TAHTSA PROJECT REPORT

1975

by

G.I. Hall

November, 1975

HUDBAY MINING COMPANY
North Vancouver, British Columbia

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PAM = TWINKLE

SUMMARY

Exploration on the PAM, SYLVIA and SLIDE claim blocks in 1975 included the establishment of flagged grids, geological mapping, magnetometer surveys, and percussion drilling. A drill access road was built on the WEE claims in anticipation of a diamond drill program in 1976. No work was done on the BOG claims.

The magnetometer survey and geological mapping on the PAM claims revealed oval-shaped anomalies related to magnetite content in tuffaceous and andesitic volcanics. Results of percussion drilling indicate western and southern limits to the zonal arrangement of metal content and hydrothermal alteration within the I.P. anomaly. One hole, P-23, averaged 0.1% copper and 0.013% molybdenum from 10 to 250 feet.

Percussion drilling on the SYLVIA claims was hampered by alluvial overburden north of hole S-8 which intersected 200 feet of 0.33% Cu in 1974. Only one hole northeast of S-8 reached bedrock in the granodiorite. Copper content was low. One hole in the pyritic tuffaceous volcanics southeast of S-8 averaged 337 ppm copper. The magnetometer survey and geological mapping indicated strong magnetic anomalies associated with magnetite disseminated in tuffaceous volcanics southeast of the intrusive. One unexplained magnetic anomaly associated with the I.P. anomaly lies in the creek bed northwest of hole S-8. Overburden is considered to exceed 80 feet.

Sylvia = SIB.

Percussion drilling in 1975 was unable to penetrate overburden on the SLIDE claims. The magnetometer survey outlined a circular anomaly coincident with the maximum values in the I.P. anomaly. Part of the magnetic/I.P. anomaly is underlain by quartz diorite containing up to 5% pyrite and magnetite as shown in two percussion holes drilled in 1974. Overburden on the property is at least 160 feet in depth.

CONCLUSIONS

PAM CLAIMS:

Drilling results and geological mapping on the PAM claims indicate that the zonal arrangement of metal content and hydrothermal alteration within the I.P. anomaly does not extend southward from hole P-20 nor westward from the western drill line. The copper content in hole P-20, the southernmost drill hole, averages 62 ppm. South of this hole, abundant outcrops show porphyritic andesite underlain by silicified shale. The porphyritic andesite is moderately magnetic and is associated with an oval-shaped magnetic anomaly.

The zonal arrangement of average copper and molybdenum contents in the drill holes reaches a maximum in holes P-8, P-9 and P-23, where the average is over 500 ppm. Hole P-23 averages 0.1% copper and 0.013% molybdenum from 10 to 250 feet. Outside of this zone, hole P-25 averages 396 ppm copper. Other holes west of holes P-8, P-9, P-23 contain less than 200 ppm copper. Average lead, zinc and silver contents increase toward the periphery of the area drilled this year and enhance the zonal pattern described last year.

The phyllic zone of hydrothermal alteration appears to diminish in size toward the west. Only hole P-26 on the western drill line showed abundant quartz-sericite alteration. The cuttings from the other holes along the western drill line showed only weak alteration in porphyritic tuff.

Several sections in holes P-20 and P-27 showed black, euhedral biotite in a clay matrix, similar to the material in holes P-8 and P-9. This assemblage is thought to indicate a potassic zone of alteration.

The magnetic anomalies are elongated in a northeasterly direction, parallel to the regional trend of the rocks. The anomalies can be explained by magnetite in porphyritic andesite and lapilli tuffs. There is no large magnetic anomaly over the untested western portion of the I.P. anomaly.

One small outcrop of well-fractured, weakly magnetic micro-granodiorite is associated with a small magnetic anomaly.

CONCLUSIONS

The zone of average pyrite content greater than 5%, as estimated from the drill cuttings, is generally associated with the 50-60 mv/volt I.P. chargeability contour. The 5% pyrite contour is open to the west from the western drill line, but probably extends to the west less than 1000 feet. The 20 mv/volt contour is 2000 feet west of the western drill line and 1000 feet north of the most northern drill hole.

SYLVIA CLAIMS:

About one half of the I.P. anomaly has been tested by percussion drilling. The contact between the granodiorite/quartz monzonite and pyritic tuffaceous volcanics trends east-west between holes P-8 and P-9.

The untested part of the I.P. anomaly to the northwest of S-8 is underlain by at least 80 feet of alluvium and must be tested by diamond drilling in order to penetrate the overburden.

SLIDE CLAIMS:

A circular magnetic anomaly is coincident with a strong I.P. anomaly. The anomalies are underlain by a quartz diorite intrusive beneath 140 feet of overburden.

Further testing of the I.P./magnetic anomaly requires a diamond drill to penetrate overburden in excess of 160 feet.

RECOMMENDATIONS

PAM CLAIMS:

It is recommended that:

1. a detailed I.P. survey be carried out along the flagged grid lines (150 metres apart) between 41+00W and 62+00W and between 41+00N and 56+00N.

2. inclined diamond drill holes (-60°N) be used to test significant anomalies west of line 51+50W. Holes should be at least 400 feet long.

SYLVIA CLAIMS:

It is recommended that:

1. the drill road to holes S-13 and S-14 be extended 500 metres to the west.

2. four inclined holes (-45°W) be diamond drilled west of hole S-12 at intervals of 150 metres. The holes should be 500 feet long.

SLIDE CLAIMS:

It is recommended that:

1. four inclined (-60°S) holes be diamond drilled south from 50+30N/50+00W at intervals of 150 metres.

2. two inclined (-60°W) holes be diamond drilled at 51+50W/47+60N and at 48+50W/47+60N.

WEE CLAIMS:

It is recommended that:

1. three inclined holes (-60°N) be diamond drilled at 500 foot intervals south from DDH W-73-1 to test the area south of the main breccia zone. The holes should be at least 400 feet long.

2. one inclined hole (-60°S) be diamond drilled 500 feet north of DDH W-73-1. The hole should be at least 400 feet long.

G.I. Hall, Geologist

INTRODUCTION:

Exploration work on the Tahtsa Project in 1975 was confined to the PAM, SYLVIA, SLIDE and WEE claims. These claims, and others that have lapsed, were staked in 1973 as a result of reconnaissance and detailed geological, geophysical and geochemical surveys over a 1000 square mile area in west central British Columbia. The target was a porphyry copper deposit. There are two potential ore bodies and several sub-economic deposits within the Tahtsa area.

LOCATION AND ACCESS:

The original Tahtsa Project area lies in west-central British Columbia on the eastern flank of the Coast Range Mountains (Fig. 1). The PAM, SYLVIA, SLIDE, WEE and BOG claims discussed in this report are located in the southern part of the Tahtsa area and are shown in Fig. 2.

The Tahtsa forestry road provides access to the PAM and WEE claims. A road known locally as the BERG road starts from Twinkle Lake and ends at the BERG deposit 29 miles to the west. It was built in the mid 60's by Kennco Explorations (Canada) Ltd. The SYLVIA and SLIDE claims straddle this road six and eight miles, respectively, west of Twinkle Lake. The BOG claims are located near the junction of the Tahtsa and BERG roads. Fig. 3 shows the location of the claim blocks.

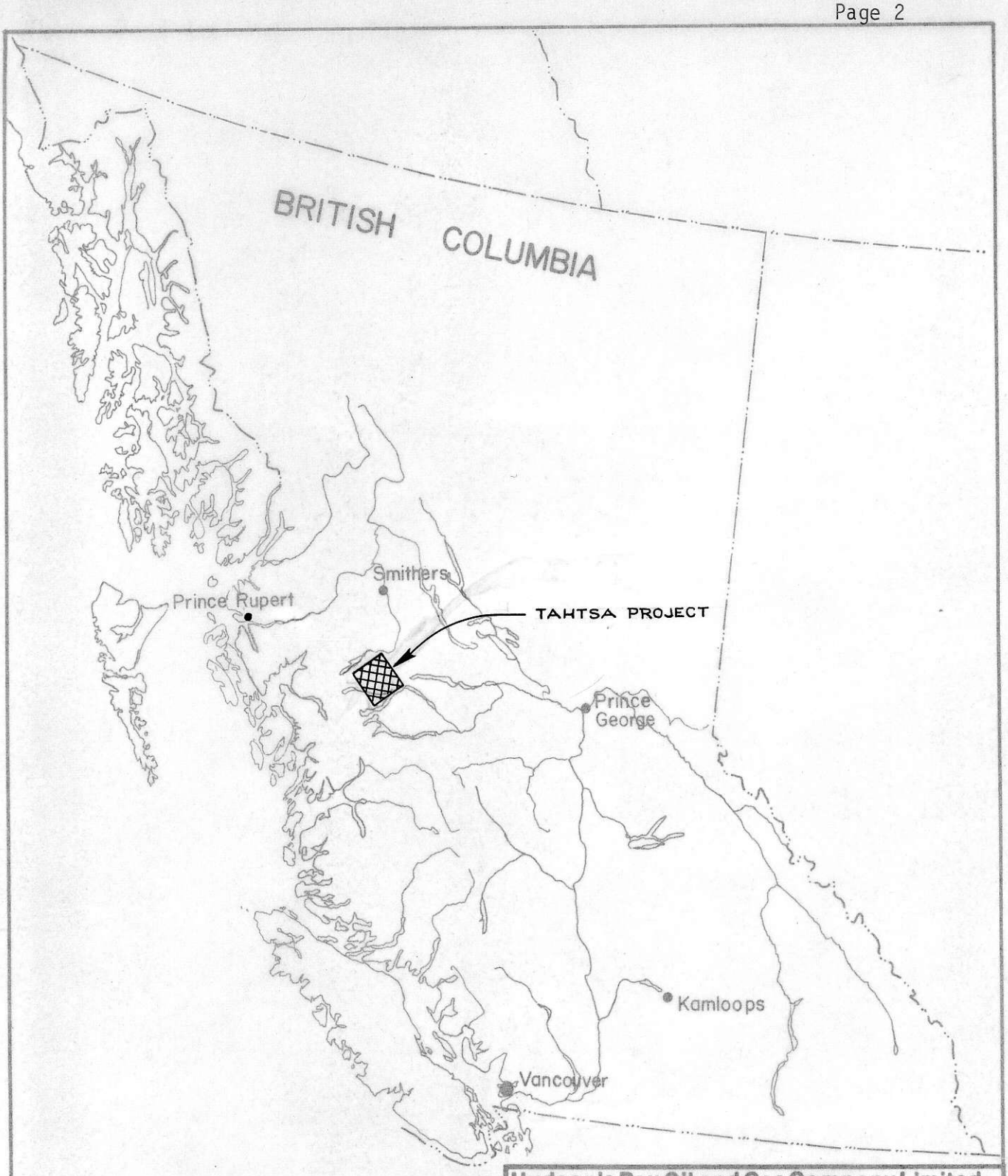
PREVIOUS REPORTS:

Details of previous work in the Tahtsa Project area are included in the following reports:

1972: Summary Report, Tahtsa Reconnaissance Project, by S.G. Enns, and G.I. Hall, January, 1973.

1973: Tahtsa Project Report by G.I. Hall, April, 1974.
Report on the Geophysical Aspects of the Tahtsa Project by L.A. Homeniuk, 1973.

1974: Tahtsa Project Report by G.I. Hall, March, 1975
Progress Report - 1974 WEE Claims by D.B. Kilby, January, 1975
Report on the WEE Claims by G.I. Hall and D.B. Kilby, April 1974



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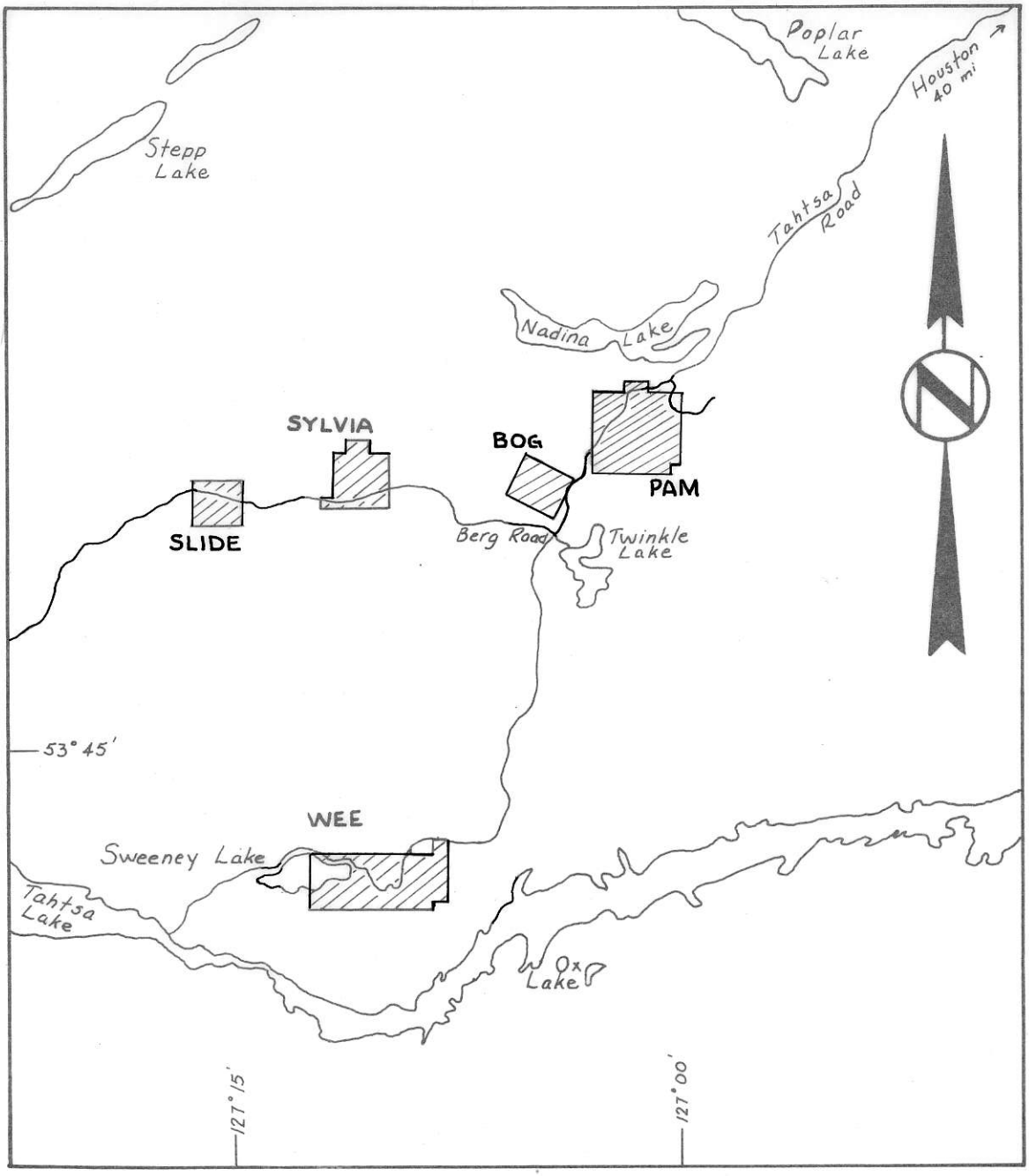
MINERALS EXPLORATION
VANCOUVER BRITISH COLUMBIA

LOCATION MAP

TAHTSA PROJECT

MAP	DATE	BY	SCALE	N.T.S.
FIG. 1	MARCH 1975	M.L.L.	1" = 120mi.	



