT



5.

Gneissic rocks cut by these intrusions give K-Ar dates for metamorphism of 88-125 million years. The O.K. intrusive complex has not been dated but is believed to be of Cretaceous or Tertiary age.

Geology - O.K. Property

In the central portion of the O.K. property, diorite-gabbro of the Coast Crystalline Complex has been invaded by two pulses of plutonic rocks resulting in the emplacement of a granodiorite stock having a central core of leucogranodiorite porphyry. (Figure 3).

The stock is elliptical in plan with the long axis trending approximately N15°E and extending 5 miles south from Theodosia Inlet. The minor axis is approximately 2 miles wide. Leucogranodiorite forming the core of the intrusion is dyke-like, averaging about 800' wide and has a strike length, trending north, of about 2 miles.

Although most contacts are obscure or marked by faults, inclusions of granodiorite occur within the leucoporphry and indicate that the latter rock is a younger intrusive phase.

Cu-Mo mineralization followed directly after or was coincident in time of formation to intrusion of the leucogranodiorite and disseminated sulphides were concentrated in altered granodiorite about the barren core of the stock.

A series of steep-dipping post mineral faults cut the intrusive complex and coast crystalline diorite-gabbro and offset the predominant northern structural grain along right and left lateral NNE trending breaks.

The entire area was then cut by a swarm of post mineral andesite dykes occupying late NNE trending fractures.

PETROLOGY

The oldest rocks outcropping on the O.K. claims are hornblende diorite and gabbro of the Coast Crystalline Complex. These intrusives are fresh to weakly altered and unmineralized, surrounding the younger intrusive which forms the porphyry copper deposit. Diorite is the most common phase and is dark grey to green, medium grained phaneritic rock composed of equal amounts of andesine and hornblende.

Biotite-Hornblende Granodiorite

The most important host rock for disseminated copper-molybdenum

7.

mineralization is a large elliptical mass of granodiorite which intrudes Coast Range diorite along sharp north-south trending contacts. The majority of the diorite is light grey to green, fine to medium grained equigranular rock. Anhedral quartz and subhedral zoned oligoclase phenocrysts form about 70% of the rock. Fine grained to aphanitic matrix making up the remainder consists of a ragged mixture of quartz, plagioclase, potash feldspar, mafics, sulphides and magnetite.

Leucogranodiorite Porphyry

White to pink, coarse grained leucogranodiorite porphyry forms an irregular dyke-like mass up to 2000' wide which intrudes the central portion of the granodiorite stock. Much of the porphyry is a leucocratic rock with small amounts of biotite-chlorite. Large, tightly packed subhedral zoned oligoclase and subhedral to euhedral quartz eyes up to 1" in diameter form a crowded porphyry texture. Minor fine grained anhedral quartz, plagioclase and potash feldspar fill the narrow grain boundaries between the coarse oligoclase and quartz phenocrysts.

Marginal areas of the leucogranodiorite porphyry exhibit unusual rounded clots of magnetite-pyrite-chlorite which may also contain minor chalcopyrite. Much of the porphyry is veined by barren quartz, forming a central siliceous unmineralized core to the mineralization in the surrounding fine grained granodiorite.

Post Mineral Dykes

A north-northeast trending swarm of post mineral dykes about one half mile wide cuts the central porphyry intrusive and the surrounding mineralized zone. Individual dykes are up to 100' wide.

The most prominent types of dykes are fine grained to porphyritic hornblende diorite with fewer dykes of dacitic composition. These late dykes are unmineralized but commonly show strong autometamorphism to sericite chlorite epidote and calcite. Minor disseminated pyrite occurs in some dykes.

STRUCTURE

The granodiorite stock with a central core of leucogranodiorite porphyry has been intruded along a nearly north-south zone of weakness called the O.K. structure. A number of ring structures evident in air photographs appear to be remnant tectonic features related to the intrusion of the granodiorite although little evidence of them can be found on field examination. Observed faulting parallel to the dyke-like porphyry is presumably related to the main O.K. structure.

Several large post mineral faults cutting obliquely across structure have significant movement both left and right lateral. (Figure 3). This movement and evidence of rotation may account for the apparent thickening of the leucogranodiorite porphyry where it is cut by these faults.

The entire area has been intruded by a swarm of andesite dykes occupying the late postmineral NNE trending fractures.

