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GEOPHYSICAL - GEOLOGICAL REPORT

on the

BAY and COVE CLAIMS

located

Eight Miles South of Port Hardy 50°, 127° NW and NE

Nanaimo Mining Division

by

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Utah Construction & Mining Co.

Oct. 30 - Dec. 1, 1965.

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ILLUSTRATIONS (Map Pocket)

S U M M A R Y

Utah Construction & Mining Co. examined the Bay and Cove claims from October 30 to December 1, 1965 with a crew of five men. Induced polarization, magnetic and geochemical (soils) surveys as well as geological mapping were done over part of this claim block, which is located on the north side of Rupert Arm, northern Vancouver Island.

The Bay and Cove claims are underlain by pyroclastics, flows and sediments of the lower Bonanza group which in this area is believed to form a west-northwest trending synclinal structure up to three miles wide.

Copper mineralization on the Bay and Cove claims occurs in two zones: a) a propylitized fault zone in andesitic flows and tuffs; b) a silicified shattered zone in andesite with disseminated magnetite. Low grade manganese-lead-zinc mineralization occurs in calcareous sediments and pyroclastics to the north of the copper-magnetite zone. All of these zones were fairly well defined by the geophysical and geochemical surveys.

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I N T R O D U C T I O N

From October 30 to December 1, 1965, geological geophysical and geochemical work was done on the Bay and Cove claims by a field crew of five men working for Utah Construction & Mining Co. These claims are in the center of a larger block of 112 claims located by Gordon Milbourne between 1963 and 1965 along the north side of Rupert Inlet about eight miles south of Port Hardy near the north end of Vancouver Island. The claims specifically covered in this work include: Bay No's 1, 2, 3,4,5,6, 15, 21, 22, 48, 49, 51, 53, 70, 71, 72, 89, 93; Cove No's 8, 16, and 17; Bay No. 1 Fraction; Bay No 2 Fraction; and Tron Fraction. In addition some work was done on the Bay No's 23, 24, 25, 26, 44, 46, 73, 74, 94 and 96 and Cove No's 7, 9, 10, 13, 14, 18, 19 and 20. The field work was done by: G. Noel and C. Aird, geologists; T. Samoil, geophysical technician; and G. Milbourne and C. Turner as field assistants.

The Bay and Cove claims cover an area roughly five miles long by two miles wide, with a WNW trend. The claims straddle the Alice Lake Logging Co. main logging road north of Rupert Inlet, an area of generally low ground with several small lakes, swamps and beaver ponds. The elevation ranges from sea-level to 500 feet on the claims. Except for a small area in the southwest corner which has been recently logged the entire block of claims is covered with mature stands of hemlock, spruce, cedar and balsam.

The Bay and Cove claims are reached from Port Hardy via three miles of paved highway south to the Quatse River bridge; then seven miles of good gravel road (Alice Lake Logging Co. main haul) south-westerly to the claims. A permit to use the logging road must be obtained from McMillan Bloedel and Powell River Co. at Port Hardy.

F I E L D   W O R K

The 1965 field work by Utah Construction & Mining Co. on the Bay and Cove claims consisted of a ground magnetometer survey, an induced polarization survey, soil sampling and geological mapping. Initially for control a baseline was run with Brunton compass and tape for 7100 feet along the logging main haul road on the north side of Bay (Frances) Lake from the Coal Harbour cut-off S80° E to the rock cut south of Twin Lakes. Due to some magnetic deflection, foresights and backsights were read using two compasses.

Five traverse lines were run at a bearing of S 25° W on the south side of Bay Lake. These traverse lines were run at 500-foot spacing with 100-foot stations and vary in length from 1500 to 2400 feet. These lines were tied at each end by a Brunton and tape survey, and the entire south grid was tied to the logging road baseline by a traverse line run S 12° W for 2400 feet, at which point it was about 360 feet N 65° W of the westernmost grid line. The south grid comprises 12,100 feet of traverse line.

Eleven traverse lines trending N 20° E were run north of the baseline and most of these lines were extended southwesterly to the north shore of Bay Lake.

These lines vary from 1600 to 4000 feet in length and are all tied to the baseline at their south end. In addition five of these lines have been tied at their north ends by Brunton and tape survey. The north grid comprises 30,300 feet of traverse line. Considering both grids, baseline, tie lines and induced polarization depth probe lines, a total of 62,000 feet of traversing was done by Utah Construction & Mining Co. on the Bay and Cove claims during this investigation.

Altimeter readings were taken at all stations and corrected to baseline readings by straight-line extrapolation. Bay Lake was used as datum and assigned an elevation of 180 feet. Magnetometer readings and soil samples were taken wherever possible at the 100-foot stations along each traverse line. An induced polarization survey was run along the following courses: the six traverse lines of the south grid; the baseline; and three traverse lines on the north grid. In addition an induced polarization depth probe was run on both the north and south grids. Finally the surveyed grid was used as a base for the geological mapping which was done at a scale of one inch to two hundred feet.

The ground magnetometer survey of the Bay and Cove claims was done with a Jalander magnetometer, which is a direct-reading fluxgate instrument. This magnetometer measures the vertical component of the earth's magnetic field and has a maximum sensitivity of about ten gammas. However accurate repeatability with the Jalander magnetometer is probably limited to 50 gammas. The instrument is manufactured in Finland and has a range of 0 to 250,000 gammas in five scales. The magnetometer readings were taken by one operator for the entire survey and check readings were taken periodically on the baseline. A record of the time of reading was kept to permit adjustment of the magnetic readings where required. The magnetometer readings were plotted and contoured on a one inch to 200 feet base map of the area. This magnetic contour map is included in this report (map pocket).

