

C O P Y December 27, 1946

EXHIBIT "B"

A-1

Seattle, Washington

November 28th, 1910

Mr. Stephen Birch,  
165 Broadway,  
New York City.

Dear Sir:

Report on the Fidalgo Alaska Copper Company's  
property. (Donohoe and Ostrander)

The property under consideration comprises twenty (20)  
non-patented lode claims, arranged in two groups, known as the  
Arley group of five claims, and the Bay View group of fifteen  
claims.

The property is located on the south shore of Fidalgo Bay,  
one mile east of Irish Cove, and seventeen miles southeast of  
Ellamar. The north end lines of the Bay View group join the beach,  
affording a frontage of 1800 feet. The present workings are  
situated about 2600 feet from tidewater.

Fidalgo Bay is one of the large fiords on the east limit of  
Prince William Sound. The Bay has been charted by the U. S. C. & G.  
Survey for a distance of three miles beyond the landing of the Fidalgo  
Alaska Copper Company. All steamers running between Cordova and Valdez  
pass within five miles of the property, furnishing a weekly mail,  
passenger and freight service to and from Seattle. The charted portion  
of Fidalgo Bay is navigable for the largest boats on the Alaskan run.

MR  
96-0

## TOPOGRAPHY

The general topography is characteristic of the entire Prince William Sound country, viz., rugged and glaciated hills, rising rather abruptly a thousand or more feet from the beach; a low timber line, twelve or fifteen hundred feet; and an enormous undergrowth of small shrubbery and decaying vegetation. The timber is spruce and hemlock of an exceptionally good quality and quantity, for the district, sufficient for all mining and dock purposes. Good piling is plentiful; the hemlock is by far superior for such uses. It would be advisable, however, to ship in lumber for building purposes. There are no large creeks in the near vicinity, but a small stream runs all year below the present camp, ample for domestic purposes.

## GEOLOGY

The exposed rocks on the north slope of the hill are mostly sedimentaries, hard black to gray slates and graywackes; to the west an extremely hard fine grain quartz-diorite breaks through the slates, and is undoubtedly the cause of the mineralization. The resulting shear-zones have a steep easterly dip, and strike nearly magnetic north, which is the pronounced strike of the strongest shear-zones in the district.

The ore, which is pyrite and chalcopyrite, carries a little silver and traces of gold, and occurs in hard fractured zones, and irregular lenses. These "shoots" have a strong pitch to the north. The ore bodies are traversed by slips in nearly any direction, but show poor walls.

## DEVELOPMENT

Most of the work has been confined to the Tommy C. claim. The

surface stripping has defined two parallel fractures fifty feet apart, each of which is occupied by an ore body 160 feet in length and three feet wide. The workable "Shoots" within these ore bodies are of much smaller extent. For convenience these exposures shall be referred to as the east and west croppings, (Plat No. 1) and the "Shoots", as:

Block E - North shoot, west cropping  
Block F - South shoot, " "  
Block G - South shoot, east "  
Block H - North shoot, " "

The extent of the underground workings will be more clearly understood by reference to Plat No. 2.

At an elevation of 800 feet above sea level, and 2600 feet inland, the lower tunnel has been projected. This tunnel is in 275 feet. The ore starts 30 feet from the mouth, and has been drifted on 125 feet; of this length, I have allowed 70 feet of ore of a shipping grade, the remaining falls below a profitable per cent, copper value. I have called this, the ore of the west croppings as developed on the lower level, a total depth of 232 feet. At a distance of 250 feet from the mouth of the tunnel a crosscut has been run to the east, cutting an ore body 27 feet wide. There is about ten feet of workable ore in this width; this I have defined as the ore of the east croppings developed on lower level.

At an elevation of 125 feet, above the lower level a middle tunnel has been driven. This tunnel is in 255 feet; from the end of this tunnel a 60 foot crosscut has been run west. No ore has been developed beyond 110 feet from the portal. Thirty feet from the mouth, the first ore was encountered; this ore continued for 80 feet; within this length a

profitable "shoot" of 30 feet has been developed, designated as the ore of the east croppings on middle level.

At the mouth of the middle tunnel a split has been run southwest for 75 feet. This drift shows decomposed ledge material; probably the west fissure. Any values have been entirely leached, a sample from the surface directly over this split yielded 0.50% copper. A series of open cuts and stripping defines the surface ore.

The following is a complete list of samples upon which the estimates have been figured. Where possible, all samples were taken ten feet apart. (See assay plans)

SAMPLES

<u>Number</u>	<u>Location</u>	<u>Feet Width</u>	<u>Ag. oz.</u>	<u>Au. oz.</u>	<u>Cu. %</u>
1	From bluff beg. edge of E. tunnel to slip	38	0	0	1.90
2	From bluff beg. at slip to east croppings	28	0	0	.80
3	Block H. east croppings	3½	.30	Tr.	10.63
4	East croppings	10	0	0	1.11
5	"	3	0	0	9.95
6	"	6	0	0	0.75
7	"	6	0	0	0.27
8	Block D. lower tunnel	2½	1.20	.20	8.63

<u>Number</u>	<u>Location</u>	<u>Feet Width</u>	<u>Ag.ozs.</u>	<u>Au.ozs.</u>	<u>Cu.%</u>
9	Lower tunnel	4	0	0	2.01
10	Lower tunnel	2½	0	0	2.03
11	East croppings	2½	0	0	2.06
12	"	2	0	0	3.25
13	"	6	0	0	3.20
14	"	2	0	0	0.70
15	Block G. sound end east croppings	3	.40	Tr.	17.92
16	"	5	0	0	9.14
17	"	10	.60	Tr.	14.63
18	So. Tunnel	4½	Tr.	0	4.05
19	"	6.2	0	0	2.09
20	Block F. so. end west cropping	3½	.80	Tr.	17.43
21	Block F. south end west croppings	2	0	0	8.48
22	Block E. west croppings	4	1.00	Tr.	20.54
23	"	3	Tr.	0	10.74
24	"	3½	.60	.06	7.60
25	"	2	0	0	10.06
26	"	2½	0	0	8.65
27	"	3½	0	0	5.57
28	"	2½	.40	Tr.	6.80

<u>Number</u>	<u>Location</u>	<u>Width</u>	<u>Ag.oz.</u>	<u>Au.oz.</u>	<u>Cu. %</u>
29	Breast of west tunnel	3½	0	0	.50
30	West tunnel	2	.40	Tr.	11.56
31	Surface over middle tunnel	6.8	0	0	.50
32	East side middle tunnel	28	0	0	1.52
33	"	3½	0	0	.20
34	Breast of N.E. drift middle tunnel	4.3	.20	0	7.50
35	N.E.drift middle tunnel	4.5	.20	0	6.40
36	"	7	0	0	8.95
37	Middle tunnel	3	0	0	1.56
38	E. side middle tunnel	6	0	0	3.80
39	Middle tunnel	7	Tr.	0	3.63
40	Xcut, Lower tunnel	10½	.20	0	7.10
41	"	5½	0	0	3.06
42	"	7	0	0	3.10
43	Xcut, Lower tunnel	11½	0	0	Tr.
44	"	3	0	0	.52

<u>Number</u>	<u>Location</u>	<u>Width</u>	<u>Ag.oz</u>	<u>Au.oz.</u>	<u>Cu.%</u>
45	Lower Tunnel	5	0	0	6.96
46	Block C. Lower tunnel	3½	0	0	7.88
47	"	4	0	0	6.50
48	"	3½	Tr	0	9.73
49	"	3	0	0	4.76
50	"	6	0	0	15.06
51	"	5	0	0	2.61
52	"	7	0	0	1.88

Composite samples of No. 8, 10, 47, 49

<u>Si O2.</u>	<u>Fe</u>	<u>Ca o</u>	<u>S</u>
18.80%	33.40%	0.70%	16.10%

Estimates

In figuring the ore reserves I have allowed ten cubic feet in place to the ton for shipping grade. This grade of ore must exceed five per cent copper value.