ALTERATION

Owing to the relatively widespaced nature of drillholes and paucity of outcrop, only a general picture of the alteration is known at present. Silicification, chloritization and sericitization are prominent with potash feldspar alteration, albitization, calcite-epidote, biotite and zeolite alteration being much more restricted in importance and in extent.

Silicification in the form of quartz veining and granular replacement masses, is the most visible form of alteration.

Quartz veins are of at least two ages. The earlier type forms replacement veins which coalesce with irregular rounded replacements of quartz. The younger veins fill fractures which offset the earlier types. Veins vary in size from 1/8" up to 10' or 20' wide. Sulphide mineralization is generally restricted to small veins.

The predominate trends of veins are easterly and north-east forming a good stockwork mosaic of veins over a large area.

The most pronounced veining is associated with the central granodiorite porphyry mass with quartz veining diminishing outward through the granodiorite away from the porphyry core.

Quartz veins within the porphyry core are barren while those within the surrounding granodiorite are usually mineralized.

Sericitization

The most intense and complete sericitization of feldspars occur within the porphyritic central core of the intrusion but this alteration appears to be restricted to small areas of unknown extent.

Weak to moderate sericitization of feldspar is ubiquitous throughout the surrounding mineralized zone in granodiorite but primary textures such as zoning and twinning are still readily discernible.

Chloritization

Weak to moderate chlorite-epidote alteration has affected all of the granodiorite and also the relatively minor biotite within the leucogranodiorite core. Sheaves of coarse chlorite replace biotite and hornblende and fine

felted masses of chlorite epidote and calcite replace groundmass feldspars and portions of feldspar phenocrysts within the mineralized granodiorite.

Disseminated chalcopyrite, pyrite and magnetite replace grains of chlorite in these altered rocks.

Potash Feldspar in narrow pink veinlets with chlorite, calcite and zeolite replaces sheared granodiorite along contact zones with the leucogranodiorite porphyry and Coast Range diorite. Minor K-feldspar veining is also noted throughout the granodiorite and leucogranodiorite. K-feldspar alteration is apparently a late phenomenon as it has no significant mineralization associated with it.

Secondary Biotite is present within altered granodiorite but is only weakly developed and has no apparent significance with respect to mineralization.

Magnetite is sparsely disseminated in granodiorite in association with chalcopyrite and pyrite but its main development is at the margins of the granodiorite leucoporphry where it forms abundant rosettes or spheres replacing chlorite and biotite. Here it is also associated with pyrite and chalcopyrite and formation of the magnetite rosettes is apparently part of the alteration-mineralization process.

Alteration Zoning

The localization of strong quartz-sericite alteration to the central leucogranodiorite porphyry intrusion passing outward into chlorite-epidote alteration in the granodiorite could be interpreted to be a zonation of alteration effects in a single intrusive rock of uniform composition. However, this apparent zoning may also be explained simply as the result of alteration of two originally different types of intrusive, one mafic-poor forming the core,

II.

the other, fringing the core, relatively mafic-rich.

MINERALIZATION

Sulphide mineralogy within the O.K. porphyry copper deposit is simple consisting of chalcopyrite, molybdenite and pyrite with very minor sphalerite and bornite. Erratic minor magnetite is also associated with pyrite and chalcopyrite.

Chalcopyrite and molybdenite are closely associated with a wide-spaced stockwork of quartz veinlets but also occur as disseminated grains and coatings on fractures, commonly associated with mafic minerals.

The leucoporphry core is essentially barren with significant mineralization restricted to the altered granodiorite. The heaviest quartz veining and best grade Cu-Mo appear to be restricted to granodiorite within a 500 foot wide zone close to the porphyritic core. A composite map of the main area of drilling (Figure 4) indicates the + 0.1% Cu outline from drilling and + 500 ppm Cu in soils. This diagram shows the close association of better copper values to the core of the intrusion.

A crude zonation, based on the distribution of pyrite, is apparent. The pyrite to chalcopyrite ratio near the leucoporphry contact is about 1:1 but rises to 5:1 near the granodiorite-diorite contact, and in areas near Pyrite Lake, massive pyrite appears. An irregular pyrite halo is present and can be detected from induced polarization data.

The best Cu-Mo values discovered to date are in the North Lake zone south of Big North Lake on the east side of the leucogranodiorite. Here, an 800 foot width x 1500 foot length of granodiorite tested to a depth of 700 feet has been found to have better Cu-Mo values.