3 0 3 6 9

SCALE IN MILES

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MINERALS EXPLORATION

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TAHTSA PROJECT

LOCATION MAP

PAM, BOG, SYLVIA, SLIDE, WEE

CLAIM BLOCKS

MAP	DATE	BY	SCALE	N.T.S.
Fig. 2	October, 1975	G.I.H.	1:250,000	93E/11,14,15

PAM CLAIMS

Introduction:

Exploration on the PAM claims in 1975 began in June with the establishment of a flagged grid for control, followed by geological mapping and a magnetometer survey. Later, ten vertical percussion holes were drilled in the southwestern part of the I.P. anomaly.

Location and Access:

The PAM claims (NTS 93 E/14,15) are located approximately two miles south of the eastern end of Nadina Lake, 55 road miles southwest of Houston, B.C. (Fig. 2, 3). The Tahtsa forestry road from Houston passes through the northwestern part of the claim block. The Dina fire tower road passes through the northeastern claims. Several miles of drill road provide access through the central and western parts of the claim block.

Previous Work:

Percussion drilling in 1974 tested part of an oval-shaped I.P. anomaly detected by the 1973 reconnaissance I.P. survey (see Tahtsa Project Report 1973, 1974 by G.I. Hall, and Report on the Geophysical Aspects of the Tahtsa Project, by L.A. Homeniuk, 1973). Soil and silt geochemistry over and around the anomaly was not encouraging. Geelogical mapping on 1"=1/4 mile photographs revealed tuffaceous and andesitic volcanic rocks containing trace amounts of pyrite underlying part of the I.P. anomaly. Two small outcrops of quartz-sericite-iron oxide were found in a creek bed in the southwestern part of the I.P. anomaly.

Results of percussion drilling in 1974 indicated a build-up in metal values, hydrothermal alteration and pyrite content in the southwestern part of the I.P. anomaly.

Claims:

Exploration work was done on the 70 claims remaining of the original 108 staked in 1973. Assessment work was recorded in mid-October 1975 for 50 of these claims in two groups as listed below and shown in Fig. 4. The remaining 20 claims (all from Group 2) expired October 24, 1975. Hudson's Bay Oil and Gas Company Limited owns all the claims.

Claim No.	Record No.	Record Date	Expiry Year
PAM NO. 1 GROUP			
PAM 3-5	129564-566	October 24	1977
6	129567	October 24	1978
7	129568	October 24	1977
8	129569	October 24	1978
9	129570	October 24	1977
10	129571	October 24	1978
11	129572	October 24	1978
12	129573	October 24	1978
13-16	129574-577	October 24	1977
21	129582	October 24	1977
22	129583	October 24	1978
23	129584	October 24	1978
24	129585	October 24	1978
25	129586	October 24	1978
26	129587	October 24	1977
27	129588	October 24	1978
28	129589	October 24	1977
29	129590	October 24	1978
30	129591	October 24	1977
31	129592	October 24	1977
32	129593	October 24	1977
33	129594	October 24	1977
34	129595	October 24	1977
36	129597	October 24	1977

Claim No.	Record No.	Record Date	Expiry Year
PAM NO. 2 GROUP			
PAM 39-42	129600-603	October 24	1976
43-50	129604-611	October 24	1977
51-52	129612-613	October 24	1976
59	129620	October 24	1976
61	129622	October 24	1976
63	129624	October 24	1976
65	129626	October 24	1976
67	129628	October 24	1976
69	129630	October 24	1976

Chain and Compass Survey:

An east-west base line 3600 metres long was established through the claim block by the chain and compass method. At 150 metre intervals along the base line, north and south grid lines were established by chain and compass and flagged to the north and south edges of the claim block. Stations along the grid lines were established at 30 metre intervals. Approximately 75 kilometres of flagged lines cover the PAM claims.

Geology and Rock Chip Sampling:

Geological mapping was completed over the entire claim block, using the grid for control (Fig. 5). Thirty-eight rock chip samples were collected from representative outcrops of each rock type and analyzed for copper, molybdenum, lead, zinc and silver.

Magnetometer Survey:

A proton precession magnetometer made by Exploranium Corp. of Canada, model G-816, was used for the survey. Readings were taken at 15 metre intervals along the flagged grid lines. The readings were corrected for diurnal variations and daily drift by tying them in to base stations established along the grid base line.

A value of 57,000 gammas was arbitrarily subtracted from all readings so that a smaller positive number could be plotted. All values greater than 2,000 gammas are plotted on the contour map Fig. 6. In most cases, only alternate readings, at 30 metre intervals, are plotted in an attempt to preserve clarity on the map.

Drill Access Road Construction:

A contractor from Smithers, B.C., Claude Perrault, was hired with a D-6 bulldozer early in September to construct about two kilometres of drill access road in the southwestern part of the claim block.

Percussion Drilling and Sampling:

L and L Drilling and Exploration Ltd., of Cache Creek, B.C., percussion drilled 10 vertical holes totalling 2080 feet (P-20 to P-29). Most holes were 150 metres apart and drilled to a depth of 250 feet. Samples of bedrock for analyses were collected for each 10 foot interal. A flocculating agent was added to each sample before the water was decanted to help settle the fines. A more detailed description of sampling

techniques is discussed in the 1974 Tahtsa Project Report. Samples were analyzed by Vangeochem Lab Ltd. in North Vancouver for Cu, Mo, Pb, Zn and Ag by routine atomic absorption techniques.

Twenty-nine vertical percussion drill holes totalling 5,645 feet have now been completed on the PAM claims.

Results:

A. Geology and Rock Chip Sampling

All the volcanic and sedimentary rocks on the PAM claims belong to the mid-Jurassic Hazelton Group. Intrusive rocks are not abundant. Two separate outcrops of intrusive rocks are known and these are presumed to be part of the upper Mesozoic Coast Intrusives.

Unit 1. The oldest rocks on the property are the limy shales and sandstones that outcrop mainly in creek beds in the southeastern part of the claim block. The shales are dark brown to black. Thin (1/4") calcite-filled veinlets cut the rock in places. Pyrite occurs in amounts up to 5%, as fracture fillings and as fine disemminations on the north side of the small lake on line 50+00W. This outcrop is silicified and iron-stained. The sandstones are fine- to medium-grained and calcareous, devoid of pyrite and non-magnetic. One outcrop shows ripple mark and lode casts. This bed trends 083° and dips 81 degrees northward. Although bedding attitudes are difficult to obtain, one outcrop of silicified shale did show bedding with a northeasterly trend and a dip of 40 degrees northward. A fault zone with up to one foot width of strongly fractured shale contains traces of disseminated sphalerite at the southern end of line 26+00W.

Outcrops along the creek bed show alternating thin beds of shale and sandstone.

An unconformity is thought to exist between these sediments and the overlying volcanic rocks.

Unit 2. Amygdaloidal porphyritic andesite is found in several places along the creek bank in the northwestern corner of the claim block, and between lines 30+50W and 38+00W from 53+00N to 68+00N. Amygdules of quartz, calcite and/or zeolites, often up to one inch in diameter, are set in a porphyritic groundmass. Pyrite is rare, and the outcrops are non-magnetic. No fracturing or veining is evident, although brecciation was noted in several outcrops, probably toward the top of the flow.

Unit 3. Outcrops of porphyritic andesite are located in the west central portion of the claim block between lines 48+50W and 51+50W. The rocks exhibit flow breccia in places. The breccia beds have an east-west trend and can be traced for several hundred feet. Between lines 50+00W and 51+50W north of the base line, up to 15% pyrite occurs in an outcrop of the breccia in the creek bed. Elsewhere, pyrite is rare or absent. Thin veinlets of magnetite are present in the andesite at about 45+00N on line 48+50W.

Unit 4. Tuffaceous volcanics are thought to overlie the andesitic volcanic rocks. Fragment size varies from very fine-grained, often showing bedding or flow banding (4a), to lapilli size of up to 10 mm. (4b). The bedded variety, (4a), trends east-northeasterly to east-southeasterly and dips from 40 to 80 degrees southward.

Unit 4 appears to be composed of rocks from at least two eruptive episodes. Lapilli-sized fragments were deposited (4b) with interuptions by a more quiescent period when the finely bedded and flow-banded tuff (4a) was deposited. Outcrops of 4b on line 27+50W are strongly magnetic but contain no visible magnetite.

One outcrop of 4b containing up to 5% specular hematite was located on line 23+00W at 62+90N in lapilli tuff striking north-northeasterly and dipping 65 degrees eastward.

The relationship between units 2 and 4 is not clear. Unit 2 in the east-central part of the claim block occurs in a restricted area and the outcrops usually occupy topographic highs.

Unit 5. One outcrop of micro-granodiorite was found near the base line on line 35+00W. It is a fine-grained rock composed of 15% hornblende, 10% interstitial K-spar, and 75% plagioclase. It contains no pyrite and is weakly magnetic. Fracturing is well-developed.

Unit 6. One outcrop of diorite was found near the base line at 50+75W. The diorite contains 5% biotite as discrete 1/8 inch books, similar to the biotite seen in the drill cuttings from percussion drill holes P-8, P-9, P-20 and P-27 nearby. Magnetite occurs along veinlets 1/10 inch thick. No pyrite is evidont.

Unit 7. A zone of quartz-sericite-iron oxide is outlined on the basis of two highly altered outcrops about 1000 feet apart between lines 50+00W and 51+50W north and south of the base line. Within this zone there is one poorly exposed outcrop on the drill road that shows abundant calcite bands in what appears to be a strongly altered volcanic.

Analytical results of rock chip samples (Fig. 5) show the highest copper content (670 ppm) in brecciated tuffaceous volcanics containing 20% pyrite in the creek bed just north of Unit 7. A sample of the diorite (Unit 6) contains 245 ppm copper and 12 ppm molybdenum, while a sample of brecciated porphyritic andesite (Unit 3) at 50+00W, 44+00N contains 265 ppm copper. A sample of the silicified iron-stained shale on line 50+00W near its southern end contains 85 ppm copper and 1180 ppm zinc. A chip sample across the one foot wide fault zone containing sphalerite at the southern end of line 26+00W contains 6800 ppm zinc.

All other analytical results show less than 150 ppm copper and low values of molybdenum, lead, zinc and silver.

B. Magnetometer Survey Results

Results of the magnetometer survey are presented as a contour map Fig. 6. About 60% of the values are less than 1000 gammas, while only about 12 values are greater than 2000 gammas. Most values greater than 1000 gammas are contained within four zones that have northeasterly trends parallel to the trend of the sediments and volcanics. The largest zone, in the northeastern corner of the claim block, is underlain by lapilli tuff. The rocks associated with this anomaly on line 27+50W between 59+00N and 61+00N are strongly magnetic although no magnetite is visible. Further to the east, the tuff becomes less magnetic. These rocks strike north-northeasterly and dip moderately southward.

The elongated anomalous zone between lines 27+50W and 42+50W is associated with abundant outcrops of finely bedded tuff striking east-northeasterly and dipping from 40 to 80 degrees southward. The rocks are only weakly magnetic. The small anomalous zone just south of the base line on line 35+00W is associated with an outcrop of well fractured micro-granodiorite (Unit 5). The rock is weakly magnetic. A thin section shows trace amounts of an opaque mineral which is probably magnetite.

The elongated anomalous zone north of the base line between 38+00W and 51+50W is not associated with any outcrop. However, a percussion drill hole (P-6) in the northeastern end of the anomaly intersected weakly magnetic tuffaceous volcanics. Another percussion drill hole (P-17) in the northwestern lobe of the anomaly averages 395 ppm copper, 29 ppm molybdenum. The upper part of the hole contains abundant quartz-sericite with traces of molybdenum in quartz veining. The lower parts of the hole, from 150 to 230 feet are composed of weakly magnetic tuffaceous volcanics. Drill hole P-24 at 52+70N on line 50+00W encountered moderately magnetic andesitic volcanics with up to 10% pyrite from 30 to 100 feet.