Unfortunately there has been no work to define the continuity of the ore "shoots" with depth. Inasmuch as the ore shoots are small, and the distance between workings great, I have not figured the blocks to be continuous between levels, for ore in sight. However I have made certain allowances for the ore to continue in some workable form above and below the levels. No deductions have been made for excavations, drifts, crosscuts, etc., as no shipments have been made; the mined ore is now on the dumps.

For the surface ore (Block E, Plat No. 1) I figure a block of ore 80 feet long, average width of 3 feet, and extending 60 feet in depth. Block F (Plat No. 1) equivalent to a "Shoot" 42' x 2.7' and extending 30 feet in depth.

Block G (South end east cropping) equivalent to a block 40 feet long and 10 feet wide, and an average thickness of 10 feet.

Block H (North end of east croppings) equivalent to a block 30 feet long by 3.12 feet wide, and extends up the bluff 40 feet and 50 feet in depth.

For estimates below the surface I have allowed the area of the ore as defined on the middle tunnel to extend 20 feet below and 40 feet above the level.

The area of the west shoot (Block C) on lower level, I have allowed to extend 10 feet below and 20 feet above the floor of this tunnel. For the small "Shoot" of ore (north) (Block D) I allowed 5 feet in depth and 10 feet above.

The ore defined by the crosscut at the end of lower tunnel I have allowed 5 feet below sill and 10 feet above, and 10 feet in longitudinal extent.

From the assay returns it will be noticed that the grade of the ore has decreased with depth. For this reason I have allowed small limits for the ore on the lower level.

I have figured only on "Positive Ore". For the "Probable Ore" it might be assumed that the ore bodies are continuous between levels, deducting positive ore, and the resulting volumes called "Probable Ore".



Volumes and Assays

Surface Ore, Block "E"

<u>Number</u>	<u>Width</u>	<u>Ag.</u>	<u>Cu.</u>	<u>Average Value</u>	
				<u>Ag.</u>	<u>Cu.</u>
30	2.5	.40	11.56		
27	3.6		5.57		
28	2.5		6.80		
26	2.5		8.65		
25	2.0		10.06		
24	3.5	.60	7.60		
23	3.0		10.74		
22	4.0	1.00	<u>20.50</u>	.30 oz	10.55%

Length of block = 80 feet  
 Width of block = 3 "  
 Depth of block = 60 "  
 14,400 cu. ft.  
 Ten cu. ft. per ton = 1440 tons

Block F.

21	2.	.80	8.58		
20	3.5		<u>17.63</u>	.50 oz.	14.17%

Length of Block 42,  
 Width of Block 2.7  
 Depth of Block 30  
 3402 cu. ft.  
 Ten cu. ft. per ton = 340 tons

Block G.

15	3	.40	17.92		
16	5		9.14		
18	4.5		4.05		
17	10	.40	<u>14.63</u>	.23 oz.	11.74%

Length of Block, 40 feet,  
 Width of Block 9. "  
 Thickness of Block 10 "  
 3600 cu. ft.  
 Ten cu. ft. per ton, = 360 tons.

Block H.

3	3.25	Tr.	9.95		
5	3	.30	<u>10.63</u>	.14 oz.	10.27

Length of Block, 30 feet,  
 Width of Block 3.12 feet,  
 Depth of Block 90 feet  
 (50 feet below and above)  
 8424 cu. ft.  
 Ten cu. ft. per ton = 842 tons

<u>Number</u>	<u>Width</u>	<u>Ag.</u>	<u>Cu.</u>	<u>Average Value</u>	
				<u>Ag.</u>	<u>Cu.</u>

Block D.

8	2.5	1.20 oz	8.63%
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Length of Block	10 feet,	
Width of Block	2½ feet,	
Depth of Block	<u>15 feet</u>	375 cu. ft.

Ten cu. ft. per ton, = 37.5 tons

Block C.

46	3.5	7.88%	
47	4.	6.40	
48	3.6	9.73	
49	3.	4.76	
50	6.	<u>15.06</u>	9.59%

Length of Block	60 feet,	
Width of Block	4 feet	
Depth of Block	<u>30 feet</u>	720 cu. ft.

Ten cu. ft. per ton, = 720 tons

Block B.

40	10½	.20	7.10%
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Length of Block	10 feet,	
Width of Block	10½ feet,	
Depth of Block	<u>15 feet</u>	1575 cu. ft.

Ten cu. ft. per ton, = 157 tons.

Block A.

34	4.3	.20	7.50%	
35	4.5	.20	6.40	
36	7.	Tr.	8.95	.11 oz. 7.82%

Length of Block	30 feet,	
Width of Block	5.2 feet,	
Depth of Block	<u>60 feet</u>	9360 cu. ft.

Ten cu. ft. per ton, = 936 tons.

SUMMARY.

S u r f a c e

<u>Amount</u>	<u>Location</u>	<u>Ag.</u>	<u>Cu.</u>
1440 tons	Block E,	.30 oz.	11.55 %
340 "	" F,	.50 "	14.17
360 "	" G,	.23 "	11.74
842 "	" H,	.14 "	10.27
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2982	Total,	.30 oz.	11.35 %

M I D D L E L E V E L

936 tons, Block A, .11 oz. 7.82 %

L O W E R L E V E L

37½ tons	Block D,	1.20	8.63
720 "	" C,	0	9.59
157½ "	" B,	.20	7.10
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915 "	Total,	.08 oz.	9.12 %

THEREFORE, Surface ore, = 2987 tons cop., 11.35% ag.30  
Underground ore, = 1851 " " 8.46% ag.09

C O S T S A N D P R O F I T S

The value of the ore is based on a 13¢ copper market; silver at 48¢ per oz.

Costs at Fidalgo (Mining, tramming, loading etc.)

\$3.50 per ton for surface ore, and

\$4.00 per ton for tunnel ore.

The freight rate to Tacoma is \$3.00 per ton, smelting rate is \$1.65 per ton. In addition the Smelter makes a deduction of 1.3% from the wet assay, and 3¢ off market quotation for refining charges. Silver is paid on a 95% basis.

THEREFORE, 1851 tons tunnel ore of 8.46% cu. and .09

oz. silver value,

Copper 8.46	=	16,920 lbs. @ 13¢	=	\$21,996
Less 1.3% Smelter deduction 26# @ 13¢	=			\$3.38
Less Refinery charges on 143.20# @ 3¢	=	<u>\$4.296</u>		<u>7.576</u>
Amount received for copper,				\$14.320
Silver less 5%, @ 48¢,				<u>.038</u>
Amount received per ton of ore,				\$14.358

Costs

At Fidalgo Bay (Mining, tramming etc.)	\$4.00	
Freight to Tacoma,	3.00	
Smelter charge,	<u>1.65</u>	<u>8.650</u>
Profit per ton,		\$ 5.708
1851 tons, equals - - - - -		\$10,565.50

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2982 tons surface ore of 11.03% copper, .30 oz. silver value,

Copper Value, 11.03,	=	220.60# @ 13¢	=	\$28.678
Less 1.3% Smelter deduction, 26# @ 13¢	=			\$3.380
Less Refinery charge on 194.60# @ 3¢	=	<u>5.838</u>		<u>9.218</u>
Amount received for copper,				\$19.46
Silver less 5% @ 48¢,				<u>.13</u>
Amount received per ton for ore,				\$19.59

Costs

At Fidalgo Bay (Mining, tramming etc.)	\$3.50	
Freight to Tacoma,	3.00	
Smelter charge,	<u>1.65</u>	<u>8.15</u>
Profit per ton,		\$11.44
2982 tons @ \$11.44 per tons equals, - - -		\$34,114.08

SUMMARY

<u>Amount</u>	<u>Copper</u>	<u>Silver</u>	<u>Net Profit</u>
2982 tons,	11.03%	.30 oz.	\$34,114.08
<u>1851 tons,</u>	8.46	.09	<u>10,565.50</u>
4833 tons,			\$44,679.58

GENERAL CONDITIONS

The labor conditions on Prince Williams Sound are not the best; first class miners are scarce, wages are \$4.00 per shift of 8 hours, less \$1.00 per day for board.