Reserves at the end of 1974 above a 0.20% cut-off grade have been estimated by Western Mines Ltd. at:

Drill indicated: 54,000,000 tons grading 0.30% Cu and 0.016% $M^{O}S_2$

Inferred: 21,000,000 tons grading 0.26% Cu and 0.02% $M^{O}S_2$

These reserves include any barren dykes less than 10 feet in width and assume barren dykes greater than 10 ft. can be mined as waste. The mineralized zone averages approximately 20% barren dykes.

GEOPHYSICS and GEOCHEMISTRY

Geophysical methods employed on the O.K. prospect included time domain and frequency domain I.P., magnetics and self potential. The latter two methods were of limited value. The several I.P. surveys indicated areas of sulphide mineralization and in a general way, anomalous values correspond to the highest density of sulphides determined by drilling.

Figure 5 shows "per cent frequency effects" obtained on a line across the centre of the North Lake zone. I.P. response in this area was a "text book" example of the close correlation between I.P. data and the observed distribution of sulphides with the strongest response in the pyrite halo and lowest response in the "barren" core. This excellent correlation, however, was not consistent throughout the property.

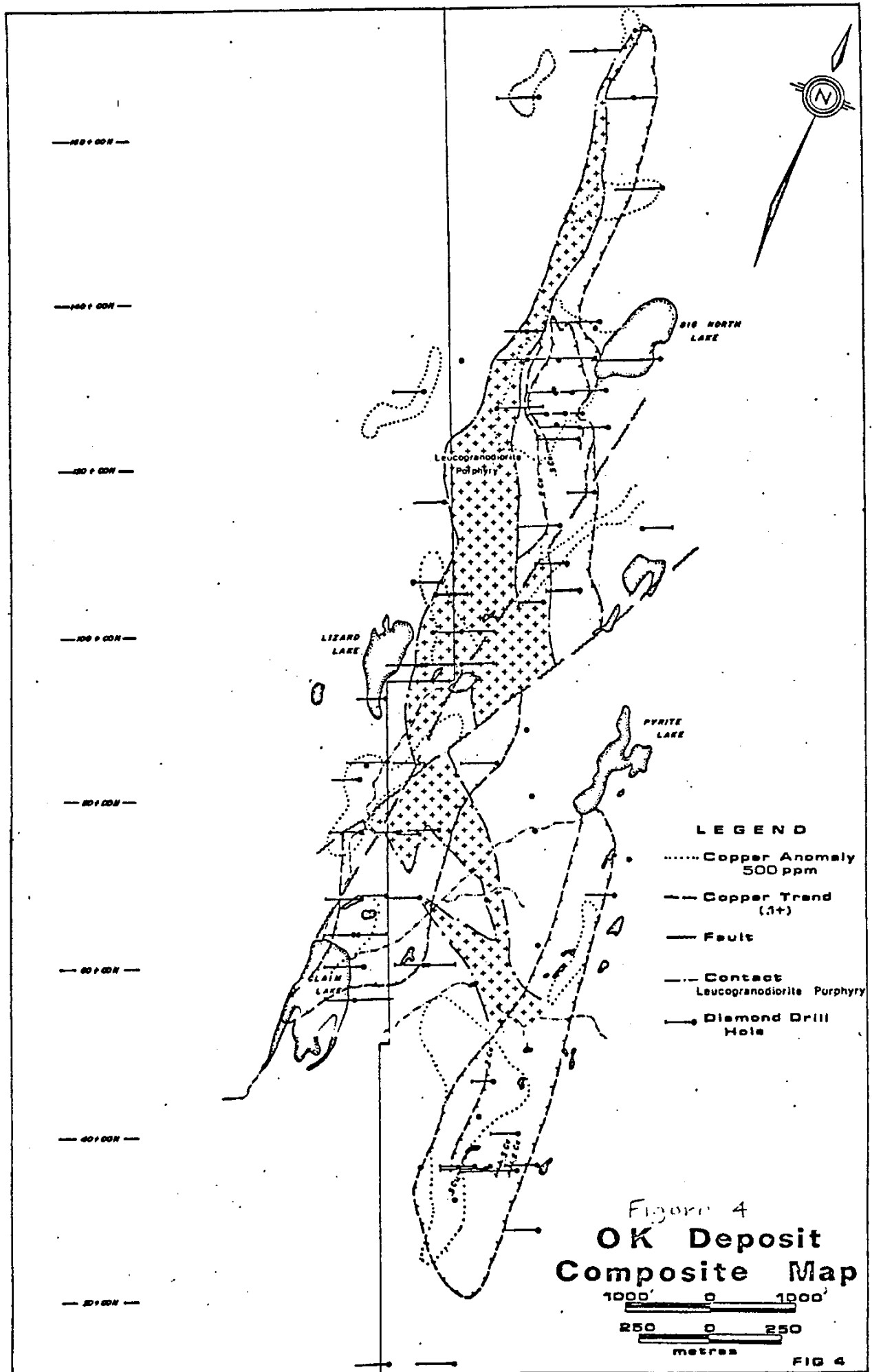
Geochemical surveys for copper and molybdenum were carried out by the various operators on grids ranging from 35 x 130 metres (100' x 400') to 70 x 260 metres (200' x 800'). Areas of greater than 500 ppm copper are shown in Figure 5. The major anomalies lie generally within the 0.1% copper trend lines. Copper in soil reached a peak value of 12,000 ppm. Two small anomalies (500 ppm plus) are not near known bedrock mineralization. At least one of these anomalies is related to drainage.