The induced polarization survey was done with a pulse type instrument which operates on a variable voltage of 300,600, or 900 volts. The instrument is a completely portable direct current (battery source) instrument manufactured by Hewitt Enterprises of Salt Lake City, Utah. The Wenner array of electrodes was used in this survey with an "a" spacing of 300 feet. The chargeability in millivolts per volt and the resistivity in ohm-feet was measured to an apparent depth about equal to the "a" spacing. The chargeability values are plotted and contoured on a one inch to 200 feet base map which is included in the map pocket of this report. I.P. depth probes were run on each grid along the traverses shown on the I.P. contour map. In this depth probe, chargeabilities and resistivities are read with a constantly increasing "a" spacing from 20 feet to 250 feet, with the recording instrument at a fixed position mid-way between the voltage electrodes. The values obtained in these two depth probes are shown on the Depth Probe profiles in the map pocket.

Soil samples were taken at 100-foot stations along the traverse lines where possible. A mattock and post-hole digger were used to obtain the soils which were taken from the "B" horizon wherever possible. In some places even at depths of 30 inches it was impossible to reach below organic material. It is estimated that 10% of the samples were excluded due to high organic content, water or swamp location. The soils were analyzed for total copper content spectographically and those of the north grid were also analyzed for total lead

Ygm

and zinc content. The copper content in parts per million has been plotted and contoured at a scale of one inch equals 200 feet and this geochemical contour map is included in the map envelope. The lead and zinc contents of the soils from the north grid is shown on the attached assay result sheets in Appendix A.

G E N E R A L   G E O L O G Y

The Rupert Inlet area is underlain by upper Triassic sedimentary and volcanic rocks intruded by several small plutons of probably Jurassic age. Cretaceous sediments unconformably overlie the upper Triassic rocks in places.

The upper Triassic rocks are divided into three main units, which are in order of decreasing age: Karmutsen group; Quatsino formation, and Bonanza group. The Karmutsen group consists of a thick sequence of basic flows with some pyroclastics. The Quatsino formation consists of limestone which is exposed as a thick section along the south side of Holberg Inlet. Along the north side of Rupert Inlet the Quatsino formation occurs in relatively thin lenticular beds. The Bonanza group in this area consists mainly of pyroclastics and sediments, which generally represent the lower section of the Bonanza group.

The Cretaceous sediments consist of coarse clastics apparently originally deposited in linear basins and embayments. These sediments are exposed as irregular erosional remnants on the Triassic rocks.

Intrusive rock is exposed at the northeast end of Rupert Inlet; along the main logging road about three miles north of Bay Lake (and along Branch roads 6 and 7); and northwest of Quatse Lake. These occurrences appear to be discrete small plutons. The intrusive at the head of Rupert Inlet is a pink granite whereas the other two plutons are granodiorite or quartz diorite.

The main structural element in the area is believed to be an east-west syncline bounded by east-west and northwest-southeast faults. This syncline is considered the continuation of the Nimpkish syncline to the east. The axial plane of this syncline is about one mile north of the north side of Rupert and Holberg Inlets. The main bounding fault extends from Port McNeill westerly along Rupert and Holberg Inlets and then northwesterly towards Cape Scott (Dawson, 1886). The northern bounding fault extends westerly through Quatse Lake (O'Rourke, 1962). These faults roughly define the contact of the Bonanza group with the underlying Quatsino and Karmutsen rocks. The total width of Bonanza rocks across this syncline is over three miles.

Since all of the bedding attitudes which could be positively defined in the field indicate southerly dips, it seems likely that this major syncline is overturned to the north. This overturning may be due to the east movement from the south along the east-west fault through Rupert Inlet (G.M. Dawson, 1886).

DETAILED GEOLOGY

Although the area north of Bay Lake was not mapped in detail during this examination, it is estimated that the total area of outcrop represents less than one percent of the surface of the Bay and Cove claims. Thus the detailed geology is drawn from very limited field evidence.

The Bay and Cove claims are underlain by pyroclastics, flows, and sediments of the lower section of the Bonanza group. In this area, the Bonanza section includes: white, green, grey, black and rusty felsitic and andesitic tuffs; white, pink, red, purple and green felsitic and andesitic breccias; andesitic agglomerate; white, grey and green andesitic and felsite flows; grey and black limestone and limestone breccia; argillite; and argillaceous and tuffaceous limestone. Most of the tuffs, breccias, and flows are calcareous to varying degrees.

The variety of rock types and presence of considerable carbonate suggest the lowermost section of the Bonanza which overlies the Quatsino limestone. The transition from limestone and limestone breccia just east of the Coal Harbour road and west of claim C-3 through breccias, tuffs, and flows south of Bay Lake into flows, tuffs, breccias, and limestone north of Bay Lake appears to corroborate the synclinal structure. From correlation of breccia units south and west of Bay Lake, and several bedding attitudes, this section strikes N 50° to 60° W and dips 40° to 80° to the southwest. About one mile west of Bay Lake in a road cut, andesite breccia appears to dip 60° northeast. Due to lack of continuity of this breccia, this attitude may not be valid. However if it is valid, the syncline may be relatively undisturbed.

The Bonanza pyroclastics and flows on the Bay and Cove claims have been propylitized and epidotized. Where these rocks have been extensively sheared and fractured, pyrite has been introduced and is accompanied by chloritization, bleaching, silicification, and carbonatization. The fracturing has been developed along northwest and northeast directions whereas the shearing appears to be north-south and east-west.