The steamship tariff on rough lumber from Seattle is \$15.00 per M. Coal from British Columbia, freight rate = \$6.72 per ton. Machinery from Seattle, \$11.00 per ton for pieces under 2000 lbs., from 2000 to 4000 lbs. \$13.00 per ton.

Native piling costs about 10¢ per foot, (40-60 foot piling)

Creosoted piling 48¢ per foot; cost of driving piling about 10¢ per foot. Life of native piling, (Hemlock) 6 to 8 months; life of creosoted piling, six years. For present purposes it would be cheaper to use the native piling.

The present equipment on the property is of little or no value. A considerable sum will be required to put the property on a shipping basis. The immediate wants are a wharf, aerial tramway, ore bins, boarding house, bunk house for about 20 or 25 men, and shops. A location opposite the N. E. corner of the Porcupine claim affords an excellent site for a wharf. One hundred and twenty five feet from the shore 35 feet of water can be obtained at low tide.

Length of required tramway is 2600 feet (approx). This should be of a capacity not less than 20 tons per ten hour shift. A tramway of this capacity costs about \$1.00 per foot F. O. B. Trenton, N.J.. This includes all buckets, grips, cables, sheaves etc., and weighs about  $13\frac{1}{2}$  pounds per foot;-

2600 feet @ \$1.00 per ft. = \$2600.00 F.O.B. Trenton

2600 feet @  $13\frac{1}{2}$  lbs. per foot = approx.  $17\frac{1}{2}$  tons,

\$38.00 per ton for freight, Trenton-Seattle, = \$665.00

\$11.00 " " " " Seattle-Fidalgo, = 192.00

Cost, = \$3457.00

Timber for terminals and towers = approx. 15,000 ft. \$30.00 per M. = \$450.00

Installation = \$500.00

Recapitulation,

Tramway,	\$2600.00
Freight to Seattle,	665.00
Freight to Fidalgo,	192.00
Timber,	450.00
Installation,	<u>500.00</u>

Total cost for tramway complete. \$4407.00

About 75,000 feet of lumber for building purposes, first cost, freight and erection at Fidalgo, figured at \$40.00 per M.

SUMMARY OF EXPENSES

Wharf	\$3500.00
Ore bins, (600 tons capacity)	2500.00
Buildings	3000.00
Tramway,	4407.00
General Equipment, tools, etc.,	<u>1000.00</u>

Total \$ 14,407.00

Ore in sight, \$ 44,779.00

Respectfully,

/s/ Lewis A. Levensaler  
(Signed) Lewis A. Levensaler

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SUMMARY OF DATA ON ALASKA COPPER CORPORATION PROPERTY

By Asa C. Baldwin

HISTORY

The property was discovered in June, 1907, and in the fall of that year development work was started by the Fidalgo-Alaska Copper Company near the outcrop of the showings. In the next three years 500-600 feet of tunnels were driven which resulted in exposing the ore bodies at a depth of 300 feet. In 1910, Mr. L. A. Levensaler, at that time engineer and ore buyer for the Tacoma Smelter, examined the property and on his recommendation the Smelter loaned the Fidalgo-Alaska Company \$50,000, which was subsequently repaid with interest out of ore production. This company operated the mine in a small way and during its operations mined and shipped several hundred tons of crude ore to the Tacoma Smelter, the exact tonnage being unknown.

In late 1915 the property was taken over by the Alaska Mines Corporation and Mr. Byron Wilson, later with the Hecla Mining Company, was made manager. Under his direction an aggressive program of mining development was started in March, 1916, and was continued until November, 1920.

During this four-and-a-half year period the No. 2 and No. 3 drifts were extended and the ore was followed down another 100 feet to the 400-foot level. Also a main working tunnel, 900 feet below the original outcrop and 158 feet above tidewater level, was driven a total of 1,900 feet, and was just entering the ore zone when adverse conditions in the copper market caused all work to be suspended.

In addition to the exploration and development work above

mentioned, 16,601 tons of crude copper ore, averaging 9.67% metallic copper, were mined and shipped to the Tacoma Smelter, and an estimated 60,000 tons of 3% ore were mined and left in the dumps, fills and pillars.

The gross smelter returns from these shipments were \$514,726.13, and the total operating costs plus freight and taxes were \$362,437.05, which latter sum included the purchase price of \$125,000.00 and an outstanding debt of \$30,000.00.

Except for the low-level tunnel, all mining work was done by hand labor.

From 1921 to 1929 the property remained idle due to unfavorable copper market conditions. There being some improvement in the market in the latter part of the 1920-1930 decade, the Coppermines, Inc. acquired the property and had a geophysical and patent survey made of the claims during the summer of 1930. Shortly thereafter the price of copper began to decline and no work of any kind has been done on the property since the surveys were made.

On October 31, 1934, U. S. Patent No. 1,072,905 was issued on fifteen mining claims to the Coppermines, Inc., the trustees of which company by a vote of the stockholders on March 18, 1942 were authorized and instructed to transfer all the assets of said company to a new Alaska corporation, now in process of organization, to be called the Alaska Copper Corporation.

#### EXISTING DEVELOPMENT AND ORE SHOWINGS

The high grade shipping ore occurs as lenses en echelon in a shear zone, 50 to 100 feet wide, having a general northeast-southwest strike. This shear zone has a known horizontal length of not less than



2,000 feet and within that distance five mineralized zones are known to exist, three of which were found by surface prospecting and two by geophysical survey. For convenience, these foci of mineralization within the shear zone will be designated No. 1, No. 2, No. 3, No. 4, and No. 5, the latter being the most northerly.

The mineralized areas found by geophysical prospecting are the No. 3 and No. 5 and have no visible outcrop. The former appears to be limited in size but the latter may prove to be important. The reaction obtained over it by the geophysical survey was nearly as intense as that at the No. 2 ore zone where all development work to date has been done. The geophysical study of the No. 4 ore zone indicated that it was of small extent and that the mineralization was probably thinly disseminated through the slates but at the No. 1 zone a conductive mass comparable in size to the No. 2 known ore body was outlined by the resistivity method. It will take the drill or tunnel work to prove the commercial importance of these findings by geophysical methods.

All development work to date has been concentrated on the No. 2 ore body which occupies a position about half way between the No. 1 and No. 5 ore zone. The development work here has put in evidence two main ore channels within the shear zone. These channels have been followed along their strike for a distance of 250 feet and have been exposed vertically to a depth of 400 feet below the surface outcrop. The ore channels are converging with depth, being at the surface from 75 feet to 80 feet apart, and at the 4th level not more than 50 feet apart. If the same rate of convergence continues below the 4th level, the ore channels will be close enough together at the level of the lowest tunnel,

the 9th level, to make one large major ore channel.

During the period of past operations all efforts were directed toward finding ore that would pay to ship as crude ore to the smelter. Approximately 20,000 tons of crude ore of an average grade of nearly 10% copper were mined and shipped by the two operating companies. To get this shipping ore, the mine was high-graded and the lower grade milling ore was either left in place or put on the dumps or gobbled.