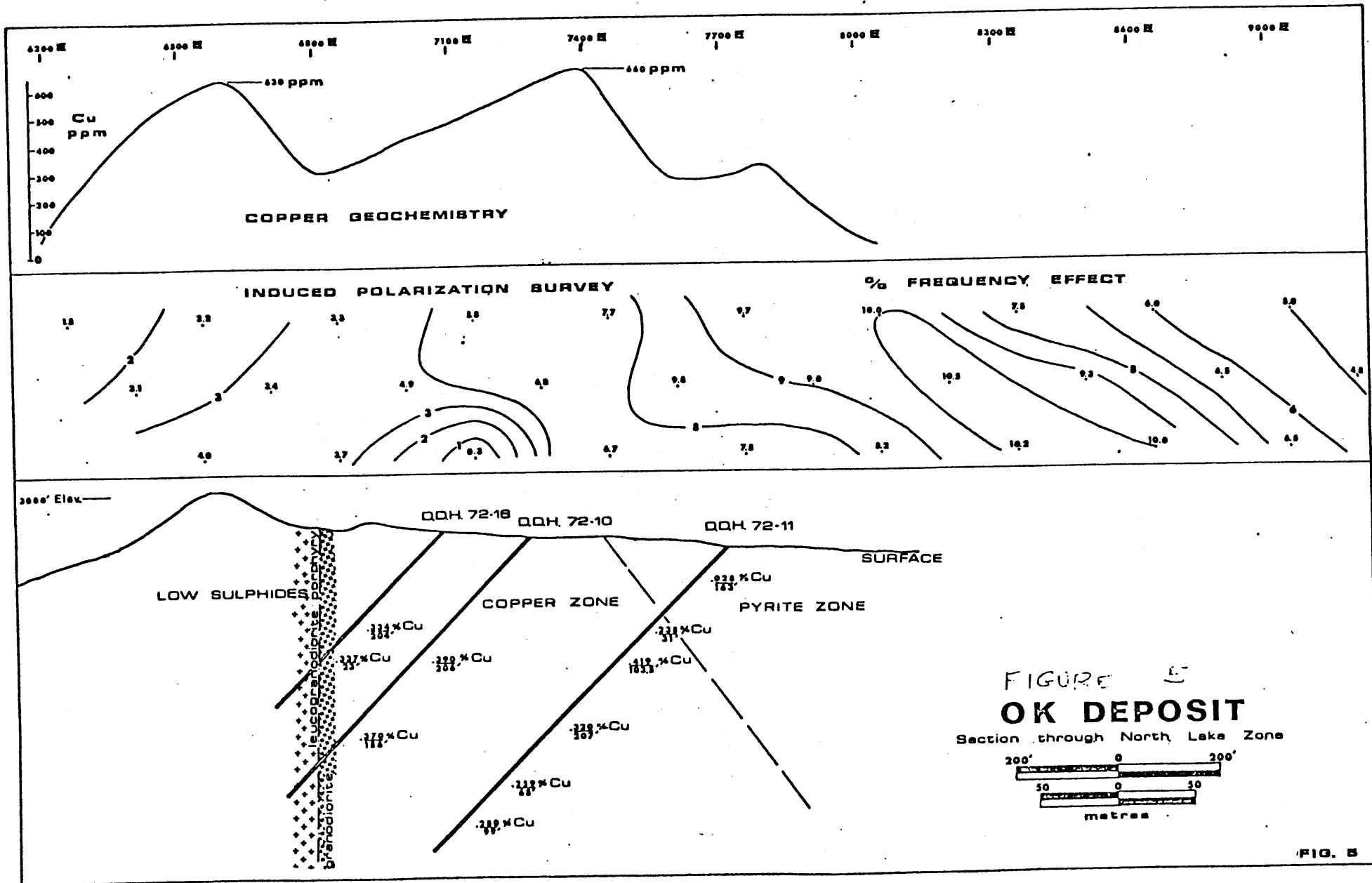
Acknowledgments

The writers wish to thank the management of Western Mines Ltd. for permission to prepare this paper. Appreciation and thanks are extended to Dr. R.H. Seraphim for the first critical reading and Dr. P.E. Fox and D. Heddle for subsequent critical readings.

References

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- Wares, R (1971) "Petrographic Report".
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MINERAL RESOURCES BRANCH
 ASSESSMENT REPORT
 8748
 NO.

To Accompany Report

By A.S. Ashton, P. Eng. March 25, 1980

PERSONNEL

1 Cat Operator)	
1 Wagon Drill Operator)	Best Construction,
1 Helper)	Powell River.
3 Line Cutters)	
1 Foreman)	Aquarius Resources Ltd.
1 Engineer		A. S. Ashton, P. Eng.
1 Helper		
1 Foreman)	B. & B. Drilling,
3 Drillers)	Powell River.

COSTS

Drilling costs	\$ 12,033.98
Best Construction	
