007469

Report on

the

SHAMROCK GROUP

Keno Hill

MAYO MINING DISTRICT

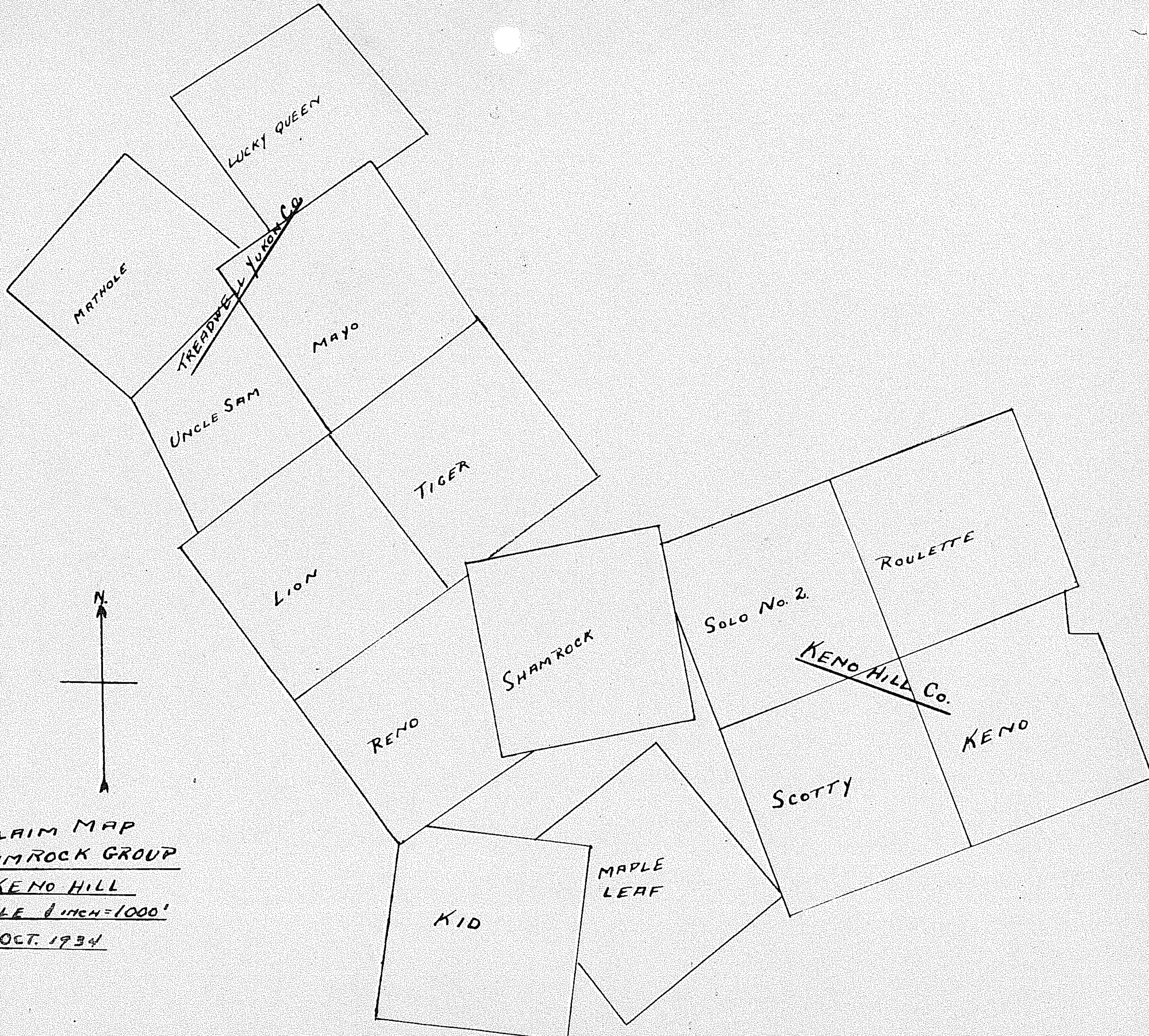
Yukon Territory

Canada

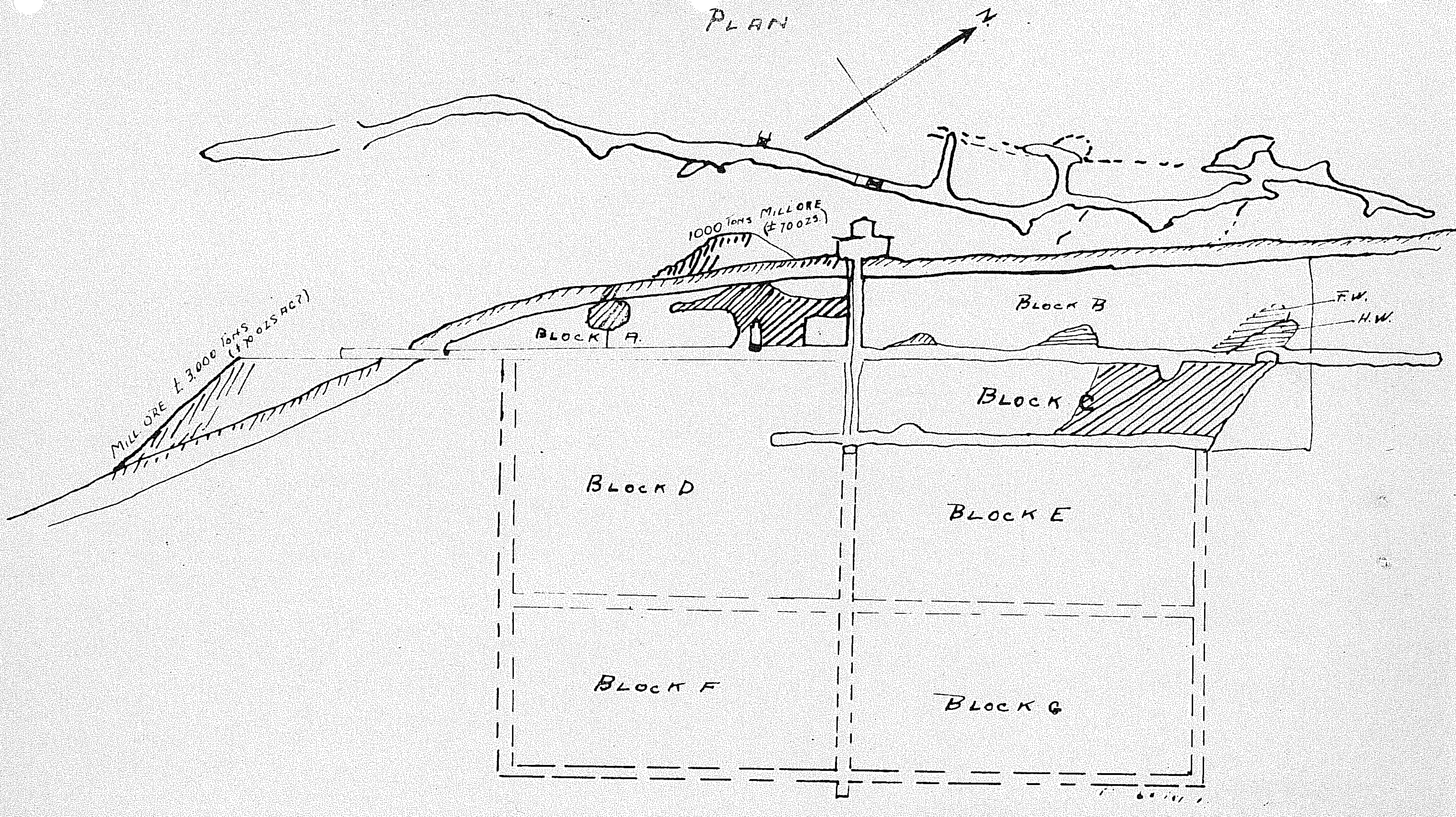
by

MARSHALL D. DRAPER, E. M.

November 24th
1934



CLAIM MAP
SHAMROCK GROUP
KENO HILL
SCALE 1 INCH = 1000'
OCT. 1934



SHAMROCK MINE – MAYO DISTRICT
SHOWING PROPOSED DEVELOPEMENT (BLOCKS D, E, F & G.)
SCALE 1 INCH = 80 FT.
TO ACCOMPANY REPORT BY
MARSHALL D. DRAPER
OCT. 1934.

TONNAGES REASONABLY EXPECTABLE IN BLOCKS D, E, F & G – PROPORTIONED TO THAT ALREADY EXTRACTED FROM A, B & C
(2228 TONS – NET SMELTER RETURNS $548)

	TONS	AG. OZS.	PB %
ARE SMELTING ORE	6,483	301	71-6
" MILLING "	11,610	50	

PROBABLE NET OPERATING PROFIT
$ 824,000

MARSHALL D. DRAPER.
E. M.