#### DEVELOPED ORE

According to Mr. Wilson, "There is at least ten tons of low grade ore for each ton of high grade." An actual test carried out by him showed three tons of 3% ore for each ton of 10% ore. He further states that there are 60,000 tons of 3% developed ore above the 4th level, a large proportion being already mined and now in the dumps and fills. On the floor of the No. 4 tunnel there are five ore bodies exposed. However, at this writing definite information is available only on one of the five. This one, at the bottom of the No. 1 stope, is 80 feet long and eight feet wide and averages 10% copper. Assuming that it will continue in depth a distance equal to one-half of its horizontal extent, the amount of developed ore here is 2,560 tons of 10% copper. The total developed ore is thus:

2,560 tons	10% copper
60,000 tons	3% copper

#### PROBABLE ORE

In this connection reference is made to Mr. Levensaler's 1910 report, pages 3-5, wherein are listed his samples, and attention is called to the following:

Sample No. 1	38 feet width	1.90% copper
" No. 2	28 " "	0.80% "
" No. 4	10 " "	1.11% "
" No. 32	28 " "	1.52% "
" No. 40-42	23 " "	4.91% "

Such areas as these were never explored as they did not offer possibilities for a shipping grade of ore. Combining this Levensaler assay data with Mr. Wilson's estimate of ten tons of low grade ore to each ton of shipping ore, a conservative estimate of the probable ore of 1.5% copper or better above the 4th level is 60,000 tons.

As a factor in estimating the probable ore between the 4th and 9th levels we have taken the average tonnage per level of probable and developed ore above the 4th level. This is 5,000 tons of 10% copper, 15,000 tons of 3% copper, and 15,000 tons of plus 1.5% copper.

On this basis the probable ore between the two levels, deducting the 2,560 tons classed as developed ore, is:

22,240 tons	10% copper
75,000 "	3% "
75,000 "	plus 1.5% "

It should be noted that the No. 5 tunnel, or the 9th level tunnel, never reached the shear zone. It was driven on a straight course for 1,500 feet when a turn was made to the right or west, and a drift was run 280 feet on a course about parallel to the shear zone. Near the end of this drift a crosscut was driven 92 feet in the proper direction to cut the ore zone but stopped short of its objective by 50 - 100 feet. Apparently at the time this work was done it was thought the dip of the shear zone was nearly vertical or slightly to the northwest. The dip, however, is clearly southeast as was subsequently determined by the geophysical survey and verified by transit survey. (See Map #5).

The above estimate of ore reserves does not take into con-

(c) Simultaneous with carrying on (a) and (b), to make

PROPOSED FUTURE DEVELOPMENT

Instead of high-grading and shipping crude ore, it is believed that the proper method is to mine all ore of 1.5% copper content or better and put this run-of-mine ore through a concentrating mill, shipping to the smelter a high grade mill concentrate. Although no tests have been made to determine the best method of treating the ore, it would undoubtedly be selective flotation. An analysis of Mr. Levensaler's samples Nos. 8, 10, 47 and 49 gave:

<u>Si O<sub>2</sub></u>	<u>Fe</u>	<u>Ca O</u>	<u>S</u>
18.80%	33.40%	0.70%	16.10%

It is expected that a 90% recovery could be made and about an 8 or 10 to one concentrate produced, depending on the average grade of mill heads.

It is further believed that the most economical and quickest way to get this property into production is as follows:

- (a) To extend the No. 5, the 9th level tunnel, to the shear zone, 50 to 100 feet and then drift 300 to 400 feet in this area, and
- (b) To raise from No. 5 tunnel to the No. 4 tunnel and crosscut and drift into the ore zone from the raise on the 7th and 6th levels,

- ACRO  
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- (c) Simultaneous with carrying on (a) and (b), to make mill tests on the ore to determine the proper method of treatment and thereafter construct the first unit of a mill, possibly a 50-ton pilot mill, timing its completion with that of the raise.

(Under this program we are aiming at the known developed ore above the 4th level. If, as is probable, ore is developed in the immediate vicinity of the 9th level, milling operations could of course start before the raise is completed).

The estimated cost of steps (a), (b), and (c) is approximately \$150,000.00, which might be necessary to increase by \$50,000.00 for working capital until such time as money returns were received from shipments of concentrates. As ore tonnage is developed, additional mill units could be installed commensurate in capacity with such developed reserves.

Asa C. Baldwin

C O P Y 12/27/46

EXHIBIT "B"

A-2a

Seattle, Washington, June 15, 1921

Mr. F. A. Twichell,  
Seattle, Washington.

Dear Sir:

Complying with your request for a report on the Fidalgo Property, I am employing the same method in arriving at conclusions as that used during the period of active operation, i.e. from March, 1916, to November, 1920.

You will probably recall that the usual method of estimating ore reserves, i. e. sampling, assaying and measuring "ore in sight" did not give any result on which we could depend but that basing future production on past performance did, on the whole, give a basis for calculation which proved satisfactory and fairly reliable.

Shortly after arriving at Fidalgo, March, 1916, I wrote you stating that "there is no commercial ore 'in sight' at Fidalgo", and at that time outlined considerable work involving the expenditure of some \$20,000 in addition to \$30,000 which you had already expended without any assurance that you would get your money back other than that the shallow workings near the surface had produced several hundred tons of good grade ore and that the block of ground directly underneath probably would produce equally as much ore of the same average grade in proportion to the area explored as was produced above.

Basing your future operations on the above theory you permitted me to go ahead with the work outlined, with the result that you not only

completed the development work in the block of ground in and around No. 2 tunnel, the then producing area, but mined and sold enough crude copper ore to pay for all the work formerly completed and had a cash balance before the end of the first year.

Continuing the same policy of basing future estimates on past performance, you continued dropping down to lower levels step by step, developing new ground and constantly exposing new ore bodies of commercial grade and paying for the work out of production until No. 4 level was reached, the lowest point at which ore can be mined successfully from the upper works.

On March 1st when I arrived at Fidalgo there was employed in and around the mine 18 men. I immediately cut this force to twelve men as there was not sufficient tools or camp equipment to accommodate more than that number. It was necessary to supply the property with buildings, equipment, and tools from the ground up, which you did and at the same time continued operations and production and constantly increasing the force, equipment and production until at the time work was discontinued in 1920 there was and is ample accommodation for 30 men, with a completely equipped and modern plant for small scale operations.

Considering the fact that all mining and other operations connected with the production of ore was accomplished entirely by hand labor and under adverse conditions, Fidalgo is a remarkable example, as the property more than paid its own way and cancelled a burden of debt of some \$155,000 including the purchase price of \$125,000 and at all times developed ore in constantly increasing volume as depth was gained.

During the entire active life of the mine under your management the smelter records show an average grade of shipping ore assaying approximately 10% copper aggregating some 17,000 tons of ore and an average cost of approximately 9¢ per pound of copper.

The ore shipped ranged in copper content from 6 to 16%. The higher grade ore was the result of circumstances as weather conditions, congestion on account of shipping, and inadequate facilities during the first two years had more to do with grade of ore than actual natural conditions. Shipments where the grade ran 6% or less were premeditated, as that was done for the purpose of determining grade of possible mill ore. The high-grade shipments were usually the result of careful sorting at periods when hand sorting was practicable or during cold periods when it was the result of selective mining under-ground.

No attempt was made to determine the extent of mill ore as all mining was confined to ore of shipping grade. Forty tons of sorted waste and stope waste from all points of the mine assayed 3.10% copper, with gold and silver values of approximately \$1.00 per ton. There is several thousand tons of waste in the various dumps containing sufficient copper to justify milling when the method for economical handling is provided. There are considerable areas exposed underground adjacent to the stoped areas which contain 3% copper ore.

A horizontal section made at any point in the explored portion of the ore zone would show a fairly uniform condition of low grade ore but a vast difference in high grade. The sill of No. 3 level does not show any extensive shoots of high grade, on the other hand the sill of No. 4 shows more high grade than at any other known point.