D 8 & Wagon Drill	23,781.22
Assay Costs	72.15
Vehicle Expense	1,281.32
Wages & benefits	11,786.66
Consulting Fees	11,542.94
	<hr/>
	\$ 60,499.27
	<hr/> <hr/>

A.S. Ashton
 A. S. Ashton, P. Eng.

To Accompany Report

By A.S. Ashton, P. Eng. March 25, 1980

OK 47 - 12363

<u>Trench</u>	<u>Length</u>	<u>Width</u>	<u>Depth</u>
A	82.3 M	6 M	1.5 M
B	45.7 M	6 M	1.5 M
C	39.6 M	3.6 M	1.0 M
D	274.3 M	7.6 M	1.3 M
E	82.3 M	4.5 M	1.2 M
F	42.6 M	4.5 M	1.0 M
G	30.5 M	6.1 M	1.9 M
H	29.0 M	3.1 M	1.0 M
J	18.3 M	4.5 M	1.0 M
K	30.5 M	7.9 M	1.1 M

OK 45 - 12361

<u>Trench</u>	<u>Length</u>	<u>Width</u>	<u>Depth</u>
M	97.5 M	9.1 M	1.5 M
N	109.7 M	6.1 M	1.3 M
P	24.4 M	6.1 M	1.4 M
Q	108.2 M	6.1 M	1.2 M

To Accompany Report

By A.S. Ashton, P. Eng. March 25, 1980

OK 7 - 12133

<u>Trench</u>	<u>Length</u>	<u>Width</u>	<u>Depth</u>
L	71.6 M	6.7 M	1.0 M
U	79.3 M	6.1 M	1.1 M
V	27.4 M	7.3 M	1.1 M
W	83.8 M	3.2 M	1.0 M