The anomalous zone south of the base line in the southwestern part of the claim block is associated with porphyritic andesite containing thin magnetite veinlets and brecciated sections. The three extremely high values on the western edge of the anomaly are underlain by overburden.

C. Percussion Drilling Results

The percussion drill logs, with accompanying analytical results are contained in a back pocket of this report.

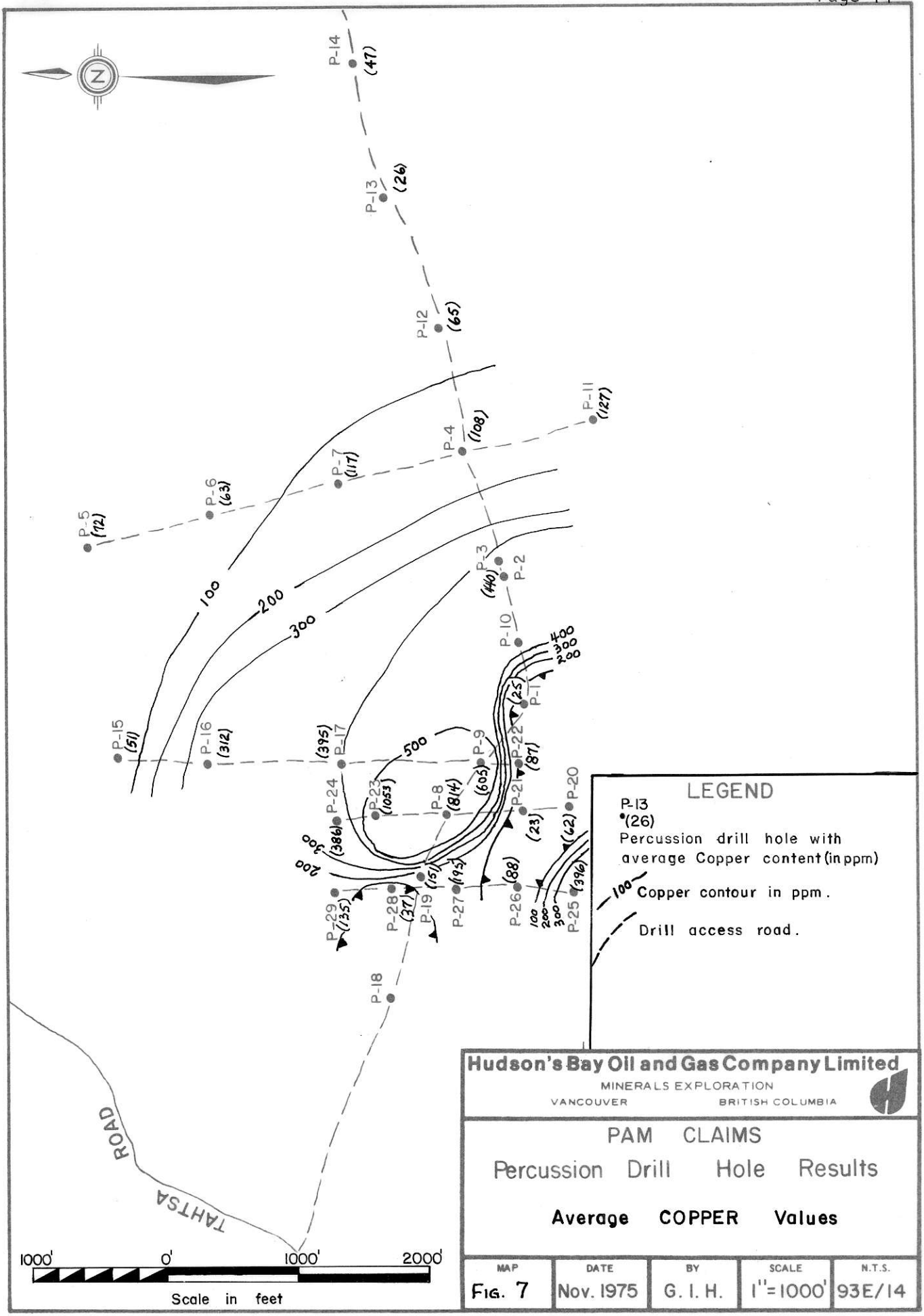
The average Cu, Mo, Pb, Zn and Ag values for each hole were calculated from assay results. Average pyrite contents for each hole were estimated from studies of the drill cuttings using a hand lens. Contour maps of average metal values and pyrite contents are presented in Fig. 7 to 12. A map showing alteration zones, based on lithology of drill cuttings, is presented in Fig. 13.

Average copper and molybdenum values from all percussion drill holes form a concentric pattern around holes P-8, P-9 and P-23. There is a gradual build-up in values from less than 100 ppm copper and 3 ppm molybdenum in P-5, P-6, P-12 to P-15 to over 1000 ppm copper and 126 ppm molybdenum in P-23. West and south of P-8, P-9, and P-23, copper values drop off quickly to less than 150 ppm copper, with the exception of P-25 which averages 396 ppm copper. Average Pb, Zn, and Ag values increase outward from holes P-8, P-9 and P-23.

The estimated average pyrite content of 8% in hole P-24, 400 feet north of P-23, occurs in a brecciated section in porphyritic andesite. A similar outcrop is located in the creek 300 feet west of the drill hole, just north of the zone of quartz-sericite-iron oxide (Unit 7).

Ten holes drilled in 1975 failed to encounter a continuation of the potassic zone of alteration (euhedral black biotite in a clay matrix) found in 1974 in hole P-8 and near the bottom of hole P-9. However, holes P-20 and P-27 did contain traces of euhedral black biotite in a clay matrix. The host rock in P-20 and P-27 was composed of light grey to black porphyritic tuff. On the westernmost drill line, only hole P-26 encountered quartz-sericite-pyrite alteration. The remainder of the holes on this line were drilled in porphyritic tuffaceous volcanics containing up to 5% pyrite.

The western edge of the I.P. anomaly (20 mv/volt contour line) is located approximately 2000 feet west of the western-most line (holes P-25 to P-29, Fig. 14).



LEGEND

P-13
•(26)
Percussion drill hole with average Copper content (in ppm)

100 Copper contour in ppm.

Drill access road.

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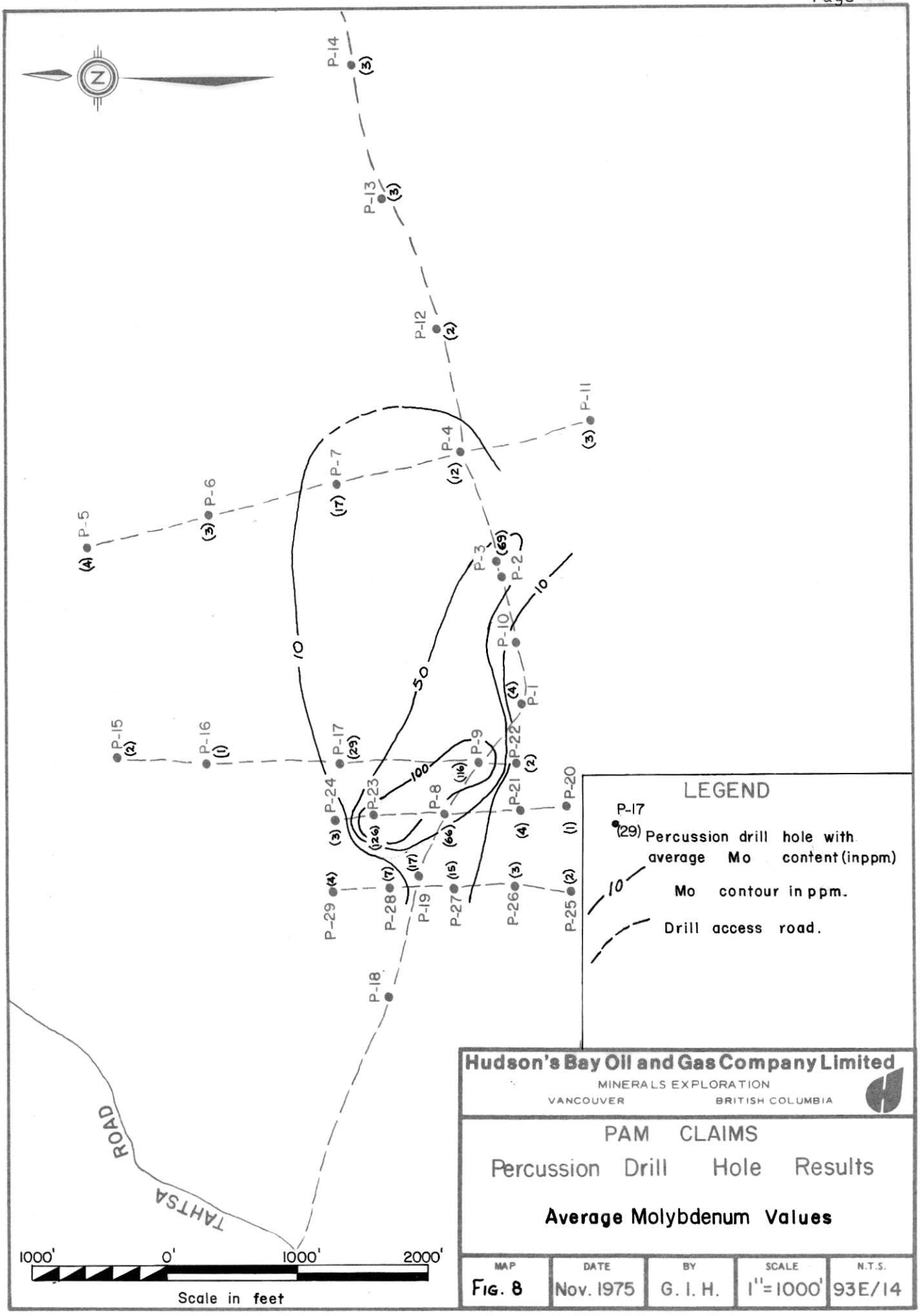
PAM CLAIMS