A little sphalerite, chalcopyrite and molybdenite occur with pyrite in these silicified fracture and shear zones.

Along the north side of the main logging road north of Bay Lake at 11,100 N and 19,000 E (see Geology and Topography map) weakly mineralized andesite is exposed in a small trench. Here, chalcopyrite and pyrite are sparsely disseminated through the magnetite-bearing silicified andesite. A channel sample cut across this three-foot wide trench assayed: 0.20% copper; 12.55% iron; 0.35% TiO_2 ; 0.01 oz/ton gold; and trace silver. This mineralization is believed to be an extension of the copper-magnetite mineralization at Red Island on the north side of Rupert Inlet where pyrite, chalcopyrite, and magnetite occur as disseminations and fracture coatings in sheared and * intensely fractured andesite. Silicification accompanies the mineralization with the development of numerous chert stringers. Where well sheared and silicified on Red Island the copper values may average one percent across 30 feet. The iron content of the altered andesite might average fifteen percent.

On the Bay No. 21 claim at 9,500 North, 18250 East, and about 500 feet south of the southwest end of Bay Lake, copper mineralization has been exposed in two trenches. Highly propylitized andesite is laced with chalcopyrite and pyrite in stringers up to one inch wide, which trend N 60° E to N 25° W. This mineralized zone appears to trend N 60° W and dip 60° to the northeast. The footwall is intensely bleached and silicified with considerable disseminated pyrite and an occasional speck of chalcopyrite. A steep fault trending N 60° W follows the footwall contact in one trench. The mineralized zone has been exposed in the trenches over an actual width of about five feet as the hangingwall was not reached in either trench. These trenches are four to six feet deep and, from the surface, expose: one to two feet of humus; two to three feet of pebbly soil; and one to two feet of hardpan above bedrock. The hardpan in these trenches contain a few masses of pyrite and chalcopyrite up to fist-size. 2.

About 250 feet to the east a small trench six feet deep exposes one foot of humus, one foot of pebbly soil, and four feet of hard pan. The hard pan contains bunches of chalcopyrite as well as andesite with stringers of chalcopyrite. About 500 feet east of the two main trenches, andesitic float with pyrite and chalcopyrite occurs over a small area about 50 feet long (north-south). About 900 feet S 70° E of the main trenches, in an area 150 feet long (east-west) by 50 feet wide, chalcopyrite and pyrite occur in both outcrop and float of propylitized andesite and andesite tuff. From 1200 to 1300 feet S 60° E of the main trenches prophylitized andesite float with veinlets of pyrite and chalcopyrite is exposed.

About 1500 feet S 50° E of the main trenches, a shear zone trending N 50 ° W and dipping 70° to the south cuts epidotized andesitic tuff. This shear zone shows two feet of breccia with pyrite.

A channel sample cut in each of the main trenches across the exposed part of the mineralized zone yielded the following average assay over an average width of 4.25 feet: 3.79% copper; 1.09 oz/ton silver and 0.01 oz. per ton in gold.

In the vicinity of 12,500 North and 21,200 East about 4000 feet NNE of the copper mineralization south of Bay Lake, a number of surface trenches have been dug by hand on a lead-manganese-zinc zone. Although there is very little outcrop in this area, this zone can be partially defined over an area several hundred feet wide from the trench exposures and surface float. Unfortunately there was not enough time to complete the detailed mapping in this area. From a very brief examination, the host rocks appear to be calcareous andesitic tuff, argillite, limestone, and limestone breccia. The bedding strikes N 70° W and dips 60° southwest. Black manganese coatings are widespread and the primary mineral appears to be rhodonite. In places andesite float shows one to three percent lead and about one oz per ton in silver. Barite is also present in places. 3.

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About 1200 feet south of the propylitic copper mineralization, pyrophyllite float occurs with dumortierite, quartz and Kaolin. This float is part of an extensive pyrophyllite zone which has been traced by G. Milbourne for about 5000 feet S 75° E from this point. It apparently marks a well-defined fault zone but due to lack of time, was not mapped during the November 1965 examination.

GEOPHYSICAL RESULTS

1. Magnetics

The magnetic pattern south of Bay Lake shows very little character with a background intensity of about 1500 gammas and an overall range in intensity from 200 to 2400 gammas. This pattern is considered the reflection of pyroclastics and flows with variable magnetite content. The increasing background northward to 2500 or 3000 gammas is believed due to introduced magnetite. The magnetic intensity ranges in this area from 550 to 10,000 gammas with several irregular lenticular anomalies trending N 75° W and somewhat en echelon. Thus, there may be a slight displacement (east side to the north) across north or northwest-trending faults. This general anomalous belt is considered the extension of the shattered and silicified magnetite-bearing andesite which occurs in the vicinity of Red Island, about 2½ miles S 65° E of this anomaly. To the north, the background drops to about 1000 gammas reflecting pyroclastics and sediments of lower magnetic susceptibility. The wide area of magnetic intensity below 1000 gammas may reflect the manganese-lead-zinc mineralization and associated alteration with consequent magnetite reduction.

2. Induced Polarization

The induced polarization survey south of the logging road indicated two small chargeability anomalies: one centered at 9250 North, 18,700 East is approximately three times background; the other centered at 10,300 North, 18,200 East is approximately five times background. The first anomaly may be due to the copper zone south of Bay Lake, and if so, suggests a very limited area of mineralization. The second anomaly is also very limited in extent and may not be significant due to the difficulty of obtaining good ground contact in this area probably due to the excessive thickness of humus.