I wish to call your attention to the ore shoot marked No. 1 on the No. 4 level map. This ore shows for 80 feet on the sill of that level with an average thickness of 8 feet. This ore body was mined out up to No. 3, a distance of 140 feet and averaged 40 feet long, 8 feet thick and produced approximately 5000 tons of better than 10% shipping ore. This is by far the largest single ore shoot in the mine and proves conclusively that the ore gains strength with depth. The ore shoots near the surface were smaller but of approximately the same grade.

There are four other ore shoots on the sill of No. 4 as shown on the accompanying maps, all of which may be sampled by taking up the track except the ore in the extreme northeast end which is filled in. The extreme southwest shoot did not go up but shows in the bottom, all the others are stoped up in varying degrees and will no doubt produce ore both up and down when mining is continued.

It has been suggested that you continue work from above as formerly. I am not in favor of this. The old workings are above timber and water on the side of a rugged mountain and would only be continuing the same expensive unsatisfactory methods with the added expense of sinking below No. 4 for additional ore.

You have No. 5 tunnel completed to the ore zone, completely equipped for further prospecting, a first-class compressor plant, machine shop, buildings, equipment and tools and all necessary supplies including extra parts for all machines, to go ahead on short notice.

The machinery is all new, on concrete foundations greased and painted and well housed in structures built to withstand the climate.

Timber and water are close and plentiful. There is running water in the buildings, pipes, electric lights and telephone and camp equipment sufficient for all present needs and for some time to come.

The above mentioned No. 5 tunnel comprising some 2000 linear feet with the machinery buildings, power plant equipment, etc., was constructed and purchased at a cost of \$48,000 for the purpose of opening up and developing the Fidalgo mine ore zone. I advised closing down for the reason that conditions were so bad that it was almost impossible to keep going. There is some evidence that this year will see general conditions such that you can go ahead with some degree of certainty and some assurance of uniform prices and at least guess as to what the cost will be.

To complete the No. 5 tunnel prospecting and drive a raise through to No. 4 will require 1,000 lin. feet of work. This should be done for not to exceed \$20,000 and probably can be done for less.

I believe that the ore showing on No. 4 tunnel justifies doing this work and that the ore remaining in the bottom of No. 1 shoot as it shows on No. 4 level will pay for the work. Aside from this, I believe that there is as much ore beneath No. 4 as there was above that level and that it can be taken out with power machinery at less cost per pound of copper than the area already mined.

The above estimates are all made on the basis of crude shipping ore of a grade of 10%. All of the old workings from the surface down to No. 5 tunnel, a vertical distance of 800 feet or more, show areas of 3% ore. This low-grade certainly can be mined and milled at a profit after all cost of development has been cared for through mining the high-grade. There is at least ten tons of low-grade ore for each ton of high-grade.

I have only considered the north ore shoot in this letter. There is a surface showing 1000 feet S.W. of the present workings which is equally as good as the ore at the surface of the present workings. The surface between these two outcrops is concealed with debris. The present work can be extended after No. 5 is completed with the same assurance of finding ore as was the case before any development was done on the ground.

Following is a complete production record with costs, based on net paid for ore by Tacoma Smelting Co.

(Signed) BYRON WILSON,  
Superintendent.

REPORT

The property of the Alaska Mines Corporation comprises 20 non-patented lode claims, arranged in two groups, known as the Arley group of 5 claims and the Bay View group of 15 claims, as shown on the attached blueprint, with one additional claim located recently and adjoining group on the easterly side thereof.

The property is located on the south shore of Fidalgo Bay, one mile east of Irish Cove, and 17 miles southeast of Ellamar. The north end lines of the Bay View group adjoin the beach, affording a frontage of 1800 feet. The present workings are situated about 2600 feet from tidewater.

Fidalgo Bay is one of the large fiords on the east limit of Prince William Sound, Alaska. The Bay has been charted by the U.S.C.&G. Survey for a distance of 3 miles beyond the landing of the Alaska Mines Corporation. All steamers running between Cordova and Valdez pass within 10 miles of the property, furnishing a frequent mail, passenger and freight service to and from Seattle. The charted portion of Fidalgo Bay is navigable for the largest boats on the Alaska run.

TOPOGRAPHY

The general topography is characteristic of the entire Prince William Sound country, viz. rugged and glaciated hills rising rather abruptly 1000 or more feet from the beach; a low timber line 1200 or 1500 feet; and an enormous undergrowth of small shrubbery and decaying vegetation. The timber is spruce and hemlock of an exceptionally good quality and quantity for the district, sufficient for all mining and dock purposes. Good piling is plentiful; the hemlock is by far superior for such uses. It has been found advisable, however, to ship in lumber for building purposes.

There are no large creeks in that vicinity but a small stream runs all the year round just below the present camp, ample for domestic purposes.

#### GEOLOGY

The exposed rocks on the north slope of the hill are mostly sedimentaries, hard black to gray slates and diorite breaks through the slates and is undoubtedly the cause of the mineralization. The resulting shear-zones have a steep easterly dip, and the strike nearly magnetic north, which is the pronounced strike of the strongest shear-zones in the district.

The ore, which is pyrite and chalcopyrite carries a little silver and traces of gold, and occurs in fractured zones and irregular lenses. These "shoots" have a strong pitch to the north. The ore bodies are traversed by slits in nearly any direction but show poor walls.

The property extends from the water's edge of Fidalgo Bay over and across two ridges or hills or mountains nearly to Irish Cove in its south and southwesterly direction, following the line of the shear-zones which are fully defined on the exposed surface. These ridges are about 1000 feet apart, the one to the north having an elevation of 1100 feet, the one to the south being some 200 feet higher. The original ore showings were as indicated in red ink on the blueprint attached and occur on the apex of the two ridges which run east and west. All development and mining operations up to date have been confined to the north showing, no work having been done on the south outcrop except to clear away the surface to demonstrate the extent and nature of the ore on the surface. All indications are to the effect that the south outcrop is fully as strong and well defined as the northern one, and being

in the same shear-zone should produce approximately the same grade and bulk of ore that the one to the north has developed.

The mine workings consist of four tunnels, Nos. 1, 2, 3 and 4, and from the area above No. 4 has come all of the ore taken out of the mine. The elevation of these tunnels is as follows:

No. 1,	1000 feet	No. 3,	796 feet
No. 2,	925 feet	No. 4,	658 feet

The principal amount of ore has come from the area between tunnels No. 4 and No. 3, and the showings on the floor of No. 4 are larger and of higher grade than at any point above.

For this reason it was determined to run a fifth tunnel (No.5) at a much lower altitude, and this was done, over 1900 feet of standard tunnel has been run at an elevation of 158 feet, to a point which brings it approximately under the ore known to exist in the floor of tunnel No. 4. No ore has been mined or taken out of tunnel No. 5, as it is not yet equipped for handling ore, and owing to the unfavorable conditions which existed in the copper market and the exorbitant cost of production, the owners decided that as soon as this work was completed the work should be closed down. All precautions were taken to put all working portions of the mine, and machinery and appliances in first-class condition in order that no delay would be encountered in resuming work when conditions should justify such resumption.

The mine is equipped with a wire tram, connecting tunnel No. 3 with the bunkers at the beach and shipping point with an auxiliary hoist from No. 4 to No. 3, with standing and running wire, buckets, switches and all necessary appliances. This tram is approximately 2600 feet long and delivers (by gravity) the ore from the mouth of tunnel

No. 3 and dumps it into the bunker.