Percussion Drill Hole Results

Average COPPER Values

MAP	DATE	BY	SCALE	N.T.S.
Fig. 7	Nov. 1975	G. I. H.	1"=1000'	93E/14



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MINERALS EXPLORATION

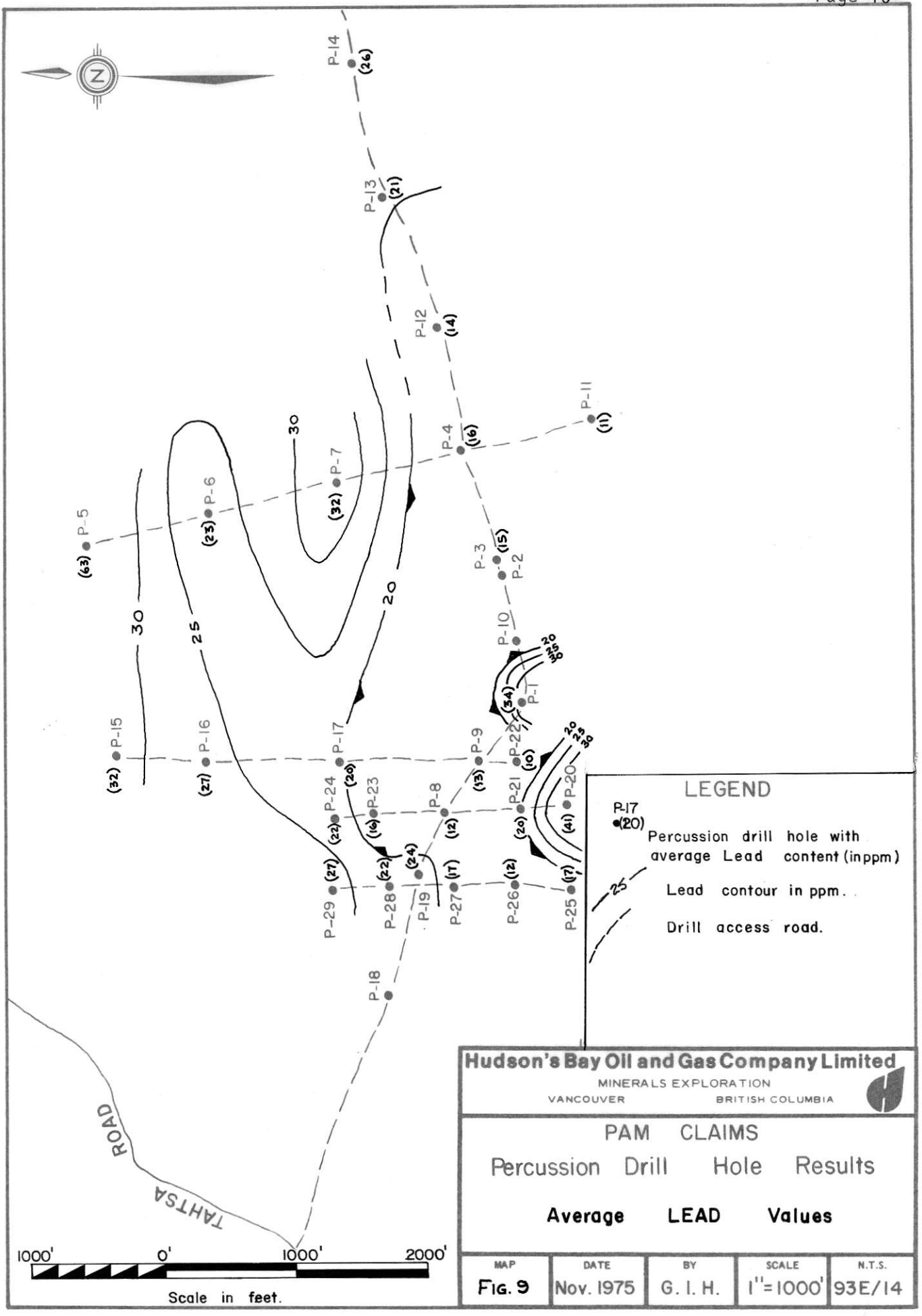
VANCOUVER BRITISH COLUMBIA

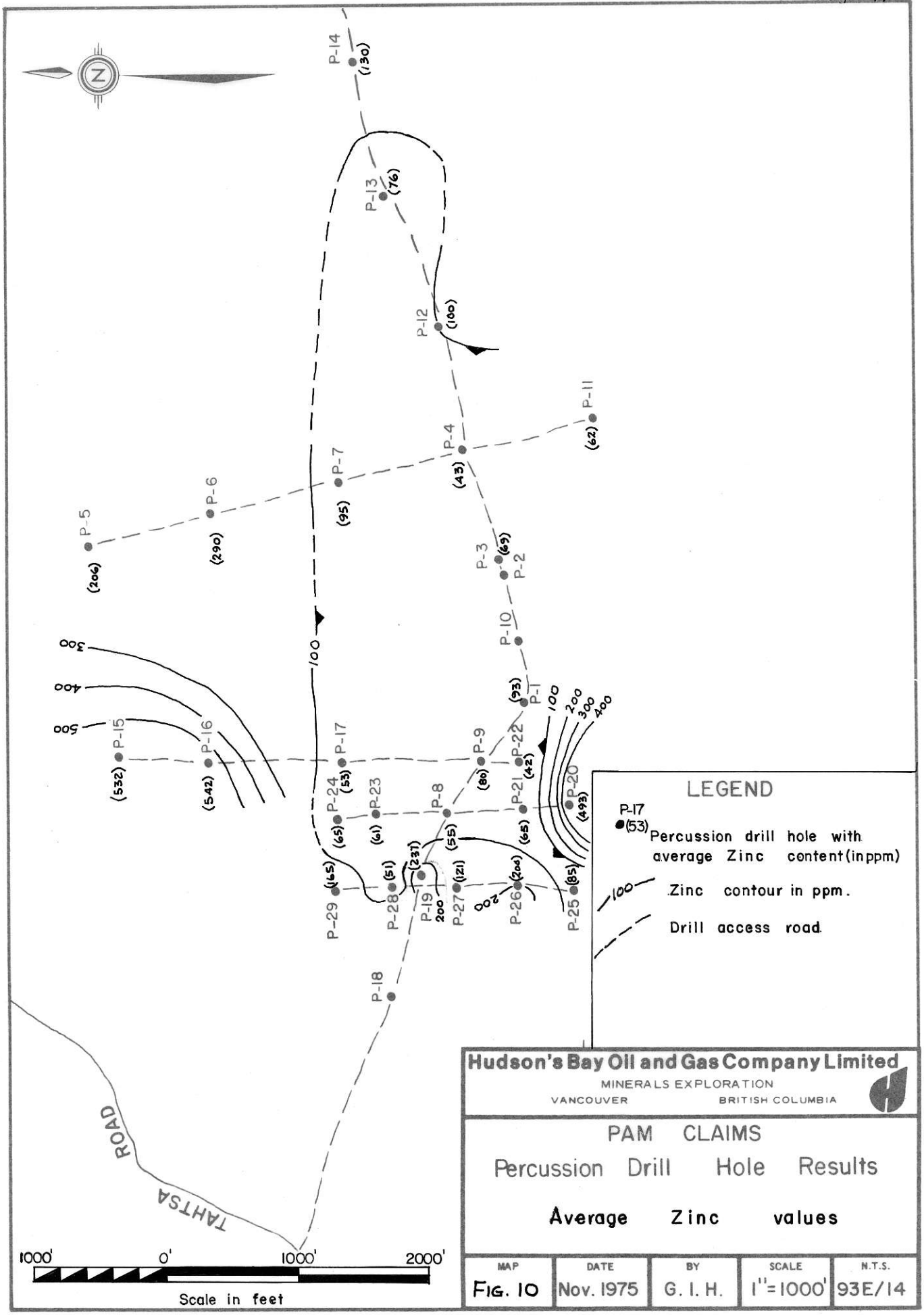
PAM CLAIMS

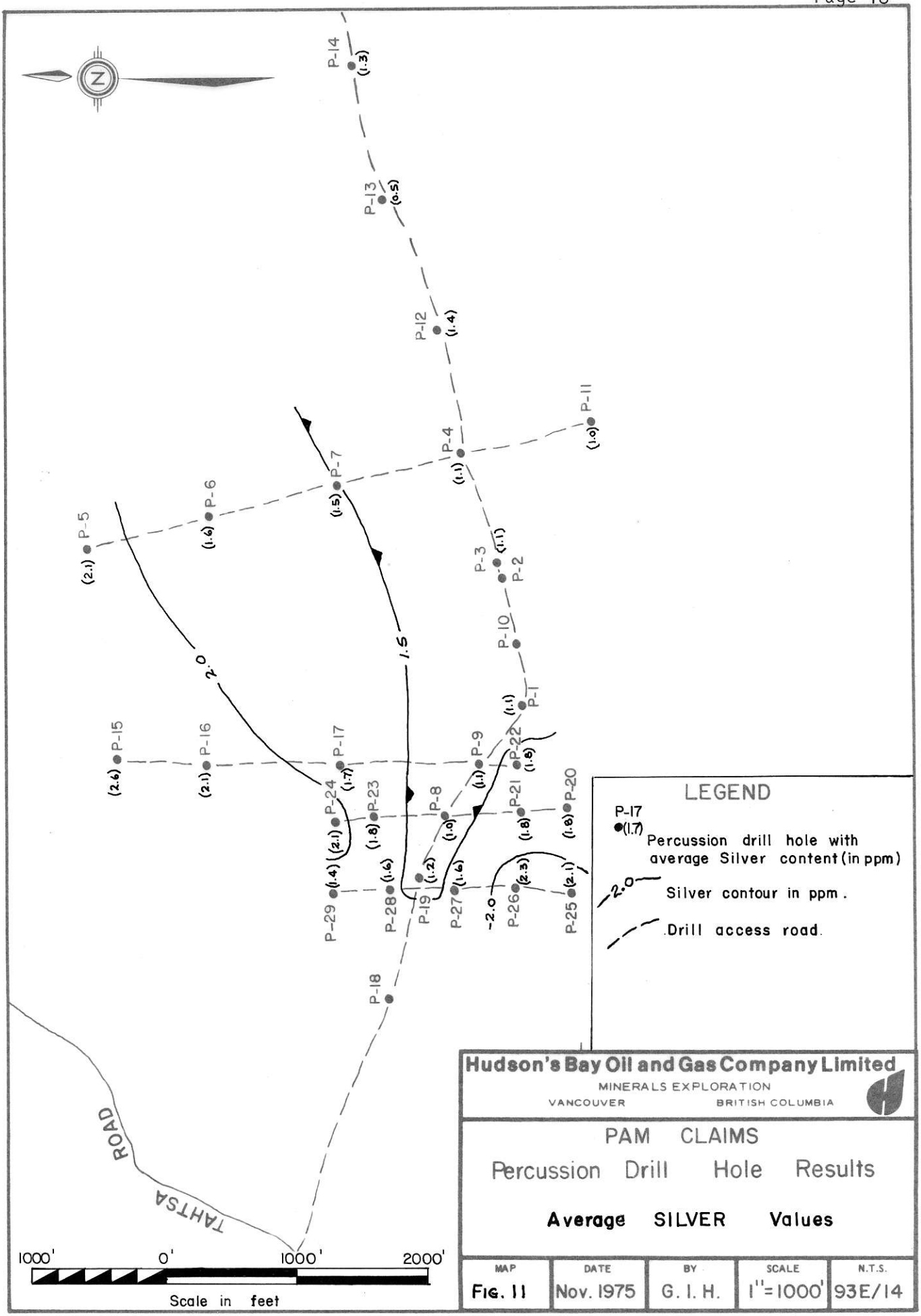
Percussion Drill Hole Results

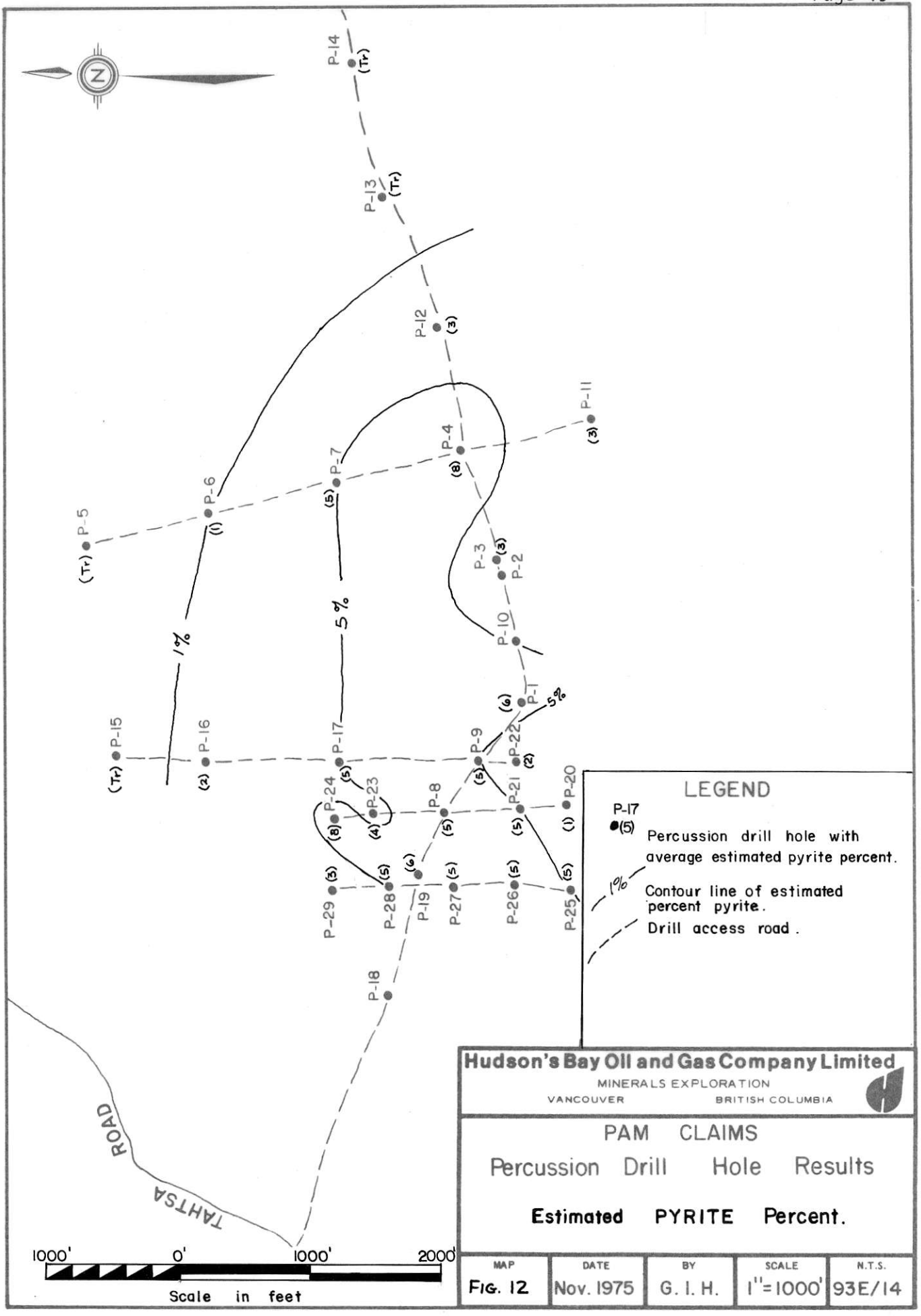
Average Molybdenum Values

MAP	DATE	BY	SCALE	N.T.S.
FIG. 8	Nov. 1975	G. I. H.	1"=1000'	93E/14


N
P-14 (26)
P-13 (21)
P-12 (14)
P-11 (11)
P-4 (16)
P-7 (32)
P-6 (23)
P-5 (63)
P-3 (15)
P-2
P-10
P-1 (34)
P-15 (32)
P-16 (27)
P-17 (20)
P-9 (13)
P-22 (10)
P-24 (22)
P-23 (16)
P-8 (12)
P-21 (20)
P-20 (41)
P-29 (27)
P-28 (22)
P-19 (24)
P-27 (17)
P-26 (12)
P-25 (17)
P-18
30
25
20
20
25
30
20
25
30
LEGEND
P-17 (20) Percussion drill hole with average Lead content (in ppm)
25 Lead contour in ppm.
Drill access road.
ROAD
TAHTSA
1000' 0' 1000' 2000'
Scale in feet.
Hudson's Bay Oil and Gas Company Limited
MINERALS EXPLORATION
VANCOUVER BRITISH COLUMBIA
PAM CLAIMS
Percussion Drill Hole Results
Average LEAD Values
MAP Fig. 9
DATE Nov. 1975
BY G. I. H.
SCALE 1"=1000'
N.T.S. 93E/14


N
P-14 (130)
P-13 (76)
P-12 (100)
P-11 (62)
P-4 (43)
P-7 (95)
P-6 (290)
P-5 (204)
P-3 (69)
P-2
P-10
P-1 (93)
P-22 (42)
P-21
P-9 (80)
P-17
P-16 (542)
P-15 (532)
P-24 (53)
P-23 (41)
P-8
P-20 (493)
P-29 (165)
P-28 (51)
P-19 (231)
P-27 (121)
P-26 (200)
P-25 (85)
P-18
100
200
300
400
500
ROAD
TAHTSA
1000' 0' 1000' 2000'
Scale in feet
LEGEND
P-17 (53) Percussion drill hole with average Zinc content (in ppm)
100 Zinc contour in ppm.
Drill access road
Hudson's Bay Oil and Gas Company Limited
MINERALS EXPLORATION
VANCOUVER BRITISH COLUMBIA
PAM CLAIMS
Percussion Drill Hole Results
Average Zinc values
MAP Fig. 10
DATE Nov. 1975
BY G. I. H.
SCALE 1"=1000'
N.T.S. 93E/14

