PE-068-02

TERRITORY OF ALASKA
DEPARTMENT OF MINES

PE 68-2

SUPPLEMENTARY REPORT ON THE K-M COPPER PROSPECT ON THE MACLAREN RIVER, MT. HAYES QUADRANGLE

K+68-4

by

Robert H. Saunders
Associate Mining Engineer

January 1957

The K-M copper prospect is described in U. S. Geological Survey Circular 332, THE KATHLEEN-MARGARET (K-M) COPPER PROSPECT ON THE UPPER MACLAREN RIVER, ALASKA, a report prepared jointly by the U. S. Geological Survey and the Territorial Department of Mines from information obtained during an examination of the prospect in August, 1953. In 1954, Alaska Copper Mines, Inc. acquired the prospect under a lease and option agreement. After two years of exploration, Alaska Copper Mines, Inc. released the property to the owners in 1956. Apparently the prospect was released because of business circumstances unrelated to the results of the exploratory work.

In the fall of 1956, the Maclaren River Copper Corporation was formed to acquire the K-M prospect and to continue or supplement the exploratory work done by Alaska Copper Mines, Inc. In November, 1956, I visited the prospect with Earl H. Beistline and Fred S. Pettyjohn, Jr, both members of the board of directors of the Maclaren River Copper Corporation. This report is written to provide up-to-date information for the Department of Mines files.

A camp has been built near the terminus of the glacier on the west side of the floodplain of the Maclaren River. An airstrip suitable for use by multi-engine aircraft has been built on the floodplain about one mile from the camp. There is a road from the airstrip to the camp and a pioneer road from the camp to the portal of the underground workings. The camp buildings include two 6-man bunkhouses, a mess-hall with a shower

and cook's quarters, and a large, uninsulated, frame building for use as a repair shop.

A shed at the portal to the underground workings houses a compressor, a work space for minor repairs, the mine track from the portal to the dump, and a storage space for miscellaneous underground equipment. The mining equipment on the property includes a compressor, a loader, a two-drill jumbo, and an air-powered diamond drill.

During the time that Alaska Copper Mines, Inc. controlled the property, about 800 feet of underground workings were driven, and about 1400 feet of exploratory drilling was done. The workings and drill holes are shown on Fig. 1. The assay results of drill hole samples taken by Alaska Copper Mines, Inc. are shown in Table I, and a description of the drill holes is given in WORK PROGRESS, ALASKA COPPER MINES, INC. 1955 WORKING SEASON.

During the examination in November, 1956, the geology exposed in the underground workings was sketched as shown on Fig. 1. Seven samples were taken; the locations from which the samples were taken are shown on Fig. 1, and the results of the assays are shown in Table II.

The vein material exposed in the end of the first cross-cut appears to be too low-grade to be minable. The vein material exposed near the mouth of the second cross-cut also appears to be too low-grade to be minable, however, it was reported that ore from this exposure was used for making a mill test and that

it contained about 3 per cent copper. The discovery outcrop and the holes drilled at the mouth of the first cross-cut indicate that there is an ore-shoot south of the first cross-cut that extends from the surface down to the diamond drill hole intersections about 70 feet below the adit.

The underground workings planned by the Maclaren River Copper Corporation are shown on Fig. 2 and in pencil lines on Fig. 1. A drift is to be turned off the first cross-cut to follow the vein southward 150 feet. A raise is to be driven from the drift to the surface through the place where percussion drill hole samples 3 and 4 were taken. A winze is to be sunk 120 feet through the place where diamond drill hole samples 10 and 11 were taken. Drifts are to be driven from the winze at the 50-ft level and at the 100-ft level; 150 feet of drifting is planned at each level. The proposed exploration program should determine whether or not there is an ore-shoot under the outcrop. If there is such an ore-shoot, further exploration probably will be necessary before mining and milling can begin.

TERRITORY OF ALASKA

DEPARTMENT OF MINES

COLLEGE, ALASKA

SAMPLES FROM LOCATIONS SHOWN ON MAP OF KATHLEEN-MARGARET (K-M) COPPER MINE

Sample Number	Per Cent Copper
1	7.35
2	3.5
3	6.20
4	4.62
5	2.20
6	6.44
7	3.67
8	5.08
9	2.44
10	6.81
11	4.17
12	7.7
13	2.20
14	4.74
15	2.06

TABLE I

DRILL HOLE SAMPLES

SAMPLES TAKEN IN NOVEMBER, 1956.

Sample No.	Length	Ounces per Ton		Per Cent
		Gold	Silver	Copper
52	10 ft	0.02	0.72	4.07
53	10	Tr	0.18	0.44
54	5	0.01	0.12	0.11
55	5	Tr	Tr	0.11
56	0.2	0.02	Nil	0.88
57	3.5	Tr	Tr	0.33
58	2	Nil	Nil	0.08

TABLE II

WORK PROGRESS ALASKA COPPER MINES, INC.
1955 WORKING SEASON
June 1 - - - October 15, 1955

LONGHOLE PERCUSSION DRILLING

Sta. No. 2 (1st Crosscut)

Hole No. 1. Bearing S 55° E plus 18° drilled 88'.

Hole No. 2. Bearing S 43° E plus 18° drilled 64'.

Hole No. 3. Bearing S 35° E plus 11° drilled 76'.

Hole No. 4. Bearing S 25° E plus 15° drilled 75'.

Hole No. 5. Bearing S 22° E plus 13° drilled 70'.

Good copper minerals (bornite and chalcopyrite) in quartz vein 8' to 14' thick noted in holes Nos. 1, 2, and 3. Fair copper content found in wall rock 10' to 15' from west contact with quartz. Holes 4 and 5 are in ground too badly broken to allow further progress. These holes were abandoned prior to crosscutting vein extension.

Sta. No. 3 (2nd Crosscut)

Eastwall Hole No. 1. Bearing N 89° E plus 11° drilled 24'.

Eastwall Hole No. 2. Bearing S 56° E plus 12° drilled 56'.

Eastwall Hole No. 3. Bearing S 29° E plus 29° drilled 48'.

Roof Hole No. 1. Bearing N 49° W plus 42° drilled 40'.

Roof Hole No. 2. Bearing N 75° W plus 42° drilled 48'.

Westwall Hole No. 1. Bearing N 83° W plus 12° drilled 16'.

Westwall Hole No. 2. Bearing S 80° W plus 13° drilled 48'.

No. 2 Crosscut Hole (At face)
Bearing N 75° E plus 20° drilled 88'.

Good copper minerals (bornite, chalcopyrite, and chalcocite) in quartz vein which appears badly shattered due to faulting noted in E holes Nos. 2 and 3. No mineral in hole No. 1 which must have been started too far north to crosscut vein. Good copper mineralization noted in both roof holes. No copper mineral found in west side holes. The character of the main vein changes at this point on its strike. Where

the vein held to a solid 10' to 15' of thickness at crosscut points south of Station No. 3, it now appears split into several smaller veins separated by narrow bands of altered greenstone. An east-west fault exposed by the westwall hole No. 1 may be the cause of this change in character.

TOTAL LONGHOLE PERCUSSION DRILLING 731 Feet.

DIAMOND DRILL PROGRESS

Sta. No. 2 (1st Crosscut)

Hole No. 1. Bearing S 50° E minus 45° drilled 118'.

Hole No. 2. Bearing S 36° E minus 45° drilled 130'.

Good copper minerals (chalcopyrite, some bornite) crosscut at a point approximately 70' below drift level. Also a definite change in wallrock on east side of vein noted by core study. The predominance of chalcopyrite over bornite and the change of wallrock from greenstone to a dolomite alteration product are the major changes noted by this deeper drilling. Vein and mineralized west wallrock are approximately the same as that crosscut in flat drill holes above.

Hole No. 3 at Sta No. 4 Bearing S 75° E minus3° drilled 83'.

Hole No. 4. 20' N of Sta. No. 5
Bearing S 75° E minus 4° drilled 33'.

Hole No. 5. 22' N of Sta. No. 5
Bearing N 25° W plus 5° drilled 31'.

Hole No. 6. at Sta. No. 4 Bearing W plus 5° drilled 184'.

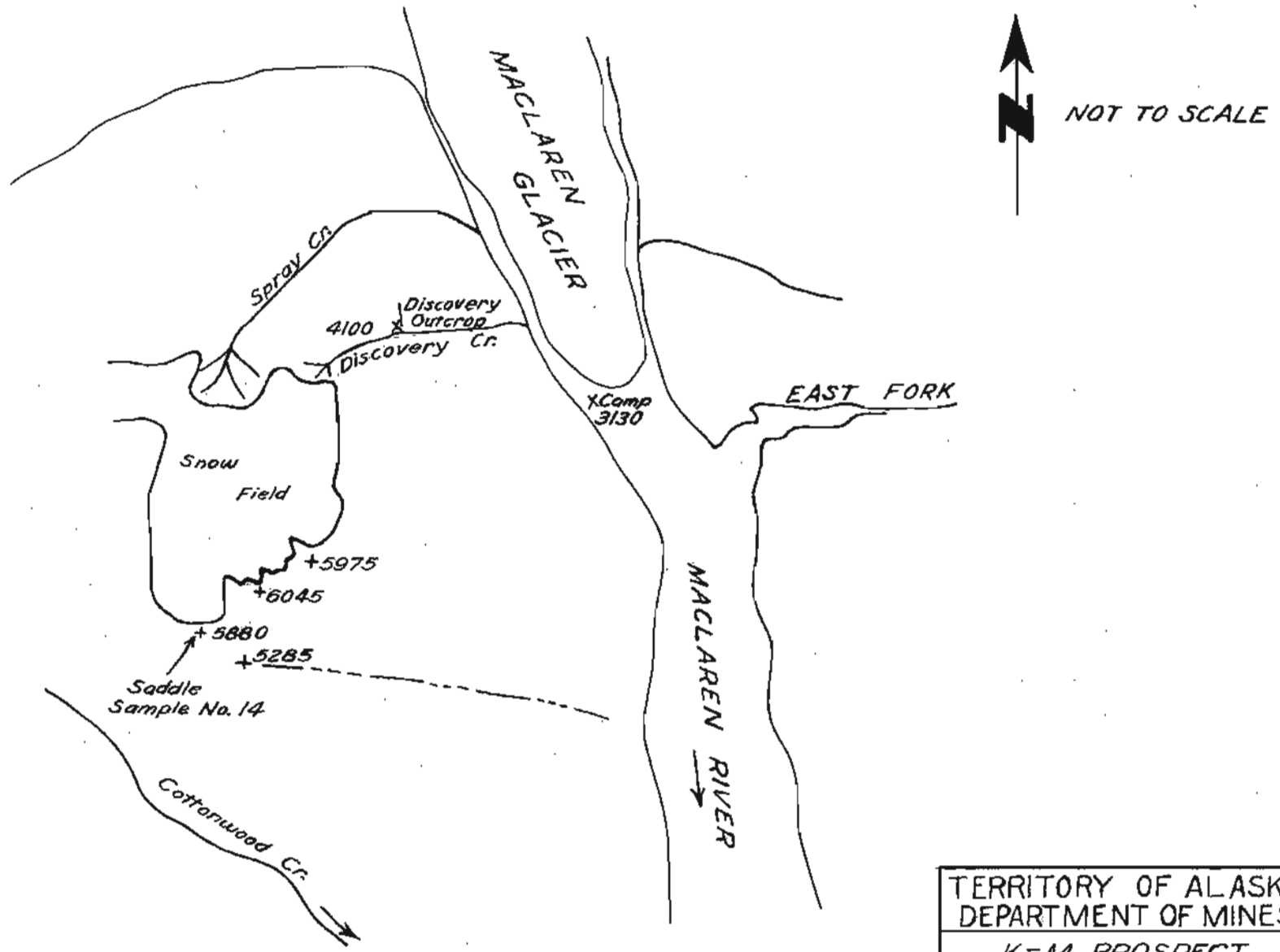
Hole No. 7. at Sta. No. 4 Bearing N 80° E minus 45°
drilled 76'.

Hole No. 8. 20' N of Sta. No. 5
Bearing N 85° E minus 45° drilled 21'.

No copper minerals of commercial value found in holes Nos. 3, 4, 5, or 6. Good showing in hole No. 7 at 39' - 42', poor 42' - 46', and fair 46' to 53'. Most value was in form of bornite in altered dolomite in the 46' to 53' area. Hole No. 8 was not completed, however, the indications so far are good and drilling should continue from this point next season.

TOTAL DIAMOND DRILLING 676 Feet.

Core recovery was considered poor due mainly to fractured rock and ground water. However, sludge was recovered and used when necessary for assay and study. The results of this drilling prove a good body of ore in the area drilled with the exception of the flat holes drilled north of Sta. No. 3. The Diamond Drill holes Nos. 3, 4, and longhole No. 2 - face of No.2 Crosscut, although barren, were important in establishing the position of the main vein north of the faulted area at Sta. No. 3. These holes also confirm the fact suspected last season by crosscut No. 3, that the drift penetrated a barren horizon in the quartz vein starting a few feet north of Sta. No. 3. With down hole No. 7 at Sta. No. 4 (and possibly No. 8), ore has developed below the drift elevation and with surface open cuts Nos. 2, 3, and 5, ore was found above the drift elevation. An ore body approximately 10' thick averaging 6 per cent copper has been blocked out by drilling at Sta. No. 2.



Elevations by aneroid barometer.