The induced polarization survey was not completed north of the lake due to the lack of time. However, a chargeability anomaly centered at 12,350 North and 20,600 East and roughly four times background was partly defined in this survey. This anomaly may be due to disseminated sulphides.

Neither of the depth probes indicated any significant sulphide bodies below the areas covered.

GEOCHEMICAL RESULTS

1) Copper

The plot of copper analyses in the soils shows a rough background for the area of 30 parts per million in copper. Considering only analyses of ten times background or greater, three areas anomalous for copper can be outlined:

a) centered at 9300 North and 18,850 East, south of Bay Lake.

b) centered at 11,700 North and 20,350 East north of Bay Lake.

c) near 11,300 North and 23,300 East, along the eastern edge of the area covered.

The first anomaly (a) outlines a long narrow zone trending N 70° W and roughly 1400 feet long by 50 to 200 feet wide. A smaller anomaly 500 feet long and 100 feet wide is outlined 200 feet north of the main anomaly. The main anomaly has a peak value of 900 ppm copper and is defined on three traverse lines. The smaller anomaly has a peak value of 550 ppm copper but it is only defined on one traverse line. This anomaly corresponds very well with the main copper zone south of Bay Lake as defined by outcrop and float. The smaller anomaly may be the down slope expression of the copper zone.

The second soil anomaly (b) covers a roughly elliptical area trending N 80° W and about 1000 feet long by 200 feet wide. This anomaly has a peak value of 800 ppm and is defined on three traverse lines. It shows a much broader area above 200 ppm than the first anomaly. This anomaly is considered a reflection of the copper-magnetite zone. If the soil sampling had been continued south of this anomaly towards the logging road it is likely that additonal copper anomalies would be outlined on the copper-magnetite zone.

The third anomaly (c) occurs in a swampy area and is too poorly defined by the soil sampling to be diagnostic. However it is considered that this anomaly is also due to the copper-magnetite zone.

ii) Lead-Zinc

A preliminary plot of the lead and zinc analyses indicates a long narrow area of anomalous lead and zinc values centered about 12,700 North and 20,000 East and trending N 70° W. This area is roughly 2400 feet long and 300 feet wide and corresponds with the observed manganese-lead-zinc zone, which has not yet been mapped.

CONCLUSIONS

The copper mineralization south of Bay Lake occurs in highly fractured, silicified and chloritized andesitic flows and tuffs. This mineralization, the width of which has not been defined is apparently fault-controlled and may consist of a series of small zones along the controlling fault. The copper sulphides follow northwest to northeast-trending veinlets which may represent tension fractures along the main northwest fault. The lower grade copper-magnetite mineralization and manganese-lead-zinc mineralization to the north suggest possible mineral zoning.

The geophysical and geochemical surveys more-or-less confirm the presenceof these three mineralized zones.

G.A. Noel

VANCOUVER, B.C.
January 10, 1966.

REFERENCES

Dawson, G.M. 1886, Geology of Rupert Inlet, Annual Report Geological Survey of Canada Vol.II, 1886.

O'Rourke, J.E. 1962, Geology and Ore Deposits of Northern Vancouver Island, Utah Construction & Mining Co. Report, November 13, 1962.

A P P E N D I X   A

SOIL SAMPLES

CABLE ADDRESS: "ELDRICO"

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125 EAST 4TH AVE., VANCOUVER 10, B.C. TELEPHONE: 876-4111

REPORT OF: Spectrographic Analysis

FILE No: C.3-U.1-66 22012

AT: Vancouver Laboratory

DATE: January 7, 1966

PROJECT: Soil Samples

REPORT NO.

REPORTED TO: Utah Construction & Mining Co.,
Room 718 - 510 W. Hastings Street,
Vancouver, B.C.

ORDER NO.

We have tested 207 samples of soil submitted by you on December 30, 1965 and report as follows.

RESULTS

Sample No.	Copper (p.p.m.)	Lead (p.p.m.)	Zinc (p.p.m.)
BAY-0-0	50	10	50
1N	70	25	50
1S	300	25	2,000
2N	100	85	100
2S	350	20	1,500
3N	120	100	75
4N	110	110	100
4S	130	5	trace
6N	130	1,000	100
7N	50	30	250
8N	50	100	50
9N	60	95	50
10N	20	8	trace
11	20	10	50
12	20	7	trace
13	20	5	trace
14	40	8	trace
15	30	trace	trace

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Sample No.	Copper (p.p.m.)	Lead (p.p.m.)	Zinc (p.p.m.)
BAY-0-16N	20	trace	trace
17N	30	5	trace
18N	25	trace	trace
BAY-1E-0	70	5	80
1S	30	trace	50
2S	35	trace	90
3S	40	trace	80
4S	40	trace	80
5S	70	9	trace
6S	70	8	50
7S	60	7	50
8S	70	20	70
9S	50	10	trace
10S	35	40	50
11S	25	8	50
12S	30	95	100
13S	25	12	100
14S	20	9	trace
15S	20	10	50
17S	35	10	trace
18S	30	5	trace
19S	30	5	trace
20S	25	trace	trace
21S	35	5	trace
BAY-1W-0	40	5	trace
1S	55	12	trace
2S	65	13	trace
3S	60	10	trace
4S	50	10	trace
5S	55	12	trace
6S	45	30	trace
7S	25	30	50
8S	40	25	trace
9S	15	8	50
10S	30	300	50