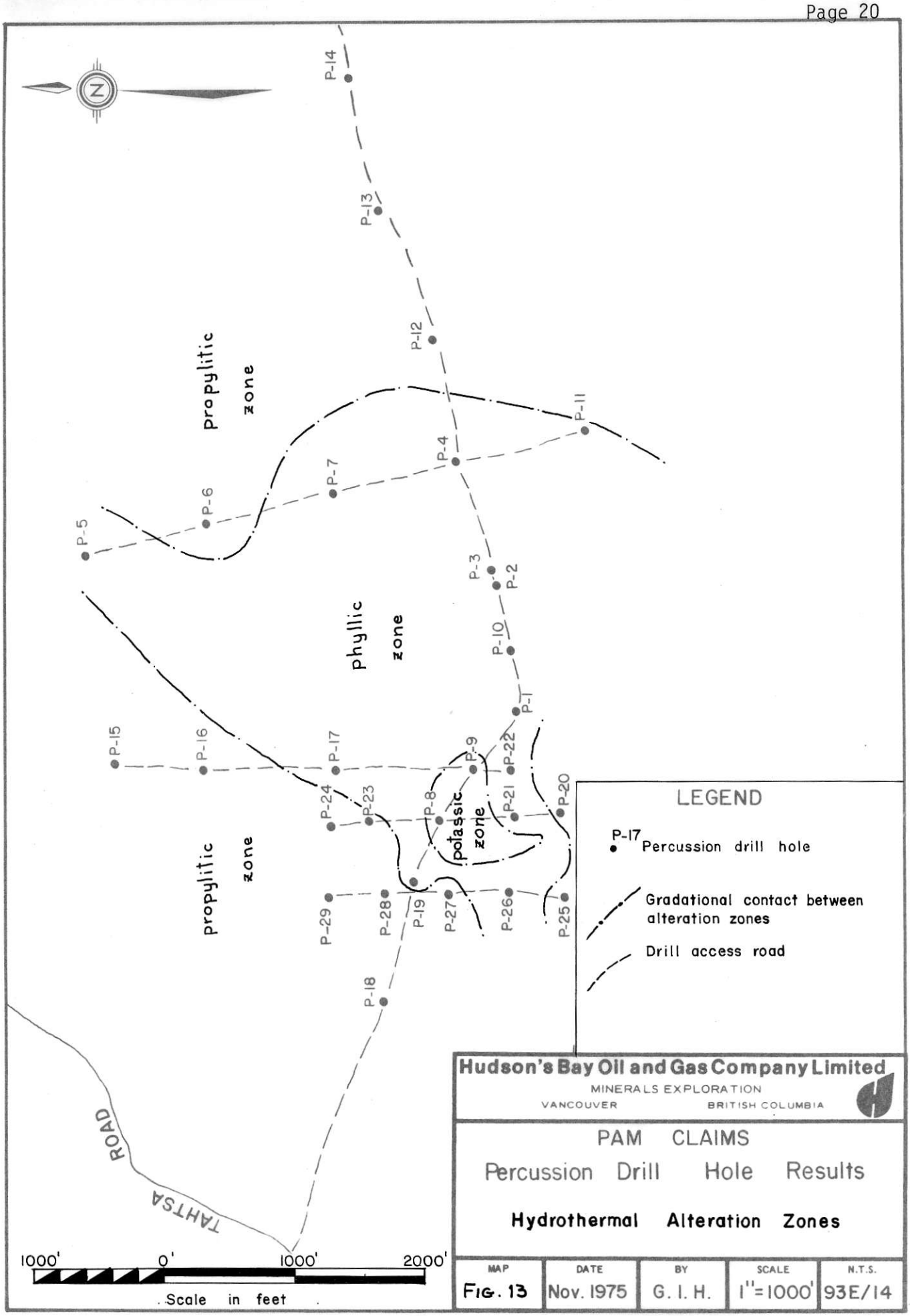

N
P-14 (1.3)
P-13 (0.5)
P-12 (1.4)
P-11 (1.0)
P-4 (1.1)
P-7 (1.5)
P-6 (1.6)
P-5 (2.1)
P-3 (1.1)
P-2
P-10
P-1 (1.1)
P-15 (2.6)
P-16 (2.1)
P-17 (1.7)
P-9 (1.1)
P-22 (1.6)
P-24 (2.1)
P-23 (1.8)
P-8 (1.0)
P-21 (1.8)
P-20 (1.8)
P-29 (1.4)
P-28 (1.6)
P-19 (1.2)
P-27 (1.6)
P-26 (2.3)
P-25 (2.1)
P-18
2.0
1.5
-2.0
ROAD
TAHTSA
1000' 0' 1000' 2000'
Scale in feet
LEGEND
P-17 (1.7) Percussion drill hole with average Silver content (in ppm)
2.0 Silver contour in ppm.
Drill access road.
Hudson's Bay Oil and Gas Company Limited
MINERALS EXPLORATION
VANCOUVER BRITISH COLUMBIA
PAM CLAIMS
Percussion Drill Hole Results
Average SILVER Values
MAP Fig. 11
DATE Nov. 1975
BY G. I. H.
SCALE 1"=1000'
N.T.S. 93E/14



Hudson's Bay Oil and Gas Company Limited
MINERALS EXPLORATION
VANCOUVER BRITISH COLUMBIA

PAM CLAIMS
Percussion Drill Hole Results
Estimated PYRITE Percent.

MAP	DATE	BY	SCALE	N.T.S.
FIG. 12	Nov. 1975	G. I. H.	1"=1000'	93E/14


N
P-14
P-13
P-12
P-11
P-4
P-7
P-6
P-5
P-3
P-2
P-10
P-1
P-15
P-16
P-17
P-9
P-22
P-24
P-23
P-8
P-21
P-20
P-29
P-28
P-19
P-27
P-26
P-25
P-18
propylitic zone
phyllic zone
potassic zone
propylitic zone
ROAD
TAHTSA
1000' 0' 1000' 2000'
Scale in feet
LEGEND
P-17 Percussion drill hole
Gradational contact between alteration zones
Drill access road
Hudson's Bay Oil and Gas Company Limited
MINERALS EXPLORATION
VANCOUVER BRITISH COLUMBIA
PAM CLAIMS
Percussion Drill Hole Results
Hydrothermal Alteration Zones
MAP Fig. 13
DATE Nov. 1975
BY G. I. H.
SCALE 1"=1000'
N.T.S. 93E/14

SYLVIA CLAIMS

Introduction:

Exploration work on the SYLVIA claims began in July with the establishment of a flagged grid for control, followed by a magnetometer survey, geological mapping and rock chip sampling. In September, six vertical percussion drill holes were completed in the I.P. anomaly.

Location and Access:

The SYLVIA claims (NTS 93 E/14) straddle the BERG road six miles west of Twinkle Lake and about 70 road miles southwest of Houston, B.C. (Figs. 2,3). About 7000 feet of bulldozer drill roads provide access to the area of interest within the claim block.

Previous Work:

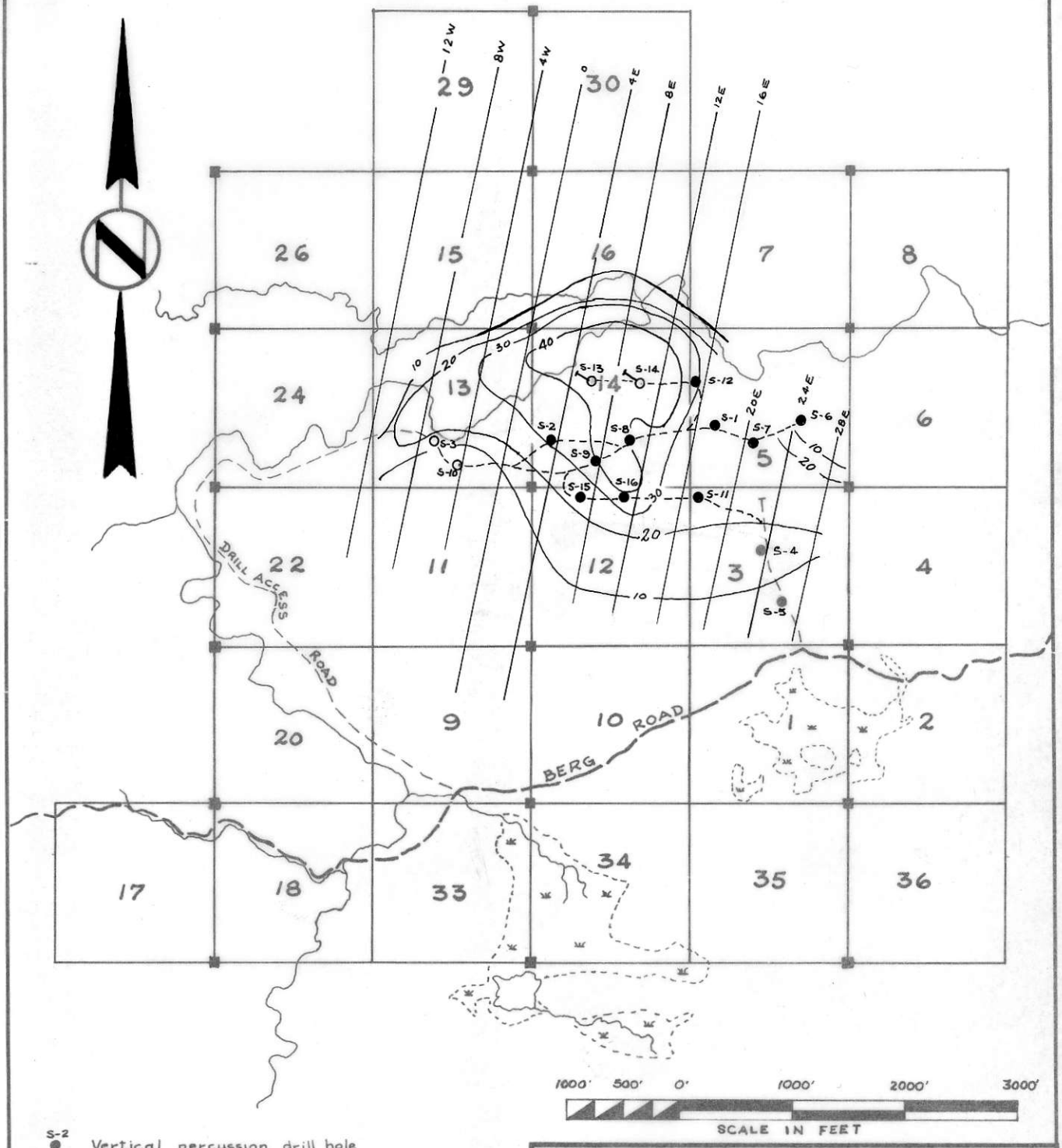
A circular I.P. anomaly (Fig. 15) located in 1973 was partially tested by percussion drilling in 1974. Several holes intersected a granodiorite/quartz monzonite intrusive. Hole S-8, drilled near the centre of the anomaly, contained 0.33% copper from 30 to 230 feet in quartz monzonite. The other holes contained less than 500 ppm copper. One outcrop of granodiorite was located in the stream bed east of the I.P. anomaly. Within the I.P. anomaly, tuffaceous volcanic rocks are exposed, some of which contain up to 8% pyrite.

A soil sampling program in 1973 showed an anomalous copper zone straddling the creek in the northern part of the I.P. anomaly.

Claims:

Assessment work was recorded before October 24, 1975 on the 28 SYLVIA claims owned by Hudson's Bay Oil and Gas Company Limited as listed below.

Name	Record No.	Record Date	Expiry Date
SYLVIA 1-16	126828-843	July 30	1978
17-18	129380-381	October 24	1977
20	129383	October 24	1977
22	129385	October 24	1977
24	129387	October 24	1977
26	129389	October 24	1977
29	129392	October 24	1977
30	129393	October 24	1977
33-36	129396-399	October 24	1977



S-2 ● Vertical percussion drill hole

■ Claim post

20 4W Chargeability contour in mv/volt

Flagged grid for I.P. survey

O S-10 Vertical percussion drill hole in overburden

Drill access road

Proposed diamond drill hole

Hudson's Bay Oil and Gas Company Limited

MINERALS EXPLORATION

VANCOUVER BRITISH COLUMBIA

TAHTSA PROJECT

SYLVIA CLAIMS

INDUCED POLARIZATION

CHARGEABILITY CONTOUR MAP

MAP	DATE	BY	SCALE	N.T.S.
FIG. 15	Nov. '75	JMS-B	1" = ¼ mile	93E/14

-to accompany 1978 Budget Proposal-

VANCAL

Chain and Compass Survey:

A north-south base line 2370 metres long was established by the chain and compass method through the centre of the claim block. At 150 metre intervals along the base line, grid lines were established by the chain and compass method east and west to the edges of the claim block. Stations along the grid lines were flagged at 30 metre intervals. Approximately 30 kilometres of flagged lines cover the SYLVIA claims.

Geology and Rock Chip Sampling:

Geological mapping was completed over the entire claim block using the established grid for control. (Fig. 17). Sixteen rock chip samples were collected from representative outcrops of each rock type and analyzed for copper, molybdenum, lead, zinc and silver by the atomic absorption method.