TERRITORY OF ALASKA
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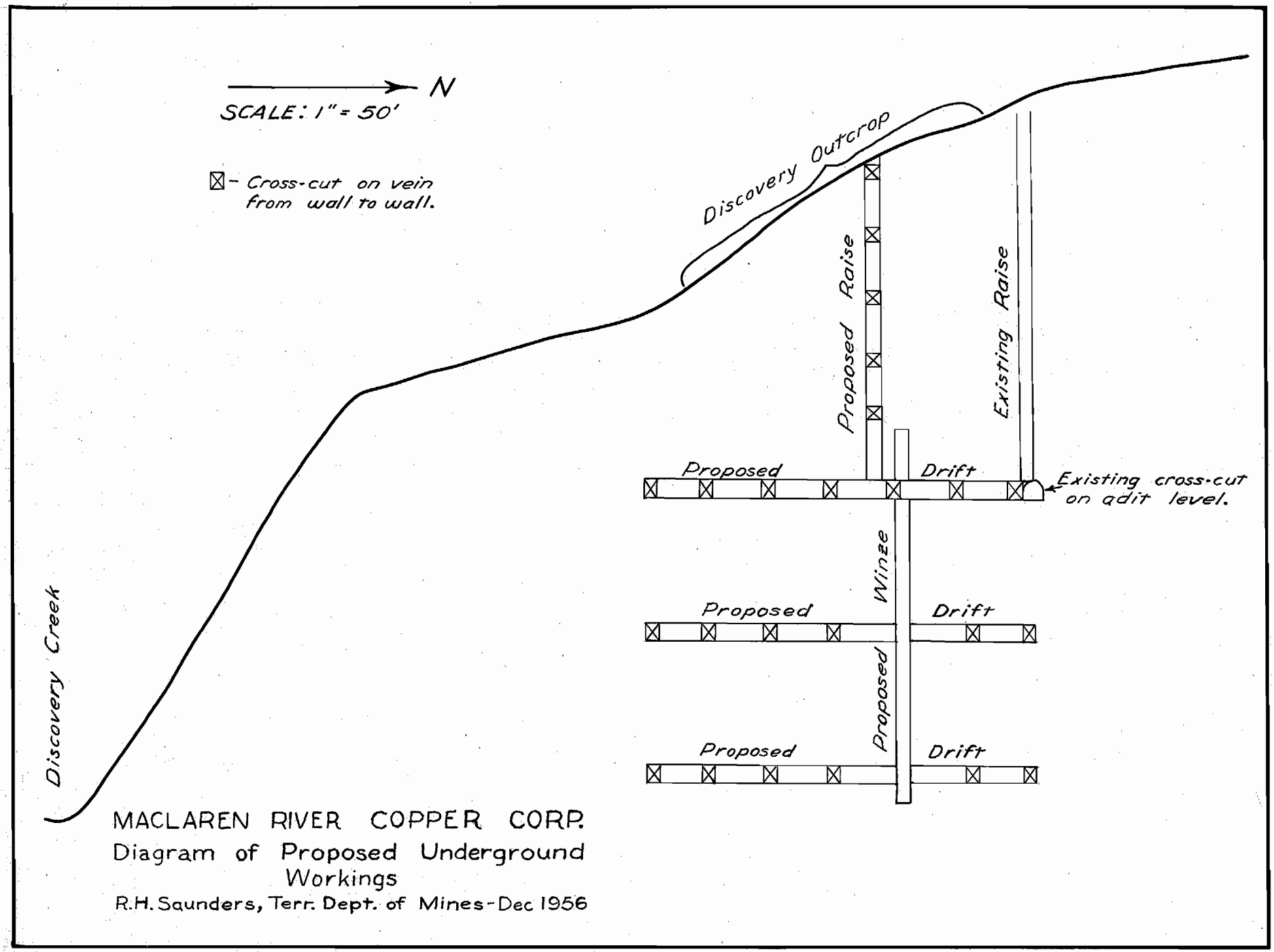
K-M PROSPECT AND VICINITY

Traced from aerial photo.

R.H. Saunders Feb. 1958

Fig. I



MACLAREN RIVER COPPER CORP.
Diagram of Proposed Underground Workings
R.H. Saunders, Terr. Dept. of Mines - Dec 1956

Fig II

STATEMENT OF DEVELOPMENT COSTS

For the Year Ended October 31, 1957

Wages and salaries	$19 720.05
Mining contract costs	14 719.29
Equipment rental	8 000.00
Mining supplies purchased	7 354.05
Travel expense	4 604.77
Freight	2 500.00
Insurance	1 530.31
Commissary supplies purchased, net of employees' payments	1 501.07
Automotive expense	1 274.75
Maintenance and repairs	1 238.56
Expediting expense	1 000.00
Printing expense	1 000.00
Taxes and licenses	825.38
Professional services	621.68
Road building expense	600.00
Office and miscellaneous expense	1 387.40
Operating expense	67 877.31
Depreciation provision	5 597.74
Total expense	73 475.05
Less estimated market value of ore produced	48 000.00
Development cost for year	$25 475.05

PREPARED WITHOUT AUDIT

HAGELBARGER & CO.
CERTIFIED PUBLIC ACCOUNTANTS
MEMBERS, AMERICAN INSTITUTE OF ACCOUNTANTS

PAUL R. HAGELBARGER, C.P.A.
PEARL A. SCHERER, C.P.A.

208 NERLAND BLDG.
FAIRBANKS, ALASKA
PHONE 2010

November 29, 1957

Mr. F. S. Pettyjohn, President
MacLaren River Copper Corporation
Fairbanks, Alaska

Dear Mr. Pettyjohn:

The annexed balance sheet as at October 31, 1957, and the statement of development costs for the year then ended, were prepared by us from the records of the MacLaren River Copper Corporation after making such adjustments as were apparently necessary.

We posted the general ledger from the subsidiary records maintained by your office, but made no attempt to independently verify any of the items so entered with the exception of reconciling the cash receipts and disbursements with the bank statements.

Because of the limited nature of our engagement we did not apply customary auditing procedures and, therefore, we are unable to express an opinion of the financial statements as a whole.

Yours very truly,

Hagelbarger & Co.

PAS:djw

MACLAREN RIVER COPPER CORPORATION

BALANCE SHEET, October 31, 1957

A S S E T S :

Current:		
Cash on hand and in banks		$765.41
Account receivable, Alaska Freight Lines		12 298.00
Prepaid expenses		2 734.72
Inventory of copper ore, at estimated market value, partially pledged contra		48 000.00
Supplies inventories:		
Mining supplies	$11 750.00	
Commissary supplies	3 600.00	
		15 350.00
Total current assets		79 148.13
Mining properties, buildings and equipment, at par value of stock issued therefor, with subsequent additions at cost, partially pledged as security on note payable	$195 938.14	
Less depreciation reserve	5 597.74	
	190 340.40	
Development costs, statement annexed	25 475.05	
		215 815.45
Deposits and organization expense		616.14
		$295 579.72

LIABILITIES:

Current:	
Accounts payable, trade	$13 073.20
Account payable, Alaska Freight Lines, secured by a portion of equipment	18 000.00
Account payable, Burgess Construction Co.	8 411.67
Accrued taxes and withholdings	1 201.64
Accrued wages payable	1 950.00
Account payable, officer	1 959.92
Accrued liabilities on contracts	2 974.29
Total current liabilities	47 570.72
Long-term obligation to Defense Minerals Exploration Administration, payable by 5% of smelter returns for seven years	27 000.00

CAPITAL:

Capital stock: Authorized 1,000,000 shares, $1.00 par value per share, issued and outstanding 221,009 shares	221 009.00
	$295 579.72

PREPARED WITHOUT AUDIT

Mr. F. S. Pettyjohn, Jr.
President
MacLaren River Copper Corporation
Box 981
Anchorage, Alaska

Re: K-M Copper Mine
MacLaren River, Alaska

Dear Mr. Pettyjohn:

The following is a report of sampling and assaying recently completed by the undersigned at the K-M Copper Mine, which includes a report of Diamond Drill Hole No. 17 and the results of that drilling.

First

The ore sampled was the main ore body exposed by the exploration drift driven by the MacLaren River Copper Corporation. The ore body extends south from the intersecting crosscut fifty seven feet to a fault where the vein disappears. Eleven channel samples were taken at regular five foot intervals beginning at the intersecting crosscut and continuing south fifty feet toward the fault. The vein was inaccessable for the seven feet adjacent to the fault because of timber. The sample locations are as shown on my map of the K-M Copper Mine. The sample and assay data for these samples is as follows:

Sample No.	Sample Widths	Copper %	Gold oz/ton	Silver oz/ton
OS-1	8.0'	1.21	0.01	0.19
OS-2	8.0'	0.72	Tr.	0.08
OS-3	8.4'	0.58	Tr.	0.10
OS-4	7.0'	0.86	Nil	0.10
OS-5	7.6'	2.19	0.01	0.34
OS-6	7.0'	0.63	0.01	0.08
OS-7	7.0'	2.53	Tr.	0.28
OS-8	8.6'	3.88	0.02	0.40
OS-9	8.0'	7.19	0.04	0.40
OS-10	9.6'	4.09	0.27	0.50
OS-11	10.5'	4.46	0.16	0.44

Averaging the samples shows the ore body to be 8.2 feet wide and to contain 2.71 per cent copper, 0.06 oz/ton gold, and 0.28 oz/ton silver. The increasing values toward the fault shows a shoot of high grade ore. Eliminating 20 feet of low grade, samples OS-1 through OS-4, gives a 37 foot oreshoot averaging 8.3 feet wide and containing 3.70 per cent copper, 0.08 oz/ton gold, and 0.36 oz/ton silver. Again, eliminating 10 feet more of low grade, samples OS-5 and OS-6, give a 27 foot oreshoot averaging 8.7 feet wide and containing 4.46 per cent copper, 0.11 oz/ton gold, and 0.41 oz/ton silver. Assuming a 4 per cent breaking point, the sampling shows about a 30 foot shoot of mineable ore.

In addition to the eleven channel samples taken from the main ore body, I took three other samples. The locations of these samples are shown on my map of the K-M Copper Mine, and the assay results are as follows:

Sample No.	Copper %	Gold oz/ton	Silver oz/ton
OS-12	0.52	0.18	Tr.
OS-13	0.14	Tr.	0.10
OS-14	0.43	Tr.	0.60

Second

Diamond Drill Hole No. 17, azimuth 103° and inclination -60°, reached a length of 252 feet in early December after passing completely through the vein, thus completing the hole. Because this hole is the first long diamond drill hole drilled by the company, the hole was cored for its entire length to learn the exact character of the country rock and to assure the presence of only one vein. The drill hole traversed country rock from 0' to 173' passing through large fault from 132' to 142'. At 173' the hole entered the copper bearing quartz vein, continuing in vein material to 200'; from 200' to 211' the drill was in country rock; vein material from 211' to 213'; country rock from 213' to 217'; vein material from 217' to 219'; and country rock from 219' to 252'.

The geometrical aspects of the vein and fault in the drift, the vein and fault intersected by the drill hole, and the drill hole itself, lead me to believe that the vein intersected by the drill is the continuation, beyond the fault, of the vein exposed in the drift.

The cores from this hole show some geological information which may be of interest. The country rock drilled is a composite of slate, sandstone, and limestone sediments.

Comparing these cores with the rock types mapped by Moffit (1912, Plate II) indicates the K-M Copper Mine is located in a band of east-west trending slate, sandstone, and limestone sediments which are bounded on the north by quartz diorite intrusives and on the south by amygdaloidal diabasic and basaltic lava flows. The quartz diorite of intrusions of the MacLaren can be correlated with the quartz diorite intrusions of the Talkeetna Mountains and part of the Alaska Range - Moffit (1912, page 35) and Moffit (1954, pages 173-175). According to Moffit (1954, page 189) the intrusion of vast quantities of igneous rock during the late Mesazoic was accompanied by the ore deposition. The gold deposits of the Nabesna Mine and the copper-molybdenum deposits of the Orange Hill Mine are contact-metamorphic deposits formed where the quartz-diorite contacts limestone, Moffit (1954, page 189). Moffit (1912, page 55) states the source of the gold in Valdez Creek to be weathered quartz diorite.

Moffit (1912, pages 29-38) correlates the lava flows of the MacLaren River Region with the Nikolai Greenstone of the Chitina Valley. The source of the copper of the Nizina District (the Kennecott deposits) is believed to be the Nikolai Greenstone, Miller (1946, page 98). According to Miller (1946, page 100), no ore was found in the greenstone, but

hot meteoric water leached the copper out of the greenstone to form large rich replacement deposits in limestone. Comparing the K-M Copper Mine with other mines of eastern Alaska, it can be easily seen that with the mine located in a zone of sediments containing limestone and having a quartz diorite-limestone contact to the north and a Nikolai greenstone limestone contact to the south, the geology is definitely favorable for a large high grade copper-gold deposit.

The cores and sludges from Diamond Drill Hole No. 17, representing the vein and country rock immediately adjacent to each side of the vein only were assayed. For the assay, the cores were taken in five-foot lengths to determine the distribution of the copper minerals and gold within the vein. The assays follows:

Sample Depth	Core or Sludge	Material	Copper %	Gold oz/ton	Silver oz/ton
157'-169'	Core	Country Rock	Tr.	Nil	Nil
173'-178'	Core	Vein	5.30	0.17	Tr.
178'-183'	Core	Vein	10.14	0.04	0.58
183'-188'	Core	Vein	2.10	0.05	Nil
188'-193'	Core	Vein	1.70	Nil	Nil
193'-198'	Core	Vein	2.18	Nil	Nil
198'-200'	Core	Vein	Nil	Nil	Nil
211'-213'	Core	Vein	0.07	Tr.	Nil
217'-219'	Core	Vein	1.21	0.02	Nil
225'-228'	Core	Country Rock	1.24	Nil	Nil
228'-252'	Core	Country Rock	Nil	Nil	Nil
169'-173'	Sludge	Country Rock	2.13	0.02	Nil
173'-198'	Sludge	Vein	4.81	0.04	Tr.
198'-202'	Sludge	Country Rock	1.01	Tr.	Nil

The recovered cores show that the drill hole passed through vein material for 46 feet. Since the inclination of the hole was -60°, the vein vertical, and the drill hole intersected the vein at about right angles, the actual horizontal distance represented by the 46 feet is about 23 feet of vein width. From 213 feet to 217 feet, and from 219 feet to 225 feet, is not vein material, but country rock. The two quartz stringers, 211 feet to 213 feet and 217 feet to 219 feet, are too low grade to be considered ore. The vein of actual mineable ore extends from 173 feet to 198 feet in the drill hole, or a vein width of 12.5 feet. The barren quartz, 198 feet to 200 feet, would not be mined.

The average core assay for the vein represented from 173 feet to 198 feet is 4.28 per cent copper and $1.92 per ton gold and silver. The average sludge assay for the same section is 4.81 per cent copper, and $1.40 per ton gold and silver. Combining the core and sludge gives an average assay for the hole of 4.62 per cent copper and $1.59 per ton gold and silver.

The completion of Diamond Drill Hole No. 17 now makes possible the profile of the vein shown on my diagram of ore body. The indicated ore body averages 10.3 feet wide, and contains approximately 27,000 tons of ore, assaying 4.5 per cent copper and $1.97 per ton gold and silver. Estimated costs show that it should be possible, using a 60-ton per day mill, to mine this 27,000 tons of ore and realize a profit. The 27,000 tons of ore represent ore reserves for only 18 months operation of the mill, but during that time exploration should outline more ore reserves. The mill, once installed on the property, should be able to operate for many years or until exploration justifies a larger mill.