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Sample No.	Copper (p.p.m.)	Lead (p.p.m.)	Zinc (p.p.m.)
BAY-1W-11S	45	400	400
12S	60	90	300
13S	70	8	100
14S	100	350	50
15S	80	150	50
16S	110	12	trace
17S	190	10	trace
18S	100	10	trace
19S	115	6	trace
20S	800	5	trace
21S	750	trace	trace
22S	20	trace	trace
BAY-2E-0	30	trace	50
1S	40	10	50
2S	20	trace	trace
3S	30	9	trace
1N	35	10	75
2N	35	8	100
3N	65	10	100
4N	20	5	trace
5N	25	trace	100
6N	10	trace	100
7N	25	15	400
8N	25	35	200
9N	40	120	50
10N	40	1200	200
11N	35	30	75
12N	30	trace	100
13N	25	trace	50
14N	30	trace	trace
15N	90	trace	100
16N	95	5	100
17N	90	8	120
18N	20	8	50

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Sample No.	Copper (p.p.m.)	Lead (p.p.m.)	Zinc (p.p.m.)
BAY-2W-0	350	15	50
1S	250	10	trace
2S	200	5	trace
3S	250	8	100
4S	300	8	100
1N	200	15	trace
2N	200	100	50
3N	190	10	75
4N	240	20	50
5N	80	100	100
6N	85	300	50
7N	30	15	100
8N	40	300	50
9N	55	8	trace
10N	75	10	50
11N	40	30	100
12N	90	20	120
13N	70	8	90
14N	100	8	100
BAY-3E-4N	100	9	50
5N	130	8	100
6N	200	10	75
7N	120	7	75
8N	130	8	50
9N	250	10	trace
10N	60	8	40
14N	15	10	40
15N	20	5	60
16N	15	9	80
17N	80	15	50
18N	50	7	trace
19N	80	8	trace
20N	80	7	trace
21N	100	5	trace
22N	60	6	50

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Sample No.	Copper (p.p.m.)	Lead (p.p.m.)	Zinc (p.p.m.)
BAY-3E-23N	70	6	trace
24N	100	85	trace
25N	160	6	trace
26N	50	5	trace
BAY-3W-9N	200	6	trace
10N	250	9	trace
11N	250	9	trace
12N	100	8	70
13N	80	12	100
16N	90	25	50
17N	60	20	100
18N	60	300	300
19N	45	95	100
20N	200	25	80
21N	45	12	60
22N	60	10	60
23N	40	6	70
24N	40	8	110
BAY-4E-4N	400	30	100
5N	150	10	120
6N	180	trace	80
7N	100	trace	50
8N	25	trace	50
9N	100	trace	trace
10N	30	trace	50
11N	90	trace	50
12N	100	trace	trace
13N	250	5	trace
15N	90	trace	90
16N	50	10	130
BAY-4W-3S	25	20	120
4S	35	20	trace
5S	75	120	50
6S	70	60	trace

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Sample No.	Copper (p.p.m.)	Lead (p.p.m.)	Zinc (p.p.m.)
BAY-4W-7S	250	200	50
8S	25	trace	trace
9S	60	5	75
10S	90	trace	50
11S	60	300	50
12S	75	6	trace
14S	45	290	80
15S	80	300	80
16S	50	8	trace
17S	80	150	100
18S	50	8	50
19S	50	10	50
20S	55	9	60
21S	200	7	50
22S	80	15	150
BAY-5E-1S	600	8	50
2S	100	10	50
3S	110	12	trace
4S	200	10	trace
5S	180	20	50
6S	500	10	100
7S	90	8	50
8S	100	8	trace
9S	120	8	trace
10S	300	trace	100
11S	200	trace	50
12S	150	8	100
13S	170	trace	trace
14S	150	trace	trace
15S	30	5	trace
BAY-5W-0	100	trace	trace
1SA	130	10	50
1SB	120	8	trace
1N	100	5	trace
2N	100	10	40
3N	130	12	50

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Utah Construction & Mining Co. (7) January 7, 1966

Sample No.	Copper (p.p.m.)	Lead (p.p.m.)	Zinc (p.p.m.)
BAY-5W-4N	100	8	50
5N	50	5	trace
6N	50	8	trace
7N	40	8	trace
8N	90	20	trace
9N	30	20	50
10N	30	25	50
11N	20	19	trace
12N	20	15	50
13N	25	17	60
14N	30	30	70
15N	20	35	trace
16N	25	35	50
18N	25	100	50
19N	40	350	80