Magnetometer Survey:

A proton precession magnetometer made by the Exploranium Corp. of Canada, model G-816, was used for the survey. Readings were taken at 15 metre intervals along the flagged grid lines, with the exception of lines 60+50N and 61+70N. (Fig. 18). On these lines, dense undergrowth, steep rocky slopes and cliffs made movement with the magnetometer hazardous and no readings were taken.

The readings were corrected for diurnal variations and daily drift by tying them in to base stations established along the grid base line.

A value of 56,000 gammas was arbitrarily subtracted from all the readings so that a smaller positive number could be plotted. In most cases, only the alternate readings, at 30 metre intervals, are plotted in an attempt to preserve clarity on the contour map.

Drill Access Road Construction:

A contractor from Smithers, B.C., Claude Perreault, was hired with a D-6 bulldozer to construct about 1/2 mile of drill access road into the centre of the I.P. anomaly early in September.

Percussion Drilling and Sampling:

L and L Drilling and Exploration Ltd. of Cache Creek, B.C., percussion drilled six vertical holes totalling 1140 feet (S-11 to S-16, Fig. 17). Three holes each were drilled 150 metres apart along two east-west line centred 150 metres north and south of S-8. The holes that reached

bedrock (all except S-13 and S-14) were drilled to 250 feet.

Samples of bedrock for analyses were collected for each 10 foot interval. A flocculating agent was added to each sample before the water was decanted to help settle the fines. A more detailed description of sampling techniques is discussed in the 1974 Tahtsa Project Report. Samples were analyzed by Vangeochem Lab Ltd. in North Vancouver, B.C. for Cu, Mo, Pb, Zn and Ag by routine atomic absorption techniques.

Sixteen vertical percussion drill holes totalling 2880 feet have now been completed on the SYLVIA claims.

Results:

A. Geology and Rock Chip Sampling Results

Unit 1. This unit is composed of fine-grained porphyritic tuff. Phenocrysts of plagioclase occupy up to 10% of the rock. Chlorite and epidote are common throughout, while quartz-epidote vein-swarms (ep.) are well-developed in places. Pyrite is rare in these rocks. Fracturing is not well-developed. The rocks are usually non-magnetic, but one outcrop near the eastern end of line 42+50N is moderately magnetic (mag.).

Unit 2. The rocks in Unit 2 are non-porphyritic tuffs, usually moderately magnetic, containing up to 8% pyrite in places. The base of this unit, exposed in an outcrop along the BERG road near the eastern claim boundary exhibits well-developed bedding. The bedded tuff strikes northeasterly and dips 35 degrees northward. The rock here is moderately magnetic (mag.) although no magnetite is visible in hand specimen. To the north and northeast of this exposure, other outcrops are similarly moderately magnetic.

The amount of pyrite in this unit gradually increases toward the centre of the claim block (i.e. toward the centre of the I.P. anomaly) to an estimated maximum of 8% just south of hole S-9. Pyrite occurs both as disseminations and as fracture-fillings.

Unit 3. One intrusive outcrop was found in the creek bed and bank just north of line 52+70N at 44+00W. The rock is a medium-grained granodiorite containing about 5% hornblende and biotite and 5% magnetite. Pyrite is absent. The rock shows no evidence of alteration. Bedrock in holes S-1, S-6, S-7 and S-12 appears to be of the same composition as this outcrop.

A fault with right lateral displacement is assumed to occur along the northwest trending part of the contact between units 1 and 2.

Results of rock chip sampling for Cu, Mo, Pb, Zn and Ag in the tuffaceous volcanic rocks failed to show any significant metal contents or build-up. (Fig. 17). The highest copper content was 85 ppm in one sample. A sample of the granodiorite contained 9 ppm copper and low values in Mo, Pb, Zn and Ag.

B. Magnetometer Survey Results

Results of the magnetometer survey are presented as a contour map, Fig. 18. There appears to be a direct corelation between magnetic susceptibility and non-porphyritic tuffaceous volcanics (unit 2). Magnetic intensity increases from southwest to northeast within the claim block i.e. from porphyritic to non-porphyritic tuff.

Rocks in unit 1 are non-magnetic, except for one occurrence near the east end of line 42+50N where the porphyritic tuff contains quartz-epidote vein-swarms and is moderately magnetic.

Rocks of unit 2 are generally moderately magnetic. Outcrops in the eastern part of the claim block are associated with a northerly trending magnetic anomaly (3000 gammas).

The anomaly centred on line 48+50N just east of the base line is not associated with any outcrop. Two drill holes (S-4, S-11) on the edges of this anomaly however, penetrated moderately magnetic tuffaceous volcanics.

The anomalous areas in the northeastern and northwestern corners of the claim block are not associated with any outcrop.

The granodiorite found in the creek bed, and under overburden in the drill holes S-1, S-2, S-6, S-7, S-8 and S-12 is not associated with any strong magnetic anomaly, although the rock contains an estimated 5% magnetite.

C. Percussion Drilling Results

The percussion drill logs, with accompanying analytical results, are contained in a back pocket of this report.

The average Cu, Mo, Pb, Zn and Ag contents for each hole were calculated from assay results and are presented in Fig. 19 to 24.

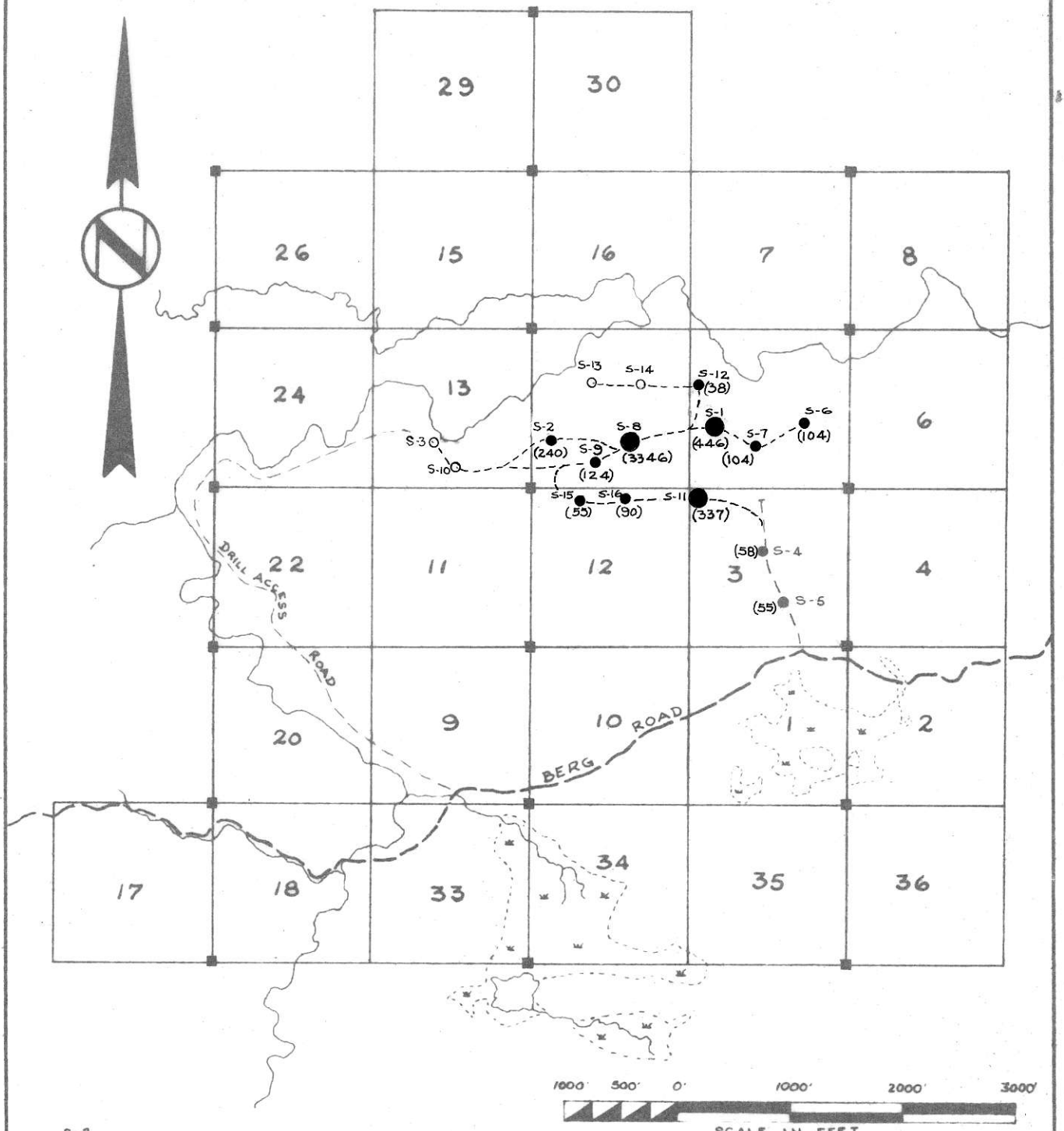
Hole S-11 has the highest copper content of the holes drilled this year (average 337 ppm Cu, 15 ppm Mo). It is located 150 metres south and 150 metres east of hole S-8, percussion drilled in 1974, that contained 0.33% Cu from 30 to 230 feet.

Hole S-11 contains a zone of quartz-sericite alteration from 100 to 130 feet that contains 60 ppm Mo. Trace amounts of chalcopyrite were noted along fractures from 180 to 190 feet and from 220 to 230 feet in dark grey to black tuff. Pyrite varies from trace amounts to 1/2 percent in this hole.

Hole S-12, near the eastern edge of the I.P. anomaly, penetrated 170 feet of granodiorite (80 to 250 feet) containing up to 5% magnetite and traces of pyrite. The average copper content is 38 ppm.

Holes S-13 and S-14, drilled near the centre of the I.P. anomaly failed to reach bedrock after penetrating 70 feet of overburden.

Holes S-15 and S-16, drilled near the southern edge of the I.P. anomaly, penetrated tuffaceous volcanics containing minor amounts of quartz. S-15 contained 3% pyrite and an average of 55 ppm copper. S-16 contained trace amounts of pyrite and an average of 90 ppm copper.



S-2 ● Vertical percussion drill hole showing average COPPER content (in ppm)

S-30 Vertical percussion drill hole in overburden

S-8 (3346) ● > 300 ppm COPPER

Hudson's Bay Oil and Gas Company Limited

MINERALS EXPLORATION

VANCOUVER BRITISH COLUMBIA

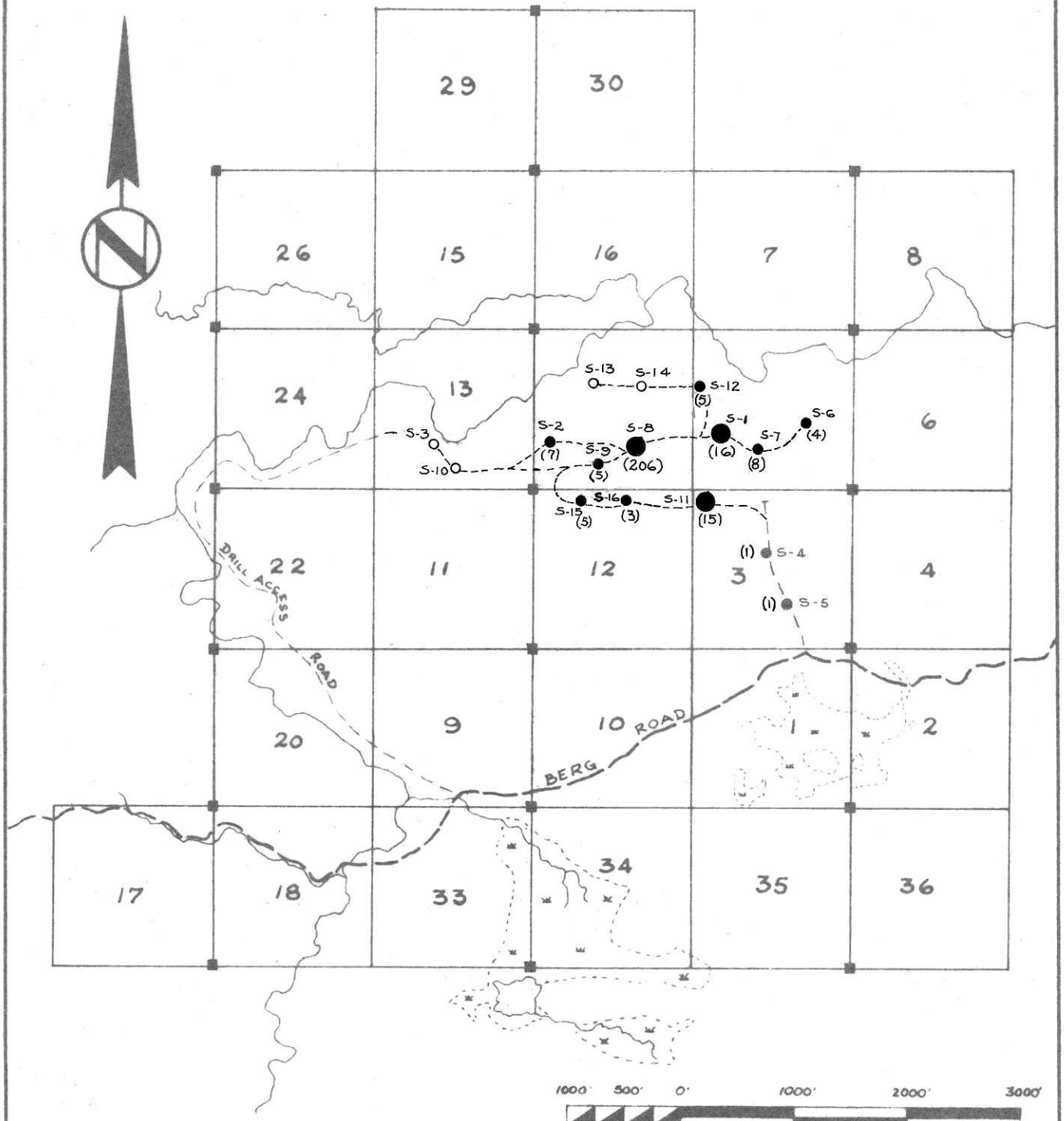
TAHTSA PROJECT

SYLVIA CLAIMS

PERCUSSION DRILL RESULTS

Average COPPER Content

MAP	DATE	BY	SCALE	N.T.S.
FIG. 20	Nov. '75	JMS-B	1" = ¼ mi.	93E/14



S-2 (7) Vertical percussion drill hole showing average MOLYBDENUM content (in ppm)