Sampling and assaying shows the copper minerals, gold and silver, to be consistently concentrated in the west portion of the vein. The west 5 feet of vein averages 7.72 per cent copper, and $3.93 per ton gold and silver, whereas the east 5 feet of vein averages 2.03 per cent copper, and $1.75 per ton gold and silver. Should mining costs be higher than presently estimated, the west five feet of vein could be mined, leaving the east 5 feet, and the mill still be operated at a profit. The ore reserves would then be approximately 15,000 tons, rather than the above stated 27,000 tons. This 15,000 tons would supply the mill for nine months. Again, exploration during the nine months of mill operation should outline ore to keep the mill operating for many years, or until ore reserves justify a larger mill.

I am continuing the diamond drill program and to date Diamond Drill Hole No. 18 has reached 100 feet.

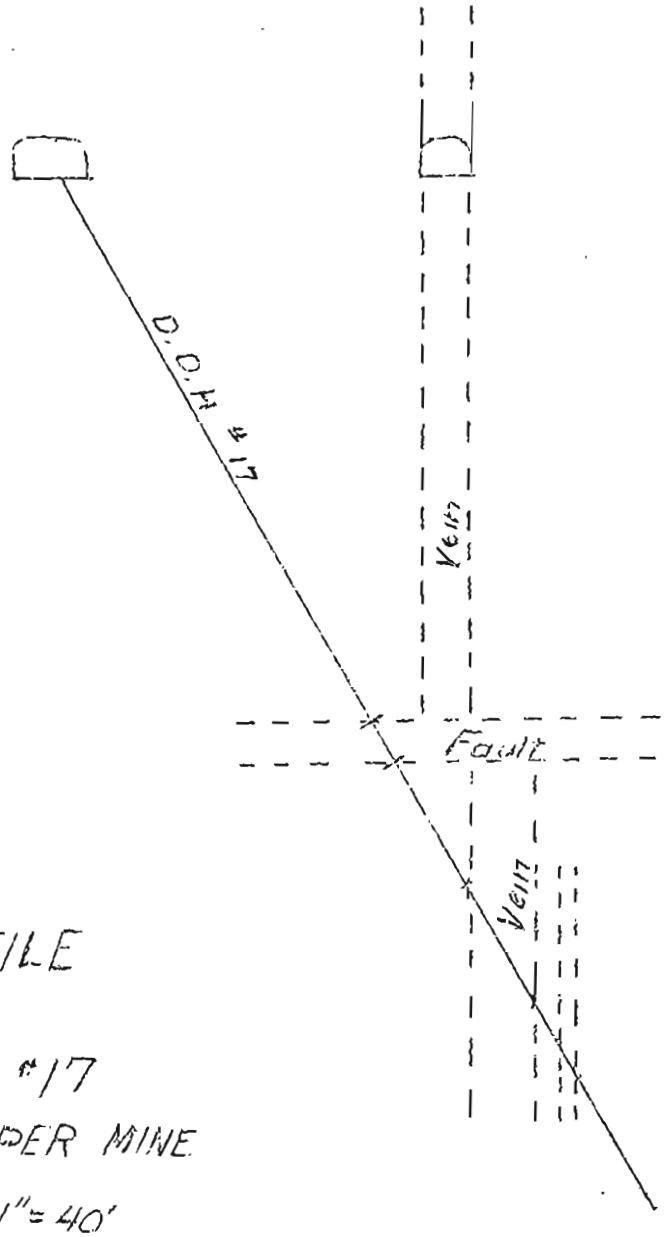
Very truly yours,

MACLAREN RIVER COPPER CORPORATION

E. Fairbanks

E. Fairbanks
Corporation Engineer

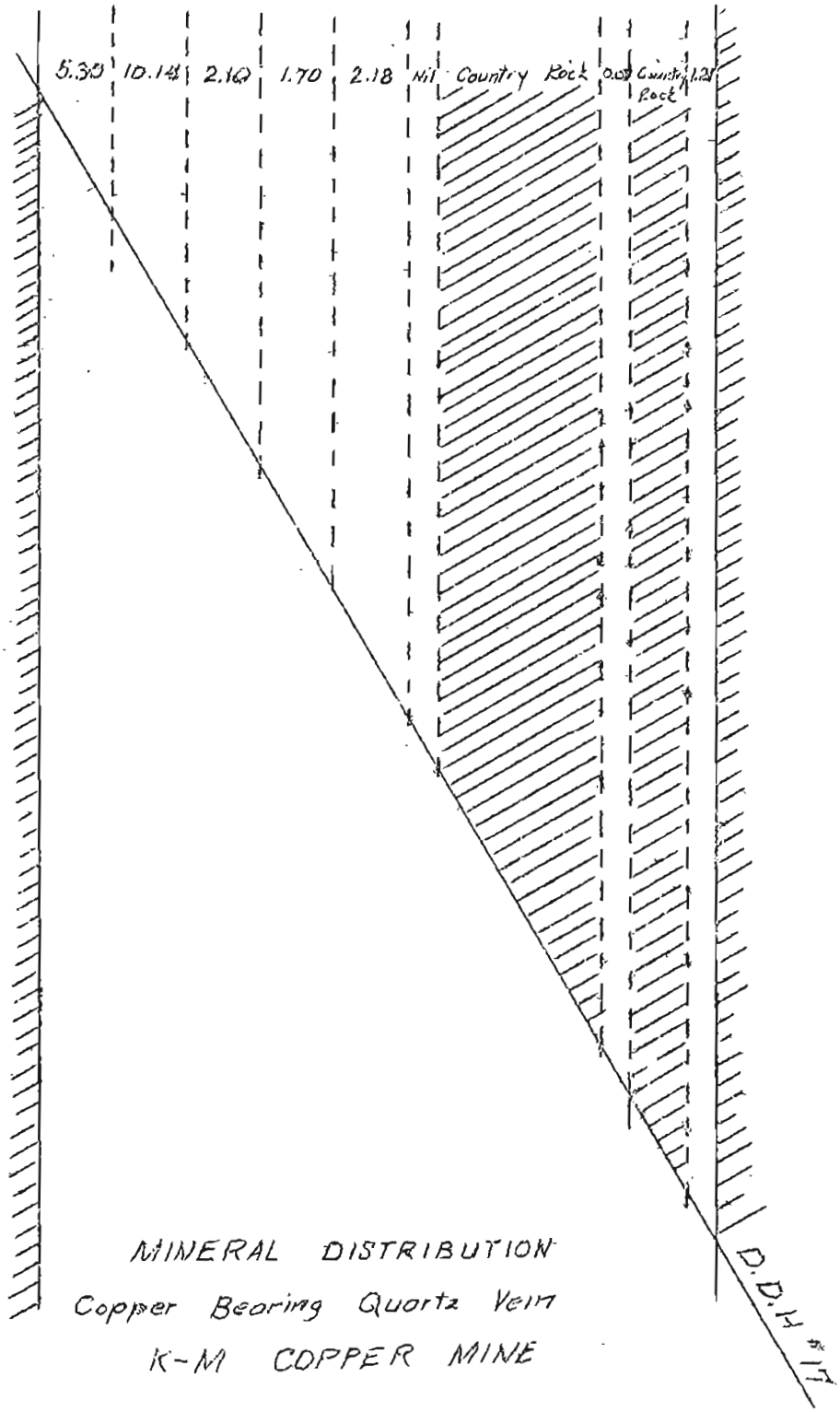
Date: February 14, 1958



PROFILE
OF
D.D.H #17
K-M COPPER MINE

Scale: 1" = 40'

W ← → E



MINERAL DISTRIBUTION

Copper Bearing Quartz Vein

K-M COPPER MINE

Copper Values shown in per-cent of Copper

Scale: 1" = 60'

W ←——→ E

MACLAREN RIVER COPPER CORPORATION
Box 1282
Fairbanks, Alaska

December 12, 1957

To the Stockholder:

Attached is a report by Mr. E. Fairbanks, our Mining Engineer, pertaining to a recovery method commonly referred to as "scalping". It is a very simple method of recovering a hi-grade concentrate from mine-run ore, and is often used on small hi-grade deposits.

The mine-run ore, with no crushing whatsoever, is screened to remove all oversize pieces, and is then run through a "Jig" which, through a water pulsating movement, settles or concentrates the ore by gravity, in layers of different weights and draws off the heaviest layers (hi-grade) through one or two openings, and the lighter materials (low-grade) through another opening - thus separating the heavy mineral from the much lighter material. The attached report gives the detailed information and conclusions reached by Mr. Fairbanks.

Commencing with our second year of operations, we hope to keep all stockholders as fully informed as possible of our work - not by a Quarterly or Semi-annual report, but as new developments occur. This letter and report are in line with this overall policy.

The minutes of the First Annual Stockholders meeting were wire recorded and are now being transcribed. Copies will be forwarded to all stockholders in the very near future.

Mr. Adler Tatro has been employed as Mine Manager of the K-M Copper Mine and is now in complete charge of the operations. His many years of experience fully qualify him for this key position.

Mr. Frederick M. Wells, with a mining and business administration background, has been employed as Office Manager, and will also expedite for the mine.

Our Mining Engineer, Mr. E. Fairbanks, is a graduate of our Alaska School of Mines, with several seasons of field experience with Goodnews Bay Mining Company, and has a very solid mining background.

Our program of drifting and stockpiling of ore was completed in the middle of November, and we are now diamond drilling both shifts, as we must complete our drilling program before commencing our new adit, which will put us into our first production phase.

The ore shoot on which we were drifting is better than was anticipated, and Mr. Fairbanks is now on the K-M property making a complete new report with a new sampling and assaying program.

As we go into our second year, our program has already doubled; our crew has greatly increased; an office is being set up; and we will be in production by Spring, as scheduled. Our estimate of returns will be based on Mr. Fairbanks' sampling, assaying, and laboratory work, whereas previously all estimates were based on four separate reports.

An estimate from our own samples indicates that the original figure of a 6 per cent copper ore was very conservative, as sections of the exposed ore shoot run as high as 10 per cent.

The good news which we have all been anticipating will take some time to be confirmed, but a quick look shows that the first diamond drill hole reached copper mineral at 115 feet of drilling.

At 130 feet of drilling, the vein was contacted at a point 150 feet directly under the drift from which we stockpiled. As our vein is vertical, we drilled from a point 50 feet off to one side and at a downward angle so we would recover a core of ore across the vein. As stated, the vein was contacted after drilling 130 feet. We have drilled, as of this date, to 220 feet, and are still not only in ore, but in hi-grade ore, and are still in the vein.

This 90 feet of drilling has been in one continuous ore body, and even with the downward angle shows that the vein is at least 30 feet wide already.

Since cores are very difficult to recover, any true sample is not possible, but from the sludges (ore ground up by the drill and washed up out of the hole by water pressure) and from the cores which have been recovered, indications are that another increase in copper at that depth is possibly as high as 8 per cent.

If the balance of the diamond drilling continues to be as difficult as this, no average percentage of copper can be determined, but this first hole alone shows that the vein not only is richer at depth, but is also a great deal larger than we had even hoped for. It may be much too soon to even speculate on, as this is one hole which could merely have intersected a large spot; or, as is possible but hardly probable, the vein could have dipped (turned), and we might be drilling parallel in the vein.

Machinery, oil storage tanks, building materials for the mill, mining supplies, additional equipment, fuel, etc. amounting to 8 semi-truck loads, are under way today into the mine, and the new adit site, new mill building, and new tipple house are all off the drawing board and now under way.

The new Board of Directors, as voted by the stockholders at the First Annual Meeting, consists of the following:

F. S. Pettyjohn, Jr. - President and Chairman of the Board

E. O. Albertson - Vice President

Thomas E. Hyke - Vice President

In summary, the outlook is brighter than ever; the ore on which we formerly based our estimates is better than was anticipated, and a full-scale sampling program will be carried out next summer on an additional showing of copper which has been traced for 17,000 feet.

Production should commence this Spring, as planned.

Very truly yours,

MACLAREN RIVER COPPER CORPORATION

F. S. Pettyjohn, Jr.

President and Chairman of the Board

Encl.

College, Alaska

December 9, 1957

Mr. F. S. Pettyjohn, Jr.
MacLaren River Copper Corporation
Box 1292
Fairbanks, Alaska

Dear Mr. Pettyjohn:

Pursuant to your request, I have conducted Jig tests on eight samples received from you, and submit herewith the following report of the results of those tests.

Respectfully,

Ervon E. Fairbanks
Mining Engineer

Enclosure

Sample Identification and Description

Tests were conducted on each of eight samples. Two of the samples were received with no identifying markings. For test purposes, the numbers X-1 and X-2 respectively were assigned to these two samples. The other six samples were marked as follows:

Sample No. 1 - November 9
38" @ 45°

Sample No. 2 - November 9
31" @ 45°

Sample No. 3 - November 9
36" @ 45°

Sample No. 1 - November 17
Fault
38" @ 45°

Sample No. 2 - November 17
Fault
72" @ 52°

Sample No. 3 - November 17
Fault
61"

The head ore assay of the above identified samples is as follows:

Sample X-1	12.95 per cent copper 0.18 ozs. per ton gold 1.44 ozs. per ton silver
Sample X-2	6.98 per cent copper 0.02 ozs. per ton gold 0.48 ozs. per ton silver
Sample No. 1 Nov. 9	7.63 per cent copper 0.06 ozs. per ton gold 0.96 ozs. per ton silver
Sample No. 2 Nov. 9	2.67 per cent copper 0.06 ozs. per ton gold 0.64 ozs. per ton silver
Sample No. 3 Nov. 9	5.46 per cent copper 0.06 ozs. per ton gold 1.18 ozs. per ton silver

Sample No. 1 Nov. 17	1.52 per cent copper 0.02 ozs. per ton gold 0.18 ozs. per ton silver
Sample No. 2 Nov. 17 (See Sample No. 3 below)	2.16 per cent copper 0.18 ozs. per ton gold 0.48 ozs. per ton silver

Object of Tests

The object of the tests was to investigate jig treatment of the samples, without crushing, grinding, or chemical treatment of the ore, to produce a copper-gold concentrate and the percentage of total copper recovered in that concentrate.

Treatment of Samples

Samples X-1 and X-2 were dried, coned, and quartered. One quarter of each sample was screened, using 1/4 inch screen. One quarter was screened, using 1/2 inch screen. The remaining six samples were dried, coned, and halved. Half of each of these six samples was screened, using 1/4 inch screen. A portion of each of the eight samples was taken for head ore assay. The unused half of each of the eight samples was stored for future tests.