The compressor is an Ingersoll-Rand 14 x 9 x 12, air receiver 42" x 8' with all fittings, driven by a 75 H.P. Sampson distillate engine with belt drive. Air drills are of the Leymer-Ingersoll type #248 for hollow steel, with air and water connection with a #5 Leymer sharpener and #3 Leymer oil furnace, high pressure, pedestal grinder, Little Tugger hoist with necessary connections and equipment, all well equipped with working parts and extras, all in first-class shape with air pipe, water pipe, ventilating pipe, fan, hoists, heating system under bunkers (to insure winter shipping), in fact, the equipment comprises every item necessary for safe and economical operation. Ore cars are the latest pattern, tracks are well laid, and the drainage is perfect, all tunnels being so driven as to drain themselves.

The buildings consists of ore bunkers at the beach, of 800 tons capacity, Superintendent's house and office, compressor house, bunker and cook house, storehouse, boiler house, carpenter shop, blacksmith shop and storage sheds, all at the water front, at which point there is also a shipping wharf 400 feet long from which the ore is handled to the steamers for shipment south. At tunnel No. 4 there is another bunk and cook house, the foreman's house, tool house, blacksmith shop, powder house, etc., also a complete outfit of tools, including mining, construction and repair tools, all in good working condition and ready for use. The cook and bunk houses are fully equipped for a full crew of men and in excellent condition.

Supplies can be shipped direct from Seattle or can be obtained at very favorable prices at Valdez, 40 miles distant by water.

This property was taken over by the present owners late in 1915, and shipping of ore started early in 1916 and proceeded continuously until late in 1920, when they ceased mining and shipping for the reasons hereinabove stated. During that time the mine shipped and marketed 16,175 tons of ore of an average assay of 10% copper with a persistent showing of small quantities of gold and silver. The smelter sheet returns covering these shipments show a net return at the smelter, after deducting all costs of handling, treatment, refining and marketing, and all costs of transportation from smelter to the marketing point, in the sum of \$514,726.13. Out of this sum the smelter paid the freight and war tax on these shipments from the mine to the smelter aggregating \$61,740.96, leaving a net return in cash to the owners of \$452,985.17.

The total operating costs of the mine for mining, handling and shipping this ore, including taxes, insurance, license, legal service, medical service, superintendent's and clerical service, and overhead charges of every description, were \$300,696.09, leaving a margin of \$152,289.08 for the five years' operation.

It will further be borne in mind that all of this ore was mined, handled and sorted by hand power, the air equipment which was installed having been used only in connection with driving tunnel No. 5.

The property is now in precisely the same shape as when work was closed down and is in such condition that operations could be resumed without any appreciable delay whatever.

(Original Signed)

Byron Wilson



1296-3  
Seattle, Washington,

November 28, 1910.

Mr. F. R. Rust,

Tacoma, Wash.

Dear sir:-

Report on the Fidalgo Alaska Copper Company's property.

(Donohoe and Ostrander)

The property under consideration comprises twenty (20) non-patented lode claims, arranged in two groups, known as the Arley group of five claims, and the Bay View group of fifteen claims.

The property is located on the south shore of Fidalgo Bay, one mile east of Irish Cove, and seventeen miles south-east of Klamath. The north end lines of the Bay View group join the beach, affording a frontage of 1800 feet. The present workings are situated about 2600 feet from tide-water.

Fidalgo Bay is one of the large fiords on the east limit of Prince William Sound. The Bay has been charted by the U. S. G. & O. Survey for a distance of three miles beyond the landing of the Fidalgo Alaska Copper Company. All steamers running between Cordova and Valdez pass within five miles of the property, furnishing a weekly mail, passenger and freight service to and from Seattle. The chartered portion of Fidalgo Bay is navigable for the largest boats on the Alaska run.

#### TOPOGRAPHY.

The general topography is characteristic of the entire Prince William Sound country, viz., rugged and glaciated hills, rising rather abruptly a thousand or more feet from the beach; a low timber line, twelve or fifteen hundred feet; and an enormous undergrowth of small shrubbery and decaying vegetation. The timber is spruce and hemlock of and exceptionally good quality and quantity, for the district, sufficient for all mining and dock purposes. Good piling is plentiful; the hemlock

is by far the superior for such purposes. There are no large creeks in the near vicinity, but a small stream runs all the year below the present camp, ample for domestic purposes.

#### GEOLOGY.

The exposed rocks on the north slope of the hill are mostly sedimentaries, hard black or grayslates and graywackes; to the west an extremely hard fine grain quartz-diorite breaks thru the slates, and is undoubtedly the cause of the mineralization. The resulting shear-zones have a steep easterly dip, and strike nearly magnetic north, which is the pronounced strike of the strongest shear-zones in the district.

The ore, which is pyrite and chalcopryrite, carries a little silver and traces of gold, and occurs in hard fractured zones and irregular lenses. These "Shoots" have a strong pitch to the north. The ore bodies are traversed by slips in nearly every direction, but show poor walls.

#### DEVELOPMENT.

Most of the work has been confined to the Tommy C claim. The surface stripping has defined two parallel fractures fifty feet apart, each of which is occupied by an ore body 160 feet in length and three feet wide. The workable "Shoots" within these ore bodies are of much smaller extent. For convenience, these exposures shall be referred to as the east and west croppings, (Plat No. 1) and the "shoots", as:

Block E. - North shoot,	West cropping.
Block F. - South shoot,	" "
Block G. - South shoot,	East "
Block H. - North shoot,	" "

The extent of the underground workings will be more clearly understood by reference to Plat No. 2.

At an elevation of 800 feet above sea level, and 2600 feet inland, the lower tunnel has been projected. This tunnel is in 275 feet. The ore starts 30 feet from the mouth, and has been drifted on 125 feet; of this length, I have allowed 70 feet of ore of a shipping grade, the remaining falls below a profitable per cent, market value. I have called this, the ore of the west cropping as developed on the lower level,

a total depth of 232 feet. At a distance of 250 feet from the mouth of the tunnel a crosscut has been run to the east, cutting an ore body 27 feet wide. There is about ten feet of workable ore in this width; this I have defined as the ore of the east croppings developed on lower level.

At an elevation of 125 feet, above the lower level a middle tunnel has been driven. This tunnel is in 255 feet; from the end of this tunnel a 60 feet crosscut has been run west. No ore has been developed beyond 1110 feet from the portal. Thirty feet from the mouth the first ore was encountered; this ore continued for 80 feet; within this length a profitable "shoot" of 30 feet has been developed, designated as the ore of the east croppings on middle level.

At the mouth of the middle tunnel a split has been run southwest for 75 feet. This drift shows decomposed ledge material; probably the west fissure. Any values have been entirely leached, a sample from the surface directly over this split yielded 0.50% copper. A series of open cuts and stripping defines the surface ore.

The following is a complete list of the samples upon which the estimates have been figured. Where possible, all samples were taken ten feet apart. (See assay plans)

SAMPLES.

<u>No.</u>	<u>Location</u>	<u>Ft. width</u>	<u>Ag. oz.</u>	<u>Au. oz.</u>	<u>Cu. %</u>
1	From bluff beginning edge of east tunnel to slip.	38	0	0	1.90
2	From bluff beginning at slip to east croppings.	28	0	0	.80
3	Block H. east croppings.	3½	.30	Tr.	10.63
4	East croppings	10	0	0	1.11
5	" "	3	0	0	9.95
6	" "	6	0	0	.75
7	" "	6	0	0	.27
8	Block D. lower tunnel.	2½	1.20	0.20	8.63