OK 6 - 12132

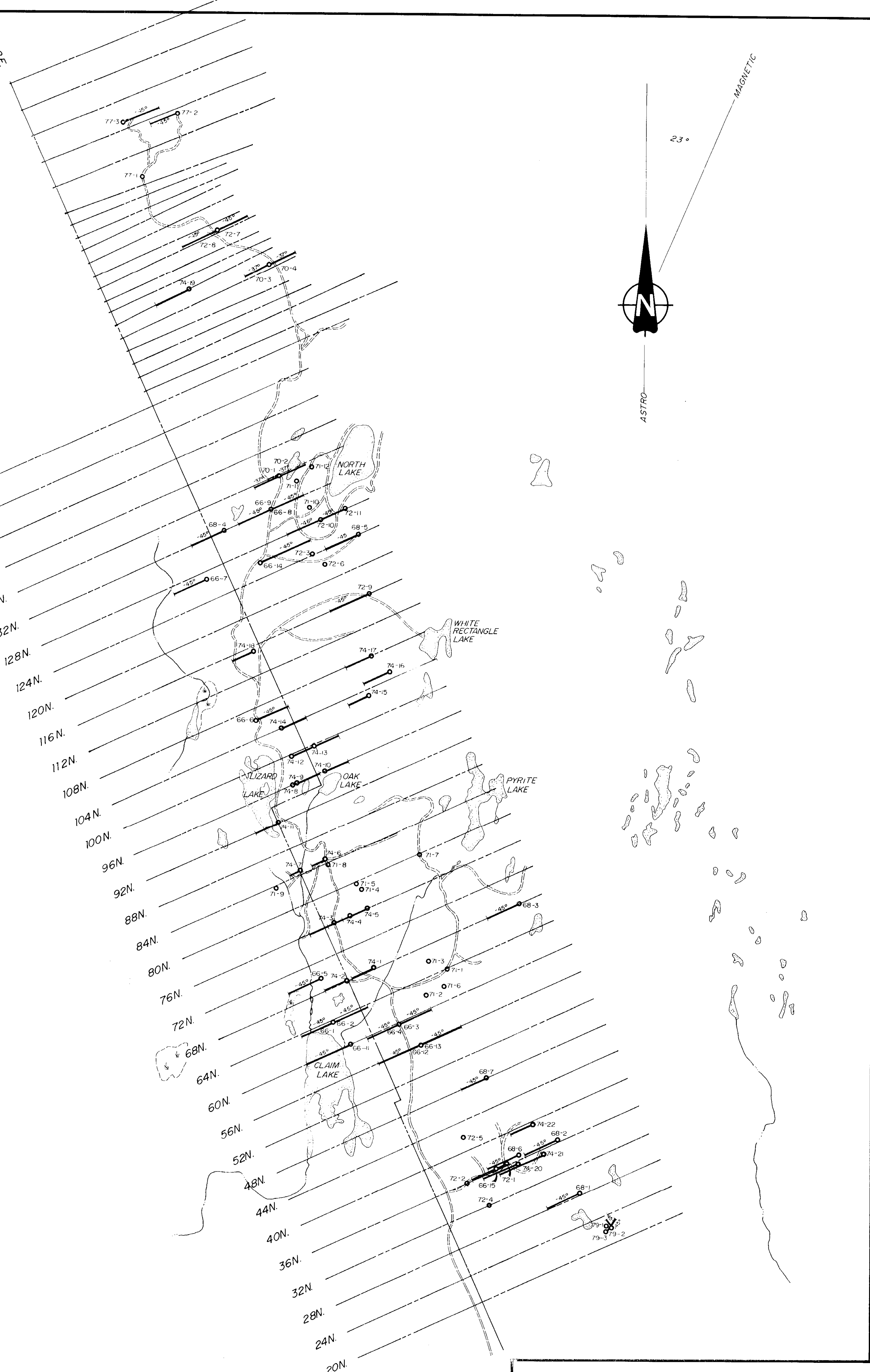
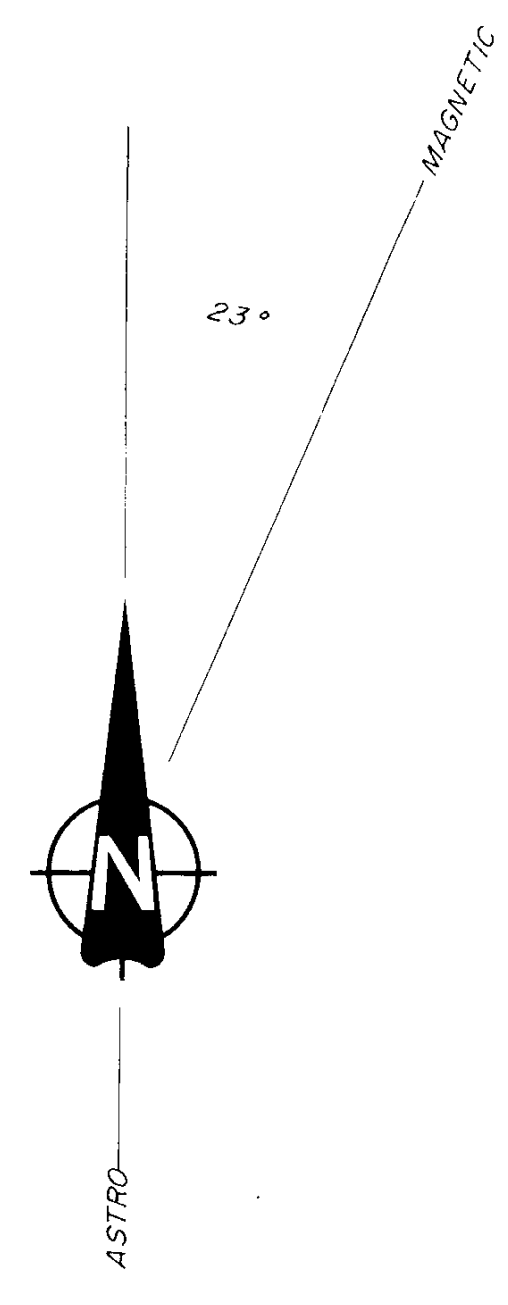
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S	48.7 M	8.8 M	1.1 M