The oversize material which passed over the screen was discarded. The undersize material which passed through the screen was treated, using a 4" x 6" Denver Mineral Jig. A copper-gold concentrate and a tailing for each sample and each concentrate and tailing product was assayed.

Results of Tests

Portions of samples X-1 and X-2 were screened to 1/4 inch and 1/2 inch to determine the effect of size of jig feed on recovery. The results of the tests on these two samples as shown on the following data sheets indicates that higher recoveries were effected as a result of the screening to 1/4 inch. For this reason, the remaining six samples were screened to 1/4 inch only.

The results of each individual test will not be discussed, as those results are shown on the data sheets. It will only be said that combining the results of the tests that the concentrate which represented 5.26% of the original weight contained 30.53% of the copper, 6.96% of the gold, and 29.43% of the silver from the original samples and had an average assay of 46.17% copper, 0.19 ounces per ton gold, and 5.31% ounces per ton silver.

Sample No. 3 Nov. 17	6.23 per cent copper 0.34 ozs. per ton gold 1.08 ozs. per ton silver

Conclusion

The results of the tests show that a jig alone could produce a high grade copper-gold concentrate from the samples submitted and at the same time effect good recovery. It is the author's understanding that the tested samples were not mine run ore but channel samples. The results of the tests would not apply for mine run ore unless the mineral were freed to the same extent as the mineral in the samples tested. Since good results were obtained in these tests, similar tests should be made using mine run ore.

* * * * * *

MACLAREN RIVER COPPER CORPORATION

1016 Polaris
Fairbanks, Alaska

October 15, 1957

Enclosed you will find a Brochure which we are mailing to each of our stockholders in Alaska. We hope you will study this literature thoroughly and join our Corporation through a purchase of stock; then pass this information on to your friends.

If you purchase stock, immediately upon receipt of your check either through the mail or by one of the corporation representatives, you will receive a duplicate of this Brochure, plus a receipt and letter of acknowledgment. Your sotck certificates will follow at the earliest possible date.

First in this Brochure is a copy of a letter to one of our present stockholders, followed by a Prospectus containing a brief history of our corporation and its objectives.

Following the Prospectus is a letter to the stockholders which we include to show you the aims and ambitions of our group. If you should decide to join our company, we hope you will give the Articles of Incorporation and the By-Laws a very close study, so that when you attend the first Annual Stockholders' meeting on December 1st, you will be able to assist in the passing of additional By-laws which will govern the corporation.

A glance at the List of Stockholders will show you that no one person, or group of persons, controls this corporation, and it is our intention that this situation will remain as it is.

This corporation was formed without the aid of a promoter, and no stock has been issued for promotion purposes, good will, or below the par value figure of $1.00. We conform strictly to all Security Exchange Commission rulings, and if at some time in the future it should become necessary to sell additional shares, they can be placed on the market outside.

You will note that we do have a limited number of outside stockholders, but this present offering of 100,000 shares (at the par value of $1.00) is being made only to persons residing in Alaska.

An inventory of equipment owned by the corporation ($18,000 is due the Alaska Freight Lines as the final payment on this equipment) is included, and we wish to emphasize that the corporation owns all of the ground outright, with no liens or encumbrances. We also own the 5,400 foot commercial airport, the camp site, the mill site, and have absolute control of all water in the creek which will supply our hydo-electric power for our large mill.

We are now Diamond Core Drilling and Drifting on an ore shoot to finish blocking out (a method of exploration to determine tonnage and minaral percentage) on an ore body of sufficient tonnage to operate a 50-ton mill, 24 hours a day, for two years.

The United States Government shares the cost of this exploration work by a Defense Exploration Contract under the U.S. Department of the Interior, Defense Minerals Exploration Administration, Washington 25, D.C.

The cost of the program is estimated by stages; the first stage consisting of Diamond Drilling, the second stage of Drifting, and the third stage of raise and levels, and is shared equally by the Government and the Operator. In our case, of course, the Operator is also the owner.

Our contract calls for a fifty-fifty share of the overall cost, but instead of each paying 50 per cent of the monthly bills, we estimated all labor, equipment, fuel, powder, groceries, freighting, etc. by the footage of work performed, i.e. Diamond Drilling @ $12.00 per foot, Drifting on one level @ $48.00 per foot, Drifting on the No. 5 level @ $68.00 per foot, etc. Thus the Government at the end of each calendar month sends a representative to the property to measure the footage accomplished and to see that the work is according to specifications. As soon as his report is filed, we are reimbursed for the Government's share of the work performed during that month. For example, in Diamond drilling, with 600 feet completed @ $12.00 per foot, the Government's share @ $6.00 per foot amounts to $3,600.00.

The money is loaned against production of the mine, carries no interest, is repaid by a percentage of the smelter returns not to exceed 5%, and is cancelled at the end of 10 years if not repaid.

This particular type of loan can and often does continue for years, even after production has commenced, since in some cases the small mill is used to pay the company's share of a very large program to develop tonnage for a mill from 500 tons and up.

Estimated returns, cost estimates, and all related information are contained in the pages following.

Questions have risen in the past regarding the size of our corporation (1,000,000 shares) in relation to our estimated total issue of only 300,000 shares. These 300,000 were voted toward the purchase of the K-M Copper Mine (17 lode mining claims), purchase of all mining machinery and buildings on the property belonging to the Alaska Freight Lines; financing of an exploration program; a mill and the installation thereof; and working capital sufficient for operation until smelter returns are banked. If the funds received from the sale of the 100,000 shares now being offered are not sufficient to complete this operation, then more shares must be voted to be sold, but will undoubtedly be at an above par value figure ($2.00 or more per share).

As you will note when going over these papers, the K-M Copper Mine is not all we are relying on. Should there be a market slump, or should ore reserves become depleted, or some contingency occur not allowed for in our estimates, our plans include having other properties onto which we could move.

It was our intention to carry on an extensive prospecting program for both minerals, and oil and gas during this past season, but because of limited financing the program was limited to three men in the field for only 30 days. Fortunately, several nice showings were made, one in placer, and one 12,000 foot showing of copper indications adjoining our property. The latter is being staked, and will belong to the corporation when recorded.

We plan to continue work on the copper mine throughout the winter, and if possible will install our mill. We are at the present time working a D-8 Dozer on the mill site, and hope to have the mill installed before the heavy snows prohibit outdoor work.

The accompanying photographs show you something of what we have. These were taken this summer (1957) after a temporary shut-down of the mine prior to commencement of work under the D.M.E.A. contract which became effective September 10th. On this date, we re-hired a crew (including the cook) on a sub-contract basis, at a specified dollar amount per foot of work accomplished. This has reduced the cost of labor by better than 30%, increased production, and made for better overall efficiency, while at the same time increasing the employees' take-home pay very substantially.

The last page of the enclosures is a form letter addressed to the Geological Survey requesting a circular on the K-M Copper Mine. This bulletin, together with the other enclosures in this Brochure, gives each stockholder a start on a complete written record of his corporation, to which he will add from time to time as explained in the Letter to the Stockholders.

Briefly, this Alaska Corporation actually began on June 19, 1953, when a team of prospectors (E. O. Albertson and F. S. Pettyjohn) made the original discovery on this property. (See U.S. Geological Circular 332). It grew to the Partnership of Albertson-Pettyjohn, then to the Kathleen-Margaret Mining Company (under which the first D.M.E.A. money was obtained), was sold to the Alaska Copper Mines, Inc. for $1,000,000.00 in 1954, was returned to the Kathleen-Margaret Mining Company for non-payment in 1956, and was then purchased by the MacLaren River Copper Corporation immediately following its incorporation in November of 1956.

After a close study of the enclosed information, if you should decide to join us in this corporation, receipt of your check makes you an authorized stockholder, owning the same number of shares as your check is made out for dollars. Again we ask that you pass this along, as you receive your own identical copy upon receipt of your purchase.

Very truly yours,

MACLAREN RIVER COPPER CORPORATION

F. S. Pettyjohn, Jr.
President

E. O. Albertson
Secretary

Encls.

MACLAREN RIVER COPPER CORPORATION
1015 Polaris
Fairbanks, Alaska

October 14, 1957

Enclosed are copies of a Prospectus, the Articles of Incorporation, and the By-Laws of your corporation, together with other pertinent material.

We now require $100,000.00 for the purchase and installation of a mill, and for operating expenses until smelter returns begin. The final payment of $18,000.00 for equipment purchased from the Alaska Freight Lines is due December 15, 1957. Income from Defense Minerals Exploration Administration contract 4738 (now in effect) for 1,140 feet of diamond drilling @ $6.00 amounts to $6,840.00, with 250 feet completed as of October 1st. D.M.E.A. funds for contracts on the second and third stage programs are appropriated on the basis of each contract, i.e. $30.00 per foot on 600 feet of adit, etc.

As we wish this to remain a closed corporation, and do not want to spend time and money in making a public sale, we are sending this information to all of our present stockholders who reside in Alaska. Since it is to the best interests of us all to finish financing our program, we hope each and every one of our present stockholders will interest as many as possible of your friends in our corporation.

We are now offering 100,000 shares for sale at $1.00 per share, as follows:

Shares sold to date	175,123
Shares subscribed to	25,000
Shares available	99,877
Number of total shares outstanding at completion of present issue	300,000

The remaining 700,000 shares may be sold at a later date, for future financing on this mine or for other investments, at an above par value figure, or may be held by the corporation as non-paying stock. Only the shares issued to stockholders will pay dividends.

Sales from $10.00 (for 10 shares) and up will be accepted. As we will need some political help in getting our road program through, the more small stockholders we have, the more political influence we will have.

We are entitled to sell stock through the mail, so that checks can be sent to either of the following addresses:

MacLaren River Copper Corporation
1015 Polaris Building
Fairbanks, Alaska, or

MacLaren River Copper Corporation
Copper Center, Alaska

Checks will be acknowledged with a corporation receipt by return mail, and literature identical to that received by you will be forwarded. The receipt for the check will make an authorized stockholder of the purchaser, and stock certificates will be issued at the earliest possible date.

F. S. Pettyjohn, Jr.
1015 Polaris Building
Fairbanks, Alaska
Phone: 4996

William L. Major
No. 4 Eleanor
Fairbanks, Alaska
Phone: 3056

Edwin L. Butcher
750 Sixteenth
Fairbanks, Alaska
Phone: 5702

E. O. Albertson
Box 2058
Fairbanks, Alaska
Phone: 2909

Thomas E. Hyke
Copper Center, Alaska
Phone: ACS Operator,
Glenallen

A sample check is enclosed illustrating the manner in which checks should be made out for the purchase of stock.

Mr. Albertson has been elected as Secretary, and Mr. Major as Treasurer, to serve as such until the Annual Stockholders' meeting on December 1st.

Very truly yours,

MACLAREN RIVER COPPER CORPORATION

F. S. Pettyjohn, Jr.
President and Chairman of the Board of Directors

E. O. Albertson
Secretary

Encls.

MACLAREN RIVER COPPER CORPORATION

PROSPECTUS

I. HISTORY

Articles of Incorporation for the MacLaren River Copper Corporation were filed in November of 1956 with the Director of Finance, Juneau, Alaska. Persons signing the Articles of Incorporation papers, and members of the Board of Directors for the first year, are:

F. S. Pettyjohn, Jr. - President
John Howard Bayless - Vice President
Earl H. Beistline - Secretary-Treasurer

This company is capitalized at 1,000,000 shares of stock with par value being $1.00 per share.

II. OBJECTIVES

A. General

The overall objective of the Corporation is to engage in prospecting, exploration, and mining of mineral deposits in Alaska.

B. Specific

The initial efforts of the Corporation are being directed toward exploration work on the Kathleen-Margaret (K-M) Copper Prospect, now owned by the MacLaren River Copper Corporation. It is located on the Upper MacLaren River, Third Judicial District, Talkeetna Recording Precinct, Alaska.

The copper prospect lays 12.5 miles north of the MacLaren River bridge on the Denali Highway (Mile 42), and consists of sixteen lode mining claims recorded at Wasilla, Alaska.

Trenching at 100-foot intervals with a D-8 Caterpillar has exposed 1,700 feet of vein. An additional 3,600 feet has been indicated by hand trenching and outcrops. A separate ore body has been indicated by copper showings along 12,000 feet of mountain-top.

III. PLAN OF WORK

The K-M Prospect was located in 1953, and was leased by the Alaska Copper Mines, Inc. (Box 3365, Seattle, Washington) who began an exploration program. In 1956 the ground was purchased by the MacLaren River Copper Corporation.

A representative of the Corporation visited the Denver Equipment Company of Denver, Colorado immediately following this purchase, and satisfactory arrangements were made for the purchase of a 100-ton mill, at the time it should become warranted. The Tacoma Smelter, at Tacoma, Washington, was personally contacted and a tentative agreement reached for the acceptance of all ore shipments.

A. Work Above Ground

Work accomplished above ground includes the following: construction of a 5,400 foot commercial airport under a 20-year lease from the Bureau of Land Management; construction of mine roads; construction of a completely equipped 14-man camp, fully modern, gravity flow water, electricity, etc., consisting of the following major units - two 7-man bunkhouses, one messhall complete, with kitchen, cook's quarters, storage room, and wash house; a separate office buildings; a 30' x 60' Butler steel shop and garage; and incidental out-buildings.

A mine tipple was constructed, and consists of a compressor house, machine shop, warm-up and lunch house, and an underground light plant station.

B. Work Underground

Underground work has been accomplished as follows:

550.2 ft. of drift parallel to the mineralized Zone
95.0 ft. of crosscuts at two locations and which intersect mineralized zones
110.0 ft. of raise
731.0 ft of percussion drill prospecting
676.0 ft. of diamond drill prospecting
70.0 ft. of drift on an ore body

Work accomplished by the Alaska Copper Mines during 1954 and 1955 indicates, by diamond core drilling, that several minable ore bodies exist. One ore body, consisting of approximately 25,000 tons of minable ore, was blocked out by diamond core drilling.
(Authority: "Work Progress - Alaska Copper Mines").

Work accomplished by the MacLaren River Copper Corporation during the summer of 1957 proved the existence of this ore body. Work consisted of driving on the ore body, stockpiling ore, and sampling and assaying at given intervals. A Defense Minerals Exploration Administration contract for additional diamond drilling, which will prove this ore body to a depth of 400 feet (approximately 40,000 tons) is now in effect, of which the D.M.E.A. is participating in the amount of $6.00 per foot for this particular program, which calls for 1,140 feet of diamond drilling. Stockpiling of this ore continues. One diamond drill core has been recovered at the 350 foot level on this ore body by the MacLaren River

Copper Corporation, and shows massive Bornite. There is an additional $6,000 sum available in Government funds for drifting on this body. Preparations have been made to continue operations throughout the winter.