S-3 Vertical percussion drill hole in overburden

S-8 (206) > 15 ppm Mo

Hudson's Bay Oil and Gas Company Limited

MINERALS EXPLORATION

VANCOUVER BRITISH COLUMBIA

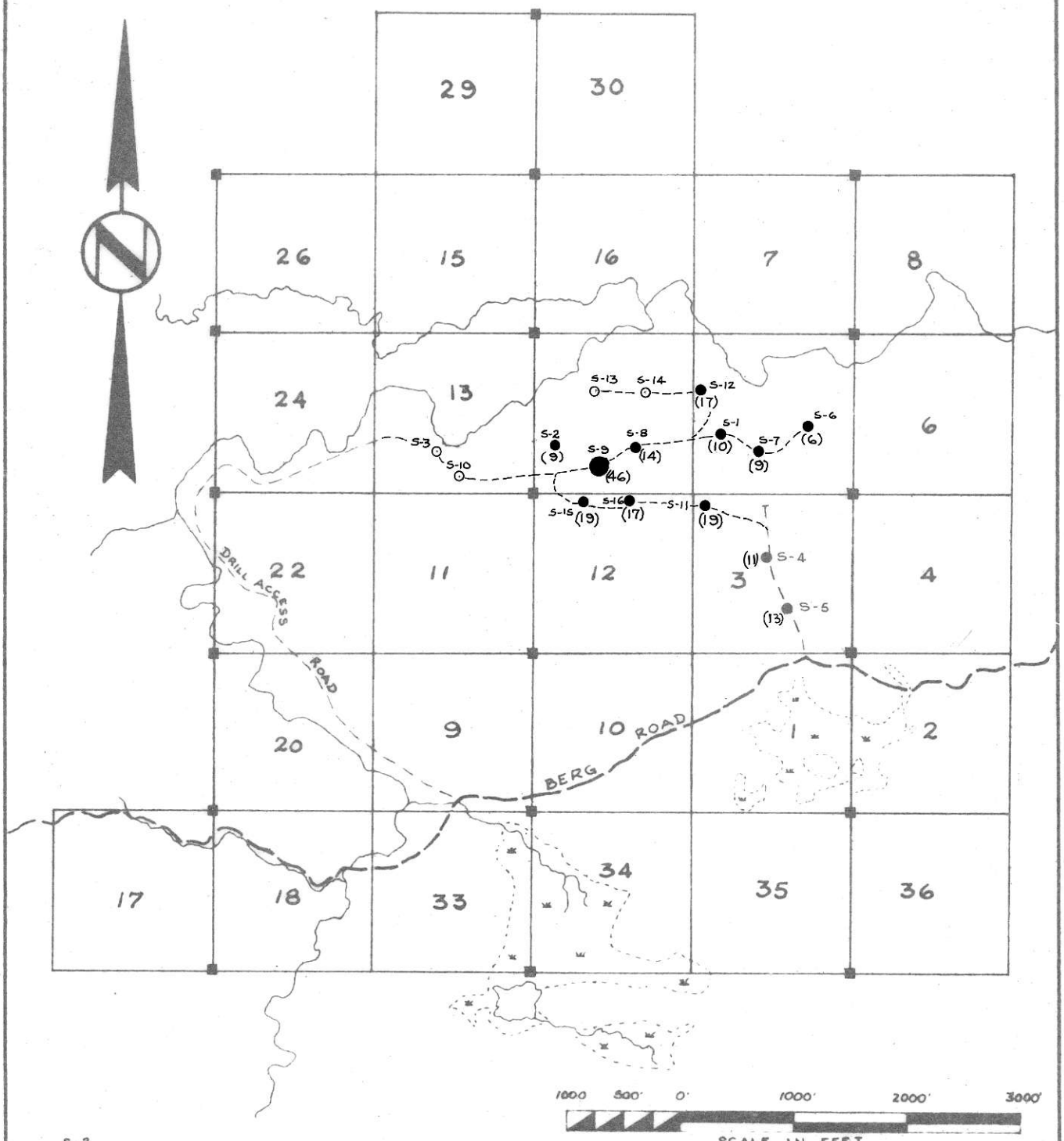
TAHTSA PROJECT

SYLVIA CLAIMS

PERCUSSION DRILL RESULTS

Average MOLYBDENUM Content

MAP	DATE	BY	SCALE	N.T.S.
Fig. 21	Nov.'75	JMS-B	1" = ¼ mi.	93E/14



S-2 (9) Vertical percussion drill hole showing average Lead content (in ppm.)

S-3 Vertical percussion drill hole in overburden

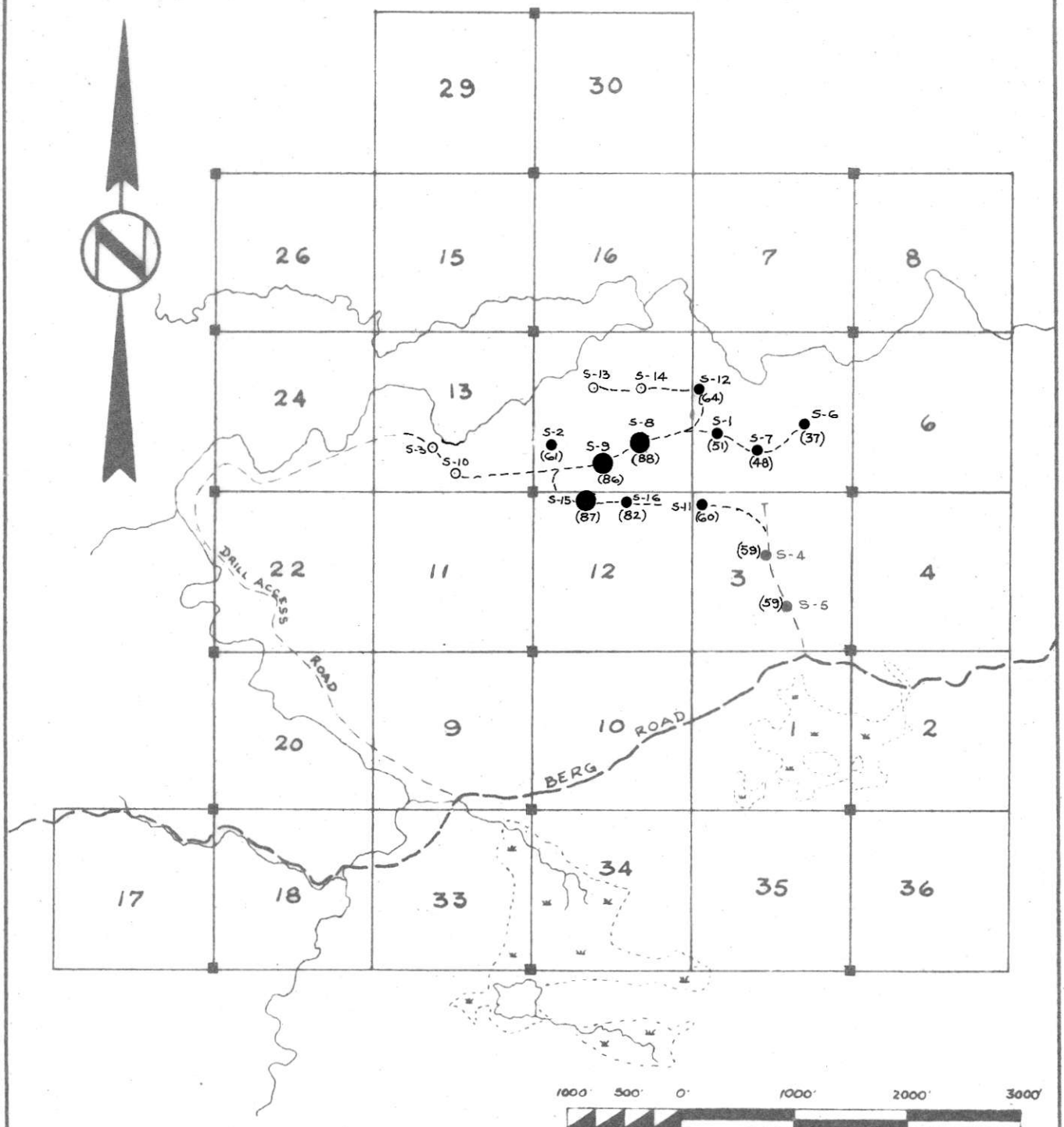
S-9 (46) > 40 ppm. Lead (Pb)

Hudson's Bay Oil and Gas Company Limited
MINERALS EXPLORATION
VANCOUVER BRITISH COLUMBIA

TAHTSA PROJECT
SYLVIA CLAIMS

PERCUSSION DRILL RESULTS
Average LEAD Content

MAP	DATE	BY	SCALE	N.T.S.
Fig. 22	Nov. '75	JMS-B	1" = ¼ mi.	93E/14



S-2
(61) Vertical percussion drill hole showing average Zinc content (in ppm)

S-3
O Vertical percussion drill hole in overburden

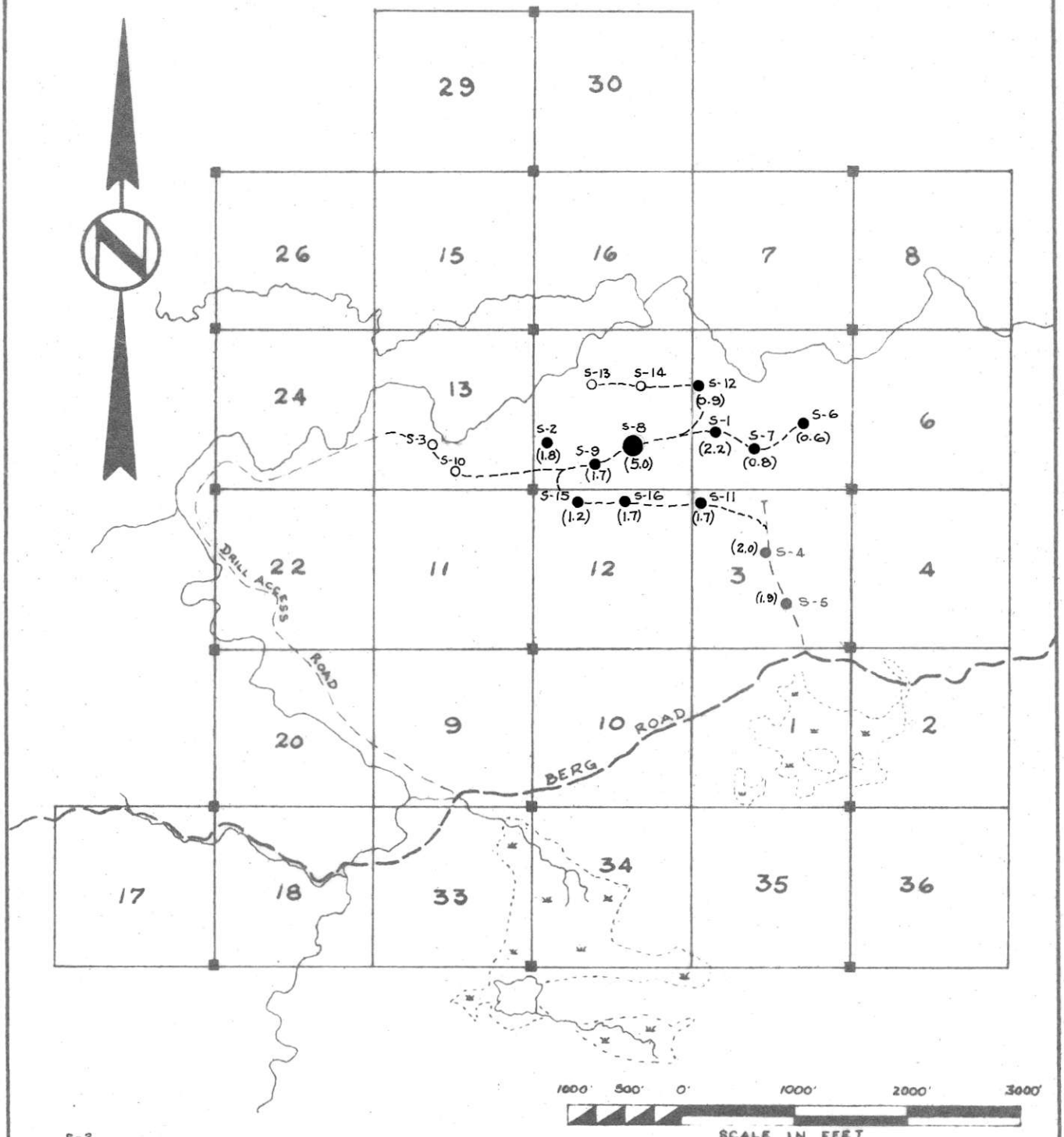
S-9
(84) > 85 ppm Zinc

Hudson's Bay Oil and Gas Company Limited
MINERALS EXPLORATION
VANCOUVER BRITISH COLUMBIA

TAHTSA PROJECT
SYLVIA CLAIMS

PERCUSSION DRILL RESULTS
Average ZINC Content

MAP	DATE	BY	SCALE	N.T.S.
Fig. 23	Nov. '75	JMS-B	1" = ¼ mi.	93E/14



S-2 ● Vertical percussion drill hole showing average Silver content (in ppm)

S-3 O Vertical percussion drill hole in overburden

S-8 (5.0) ● >4 ppm Silver (Ag)

Hudson's Bay Oil and Gas Company Limited
MINERALS EXPLORATION
VANCOUVER BRITISH COLUMBIA

TAHTSA PROJECT

SYLVIA CLAIMS

PERCUSSION DRILL RESULTS
Average SILVER Content

MAP	DATE	BY	SCALE	N.T.S.
FIG. 24	Nov. '75	JMS-B	1" = ¼ mi.	93E/14

SLIDE CLAIMS

Introduction:

Exploration on the SLIDE claims in 1975 began with the establishment of a flagged grid, followed by a magnetometer survey. In September, six vertical percussion holes were drilled in the I.P. anomaly.