<u>No.</u>	<u>Location.</u>	<u>Ft. width.</u>	<u>Ag. oz.</u>	<u>Au. oz.</u>	<u>Cu. %</u>
9	Lower tunnel,	4	0	0	2.01
10	Lower tunnel,	2½	0	0	2.03
11	East croppings,	2½	0	0	2.06
12	" "	2	0	0	3.25
13	" "	6	0	0	3.20
14	" "	2	0	0	0.70
15	Block G. south end east croppings,	3	0.40	Tr.	17.92
16	do	5	<del>0.80</del>	0	9.14
17	do	10	0.60	Tr.	14.63
18	South tunnel,	4½	Tr.	0	4.05
19	" "	6.2	0	0	2.09
20	Block F., south end west croppings,	3½	0.80	Tr.	17.43
21	do	2	0	0	8.43
22	Block E, west croppings,	4	1.00	Tr.	20.54
23	do	3	Tr.	0	10.74
24	do	3½	0.60	0.06	7.60
25	do	2	0	0	10.06
26	do	2½	0	0	8.65
27	do	3½	0	0	5.57
28	do	2½	8.40	Tr. &	6.80
29	Breast of west tunnel,	3½	0	0	.50
30	West tunnel,	2	0.40	Tr.	11.56
31	Surface over middle tunnel.	6.8	0	0	.50
32	East side middle tunnel,	28	0	0	1.52
33	do	3½	0	0	.20
34	Breast of N. E. drift middle tunnel,	4.3	0.20	0	7.50
35	N. E. drift middle tunnel,	4.5	0.20	0	6.40
36	do	7	0	0	8.95
37	Middle tunnel,	3	-4- 0	0	1.56

<u>No.</u>	<u>Location.</u>	<u>Width.</u>	<u>Ag. oz.</u>	<u>Au. oz.</u>	<u>Cu. %</u>
38	E. side middle tunnel,	5	0	0	3.80
39	Middle tunnel,	7	Tr.	0	3.63
40	X cut, lower tunnel,	10½	0.20	0	7.10
41	do	5½	0	0	3.06
42	X cut, lower tunnel,	7	0	0	3.10
43	do	11½	00	0	Tr.
44	do	3	0	0	0.52
45	Lower tunnel,	5	0	0	0.96
46	Block 6, lower tunnel,	3½	0	0	7.88
47	do	4	0	0	6.50
48	do	3½	Tr.	0	9.73
49	do	3	0	0	4.76
50	do	6	0	0	15.06
51	do	5	0	0	2.61
52	do	7	0	0	1.88

Composite samples of No. 8, 10, 47, 49.

<u>SiO<sub>2</sub></u>	<u>Fe</u>	<u>CaO</u>	<u>S</u>
18.80%	33.40%	0.70%	16.10%

Estimates.

In figuring the ore reserves I have allowed ten cubic feet in place to the ton for shipping grade. This grade of ore must exceed five per cent copper value.

Unfortunately there has been no work to define the continuity of the ore "shoots" with depth. Inasmuch as the ore "shoots" are small, and the distance between workings great, I have not figured the blocks to be continuous between levels, for ore in sight. However I have made certain allowances for the ore to continue in some workable form above and below levels. No deductions have been made for excavations, drifts, cross-cuts, etc., as no shipments have been made; the mined ore is now on the dumps.

For the surface ore (Block E, Plat No. 1) I figured a block of ore 80 feet long, average width of three feet, and extending 60 feet

in depth. Block F. (Plat No. 1) equivalent to a "shoot" 42' x 2.7' and extending 30 feet in depth.

Block G. (South and east cropping) equivalent to a block 40 feet long and ten feet wide, and an average thickness of ten feet.

Block H (North and east croppings) equivalent to a block 30 feet long by 3.12 feet wide and extends up the bluff 40 feet and 50 feet in depth.

For estimates below the surface, I have allowed the area of the ore as defined on the middle tunnel to extend 20 feet below and 40 feet above the level.

The area of the west shoot (Block C) on lower level, I have allowed to extend 10 feet below and 20 feet above the floor of this tunnel. For the small "shoot" of ore (north) (Block D) I allowed 5 feet in depth and 10 feet above.

The ore defined by the cross-cut at the end of the lower tunnel, I have allowed 5 feet below sill and ten feet above, and ten feet in longitudinal extent.

From the assay returns, it will be noticed that the grade of the ore has decreased with depth. For this reason I have allowed small limits for the ore on the lower level.

I have figured only on "Positive Ore". For the "Probable Ore" it might be assumed that the ore bodies are continuous between levels, deducting positive ore, and the resulting volumes called "Probable Ore".

Volume and Assays.

Surface ore, block "E".

Number.	Width.	Ag.	Cu.	Average value.	
				Ag.	Cu.
30	2.5	0.40	11.56		
<del>27</del>	3.6		5.57		
28	2.5		6.80		
26	2.5		8.65		
25	2.0		10.06		
24	3.5	0.60	7.60		
23	3.0		10.74		
22	4.0	1.00	<u>20.50</u>	.30 Oz.	10.55%

Length of block 80 feet

Width of block 3 feet  
 Depth " " 60 " 14,400 cu. ft.

Ten cu.ft. per ton.....1,440 tons.

Block F.

Number.	Width	Ag.	Cu.	Average value	
				Ag.	Cu.
21	2	0.80	8.58		
20	3.5		17.43	.50 oz.	14.17 %
Length of block	42				
Width " "	2.7				
Depth " "	30		3403 Cu. ft.		

Ten cu. ft. per ton.....340 tons.

Block G.

15	3	0.40	17.92		
16	5		9.14		
18	4.5		4.05		
17	10	0.40	14.63	0.23 Oz.	11.74%

Length of block 40 feet  
 Width " " 9 "  
 Thickness of block 10 " 3600 Cu. ft.

Ten cu. ft. per ton.....360 tons.

Block H.

3	3.25	Tr.	9.95		
5	3	.30	10.63	0.14 Oz.	10.27%
Length of block	30 feet				
Width " "	3.12 "				
Depth " "	90 "		(50 feet below and 40 above)	8424 Cu. ft.	

Ten cu. ft. per ton.....842 tons.

Block G.

8	2.5	1.20 Oz.	8.63%		
Length of block	10 feet				
Width " "	2½ "				
Depth " "	15 "		375 cu. ft.		

Ten cu. ft. per ton.....37.5 tons.

Block C.

46	3.5		7.88%		
47	4		6.40		
48	3.6		9.73		
49	3		4.76		
50	6		15.06		9.59%

Length of Block 60 feet  
 Width " " 4 "  
 Depth " " 30 7200 Cu. ft.

Ten cu. ft. per ton.....720 tons.

Block B.

40	10½	0.20	7.10%		
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Length of block 10 feet  
 Width of block 10½ "  
 Depth of block 15 " 1,575 Cu. ft.  
 Ten cu. ft. per ton.....157.5 tons.

Block A.

<u>Number</u>	<u>Width</u>	<u>Ag. Oz.</u>	<u>Cu. %</u>
34	4.3	.20	7.50
35	4.5	.20	6.40
36	7.0	Tr.	8.95

Length of block 30 feet  
 Width " " 5.2 "  
 Depth " " 60 " 9360 Cu. ft.

Ten cu. ft. per ton.....936 tons.

SUMMARY.

Surface.

<u>Amount, tons.</u>	<u>Location.</u>	<u>Ag. oz.</u>	<u>Cu. %</u>
1440 tons	Block E.	0.30	10.56
340 "	" F.	0.50	14.17
360 "	" G.	0.23	11.74
842 "	" H.	0.14	10.27
2982	Totals	0.30	11.35

Middle Level.

936 tons Block A, 0.11 Oz. 7.82%

Lower Level.

37½ tons	Block D,	1.20	8.63
720 "	" C,	0	9.59
157½ "	" B,	0.20	7.10
915 tons	Totals	0.08 Oz.	9.12%

THEMFORE, Surface ore, 2987 tons, cop. 11.35% Ag. .30 Oz  
 Underground ore, 1851 " " 8.46% " .09 "

COSTS AND PROFITS.

The value of the ore is based on a 13 ¢ copper market; silver at 48¢ per Oz.

Costs at Vidalgo, (mining, tramming, loading, etc.,)

\$ 3.50 per ton for surface ore, and  
 4.00 per ton for tunnel ore.