Upon the completion of 780 feet of drilling on the main ore body, the D.M.E.A. has indicated willingness to participate on a new tipple site, which will move the portal for our underground workings down the mountain to a more convenient location. From this new tipple site, the intersection of the first ore body will be made at a depth of approximately 500 feet, affording three years mining at a greatly reduced cost. D.M.E.A. participation in this part of the program is $30.00 per foot. A total D.M.E.A. loan of $195,000 is under consideration.

Considerable prospecting was carried on this summer and, as a result, plans are being made for the acquisition of additional properties in the near future. Placer ground has been made available to the company, and consideration is being given to the development of a large coal field.

Work done to date, together with some additional diamond drilling yet to be completed, proves that the installation of a 50-ton mill is fully warranted, and we are at present negotiating the purchase of a mill locally. Wages, as such, have been discontinued, since all labor at the mine is being performed on sub-contract, based on the footage driven. At present there is a 6-man crew working on the property.

IV. FINANCING

Approximately $50,000 has been raised to date. Of this sum, approximately $9,000 has been expended on groceries and supplies; $9,000 has been invested in additional equipment; $12,000 has been paid toward the $30,000 purchase price for all the mining equipment and buildings on the property as of November 17, 1956 (which equipment and buildings are listed at $130.000, installed).

The remainder has covered the costs of clearing of access roads; trucking of supplies, construction of new buildings, maintenance, salaries, taxes, etc., with a very minor amount having been spent in organizing the Corporation.

It is now proposed to offer stock at $1.00 per share in the amount of an additional 125,000 shares, which will bring the number of total shares outstanding to 300,000. This figure includes, also, the shares paid for the K-M Copper Prospect.

This sum is required to meet current expenses, to pay the $18,000 balance on equipment and buildings, to install a mill, and for use as operating capital pending receipt of smelter returns. (It is conservatively estimated that the returns on the 50-ton mill will approximate $1,500 per day).

Shares in the corporation, before they are re-sold, either in private or on the market, must be offered to the Corporation at their then current value.

Shares may be purchased through the following authorized representatives:

F. S. Pettyjohn, Jr. 1015 Polaris Building Fairbanks, Alaska	Phone: 4996
William L. Major No. 4 Eleanor Fairbanks, Alaska	Phone: 3058
Edwin L. Butcher 750 Sixteenth Fairbanks, Alaska	Phone 5702
E. O. Albertson Box 2058 Fairbanks, Alaska	Phone: 2908
Thomas E. Hyke Copper Center, Alaska	Phone: ACS Operator, Glenallen

Date: October 10, 1957

SUPPLEMENT TO PROSPECTUS

The Defense Minerals Exploration Administration is participating in the exploration program by reimbursing the corporation in dollars per foot.

First Stage

The first stage consists of diamond core drilling to a depth of 410 feet below the surface outcrop to block out an additional 15,000 tons of ore. Diamond drilling now being done is estimated at $12.00 per foot, of which the Government is paying us at $6.00 per foot.

Second Stage

The new adit will consist of an estimated 600 feet of drift to intersect the ore body at a depth of 500 feet below the surface of the outcrop. The cost of this drift is estimated at $60.00 per foot, of which the D.M.E.A. has indicated their willingness to participate in the amount of $30.00 per foot.

Third Stage

A raise, with levels off the raise at 50 foot levels, on the ore body, is the third stage, and the D.M.E.A. has indicated their willingness to participate in this program also. The cost of this raise and different levels is estimated at from $75.00 per foot for the raise, to $150.00 per foot for a winze, depending upon the difference in elevation from the haulage drift.

A rough figure on footage-tonnage is 5 tons per foot.

On this third stage, raise and levels, the D.M.E.A. participation is estimated at $5.00 per ton, as all of the third stage work will be performed on the ore body.

At least one year's mill feed will be mined under the D.M.E.A. participation contract, thus reducing our cost of mining to an estimated $3.00 per ton, or reimbursement of $250.00 per day. After the raise and levels are driven, the cost of mining is then reduced to approximately $3.00 a ton by stoping.

The actual cost of $8.58 per ton of ore is still estimated, as we consider this 50-ton mill to be a pilot mill and to pay for exploration costs to develop an ore body large enough to install a mill with a capacity of 500 tons or more, as we can then mine as low as 2% ore, depending upon the market.

A hydro-electric site sufficient to develop power for a 500-ton mill is owned by the company, and is covered by K-M Claims No's. 7, 11, and 12.

Even a rough estimate on a 500-ton mill is impossible at this stage, as we cannot be certain yet that the ore is of sufficient grade or continues to a depth necessary to warrant another mill.

The D.M.E.A. participation costs have been figured in footage, as approximately 50 per cent of the costs of the program are in the equipment, buildings, supplies, and mine roads already paid for by the corporation.

Shipping

Shipping will be on an open contract submitted to various transportation companies. Concentrates will be shipped via truck, barge, or ship, directly from the mine to the smelter.

Concentrate containers will be canvass bags, paper bags, heavy cardboard boxes, or 55-gallon drums. Negotiations are being carried on with various bag and box manufacturers regarding a container which can be dumped full of concentrates into the furnace, which will result in a savings in smelter charges.

Experiments are also being made in relation to a binder in the wet concentrate, which concentrate could then be molded into blocks and shipped without containers.

Mining

The cost of mining and milling per ton of ore was arrived at during the summer season of 1957, as the D.M.E.A. contract did not become effective until September 10, 1957. Intensive experiments were conducted in mining and milling costs. Certain portions of the work accomplished was in relation to the sorting of ore. For example, by mining more than 50 tons per day for the mill (say 60 tons) and running this 60 tons of 6% ore over a sorting belt, it is possible that the percentage of 50 tons of mill feed could be increased to 7% by sorting out 10 tons of barren quartz, losing 200 lbs. of copper in the process. Sorting tests are still being run, and it is speculated that the cost of the sorting would be about $2.00 per ton. This $2.00 cost would increase the value of the ore by $6.00 per ton.

The gold and silver content has not been figured in the estimated returns, but should run from $1.50 to $4.00 per ton. This was not included in the estimate because tests are still being run by the Denver Equipment Company.

Verification was made this summer of an ore body 10 feet wide, 100 feet long, and 250 feet in depth which contains 24,000 tons of 6% copper.

Local purchase of a 50-ton milling unit is under consideration, and will be decided upon before December 1st. Through local purchase, it is possible to install and put into operation a 50-ton mill for approximately $20,000.00,

MACLAREN RIVER COPPER CORPORATION
Box 4001
College, Alaska

October 11, 1957

To the Stockholder:

The first Annual Stockholders' Meeting of your corporation will be held at 1:00 p.m. on Sunday, December 1, 1957 at the Eagles Hall, 547 Fifth Avenue, in Fairbanks, Alaska.

Election of officers for the forthcoming year will be made (the method of voting to be explained prior to the meeting); members of the Board of Directors will be voted upon; a comprehensive financial presentation will be made; this past year's performance and future plans of the corporation will be outlined, with certain aspects of the K-M Copper Mine being decided upon by vote of the Stockholders prior to the election of the new Board of Directors; and a general question and answer period will conclude the meeting.

Your presence at this first important meeting is highly desirable; however, in the event you cannot attend, we enclose your Proxy, which enables you to vote on the matters at issue. It is your privilege to name any Stockholder, whom you consider qualified, to use your votes at his discretion. Since this is your corporation, it is urgently requested that you exercise your right to vote. Your Proxy should be mailed so that it reaches its recipient at least ten days prior to the date of the meeting.

Minutes of the meetings held during this past year by the Board of Directors will be read and placed in the Minutes of the Annual Stockholders' Meeting. A complete transcript of all business transacted at the Annual Meeting will be mailed to each Stockholder. This will give you a full record of all the activities of your company since its incorporation on November 17, 1956. Although this is not common practice, and is not required by law, it is our wish that the mailing of the Minutes of every annual meeting (into which will be read all business transacted during the preceding year, together with plans for the succeeding year) will continue in effect.

Also enclosed is a copy of the Corporation's Articles of Incorporation, and a copy of the By-Laws. Additional By-Laws may be passed by the Board of Directors as the growth of the Corporation may make necessary, with regard to business and business methods, and the powers, duties,

responsibilities, and limitations of the General Manager and the Board of Directors. The preliminary By-Laws, so important to the future of your Corporation, will be voted upon by the Stockholders (rather than by the Board, as is common practice) at this First Annual Meeting. Thus your vote (or Proxy) gives you a voice in the forming of the principles of this organization.

During this critical first year, your Corporation limited expenditures on office overhead to an absolute minimum, in the conviction that actual work and progress of the mine itself were of paramount importance. Because of this limited overhead budget, the planned Interim Reports for this year were not issued, a separate office was not established, and the greater percentage of the business was transacted from the K-M Copper Mine.

In addition to his regular duties, your President (because of this strict limitation of funds) assumed the responsibility of all financing; employment of competent personnel, with the attendant duties of payment of salaries, taxes, insurance, commissary planning, etc; all planning and business with Government agencies (including negotiation of contracts, road construction, and airport facilities; and full management of the mine (including engineering, and road and building equipment and supplies). As your Corporation expands and circumstances warrant, delegation of many of these duties will be made.

In the best interests of the Corporation, any change in your mailing address should be forwarded as soon as possible.

FOR THE BOARD OF DIRECTORS:

MACLAREN RIVER COPPER CORPORATION

F. S. Pettyjohn, Jr.
Chairman of the Board

P R O X Y

Know all men by these presents, that (I, we) do hereby constitute and appoint _____, attorney
(Stockholder)
and agent for (me, us) and in (my, our) name, place, and stead, to vote as (my, our) proxy at the First Annual Stockholders' Meeting of the MacLaren River Copper Corporation, according to the number of votes (I, we) should be entitled to vote, if then personally present, and authorize _____
(Stockholder)
to act for (me, us) and in (my, our) name and stead at said meeting as fully as (I, we) could act if present, giving to said _____, agent and attorney, full
(Stockholder)
power of substitution.

(This Proxy is to continue in force until _____ _____ unless sooner revoked).

IN WITNESS WHEREOF, (I, we) have hereunto set (my, our) hand and seal, this _____ day of November, 1957.

Signature(s): _____

_____

LIST OF STOCKHOLDERS

Name	No. of Shares
Adney, Wayne Gakona, Alaska	1,500
Albertson, Anna L. Box 206 Dickinson, N. Dak.	25
Albertson, Isabel K. and E. O. Box 2058 Fairbanks, Alaska	27,057
Anderson, Glenn W. H. 5620 Bloomington South Minneapolis, Minn.	1,000
Anderson, Kenneth 1901 Mary Anne Fairbanks, Alaska	1,700
Ater, Leonard T. Gakona, Alaska	1,000
Atwater, Galen G. or Frances (Mi. 153 Glenn Hi) Palmer, Alaska	200
Bailey, Helen S. 1325 Sixth Avenue Fairbanks, Alaska	10
Baily, Tury G. 1325 Sixth Avenue Fairbanks, Alaska	10
Baker, V. G. Westwood Way Fairbanks, Alaska	1,000
Barnett, Julie A. Gakona, Alaska	100
Bayless, Howard Copper Center, Alaska	10,049
Beachler, Boots or Casey, Jean Box 584 Valdez, Alaska	200
Beals, Marvin or Mary Valdez, Alaska	623
Beichner, Clarence A. or Wanda M. Glenallen, Alaska	760
Beistline, Earl H. Box 4001 College, Alaska	1
Benson, Thurman P.O. Box 711 Fairbanks, Alaska	2,100
Bourdeau, Mrs. Genevieve Mile 164 Glenn Highway Palmer, Alaska	50
Brenwick, Leonard or Lucille Tazalina Trading Post, Alaska	100
Brown, Durard B. Glenallen, Alaska	1,000
Brown, H. E. Junction Inn Gakona, Alaska	1,000
Bruner, Buck Gakona, Alaska	20
Bunsek, Chester E. Copper Center, Alaska	250
Burgess, Lloyd 394 Hamilton Avenue Fairbanks, Alaska	10,000

Name	No. of Shares
Butcher, Edwin L or Flossie 750 Sixteenth Fairbanks, Alaska	1,000
Butcher, Gary L. 1533 Turner Fairbanks, Alaska	1,000
Butcher, Mrs. Helen Box 1206 Spenard, Alaska	1,000
Callahan, John K. or Violet CWM School Ft. Greely, Alaska	600
Carper, James R. P.O. Box 7586 Portland 20, Oregon	100
Cease, Bernice Conlon 637-1/2 Seventh Ave. Anchorage, Alaska	50
Chamberlain, Glenn M. or Mederese M. 529 A. Street Anchorage, Alaska	1,000
Christopherson, Teresa Gakona, Alaska	18
Cohoe, C. B. 322 High Street Bellingham, Washington	200
Columbo, Louis P. CWM School Ft. Greely, Alaska	150
Cooper, George Proctor IV 9554 Sunset Ave. LaMesa, California	25
Darks, Gilmer Owen 171 Chase Drive Fairbanks, Alaska	50
Dempsey, Mr. or Mrs. Harry Box 1981 Fairbanks, Alaska	500

Name	No. of Shares
Derrick, John H. Box 14 Fairbanks, Alaska	625
Devault, Jack or Dorothy (Devault Service Center) Valdez, Alaska	967
Dieringer, James F. oor Nora Valdez, Alaska	1,131
Ditman, Bob Valdez, Alaska	1,000
Donald, Jack Gakona, Alaska	500
Donald, Robert L. Gakona, Alaska	250
Donnelly, Joseph T. c/o Bureau of Public Roads Box 1600 Fairbanks, Alaska	3,500
Dunnagan, Earl Valdez, Alaska	3,000
Eckhart, Charles c/o Boyd Hanson 428 E. Hennepin Minneapolis, Minnesota	1,000
Fairbanks, Ervon E. Box 475 College, Alaska	3,000
Fairbanks Plumbing & Heating-Sampson Hardware Fairbanks, Alaska	1,000
Falquist, Roy J. Chitina, Alaska	200
Finnigan, James c/o Wm. P. Cameron 1550 Gillam Way Fairbanks, Alaska	3,500
Flowers, Arlington C. Gakona, Alaska	100