COAST ELDRIDGE

J. G. Smith
CHIEF CHEMIST

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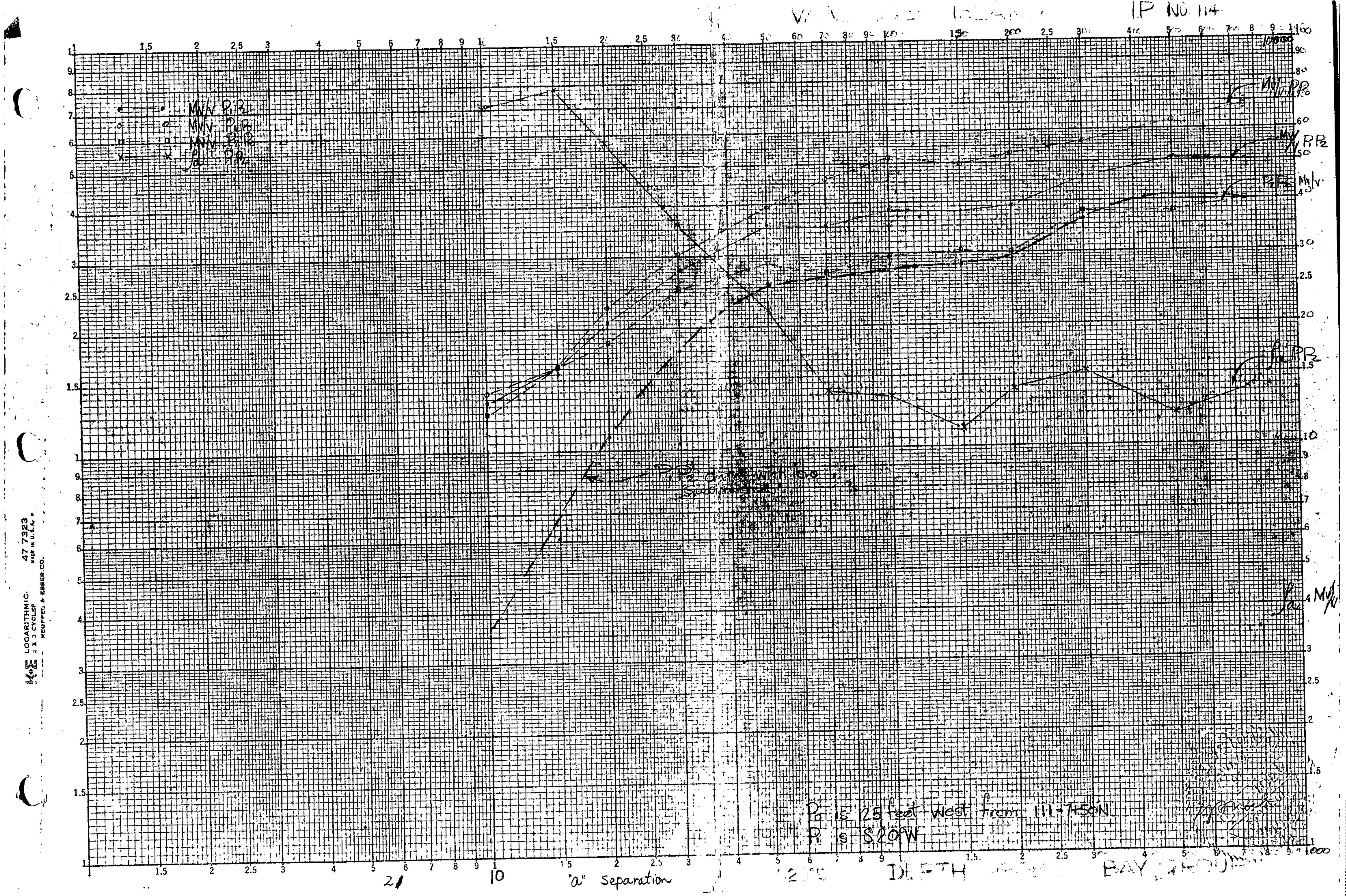
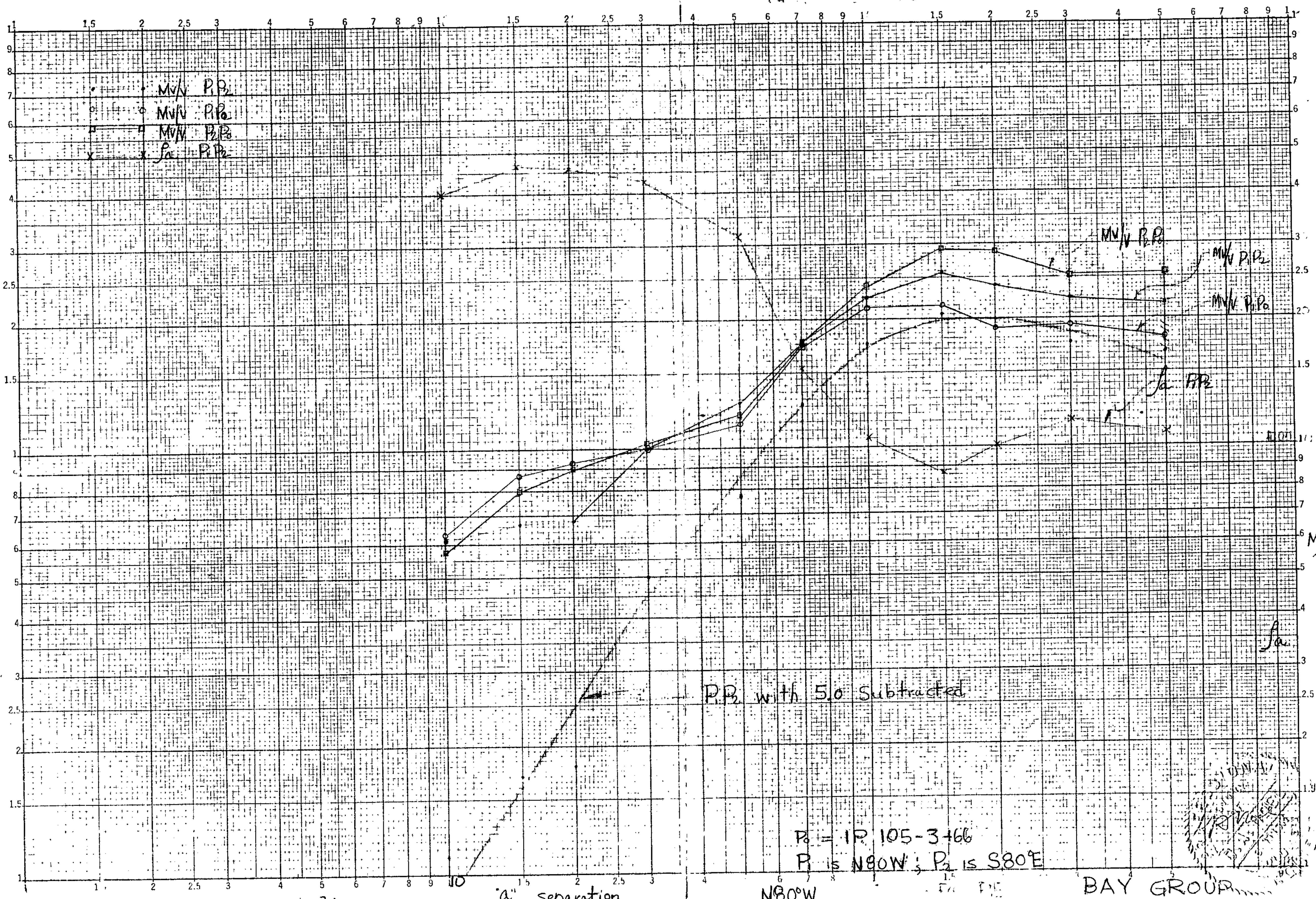
A P P E N D I X B