Location and Access:

The SLIDE claims (93 E/14) straddle the BERG road approximately 8 miles west of Twinkle Lake and 75 road miles southwest of Houston, B.C. (Figs. 2 and 3). About two miles of bulldozed drill roads provide access to the area of interest in the claim block.

Previous Work:

A broad I.P. anomaly, Fig. 25, was located and staked in 1973. In 1974, five percussion holes were drilled at 1000 foot intervals across the anomaly. Only two holes reached bedrock after penetrating up to 140 feet of overburden. The two holes near the western claim boundary that reached bedrock encountered quartz diorite. The quartz diorite contained up to 5% disseminated pyrite and magnetite, and weak hydrothermal alteration.

Claims:

Assessment work on the twenty SLIDE claims was recorded before October 24, 1975. Hudson's Bay Oil and Gas Company Limited owns all the claims as listed below.

Name	Record No.	Record Date	Expiry Year
SLIDE 9-18	129678-687	October 24	1977
29	129698	October 24	1977
30	129699	October 24	1976
31	129700	October 24	1977
32	129701	October 24	1976
33	129702	October 24	1977
34	129703	October 24	1976
35	129704	October 24	1977
36	129705	October 24	1976
37	129706	October 24	1977
38	129707	October 24	1977

Chain and Compass Survey:

An east-west base line 1800 metres long through the centre of the claim block was established by the chain and compass method. The line was marked by flagging tape. At 150 metre intervals along the base line, grid lines were established by chain and compass northward and southward to the edges of the claim block. Stations along the grid lines were marked at 30 metre intervals. Approximately 25 kilometres of flagged lines cover the SLIDE claims.

Geology and Rock Chip Sampling:

The SLIDE claims contain very little outcrop as shown on the geological map Fig. 27. No rock chip samples were collected. Geological descriptions are included in the Results section.

Magnetometer Survey:

A proton precession magnetometer made by Exploranium Corp. of Canada, model G-816, was used for the survey. Readings were taken at 15 metre intervals along the flagged grid lines. (Fig. 28). Readings were corrected for diurnal variations and daily drift by tying them in to base stations established along the base line. A value of 56,000 gammas was arbitrarily subtracted from all the readings so that a smaller positive number could be plotted.

In most cases, only the alternate readings, at 30 metre intervals, are plotted on Fig. 28 in an attempt to preserve clarity on the map.

Drill Access Road Construction:

A contractor from Smithers, B.C., Claude Perreault, was hired with a D-6 bulldozer to repair and improve drill access roads built in 1974.

Percussion Drilling and Sampling:

L and L Drilling and Exploration Ltd., of Cache Creek, B.C., percussion drilled six vertical holes totalling 690 feet (SE-6 to SE-11, Fig. 27). Two of the holes (SE-6 and SE-8) were drilled at the same locations as holes SE-3 and SE-4 drilled in 1974. None of the holes drilled in 1975 reached bedrock. The deepest penetration in overburden was 160 feet in SE-11.

Eleven vertical percussion holes have now been completed on the SLIDE claims. Only two holes (SE-1 and SE-2) reached bedrock.

Results:

A. Geology

Unit 1. Several outcrops of dark grey to green andesite were found in the southeastern and northcentral parts of the claim block. The rocks are porphyritic in places and contain only trace amounts of pyrite. Epidote and chlorite are common. The rocks are non-magnetic.

Unit 2. The northeastern corner of the claim block is underlain by a white quartz-eye rhyolite containing no mafic nor sulphide minerals. In hand specimen, the rock is chalky white and contains up to 10% rounded quartz grains as large as 1/10 inch in diameter.

B. Magnetometer Survey Results

Results of the magnetometer survey are presented as a contour map Fig. 28. A magnetic anomaly located in the southwestern part of the claim block is outlined by the 1750 gamma contour. The anomaly is roughly circular with a diameter of 2500 feet. An extension branches to the southeast. Susceptibility values reach a maximum of 3865 gammas in the southwestern part of the anomaly.

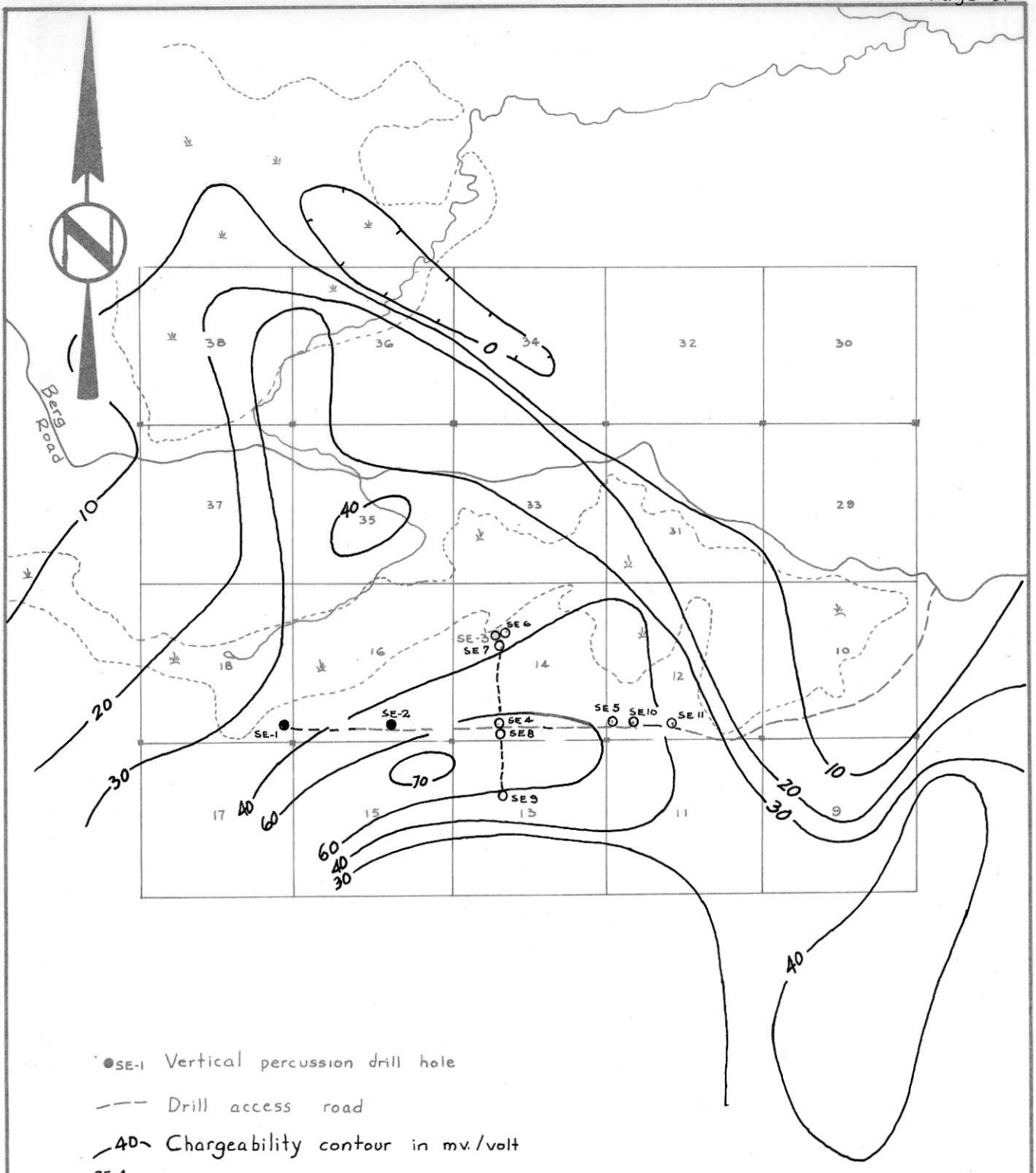
Two percussion drill holes (SE-1 and SE-2 located at 47+60N/56+00W and 47+60N/53+00W) in the western and central parts of the magnetic anomaly encountered quartz diorite. The intrusive contains up to 5% pyrite and magnetite. The other drill holes failed to reach bedrock.

The magnetic anomaly shows a strong coincidence with the I.P. anomaly (Fig. 25).

A northerly trending narrow anomalous zone near the northern claim boundary reaches 3760 gammas. This anomaly is associated with weakly magnetic andesites in one of the few areas of outcrop on the property.

C. Percussion Drilling Results

None of the six drill holes reached bedrock. Holes SE-6 and SE-7 encountered blocky overburden with accompanying loss of water circulation at 65 and 90 feet respectively. The other holes were drilled to more than 100 feet in sandy overburden before loss of water circulation forced abandonment of the holes. Hole SE-11 reached 160 feet before it was abandoned.



●SE-1 Vertical percussion drill hole

—— Drill access road

40 Chargeability contour in mv./volt

SE-4 ○ Vertical percussion drill hole in overburden

1000 0 1000 2000 3000

SCALE IN FEET

Hudson's Bay Oil and Gas Company Limited

MINERALS EXPLORATION

VANCOUVER BRITISH COLUMBIA

TAHTSA PROJECT

SLIDE CLAIMS

INDUCED POLARIZATION

CHARGEABILITY CONTOUR MAP

MAP	DATE	BY	SCALE	N.T.S.
FIG. 25	Nov. 1975	G.I.H.	1" = ¼ mi	93E/14

WEE CLAIMS

Introduction:

The WEE claims were staked in 1973 to cover an occurrence of chalcopyrite in a shatter breccia in volcanic rocks near the eastern end of Sweeney Lake (93 E/11). Diamond drilling in 1973 encountered two 60-foot sections of 0.32% and 0.26% copper in the volcanic shatter breccia in one hole.

In 1974, detailed geological mapping, soil sampling and a magnetometer survey were completed over the claim block.

Results of work to date on the WEE claims are reported in:

1973: Tahtsa Project Report 1973 by G.I. Hall
Report on the WEE claims 1973 by G.I. Hall and D.B. Kilby

1974: Progress Report - 1974 - WEE claims by D.B. Kilby

In 1975, one day was spent building drill access roads southward and northward from DDH W-73-1.

Claims:

Assessment work was recorded in September for four claims in WEE 2 Group (WEE 49, 51, 53, 55). Hudson's Bay Oil and Gas Company Limited owns all the WEE claims as listed below, and shown in Figs. 2, 3 and 29.

WEE NO. 1 GROUP

Name	Record No.	Record Date	Expiry Date
WEE 1-10	129042-51	September 19	1976
13-20	129054-61	September 19	1976
41	127827	September 20	1976
43	127828	September 20	1976
45	127829	September 20	1976
47	127830	September 20	1976
57-74	127831-48	September 20	1976

WEE NO. 2 GROUP

Name	Record No.	Record Date	Expiry Year
WEE 11-12	129052-53	September 19	1976
WEE 21-40	129062-81	September 19	1976
WEE 49	129082	September 19	1976
WEE 51	129083	September 19	1976
WEE 53	129084	September 19	1976
WEE 55	129085	September 19	1976
WEE 110	129273	October 24	1976
WEE 112	129275	October 24	1976
WEE 114	129277	October 24	1976
WEE 116	129279	October 24	1976
WEE 118	129281	October 24	1976

Drill Access Road:

Approximately 1500 feet of access road was bulldozed southward from DDH W-73-1 (along Sec. A-A; Fig. 30) and into the creek north of W-73-1 in anticipation of a drilling program early in the summer of 1976.

No other work was done on the WEE claims in 1975.

BOG CLAIMS

Introduction:

No field work was done on the BOG claims in 1975. Details of previous work were presented in the "Tahtsa Project Report 1973" by G.I. Hall. BOG 39-44 claims expired on October 24, 1975.

Claims:

Hudson's Bay Oil and Gas Company Limited owns 20 BOG claims as listed below, and shown in Figs. 2 and 3.

Name	Record No.	Record Date	Expiry Year
BOG 1-20	126904-923	July 30	1976

G.I. Hall, Geologist

GIH:kdl

APPENDIX

STATEMENT OF COSTS
ACTUAL TO AUGUST 31, 1975
(ESTIMATED TO DECEMBER 31, 1975)

SALARIES AND BENEFITS	25,760.85
	(10,000.00)
GEOCHEMICAL ANALYSES	243.00
	(1,219.40)
BULLDOZING	(1,932.00)
PERCUSSION DRILLING	(12,341.26)
CAMP EXPENSES	3,807.42
	(1,500.00)
VEHICLE OPERATION AND MAINTENANCE	1,005.25
	(1,000.00)
TRAVELLING EXPENSES	596.40
	(500.00)
DRAFTING AND REPRODUCTION SERVICES	2,037.41
	(500.00)
CLAIM RENTAL	710.00
	(1,920.00)
MISCELLANEOUS	490.53
	(2,000.00)
END OF AUGUST, 1975	34,650.86
ESTIMATED END OF DECEMBER, 1975	(67,563.52)