Name	No. of Shares
Gatzkiewicz, Alice 208 Seventh Avenue Fairbanks, Alaska	25
Geisler, John Box 442 Valdez, Alaska	100
George, August R. Valdez, Alaska	500
Gilson Mercantile Valdez, Alaska	1,500
Gossell, Walter P.O. Box 654 Fairbanks, Alaska	500
Greene, Lena M. P.O. Box 2016 Anchorage, Alaska	500
Grindeland, Evelyn A. Gakona, Alaska	300
Hales, Dale L. 701 McKinley Bldg. Anchorage, Alaska	1,000
Hamilton, Charles H. or Glenda E. Gakona, Alaska	40
Hanson, Boyd R. 428 E. Hennepin Minneapolis, Minn.	500
Hanson, Howard 8434 Park Ave. S. Minneapolis, Minn.	1,000
Hanson, Helmer G. or Rose B. Box 22, Post Eng. Sec. APO 733, USA	12,117

Name	No. of Shares
Heay, Dixie 909 Fifth Fairbanks, Alaska	100
Heintz, G. A. or Florence Glenallen, Alaska	100
Heintz, Harry J. or Gladys Glenallen, Alaska	200
Hillar, George W. Box 154 Valdez, Alaska	350
Holeman, B. R. or M. D. 1016 Sixteenth Anchorage, Alaska	30
Holeman, Margaret E. 1016 Sixteenth Anchorage, Alaska	10
Holeman, Richard D. 1016 Sixteenth Anchorage, Alaska	10
Holeman, Verginia E. 1016 Sixteenth Anchorage, Alaska	10
Holmberg, Clarence C. or Pauline M. CAA Station Bethel, Alaska	140
Horak, Roger D. 848 A. Lincoln Blvd. Santa Monica, California	25
Huls, Durwood F. or Retta Woody's Service Center Valdez, Alaska	1,752
Hyke, George W. P.O. Box 101 Olivehurst, Calif.	100

Name	No. of Shares
Hyke, Thomas E. or Mary Copper Center, Alaska	10,454
Jessen, E. F. Jessen's Weekly Box 970 Fairbanks, Alaska	1,000
Johnson, Owen P. Valdez, Alaska	1,655
Jones, Homer W. or Marion R. Copper Center, Alaska	1,000
Jones, Leo M. Copper Center, Alaska	200
Joslyn, George C. Valdez, Alaska	100
Kedney, Fred S. 4225 E. Lake Harriet Blvd. Minneapolis, Minn.	1,000
Kelleher, John or Ora 9106 Dalberg St. Bellflower, Calif.	1,000
Kelsey, John T. Valdez, Alaska	500
Kelsey, Robert D. Valdez, Alaska	500
Kise, Donald W. 4140 Reiland Lane St. Paul, Minn.	1,000
Kissell, Kenneth Gakona, Alaska	1,250
Krause, William J. or Nellie B. Gakona, Alaska	500

Name	No. of Shares
Kvalvik, Henery or Mary Glenallen, Alaska	200
Kyle, Hillis Big Delta, Alaska	13,702
Lappi, Arthur J. Box 440 Anchorage, Alaska	500
Langberg, Morris M. or Constance P. Box 384, Route 1 Stanwood, Washington	1,000
Lanstra, Mr. or Mrs. Elmer A. Southern Avenue, Aurora Subdivision Fairbanks, Alaska	100
Lowy, George or Rose Tiekel Lodge Richardson - Alaska	200
Lunden, Jack Box 3008 Anchorage, Alaska	100
Lundquist, Roger S. 1200 Bliss Lane Minneapolis 20, Minn.	500
Lunsford, W. L. Copper Center, Alaska	250
Major, William L. No. 4 Eleanor Fairbanks, Alaska	6,600
Marinell, M. J. or Lee Box 763 Fairbanks, Alaska	500
McCrary, Nelson J. or Mary Copper Center, Alaska	200

Name	No. of Shares
McKechnie, Norman D. c/o Burgess Construction Company Fairbanks, Alaska	2,000
McLeod, Bruce B. or Myrtle Mile 164, Glenn Highway Palmer, Alaska	200
McMahan, Cleo Gakona, Alaska	1,000
Mehler, John S. Box 1058 College, Alaska	20
Mewhorter, Walter E. USA CWM School Ft. Greely, Alaska	50
Mitchell, Essie Lee Glenallen, Alaska	106
Moore, Jack and Henra Gakona, Alaska	6,950
Mowrey, Harry D. Box 2996 Fairbanks, Alaska	200
Nelson, Joel R. or Lillian H. Box 65 Fairbanks, Alaska	25
Nelson, John Lee or Elsie K. Box 65 Fairbanks, Alaska	25
Parrott, Connie G. Hq. Sqd. Box 148 5060th Air Base Wing Ladd Air Force Base, Alaska	100
Peterson, Jerome J. 6201 Second Ave. S. Minneapolis, Minn.	100

Name	No. of Shares
Persinger, Jim A. Log Cabin Inn Tok Highway, Alaska	500
Pettyjohn, D. W. 1100 Penn. Boulder, Colorado	1,000
Pettyjohn, F. S. Gakona, Alaska	42,000
Pettyjohn, Helen M. Gakona, Alaska	13,900
Phillips Corporation 2409 Glenwood Anchorage, Alaska	500
Pickett, Gerald A. Sr. or Ira L. 5972 Rainier Ave. Seattle 18, Washington	600
Pittenger, Robert C. c/o Box 1070 Fairbanks, Alaska	2,000
Renk, Albert E. 1902 Sunrise Drive Anchorage, Alaska	1,650
Radasch, Paul E. or Anna K. Copper Center, Alaska	200
Ryan, Peter Glenallen, Alaska	500
Sabottke, Laura 725 Second Ave. Fairbanks, Alaska	1,000
Schlader, Richard H. 8500 Oakland Minneapolis, Minn.	200
Severance, Marjorie Box 1245 Fairbanks, Alaska	10

Name	No. of Shares
Shaunce, Leonard 647 Ninth Fairbanks, Alaska	300
Simons, Mr. or Mrs. Arthur M. 3901 Grimes Lane Minneapolis, Minn.	1,000
Simons, Mr. or Mrs. John H. 600 N. Lilac Drive Minneapolis, Minn.	1,000
Sipes, Frank U.S. Navy - Pacific Fleet	10
Sipes, John or Willa Mae Big Delta, Alaska	1,000
Sipes, John Wesley Jr. or Irene Big Delta, Alaska	100
Slocum, Vickie Sue 803 East 12th Ave. Anchorage, Alaska	10
Smith, Gordon C. c/o Fed. Electric, Box 432 Ft. Yukon, Alaska	300
Smith, Harry S. Glenallen, Alaska	200
Smith, Leonard E. or Arlene Box 12 Valdez, Alaska	1,500
Smith, Ray or Verginia Valdez, Alaska	300
Smith, Richard F. 400 Ewing Ave. S. Minneapolis, Minn.	1,000
Sodergren, Dr. K. A. 901 - 23rd Ave., N.E. Minneapolis 18, Minn.	500

Name	No. of Shares
Spence, W. E. or Clyda Mae c/o T. E. Hyke Copper Center, Alaska	250
Spurgin, Charles D. or Vivian Gakona, Alaska	2,500
St. Amand, Loren Valdez, Alaska	100
Steele, Donald 709 Fifth Fairbanks, Alaska	2,000
Stefani, D. F. Box 436 Fairbanks, Alaska	100
Stevens, Edwin Glenallen, Alaska	1,000
Stewart, Claude or Bertha C. Copper Center, Alaska	200
Stith Motors Valdez, Alaska	2,623
Shadburn, Claude Delta Junction, Alaska	200
Stripling, Lattie W. Gakona, Alaska	560
Taro, John J. or Mary C. 509 Lavey Fairbanks, Alaska	10
Tatje, Fred W. Glenallen, Alaska	100
Taylor, Tryphena Gakona, Alaska	100
Theisen, Thomas E. Delta Junction, Alaska	50

Name	No. of Shares
Therriault, Eli Box 165 Charlo, Montana	12,292
Therriault, Hector Box 2001 Fairbanks, Alaska	1,500
Thompson, Darrell Fairbanks, Alaska	725
Torberg, Charles J. 640 Fourth St., N.E. Minneapolis, Minn.	1,000
Uelrick, Sula 722 Ninth Ave. Seattle, Washington	1,000
Walters, Benedict J. 3625 Elmo Lane Hopkins, Minn.	200
Webb, James Copper Center, Alaska	200
Webb, Mrs. Louise Copper Center, Alaska	300
Wells, Elroy Philip Box 611 - Route 1 North Bend, Washington	250
Wells, Frederick M. or Lee M. Gakona, Alaska	1,000
Wells, Max H. Wells Commercial Company Valdez, Alaska	200
Wells, Ricki Gakona, Alaska	10
Whalen, John Bernard or Mary E. Valdez, Alaska	500
Whalen, Marie A. or Mary E. Valdez, Alaska	500
Whalen, William J. or Mary E. Valdez, Alaska	1,000
White, Clare Palmer, Alaska	25
White, Paul Palmer, Alaska	25
White, Mr. or Mrs. John Palmer, Alaska	200
Williams, Jerry Edward Box 23 Dockton, Washington	200
Williams, Jimmie Arthur Box 23 Dockton, Washington	200
Williams, Vincent E. or Wilverna R. Box 23 Dockton, Washington	3,600
Wilson, Roy R. or Josephine L. Box 1826 Anchorage, Alaska	1,000
Wilson, Shirley Ann Box 1826 Anchorage, Alaska	100
Windust, John Paxsons Lodge, Alaska	1,500
Windust, Thomas R. Paxsons Lodge, Alaska	970
Windust, Wm. L. or Doris M. Paxsons Lodge, Alaska	75

Name	No. of Shares
Windust, Wilma M. Paxsons Lodge, Alaska	1,500
Wolfe, V. Eugene Valdez, Alaska	300
Downey, Calvin J. Box 101 Elmendorf A.F.B. Alaska	1,000
Donovan, John Pat Glenallen, Alaska	400
Ward, Ralph G. Glenallen, Alaska	200
Weaver, Dr. Richard T. 1401 Lathrop St. Fairbanks, Alaska	300
Woodford, Howard F. or Lolah Woodford's Department Store Valdez, Alaska	500
T. L. Robbins Juneau, Alaska % B. P. R.	250

Name	No. of Shares
Wm. Snedden Fairbanks Newsminer	1000
Joe Kelly	1000

ARTICLES OF INCORPORATION

OF

MACLAREN RIVER COPPER CORPORATION

KNOW ALL MEN BY THESE PRESENTS:

That the undersigned natural persons of adult age, all bona fide residents of the Territory of Alaska, have this day united for the purpose of forming a stock corporation for conducting business, as hereinafter set forth, under the laws of the Territory of Alaska, and the laws of the United States of America, applicable thereto, and do hereby make, sign and acknowledge in triplicate the following Articles of Incorporation:

ARTICLE I
Name

The name of this corporation shall be: MACLAREN RIVER COPPER CORPORATION.

ARTICLE II
Headquarters

The principal place of business of this corporation shall be the City of Fairbanks, Alaska

ARTICLE III
Purposes

This corporation is formed for the following purposes:

(a) To acquire, buy, lease, own, sell, mortgage and hypothecate mines, mining claims, coal lands, millsites, manufacturing sites, water rights, and other real estate, and all goods and chattels of whatsoever kind or character;

(b) To conduct and carry on mining exploration and operations of every kind and character within the Territory of Alaska or elsewhere; and to sell the products thereof;

(c) To construct, buy, lease, own, operate, sell, mortgage and hypothecate dredges, steam shovels, hydraulic plants, pipe lines, flumes, ditches, dams, crushing plants, reduction plants, sawmills, electric plants, railroads, tramroads, telephone lines, and other equipment and structures of whatsoever kind or character;

(d) To conduct and operate stores and mercantile establishments for the use and convenience of the corporation or for profit;

(e) To operate electric or other plants for the production, use and sale of power, heat and light;

(f) To operate either public or private transportation lines of any kind for the use and benefit of the corporation or for profit;

(g) To acquire, buy, own, sell and deal in stocks and bonds of other corporations or companies;

(h) And, generally, to do and perform each and everything that may be found necessary, proper or expedient to be done or performed in order to enable the corporation to carry on any of the lines of business herein specified

ARTICLE IV
Other Powers

In addition to the foregoing, said corporation shall have the following powers and authority, viz:

To do any lawful act which is necessary and/or advisable to accomplish the purposes of its incorporation. Without limiting or enlarging the effect of this general grant of authority, it is hereby specifically provided that said corporation shall have power:

(a) To have perpetual succession in its corporate name;

(b) To sue and be sued in its corporate name;

(c) To have and use a common seal, and alter the same at pleasure;

(d) To elect such directors and officers, and appoint such agents as its business requires, and to define their duties and fix their compensation;

(e) To adopt and subsequently amend By-Laws, not inconsistent with the laws of the United States or the Territory of Alaska, or with these Articles of Incorporation, determining the time and place of holding and the manner of calling and of conducting meetings of its stockholders and directors, the mode of voting by proxy, the number, qualifications, powers, duties and terms of its officers and directors, and determining such other matters of substance and procedure as may be indicated for the proper operation and control of corporate affairs;

(f) To make contracts, incur liabilities, and borrow money;

(g) To acquire, hold and sell shares of its own capital stock;

(h) To acquire, hold, sell, transfer, mortgage, pledge, or otherwise dispose of bonds, stocks, securities or evidences of indebtedness, and while holding stock of other corporations to exercise all the rights, powers and privileges of ownership, including the right to vote thereon;

(i) To acquire, hold, use, manage, convey, lease, mortgage, pledge or otherwise dispose of any other property, real or personal, deemed necessary or suitable to carry out its purpose.

ARTICLE V
Capital Stock

The entire capital stock of this corporation shall be in the amount of One Million Dollars ($1,000,000.00) and shall be of one class only, to-wit:

Common Stock divisible into one million (1,000,000) shares of a par value of One Dollar ($1.00) per share and issuable accordingly. Each share shall have equal weight for voting purposes at stockholders' meetings, and stockholders may vote their respective shares cumulatively.

Capital stock of this corporation may be issued by the corporation from time to time for such consideration and under such terms as may be from time to time fixed by the Board of Directors of the corporation. This corporation may issue any or all of its shares of capital stock in consideration of labor done, money paid, personal or real property, or interest therein, or good-will, and the judgment of its Board of Directors respecting the consideration and the value thereof shall be final and conclusive in the absence of fraud; and the stock so issued, the consideration of which, as fixed by the Board of Directors, has been fully paid, shall become fully paid stock and subject to no further call or assessment.