IP DEPTH PROBE PROFILES


IP No 114
MV/V P_1P_2
ρ_a P_1P_2
"a" separation
P_0 is 25 feet West from 111+750N
P_1 is S20°W
DEPTH
BAY
K&E LOGARITHMIC 47 7323
KEUFFEL & ESSER CO.



MV/V P1P2
MV/V P1P0
MV/V P2P0
ρa P1P2
MV/V P2P0
MV/V P1P2
MV/V P1P0
ρa P1P2
MV/V
ρa
P1P2 with 5.0 Subtracted
P0 = IP 105-3+66
P1 is N80W ; P2 is S80E
"a" separation
N80°W
BAY GROUP

20

APPENDIX C

STATEMENT OF QUALIFICATIONS

STATMENT OF QUALIFICATIONS

The field work for this report was done by G.A. Noel, T.S. Samoil and C.A. Aird whose qualifications are outlined below:

1. G.A. Noel, P. Eng. geologist for Utah Construction & Mining Co., Vancouver, B.C.; completed B.A. Sc. (Geology) at University of B.C. in 1950 and M.A. Sc. (Geology) at University of Toronto in 1951; employed by Kennco Explorations (Canada) Limited from May 1951 through March 1956 as a field geologist in B.C. and Yukon Territory under the supervision of J.S. Scott; employed by Utah Construction & Mining Co. from March 1956 to the present in B.C. and Alaska mineral exploration as a project geologist, acting district geologist and senior project geologist under L.C. Clark, W. Bourret, H.G. Peacock and E.S. Rugg.

2. T.S. Samoil, survey-draftsman for Utah Construction & Mining Co., Vancouver, B.C.; completed two years of University (University of Alberta and U.B.C.); 1951-1952, employed as instrumentman on road surveys by Alberta Dept. of Highways; 1952-1953 employed as instrumentman on highway construction by Hislop Construction Co. Ltd.; 1953-1954 employed as instrumentman on quantity surveys at Kitimat by N.W. Mullah Construction Co. Ltd; 1956-present employed by Utah Construction & Mining Co. as surveyor-draftsman on exploration project in B.C. and Alaska--work included running topographic and geophysical surveys as well as all forms of drafting.

3. C.A. Aird, geologist for Utah Construction & Mining Co., Vancouver, B.C. completed B. Sc. (Geology & Mathematics) at University of B.C. in 1959 and spent one additonal year at the same University studying geology and geophysics; employed as a junior field geologist for Mackenzie Syndicate during the summers of 1958 and 1959 in the Yukon, B.C. & N.W.T. under supervision of L.G. White, P. Eng.; employed as a project geologist by Canada Tungsten Mining Corporation in 1960 in the N.W.T. under the supervision of C.J. Brown; employed as a project geologist by Utah Construction & Mining Co. from 1960 to the present in Alaska and B.C. under the supervision of H.G. Peacock, E.S. Rugg, P. Eng. and G.A. Noel, P. Eng.

A P P E N D I X   D

STATEMENT OF COSTS

STATEMENT OF COSTS

SALARIES	(25 working days/month)	
G.A. Noel	21 days @ $1160/month 19 days in field Oct. 28-Nov. 20 2 days in office Jan 5 & 7, 1966	$ 970.00
T.S. Samoil	16 days @ $555/month 9 days in field Nov. 2-10 incl. 7 days in office Nov 15-23	350.00
C.A. Aird	17 days @ $705/month 7 days in field Nov. 13-20 10 days in office Nov. 22-Dec. 3	475.00
G. Milbourne	18 field days @ $20.00/day Oct. 28-Nov. 19	360.00
C. Turner	18 field days Oct 28-Nov. 19 @ $525/month	375.00
Total Salaries		$ 2,510.00
Field Expenses		710.00
Analysis of Soil samples	(114 @ 1.50) (206 @ 3.00)	789.00
Vehicle rental - 19 days @ $10/day		190.00
Miscellaneous (maps, secretarial)		50.00
Total		$ 4,249.00

G A Noel

G.A. Noel, P. Eng.

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virture of the "Canada Evidence Act."

DECLARED before me at ~~the~~ City (sg))
of Vancouver , in the)
Province of British Columbia, this 17)
day of January, 1966 , A.D.)