Hollingsworth Building.
Los Angeles, Calif.

Report on

SHAMROCK GROUP

LOCATION:

On the south edge of Keno Hill mesa at the head of Christal Pup (also Erickson Pup) 5¼ miles by wagon road - 8% grade - from Keno City.

Nearby are the Lucky Queen, an important producer, owned by Treadwell Yukon Co., and one mile to the N.E. are the various claims and workings of Keno Hill, Ltd., a former large producer and a Guggenheim subsidiary.

PROPERTY:

Six Crown-leased claims, each 1500 x 1500 feet (approx.). Crown-leased means twenty-one leases from Canadian Government, renewable for a like period. Three years on these leases have elapsed. No assessment work or taxes are necessary on Crown leases.

The claims are: 1. Shamrock: 2, Reno; 3 Maple Leaf; 4. Lion; 5;Tiger; 6. Kid.

OWNERSHIP:

Ownership is vested in :	Thomas McKay	-	One-half interest
	Hans Fermo	-	One-quarter "
	Mrs. A. Erickson	-	One-quarter "

DEVELOPMENT-EQUIPMENT:

Development consists of a shaft 110' deep with level at 60' depth, extending S. W. 290' as an adit to surface and 340' N.E. to breast - total length of 60' level - 630 ft.

Another level at 110' depth extends 46' S.W. and 200' N.E. - total 246'.

Shafthouse containing 5 h.p. gasoline hoist and sorting bin has been erected on surface. Also one cabin to house some six men.

Shamrock Group - Cont'd.

PRODUCTION:

From Official records in Government Recorder's Office in Mayo, Y.T. I compiled the following ore shipments from this property: (Recorder R.L. Gillespie).

Date	Dry Tons Mined	Ag. Ozs.	Pb. Lbs.	Amt. Realized Smelter Rtns.
Sept. 1,'22 - Apr.15,'23	60.067	9,616.72	80,875.	9,533.00
Nov. 15,'23 - " 15,'24	121.83	26,299.44	156,357.	26,645.72
Apr. 15,'24 - " 15,'25	512.536	95,246.61	754,518.	117,762.21
" 15,'25 - " 15,'26	279.0865	71,653.59	406,334.	75,291.55
May 1,'26 - Feb. 1,'27	5.27	1,412.75	5,819.	1,126.15
Dec. 31,'27 - Dec.31,'28	296.9485	127,825.33	437.556.	102,763.99
Jan. 1,'29 - " 31,'29	525.70	159,099.33	757,163.	131,906.57
" 1,'30 - " 31,'30	426,9905	146,338.66	594,588.	82,805.58
Totals	2,228.4285	637,490.43	3,193,210.	$547,834.77
Averages per ton		286.07	71.65%	$ 245.83

Corrected for Ag deduction of 5% and Pb of 10% gross content of ore shipped was .... 301. ozs. Ag - 79.61% Pb

Settlements were made with Ag at about an average of 63¢ and lead at about 6¢.

Charges on this ore AT PRESENT with approximate results to be expected, based on shipping to Kellogg are approx. as follows, assumed content 300 ozs. Ag - 79.6% Pb; Ag @ 55¢; Pb @ 4¢

		Per Ton
Mining - assumed at		$ 15.00
Sacks and sacking - 3 sacks for $1 & 16 sacks per ton		5.33
R.R. and Str. Frt.- Mayo to Kellogg		32.00
Truck haul - mine to Keno $5. - Keno to Mayo $10.		15.00
Treatment (as per Kellogg schedule)		
Base rate	$10.00	
Refining Ag - 286 - 35 ozs. = 251 @ 1½¢	3.75	
Frt. on lead to N.Y. @ $13.50 per ton 1290# (1433-143)	8.71	
Silver deduction 5% of 286 ozs. - 14.3 ozs. @ .55¢	7.86	
Lead deduction 10% of 1433# - 14.3 @ 4¢	5.73	
Penalty - As. & Sb. - ½% @ $1.	.50	
Lead duty into U. S. 1430# @ $.0154	21.49	58.04
Total Charges & Deductions		$ 125.37

Shamrock Group - Cont'd

Payments - 1433# Pb. @ 4¢		$ 57.32	
	Ag 286 @ 55¢	157.30	$ 214.62
Total Charges and Deductions			125.37
	Approx. Net per ton		$ 89.29

(Note: This same ore with Ag @ 65¢ and Pb @ 6¢
netted per ton: (Less all charges) .... $ 164.83

VEIN AND ORE:

The vein is a strong one in quartzite, strike N.E. and S.W. and dips to the E. at 74°.