OK 9 - 12135

<u>Trench</u>	<u>Length</u>	<u>Width</u>	<u>Depth</u>
T	73.2 M	9.2 M	1.2 M
X	33.5 M	3.3 M	1.4 M
Y	27.5 M	3.3 M	1.3 M
Z	24.4 M	4.6 M	1.3 M

BL-50E
BL-49E
BL-58E

202N
198N
194N
190N
186N
182N
180N
178N
176N
174N
172N
170N
168N
166N
164N
162N
160N
158N
156N
154N
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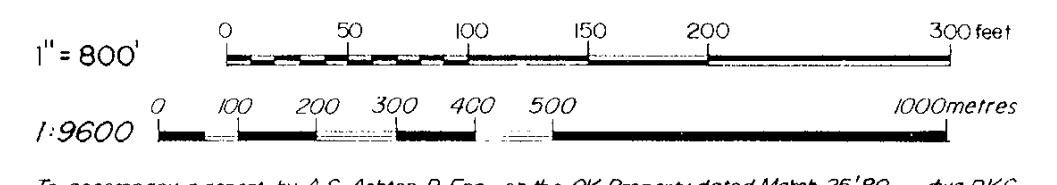
LEGEND

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○ — 45° —	DIAMOND DRILL HOLES 68-1 to 68-7, ASARCO 1968
○ — 45° —	DIAMOND DRILL HOLES 70-1 to 70-4, FALCONBRIDGE 1970
○ — 45° —	PERCUSSION HOLES 71-1 to 71-12, DUVAL 1971
○ — 45° —	DIAMOND DRILL HOLES 72-1 to 72-11, GRANITE Mtn. 1972
○ — 45° —	DIAMOND DRILL HOLES 74-1 to 74-22, WESTERN MINES 1974
○ — 45° —	DIAMOND DRILL HOLES 77-1 to 77-3, WESTERN MINES 1977
○ — 45° —	DIAMOND DRILL HOLES 79-1 to 79-3, AQUARIUS 1979