ARTICLE VI
Life of the Corporation

The period of the duration of the corporation shall be unlimited.

ARTICLE VII
Indebtedness

The highest amount of indebtedness or liability to which the corporation shall at any time be subject shall not exceed the sum of One Million Dollars ($1,000,000.00) unless this limit is increased by the affirmative vote of two-thirds of the outstanding stock.

ARTICLE VIII
Directors

The affairs of the corporation shall be managed by a board of not less than three (3) nor more than nine (9) of directors, a majority of whom shall constitute a quorum for the transaction of business, the number of directors to be determined by the stockholders. The directors shall elect one of their own members President of the corporation and one vice-president, and shall also appoint a secretary and a treasurer, either from their own members or otherwise, it being understood that the office of secretary and treasurer may be combined. The duties of said officers shall be prescribed in the By-Laws. The directors may also appoint such other officers or agents as may be deemed necessary to properly conduct the business of the corporation. The names and addresses of the directors who have been chosen for the first year, or until their successors have been elected and qualified, are as follows:

F. S. Pettyjohn, Jr., Fairbanks, Alaska
Howard Bayless, Fairbanks, Alaska
Earl H. Beistline, Fairbanks, Alaska

Subject always to By-Laws made and adopted by the stockholders, the Board of Directors shall, when necessary to expedite the conduct of business, have power to make such supplementary By-Laws as it deems proper for the management of the affairs of the corporation, and from time to time may alter, amend, or repeal such supplementary By-Laws, but any By-Laws made by the Board of Directors may be altered or repealed by the stockholders at any annual meeting, or any special meeting called for that purpose.

ARTICLE IX
Stockholders' Meetings

The first meeting of the stockholders of the corporation for the adoption of By-Laws, election of directors, etc., shall be held at Fairbanks, Alaska, or other designated place on or about December first, with subsequent meetings on that date each year thereafter.

ARTICLE X
Amendments

These Articles of Incorporation may be amended when authorized by a vote of two-thirds of a majority of the outstanding common stock of the corporation at a regular meeting of the stockholders or at a special meeting called for that purpose, and such amended Articles shall be executed and acknowledged by the Board of Directors, or a majority of them, and shall be filed and recorded in the same place and manner as the original Articles.

ARTICLE XI
Incorporators

The names and places of residence of the persons forming this corporation are as follows:

F. S. Pettyjohn, Jr., Fairbanks, Alaska
John Howard Bayless, Fairbanks, Alaska
Earl H. Beistline, Fairbanks, Alaska

IN WITNESS WHEREOF, said incorporators above named have hereunto set their hands and affixed their seals at Fairbanks, Alaska, on this 27th day of October, 1956

(Signed) F. S. Pettyjohn, Jr. (SEAL)

(Signed) Earl H. Beistline (SEAL)

(Signed) John Howard Bayless (SEAL)

COPY

UNITED STATES OF AMERICA)
) ss.
TERRITORY OF ALASKA)

THIS CERTIFIES that on this 27th day of October, 1956, before me, a Notary Public for Alaska, personally appeared F. S. PETTYJOHN, JR., HOWARD BAYLESS, AND EARL H. BEISTLINE, to me known to be the identical persons whose names are subscribed to the foregoing Articles of Incorporation, and they severally acknowledged to me that they executed the said instrument as their free and voluntary act and deed for the uses and purposes therein mentioned

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarized seal on the day and year in this certificate first above written.

(Signed) Ralph J. Rivers

Notary Public for Alaska. My commission expires 9-14-59

(notary Seal)

BY-LAWS
OF
MacLAREN RIVER COPPER CORPORATION

I
REFERENCE TO ARTICLES

Administrative provisions for the government of this corporation contained in the Articles of Incorporation are to be deemed a part hereof.

II
OFFICES

Offices shall be established for conducting the affairs of the corporation (at such time as the business thereof requires) at some suitable location in the City of Fairbanks, upon arrangements made by the Board of Directors.

III
SIGNERS HEREOF

It is understood and agreed that the temporary directors, all stockholders, shall sign these By-La ws in attestation that same have been adopted by the majority of stockholders at the first stockholders meeting, but other persons obtaining stock in this company will be bound hereby without signing same.

IV
STOCKHOLDERS

(a) There shall be one regular meeting of the common stockholders annually for the election of the Board of Directors and for conducting such other business as may arise, to be held on the first day of December of each year at Fairbanks. With respect to these meetings, notice shall be sent of the time and place thereof in the form of a postcard, or otherwise, by depositing same in the post office, directed to the stockholders respectively at their last known addresses, not later than thirty days prior to the time set for such meetings.

(b) Other stockholders' meetings, to be referred to as special meetings, may be held upon call by the President, or Board of Directors, acting through a majority of its members. With respect to these meetings, adequate notice shall be given as the Board of Directors may decide, provided that such notice shall state the purpose, or purposes, for which a special meeting is called.

(c) At least one-third of the common stock which has been issued must be represented at a stockholders' meeting to constitute a quorum for the transaction of business, and action by stockholders will be based on a majority vote of the stock represented at the meeting. The President of the Board of Directors or someone acting in his stead shall be the presiding officer at stockholders meetings, and the Secretary of the Board of Directors shall set as secretary for such meetings.

(d) Every stockholder having a right to vote at a stockholders meeting shall be entitled to vote in person or through written proxy subscribed to by the stockholder and bearing the name of the stockholder who is carrying such proxy and dated not more than thirty days prior to said meeting.

(e) Any stockholder may waive, in writing, any notice required hereunder.

V

BOARD OF DIRECTORS

(a) A Board of not less than three (3) nor more than nine (9) Directors shall be chosen annually by the common stockholders, at their annual meeting, to manage the affairs of this corporation. Their term of office shall be one (1) year, or until their successors are elected and qualified. The procedure at these elections shall consist of first deciding the number of persons to serve as directors for the coming year and then nominating at least that many stockholders and the casting of ballots (showing the number of shares being voted) for the designated number of nominees of the voters' choice, and, upon the tally being taken, the designated number of persons having the highest number of votes shall be elected.

(b) Vacancies on the Board of Directors, by reason of death, resignation or change of residence from Fairbanks or vicinity, shall be filled by the remaining Directors choosing from among the corporation stockholders to fill the unexpired term.

(c) Regular meetings of the Board of Directors shall be held not less than once each calendar quarter at Fairbanks, at such time and at such particular place as the Board may determine.

(d) Special meetings of the Board may be called by the President, or any two Directors, by giving not less than three days notice to each director. Unless otherwise indicated in the notice thereof, any and all business may be transacted at a special meeting.

(e) At any meeting with a quorum, held without the thirty days notice, at which every Director is either present or has signed a waiver, any business may be transacted. Any Director may waive, in writing, any notice required hereunder.

(f) A quorum for the transaction of business shall be a majority of the members of the Board and each Director, including the President, shall have one vote. As to all matters, the affirmative vote of at least a majority of the Directors present shall be necessary for the taking of any action.

(g) Business shall be transacted in such order as the Board may, from time to time, determine.

(h) The President of the Board shall be the presiding officer at all meetings, or in his absence, the Vice-President shall preside, but in the absence of both of them, such other Director as those present may designate.

(i) Directors, as such, shall not receive any stated salary for their services, but, by resolution of the Board, a fixed sum and expenses of attendance, if any, may be allowed for attendance at each regular or special meeting of the Board; provided, that nothing herein contained shall be construed to preclude any Director from serving the corporation in any other capacity and receiving compensation therefor.

VI
OFFICERS

Officers of the corporation shall consist of the President, Vice-President, Secretary, and Treasurer, elected by the Board of Directors, and such other special officers, professional help or agents as may be appointed by the Board of Directors.

(a) Only members of the Board of Directors shall be eligible for the office of President. The President shall be the executive head of the corporation unless an executive manager is employed.

(b) The same eligibility requirement applies to the office of Vice-President as for that of President. The Vice-President shall assist the President and shall succeed him to fulfill his unexpired term in the event a vacancy occurs.

(c) The Secretary need not be a Director, but must be a stockholder of the Corporation. The Secretary shall keep minutes of Directors meetings and stockholders meetings, have custody of the records of the corporation, except as otherwise specified in these By-Laws or by the Directors, handle correspondence, mail notices, etc. His records shall be open to stockholders at all reasonable times. Should the Secretary not be a member of the Board of Directors, he or she may be present at Directors meetings, but shall have no vote.

(d) The Treasurer need not be a Director, but must be a stockholder of the corporation. The Treasurer shall receive and keep all funds and deposit same in a bank or in such other depository, or depositories, as may be designated by the Board of Directors, and such deposits shall be made in the name of the corporation. He shall also have custody of bills, notes, mortgages, bonds and similar property belonging to the corporation, and shall do with the same as may be ordered by the Board of Directors. He shall keep such financial accounts as may be required, and at the expiration of his term of office, shall turn over to his successor, or to the Board of Directors, all property, books, papers and money of the corporation in his hands. The Secretary's records shall be open to stockholders at all reasonable times.

(e) The Directors may merge the offices of Secretary and Treasurer, so that both positions may be held by one person.

(f) Salaries or other compensation of officers and agents of the corporation shall be allowed only upon resolution of the Board of Directors, and the amount thereof fixed in such resolution. Part-time services may be authorized for part-time pay.

(g) All officers and agents appointed or employed by the Board of Directors shall be subject to removal at any time by the affirmative vote of a majority of the whole Board.

VII
CORPORATE SEAL

(a) The corporate seal of the corporation shall consist of two concentric circles, between which is the name of the corporation, and in the center shall be inscribed "Corporate Seal, 1956", and the words "Territory of Alaska" shall appear on the bottom of the seal between the two concentric circles, and such seal, as impressed on the margin hereof, is hereby adopted as the seal of this corporation.

(b) The Board of Directors shall determine by resolution which documents or types of documents shall require the affixing of the corporate seal.

VIII
DISBURSEMENTS

Disbursements of corporate funds shall be only by check signed by the Treasurer, and should the Board of Directors so require, countersigned by the President, or other officer authorized by the Board of Directors to so act in the President's behalf.

IX
PARTICULAR POWERS OF DIRECTORS

In addition to the powers and authority by these By-Laws especially conferred upon it, the Board of Directors may exercise all corporation powers and do all lawful acts and things, except as required to be done through action of the stockholders by statutory provision, the Articles of Incorporation, or by these ByOLaws. Such powers shall include:

(a) Authority to lend and borrow money and to enter into contracts in the regular course of business, and to enter into contracts of purchase and sale of real property, or personal property, to issue promissory notes, to mortgage and hypothecate real and personal property, and to transfer property acquired by the corporation on appropriate terms and conditions, as may be necessary or advisable to accomplish the purposes for which this corporation is formed.

(b) Authority to require and accept security for moneys owed or to be owed to the corporation.

(c) Bond of Officers or Agents: The Board of Directors may, by resolution, require any and all executive officers or agents to give a bond to the corporation with sufficient sureties, conditioned upon the faithful performance of the duties of their respective offices, and such other conditions as may, from time to time, be required by the Board of Directors.

(d) Delegation of Duties: The Board of Directors, by affirmative vote of a majority of the entire Board, may delegate for the time being the powers or duties of any officer of the corporation, in case of his absence or for any other reason, to any other officer, or to any Director.

X
CAPITAL STOCK

(a) Stock Certificates. Every stockholder shall be entitled to a certificate or certificates of capital stock of the corporation in such form as may be prescribed by the Board of Directors, duly numbered and sealed with the corporate seal of the corporation and setting forth the number and kind of shares. Such certificates shall be signed by the President or Vice-President and by the Secretary.

(b) Transfer of Stock. Shares of stock may be transferred by delivery of the certificate accompanied by either an assignment in writing on the back of the certificate or by a written power of attorney to sell, assign and transfer the same on the books of the corporation, signed by the person appearing by the certificate to be the owner of the shares represented thereby, together with all necessary federal and territorial transfer tax stamps affixed, and shall be transferred on the books of the corporation upon surrender thereof so assigned or endorsed. The person registered on the books of the corporation as the owner of any shares of stock shall be entitled to all the rights of ownership with respect to such shares. It shall be the duty of every stockholder to notify the corporation of his post-office address.

(c) Transfer Books. The transfer books of the stock of the corporation may be closed for such period, not exceeding forty (40) days, in anticipation of stockholders meetings as the Board of Directors may determine. In lieu of closing the transfer books, the Board of Directors may fix a day not more than forty (40) days prior to the day of holding any meetings of stockholders as the day as of which stockholders entitled to notice of and to vote at such meeting shall be determined; and only stockholders of record on such days shall be entitled to notice of or to vote at such meeting.

(d) Loss of Certificates. In case of the loss, mutilation or destruction of a certificate of stock, a duplicate certificate may be issued upon such terms as the Board of Directors shall prescribe.

(e) Stock Subscriptions. Subscriptions to capital stock shall be paid in full, unless otherwise authorized by the Board of Directors, and shall be paid in lawful money, or in real or personal property, or labor performed.

XI
AMENDMENTS

These By-Laws may be amended by an affirmative vote of the majority of the stockholders at any regular or special stockholders meeting.

We, the undersigned, as of this date, being all stockholders and the members of the temporary Board of Directors, hereby execute the foregoing By-Laws in attestation of their adoption by the stockholders.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____, 195____.