G. Milbourne

Shirley Jeannotte

SUB-MINING RECORDER

RECENT
6 Alluvium & glacial drift

CRETACEOUS
5 Sediments

JURASSIC OR LATER
4 Granodiorite & diorite
Granite 4a

TRIASSIC

BONANZA
3 Numerous volcanics with sediments

QUATSINO
2 Mainly limestone

KARMUTSEN
1 Mainly volcanics with minor sediments

Fracture or shear planes

Bedding

PLATE 1
BAY GROUP
PORT HARDY AREA
GENERAL GEOLOGY & CLAIM LOCATION MAP

710

BAY NO. 54
BAY NO. 60
BAY NO. 62
BAY NO. 53
BAY NO. 52
BAY NO. 50
BAY NO. 65
BAY NO. 64
COVE NO. 20
COVE NO. 18
COVE NO. 16
BAY NO. 51
BAY NO. 49
BAY NO. 55
BAY NO. 2 FRACTION
BAY NO. 48
COVE NO. 19
COVE NO. 17
BAY NO. 1 FR.
BAY NO. 47
BAY NO. 66
BAY NO. 15
BAY NO. 4
BAY NO. 1
BAY NO. 98
BAY NO. 5
SLASH AREA
BAY NO. 96
BAY NO. 22
COVE NO. 7
BAY NO. 3
Bay Lake
PORT ALICE Logging Road
BAY NO. 21
BAY NO. 2
Bay Creek
COVE NO. 9
BAY NO. 6
BAY NO. 97
BAY NO. 95
BAY NO. 94
COVE NO. 8
COVE NO. 11
BAY NO. 93
BAY NO. 72
BAY NO. 71
COVE NO. 10
COVE NO. 14
COVE NO. 12
C-7
C FR.
BAY NO. 90
BAY NO. 89
BAY NO. 74
COVE NO. 13
BAY NO. 24
LEGEND
BONANZA GROUP: Andesitic to felsitic tuffs, flows, and volcanic breccias.
ALTERATION: White, buff-orange, pinkish-red, clay alteration and silicification.
COPPER MINERALS: Chalcopyrite.
SYMBOLS
Strike and dip of faults: defined-solid; inferred-broken
Strike and dip of contacts: defined-solid; inferred-broken
Strike and dip of jointing.
Strike and plunge of synclinal fold axis
Area of float
Contour: elevation above sea level
Py. Pyrite.
Geology by G.A. Noel & C.A. Aird
Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 710 MAP #2
710
710 #2
UTAH CONSTRUCTION AND MINING CO.
MINERAL DEVELOPMENT AND GEOLOGY DIV. — VANCOUVER, B.C.
BAY GROUP
PORT HARDY AREA
GEOLOGY & TOPOGRAPHY
DRAWN: C.A.A. DEC. 1965
TRACED:
APPROVED:
REVISED:
SCALE: — 0 200' 400'
DWG. Nº PLATE 2
Cu 92-L-11,12


14000 N
13000 N
12000 N
11000 N
10000 N
9000 N
8000 N
15000 E
16000 E
17000 E
18000 E
19000 E
20000 E
21000 E
22000 E
23000 E
24000 E
25000 E
SLASH AREA
SLASH AREA
Bay Lake
Bay Creek
PORT ALICE Logging Road
N
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 710 MAP #3
CONTOUR INTERVAL: 500 Gammas from 0 - 2,000 Gammas
1000 Gammas from 2,000 - 10,000 Gammas
UTAH CONSTRUCTION AND MINING CO.
MINERAL DEVELOPMENT AND GEOLOGY DIV. — VANCOUVER, B.C.
710
BAY GROUP
PORT HARDY AREA
MAGNETICS
DRAWN: C.A.A. Nov. 1965
TRACED:
APPROVED:
REVISED:
SCALE: — 0 200' 400'
DWG. Nº Cu 92-L-11,12
PLATE 3


15000 E
16000 E
17000 E
18000 E
19000 E
20000 E
21000 E
22000 E
23000 E
24000 E
25000 E
14000 N
13000 N
12000 N
11000 N
10000 N
9000 N
8000 N
LINE 109
LINE 110
LINE 111
LINE 112
LINE 123
LINE 124
LINE 125
LINE 126
LINE 127
LINE 128
SLASH AREA
SLASH AREA
Bay Lake
Bay Creek
PORT ALICE Logging Road
Drill Hole #114
Drill Hole #113
N
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 710 MAP #4
x 21.0 Chargeability value - Mv/v
Station Number
Contour Interval : 10 Mv/v
UTAH CONSTRUCTION AND MINING CO.
MINERAL DEVELOPMENT AND GEOLOGY DIV. — VANCOUVER, B.C.
BAY GROUP
INDUCED POLARIZATION
DRAWN: T.S.S. 11-30-65
TRACED:
APPROVED:
REVISED:
SCALE: —
0 200' 400'
DWG. Nº PLATE 4
Cu 92-L-12
710

14000 N
13000 N
12000 N
11000 N
10000 N
9000 N
8000 N
15000 E
16000 E
17000 E
18000 E
19000 E
20000 E
21000 E
22000 E
23000 E
24000 E
25000 E
SLASH AREA
Bay Lake
Bay Creek
Tron Creek
PORT ALICE Logging Road
N
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 710 MAP #5
CONTOUR INTERVAL : 50 P.P.M. from 0-100 P.P.M. Cu
100 P.P.M. from 100-500 P.P.M. Cu
UTAH CONSTRUCTION AND MINING CO.
MINERAL DEVELOPMENT AND GEOLOGY DIV. — VANCOUVER, B.C.
BAY GROUP
PORT. HARDY AREA
SOILS SURVEY
710
DRAWN: C.A.A. DEC. 1965
TRACED:
APPROVED:
REVISED:
SCALE: — 0 200' 400'
DWG. Nº PLATE 5.
Cu 92-L-11,12