The freight rate to Tacoma is \$3.00 per ton, smelting rate is \$1.65 per ton. In addition the Smelter makes a deduction of 1.3% from the wet assay, and 3% off market quotation for refining charges.



Silver is paid on a 95% basis.

THEFORE, 1851 tons of tunnel ore of 8.46% cu. and .09 Oz. silver value,-

Copper 8.46	=	169.20 lbs @ 13¢	=	\$ 21.996
Less 1.3% smelter deduction, 26¢ @ 13¢	-			\$ 3.38
" Refinery charges on 143.20# @ 3¢	-			<u>4.296</u> 7.676
Amount received for copper per ton,				\$ 14.320
Silver, less 5%, @ 48¢				<u>** .038</u>
Amount received per ton for ore,				\$ 14.358

Costs.

At Pidalgo Bay (mining, tramming, etc.)	\$ 4.00	
Freight to Tacoma,	3.00	
Smelter charge,	<u>1.65</u>	8.650

Profit per ton, \$ 5.708

1,851 tons, equals, - - - - - \$ 10,565.50

2982 tons surface ore of 11.03% copper, .30 Oz silver value.

Copper value, 11.03,	-	220.60 lbs @ 13¢		\$ 28.678
Less 1.3%, smelter deduction, 26¢ @ 13¢	-			\$ 3.380
" Refinery charge on 194.60# @ 3¢	-			<u>5.838</u> 9.218
Amount received for copper,				\$ 19.46
Silver, less 5%, @ 48¢,				<u>.13</u>
Amount received per ton for ore,				\$ 19.59

COSTS.

At Pidalgo Bay (mining, tramming, etc.)	\$ 3.50	
Freight to Tacoma,	3.00	
Smelter charge,	<u>1.65</u>	8.15

Profit per ton, \$ 11.44

2,982 tons @ \$ 11.44 equals, - - - \$ 34,114.08

S U M M A R Y .

<u>Amount tons</u>	<u>Copper %</u>	<u>Silver Oz.</u>	<u>Net profit</u>
2,982	11.03	0.30	\$ 34,114.08
<u>1,851</u>	8.45	.09	<u>10,565.50</u>

GENERAL CONDITIONS.

The labor conditions on Prince William Sound are not the best; first class miners are scarce, wages are \$ 4.00 per shift of 8 hours, less \$1.00 per day for board.

The steamship tariff on rough lumber from Seattle is \$15.00 per M. Coal from British Columbia, freight rate \$6.72 per ton. Machinery from Seattle, \$11.00 per ton for piece under 2,000 lbs, from 2,000 lbs to 4,000 lbs, \$13.00 per ton. Native piling costs about 10¢ per foot (40 to 60 foot piling); creosoted piling, 48¢ per foot; cost of driving piling, about 10¢ per foot. Life of native piling (hemlock) 6 to 8 months; life of creosoted piling, six years. For present purposes, it would be cheaper to use native piling.

The present equipment on the property is of little or no value. A considerable sum will be required to put the property on a shipping basis. The immediate wants are a wharf, werial tramway, ore bins, boarding house, bunk house for about 20 to 25 men and shops. A location opposite the N. E. corner of the Porcupine claim affords an excellent site for a wharf. One hundred and twenty five feet from the shore, 35 feet of water can be obtained at low tide.

Length of required tramway is 2600 feet (approximately). This should be of a capacity of not less than 20 tons per ten hour shift. A tramway of this capacity costs about \$1.00 per foot f. o. b. Trenton, N. J. This includes all buckets, grips, cables, sheaves, etc. and weighs about 13½ pounds per foot.

2600 feet @ \$1.00 per foot.....	\$ 2,600.00 f.o.b. Trenton
2600 feet @ 13½¢ per foot = approx. 17½ tons.	
\$38.00 per ton for freight Trenton to Seattle.....	665.00
\$11.00 " " " " " Seattle-Fidalgo.....	<u>192.00</u>

Cost.....3,457.00

Timber for terminals and towers, approx. 15,000' @ 30¢ per M (erected)  
\$450. Installation \$500.00.

#### Recapitulation.

Tramway.....	\$ 2600.00
Freight to Seattle.....	665.00
" " Fidalgo.....	192.00
Timber.....	450.00
Installation.....	<u>500.00</u>

Total cost for tramway complete.. \$4407.00

About 75,000 feet of lumber for building purposes, first cost, freight and erection at Fidalgo, figured at \$40.00 per M.

#### SUMMARY OF EXPENSES.

Wharf.....	\$ 3500.00
Ore bins.....	2500.00

Buildings.....\$ 3000.00  
Tramway..... 4467.00  
Gen. equipment, tools, etc. 1000.00

Total.....\$14,407.00.

Respectfully,

Signed- Lewis A. Levensaler.

46-3

Midvale, Alaska, Nov. 1, 1915.

Piedro-Alaska Copper Co.,

Gentlemen:

I reached the property on the afternoon of the 26th of September and commenced working the following morning with a crew of four miners, a cook and myself. We first trammed our supplies up to the upper camp and as soon as we got camp established we started to work on the ore in the middle tunnel immediately over the raise from the lower tunnel.

As you know there was a chamber in the middle tunnel at this point 30' x 30' and between six and seven feet high. By the prospecting work done at this point last summer the roof of this chamber showed shipping ore over the greater portion of its area. For the purpose of convenient working and to give me room to put in a shoot, I mined from the roof of this chamber five feet, and when I stopped, the ore was fully as good and just as strong as when I started. I then started in a cross-cut 4' x 6' running in a northerly direction from the northwest corner of this chamber, intending to cross-cut to the big fault. This cross-cut has been extended 28 feet. The first five feet was good shipping ore, which is a continuation of the same shoot of ore disclosed in the chamber referred to and extending entirely across it, making it 35 feet wide at this point. For the next 20 feet in the cross-cut, we encountered more or less crushed and broken material with ore in it, and for the last three feet of this cross-cut we have good shipping ore, and the full breast of the cross-cut at this time is as good ore as any you have shipped. I estimate that it is 20 feet from the breast of this cross-cut to the fault, and intend extending the cross-cut through to the fault. This is the same fault which shows on the surface with the very rich ore immediately adjoining it and known as the west showing.

At the time I commenced driving the cross-cut last described, I also started a raise from the southerly side of the chamber heretofore described, following the ore on its incline up the hill. This raise has been in good shipping ore practically all the distance and is now extended 23 feet, with good shipping ore in the ~~end~~ face of the raise. At a distance of about 12 feet in this raise we encountered a slip that at first appeared to entirely cut off the ore, but by turning slightly to the right we picked the ore up again finding it just as strong as before and have continued on it since.

The easterly side of the chamber described is not the end of the ore in that direction, and I feel confident that the ore at this point leads to the east showing on the surface.

I roughly sorted the material mined and run out the pure waste on this level putting it over the dump, the rest I put down the raise; this will require some sorting before trammed to the lower bunker. There is now in the raise over two hundred tons of shipping ore. I have only drawn from the raise such ore as was necessary in tramping up supplies.

I have employed natives to get our fire wood at \$2.50 a cord piled in the wood shed and to get out such mining timbers as we will require. I find that native labor is the cheapest for this work.

I have not sampled any of the ground opened, in sections, ~~and~~ as I was informed Mr. Levensaler would be here by the end of November for that purpose. We have devoted all of our efforts to opening up the shoots of ore and by the end of November will have the cross-cut mentioned extended to the fault; also the raise on the ore will be extended thirty or thirty-five feet further. In addition to this I expect to have the shoot leading to the east ~~side~~ showing on the surface partly opened up. There will be a good body of ore in sight carrying shipping

values when Mr. Levensaler arrives, for him to measure and sample, and I am satisfied that his examination will prove very satisfactory to all concerned.

W. Harrington

Superintendent.