(signed) F. S. Pettyjohn, Jr. (SEAL)
(signed) Earl H. Beistline (SEAL)
(signed) John Howard Bayless (SEAL)

INVENTORY OF EQUIPMENT
August 1, 1957

Description	F.O.B.	PRICE
Gardner-Denver 600 CFM Comp (Portable - powered with Mod-D 13000 Cat Diesel)	Seattle	$14,386.00
EMCO Mod-12-B Mucking Machine set for 24" Gauge Rails	Seattle	3,871.00
1 MOD D-JTA-Joy Drill Jumbo w/2" DJA JOY Drill Jibs and 2 TM 350 Joy Air Drill Machine S/L W-6 Auto Feed (6' Bed) Using 8' x 1-¼" Steel	Seattle	5,670.00
2 only 22 cu. ft. end dump ore cars, Mod Coeur D'Alene @ $300.00	Seattle	600.00
1 Mod 55A Chicago Pneumatic Diamond Drill complete with 300' of 5' rod ex air rod puller, 6' bar with mounting and tools	Seattle	2,421.00
Black and Decker 3/4 hp 220V 3 ph. Grinder with jig for Timken Carbide bits	Seattle	320.00
5 hp Air Motor Drive 3 KVA Generator for 110V-1 ph and 220V 3 ph with panel	Seattle	600.00
1 Mod. SK 7645 Sullivan single drum air hoist	Seattle	350.00
1 only 30' x 60' High Steel Butler Bldg. with 12' x 9' door - heavy duty shop	Mine	20,000.00
1 only 12' x 40' Butler Steel Bldg. insulated washroom, store room, messhall, and kitchen, complete	Mine	10,000.00
2 only 14' x 30' Frame Bunk Houses with oil heaters and bunks @ $3,600	Mine	7,200.00
1 only 1954 Willys Jeep with cab and front mt. winch @ $2,686.00	Fairbanks	1,500.00
1 used GMC (Army) 6 x 6 dump truck with front mt. winch (10 new tires and tubes - 50 miles, and new motor)	Mine	2,600.00
1 only heavy duty front boom working off winch for GMC 6 x 6	Mine	500.00
only used 10-ton Athey wagon	Fairbanks	600.00
1 only Joy Mod 1-16 Fan w/1 hp 220V Elec. drive	Seattle	378.00
1 only 1953 International ½ Ton Panel	Fairbanks	1,200.00
Misc. new and used drill steel 1-¼" size with carbide bits	Mine	1,000.00
Misc. hand tools, portable tools, wrenches, etc. at tipple shop	Mine	2,000.00

Description	F.O.B.	Price
1,100 ft. of 24" mine rails and settings	Mine	$ 1,200.00
Steel 60' size air receiver	Mine	500.00
Jack hammer, R and I, 3 / 4"	Mine	250.00
1 Jacuzzi, ½ hp Model C56J2A5, water pump	Mine	300.00
4 new emery wheels, 8 x 1 x 5/8, Black & Decker	Mine	175.00
50 coarse thread 5/8" carbon treated belts	Mine	50.00
Misc. electrical fixtures	Mine	100.00
5 fire extinguishers, carbon	Mine	250.00
12 new jackhammer steels 3/4", 3-½ ft lengths	Mine	65.00
1 sump pump, R & I	Mine	175.00
13 new jackhammer steels, 3/4", 7 ft. lengths	Mine	110.00
1,500 ft. misc. electric wiring and sockets	Mine	85.00
120 ft. air and water hose	Mine	200.00
1 Joy, Class JL-1, spotlight generator	Mine	400.00
300 ft. of 2-3/4" air line, complete with pigs (Thor)	Mine	250.00
1,200 ft. new 1-1/4" water line pipe and fittings	Mine	600.00
100 ft. 3/4" water line pipe and fittings	Mine	20.00
100 ft. radio antenna poles, galvanized, set up, with antenna	Mine	300.00
1 only 12 x 24 welded angle iron road drag (float) for winter truck road and airport maintenance	Mine	2,500.00
60 ft. 2-½" water line pipe and fittings	Mine	100.00
60 ft. 2" water line pipe and fittings	Mine	60.00
120 ft. 1-½" water line pipe and fittings	Mine	100.00
1 Model N6S-SF, Pacific Plumbing Co., Turbine Pump with base and coupling - Laiman Air Motor (new) with 1 Cash-Acme Type E regulator	Mine	386.00
1 warming house, 8 x 10, with Coleman stove	Mine	200.00
1 rail, bender, R & I	Mine	60.00

Description	F.O.B.	Price
1 Kohler, single stroke light plant	Mine	500.00
Waukesha, square D switch (1) light plant, Model Model FCL-7C	Mine	150.00
1 heavy duty trailer, for acetylene torch w/complete acetylene welding and cutting outfit	Mine	260.00
150 ft. 3/4" manila rope	Mine	50.00
150 ft. 1" manila rope	Mine	70.00
1 Budgit, 1-ton chain hoist	Mine	100.00
1 pipe vice, cutter, die, & reamer - set - Rigid Model 65-R	Mine	60.00
1 Hobart Bros., elec. arc welder, Type T-116-5-2, complete	Mine	1,200.00
Misc. pipe fittings and steel, galvanized	Mine	250.00
Items:		
1 electro-mode, air heater, Model BN-50A, Type 32598		
ChromaLox, elec. heating element, Model EH-420		
1 Kim, hot-start		
2 O-L, pigs, Thor		
20 cable clamps, 3/4" - 1" cable		
1 overhaul kit for Waukesha light plant	Mine	400.00
Items:		
Misc. vehicle and log chains		
1 blowtorch		
4 6-volt batteries		
1 Exide battery charger		
1 Socony No. 129-5 freeze detector		
1 Milwaukee, skillsaw		
1 set, "Mac", sockets, 2" - 7/8", complete		
1 set, "Mac", sockets, 1/4" - 7/16", complete		
Misc. tools, saws, braces, bits, wrenches, etc.		
1 Delco, bench grind r, Model A-1867, 1/3 hp, 11V		
1 954, Charles Parker bench vice		
1 vulcanizing tire repair set		
100 pds., 8-D nails		
50 pds., 6-D nails		
110 pds., 18-common nails		
100 pds., 40-common nails		
5 misc. pick and axe handles, new		
12 3", 3/4", jackhammer, steels		
3 7', 3/4", hackhammer, steels		
15 panes glass, 15" x 18"		
3 panes glass, 21" x 51"		
2 carbonic Gas. Co., fire ext.		
2 1/2 gals. linseed oil	Mine	2,000.00

Description	F.O.B.	Price
Valley Elec. Co., Type 51-A, ½ hp, 220V, grinder	Mine	$ 300.00
Delco Mfg., 1/8 hp, 215V, Model 1A-8260 and blower	Mine	250.00
Cat Parts (D-8)		
1 set D-8 cat tracks		
1 cat trailer		
3 ice Growgers, D-8		
1 piston, set rings, D-8		
1 4F 560 bearing		
1 5H2311 lining group		
1 3H28 indicator		
25 oil fittings		
8 1B8088 packings		
3 fuel filters, element A		
1 1F 5634 indicator		
5 7B1730 valves	Mine	2,000.00
2 hose clamps		
4 7B 1844, chamber A		
28 7B9968, seals		
2 1F5471, seals		
2 4B9047, transfer fuel pumps		
2 gates, 41R84, fan belts		
1 7B2774, belt		
2 gates, 2510 belt		
2 3B8904, belts		
1 1F1710, disc		
1 8F9212, cover		
300 5/8" unfinished bolts and nuts		
2 dozer tips, D-8		
1 set used D-8 tracks (fair)	Mine	1,000.00
Gardner-Denver Comp. 130C (Spare parts kits, new, ordered with compressor)		
1 piston		
1 62-F50, piston pin		
1 52-5328, seal		
4 12-30, conn. rod bearings		
Misc. shims, seals, rings		
1 60g105, seal		
1 4AAB164B, valve assemble		
1 62F41, piston pin		
1 1AAH-2034, valve assembly		
1 set rings, complete		
1 WKJ-15, piston pin		
3 WAX-208K, valve assembly	Mine	1,500.00
Kohler Light Plant Parts		
1 head gasket		
1 fuel pump repair kit		
1 set rings		
1 piston		
1 Bendix ignition, 10-70169	Mine	100.00

Description	F.O.B.	Price
Bin, misc. bolts, nuts, seals, kits, etc. for D-8 Cat	Mine	$ 100.00
Items		
5 Timken, 1-7/8" carbide inserts, H thread bits		
50 Timken, 1-$\frac{1}{2}$" steel bits, H thread		
24 Timken, 2-$\frac{1}{4}$" carbide inserts, D thread bits		
50 Timken, 1-7/8" steel bits, D thread		
1 AX core barrel, Christensen, 5 ft. length		
1 AX core barrel, Christensen, 10 ft. length		
1 reamer, diamond, AX, Christensen		
1 pilot bit, diamond, AX, Christensen		
6 diamond bits, AX, Christensen		
30 pds 5/32 welding rod		
30 pds 3/16 welding rod		
30 pds 3/32 welding rod		
2 hydraulic jacks	Mine	3,600.00
Total of Equipment	Total of Supplies	97,527.00

LIST OF SUPPLIES
August 1, 1957

ON MINE

4-½ Ton Spec. Gal 1-¼ x 8 - 60% and 40% dynamite - @ $1,000 ton	$ 4,500.00
7 cases elec. blasting caps	425.00
1 barrel carbide	40.00
6 miners' helmets, M-S-A, type K	30.00
1 barrel drillube	60.00
54 50-gal. barrels, diesel fuel	1,350.00
3 50-gal. barrels, gas	75.00
8 RPM, Delco motor oil, 50-gal. barrels, 10-30 SAE	800.00
82 2" x 10" x 16' lumber planks	150.00
Items 10 pts. Chevron starting fluid 1 gal. Loosen-all 5 gal. Firestone anti-freeze 10 gal. Aviation No. 1 aviation grease 6 5-gal. cans RPM grease 5 gal. heavy duty brake fluid, hydraulic	200.00
Groceries	1,500.00
8 carbide lamps, plus repairs	20.00
Misc. supplies: light bulbs, Coleman lanterns, etc.	100.00
Total supplies	$ 9,050.00

Delivered in October, 1957:

6,600 gals. fuel & stove oil	$ 2,250.00
Oil, grease, etc.	250.00
7000 ft. timbers	700.00
Groceries	3,000.00
Misc. parts	500.00
Misc. supplies for camp & mine	1,000.00
	$ 7,700.00

EQUIPMENT	$ 97,527	as of Aug. 1
SUPPLIES	9,050	delivered in Oct.
ADDITIONAL	7,700	
	$114,237	

Buildings, tipple, supplies on hand and in storage, and machinery installed and in operation, estimated October, 1957 amounts to $140,000.00

ESTIMATED RETURNS ON A 50-TON MILL

Estimated returns on a 50-ton mill, on the K-M Copper Mines fifty tons of 6 per cent copper ore reduced to 8 tons of 36 per cent copper concentrate.

Percentage of copper content in ore body based on Alaska Copper Mines, Inc. Work Progress Report for 1954, and MacLaren River Copper Corporation sampling and assaying report for 1957.

Recovery of copper based on Denver Equipment Company tests, and U.S. Bureau of Mines reports.

Shipping costs based on Alaska Freight Lines.

Smelter costs based on trial shipments to Tacoma Smelter.

Mining costs based on sub-contract labor tests by MacLaren River Copper Corporation.

Milling costs based on tests run by the Denver Equipment Company.

Overhead based on MacLaren River Copper Corporation cost records.

Price of copper based on present market, and Engineering and Mining Journal forecasts.

50 tons of 6% copper (cu.) ore:

6% cu.	120 lbs. cu. per ton
120 lbs. x 50 tons	6,000 lbs. cu.
95% recovery	5,700 lbs. cu.
5,700 lbs. @ $0.30 per lb.	$1,710.00 recovery every 24 hrs

Mining (per ton)

Labor	$1.30	
Powder & caps	.60	
Deisel & oil	.20	
Machinery depreciation	.20	
Incidental supplies	.10	
Bits	.06	$2.46

Milling (per ton)

Labor	$1.50	
Deisel & oil	.30	
Machinery depreciation	.40	
Milling supplies	.50	$2.70

Commissary (per ton)

Mess, quarters, cook	$1.00	1.00

Overhead (per ton)

Supervision, engineering, office	$1.00	1.00
Sub-total		$7.15
Plus 20% contingency		1.43
Total per ton		$8.58
50 tons @ $8.58		$429.00

Shipping

50 tons of 6% cu. - 6,000 lbs. cu.
95% recovery 5,700 lbs. cu.
8 tons of 36% cu. 5,700 lbs. cu.

8 tons shipping @	$ 40.00	$320.00	
8 tons smeltering @	12.40	99.20	
Sub-total		$419.20	
Plus 20% contingency		83.40	$502.60
TOTAL costs per day per 50 tons			931.60

Returns	$1,710.00
Costs	931.60
NET PER DAY per 50 tons	778.40

Estimated Returns On:

50-Ton Mill, Net per 50 tons per 24 hours:

4.0% cu.	$ 0.00
5.0% cu.	154.00
6.0% cu.	776.40
7.0% cu.	1,041.00

25-Ton Mill, Net per 25 tons per 24 hours:

5.0% cu.	$ 112.00
6.0% cu.	265.00
7.0% cu.	380.00

Geological Survey
Washington 25, D.C.

Gentlemen:

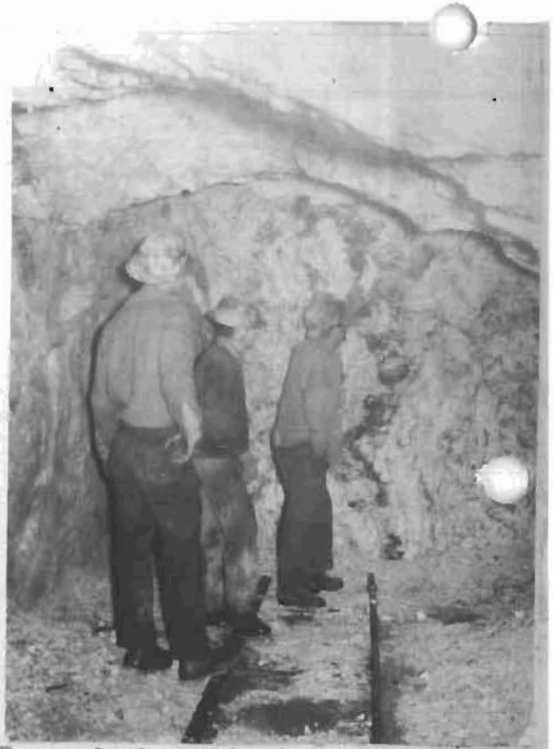
Please forward one copy of "Geological Survey Circular 332" - The Kathleen-Margaret (K-M) Copper Prospect on the Upper MacLaren River, Alaska, by Robert M. Chapman and Robert H. Saunders.

It is noted that copies of this Circular 332 are free upon Application. However, if this offer is now closed and a fee is required, please notify me.

Very truly yours,

Raise

Beginning of adit level on ore



Face of mineralized vein at Station 0+70 in adit level
(Dark areas are Bornite)

Diamond Drill Station No. M-1 at Station 1+31, main drift

An interesting incident during a Sunday afternoon's outing; swimming the MacLaren River with a weasel

Tipple, looking northward along strike of vein, showing original discovery outcrop at upper right

Tipple, machine shop, compressor house, equipment shed, etc., looking west, showing water supply in background

Camp buildings, looking southeast, showing Superintendent's quarters in right background and 5,400 ft. runway in left background

Camp buildings, looking north, showing access road to tipple and the MacLaren River glacier in right background