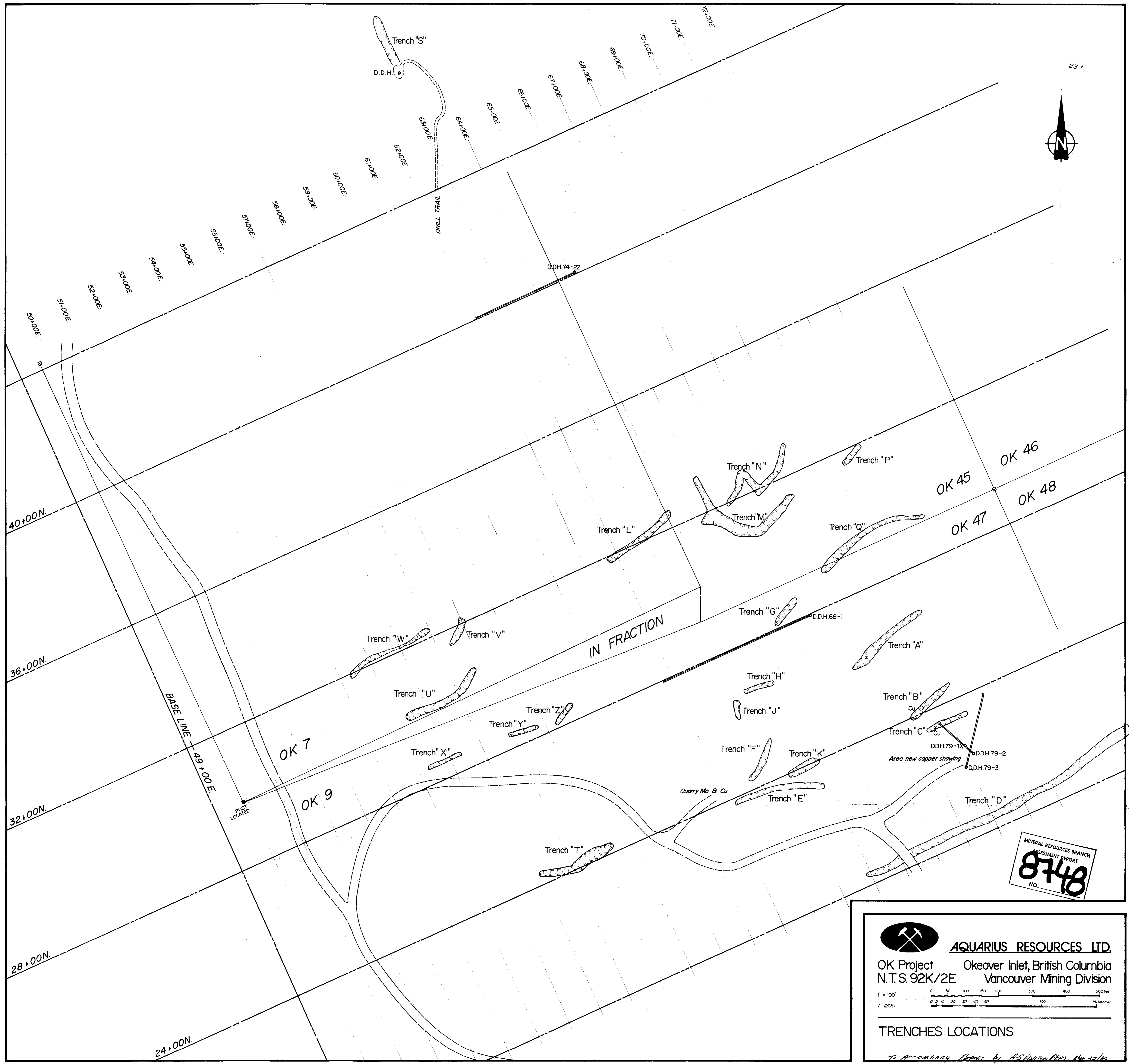
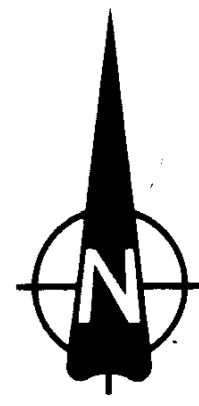
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8748
NO.



AQUARIUS RESOURCES LTD.
OK Project Okeover Inlet, B.C.
92K/2E Vancouver Mining Division



To accompany a report by A.S. Ashton, P.Eng., on the OK Property dated March 25 '80. dwg.PK.C.
DIAMOND DRILLING LOCATIONS — 1966 to 1979



OK 45
OK 46
OK 47
OK 48

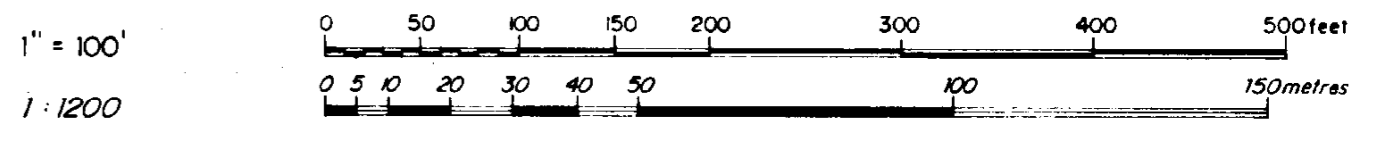
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MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8748
NO.



AQUARIUS RESOURCES LTD.

OK Project Okeover Inlet, British Columbia
N.T.S. 92K/2E Vancouver Mining Division



TRENCHES LOCATIONS

To accompany Report by P.S. Ashton P. 25/60