Most of the ore had been worked to pinches and no attempt had been made to have followed through to obtain recurrent lenses. On this account, the mine at present is not attractive in appearance.

The ore is coarse-grained galena with siderite and seamed quartzite as vein filling.

Characterized by uniformly clean galena lenses, the shipments show an average of 2,228 tons shipped, as gross content 301 ozs. Ag and 79.6% Pb.

Significant of the possibility of a large vein are the drifts on two veins shown on the plan as varying from 20 to 40 feet apart. In this mine both veins have been stoped. H.W. vein furnished a large proportion of the total tonnage and has varied in stoping width from 2.5 to 10 feet. F. W. vein was smaller and higher grade, that is 400 to 600 ozs. Ag. Ore of this grade is shown in a 6" streak at the breast of the first F.W. (or West) crosscut and also in the other crosscuts successively to the north.

The mine gives every indication of following the habit of the large ore bodies of the camp - namely, for all the intervening material between H. and F. walls - here a width of about 40 feet - to become mill ore of content of 30 to 80 ozs. Ag.

At the time of my examination a snow flurry coming up prevented detailed examination of the mill ore dumps which were frozen.

However, I measured the reject dump at the shaft collar carefully and ascertained the content to be 1,115 tons. The owner had done some sampling by driving a 2 inch pipe at intervals, obtaining therefrom an average of 70 ozs. Later, I interviewed a lessee who had taken out most of the ore, and who, like the owner, had locally a high reputability. He stated that the tunnel dump was better grade than the upper dump. This lower tunnel dump I estimate at 3,000 tons.

Although the data is meager and manifestly subject to biased opinion, yet from the looks of both dumps, I am inclined to place credence in these statements that the content is as stated.

Shamrock Group - Cont'd

Subject to later corroboration, I am assuming the content to be as claimed, namely.

Dumps	Ag Ozs.	Pb%
4,000 tons	70	4 - 6

GENERAL:

Altitude at the mine is 5,400' and at a logical mill site, where the road crosses Christal Pup, it is 3,700', making a 1,700' vertical in tramway (aerial) a distance of 9,000' or 18% grade.

The lessee, of whom I have already spoken, and who took out much of the ore between 110' and 60' levels, was interviewed by me at some length in Vancouver, B. C. He reports most of the bottom of the 110' level is in ore. Bunchier than above, but higher in grade - he thought between 350 and 400 ozs. He states north breast pinched. No ore showing there. This man had been negotiating with the owners, since silver had started upwards in price, for another lease on the property.

By far the best data on which to base conclusions regarding this mine is its record of output. There is nothing whatever to indicate that there will be any change in conditions regarding value or amount of ore for at least another 500 feet in depth. Laterally - or to the N.E. - no trenching or development has been done. A probable N.E. extension is shown in another claim some 3,000 feet distant and where some 3' of ore was mined by inexperienced parties who slighted timbering and caving resulted. This ore was said to carry 300 ozs. Ag.

PROPOSED DEVELOPMENT:

The proposed development is shown in accompanying map, estimated cost being as follows:-

Drifts - 800'	@ $15.00	$ 12,000.
Shaft - 200'	@ 20.00	4,000.
Raises -450'	@ 10.00	4,500.
X Cuts -200'	@ 15.00	3,000.
Incidental		1,500.
1,650'		$ 25,000.

From blocks A, B and C whose dimensions follow, have been taken 2,228 tons of crude high grade ore containing 301 ozs. Ag and 79.6% Pb. on which smelter settlements were for 286 ozs. Ag and 71.6% Pb with total of net smelter receipts of $547,000. Also 4,000 tons of mill ore with estimated content of 70 ozs. Ag.

Shamrock Group - Cont'd

Block	Dimensions	Area Sq. Ft.	Block	Dimensions	Area Sq. Ft.
A	200 x 50 / 2 =	5,000	D	150 x 200	30,000
B	260 x 50 -	13,000	E	100 x 200	20,000
C	260 x 50 -	13,000	F	100 x 200	20,000
			G	100 x 200	20,000
	Total	31,000		Total	90,000

From 31,000 Sq. Ft. 2,228 tons of direct shipping crude high grade ore or .07187 tons per sq. ft. on plane of the vein. In the same way .129 tons of mill ore has also been taken out for each sq. ft.

These four blocks, D. E. F and G in the proposed development, will then contain, in the same proportion as above :

Smelting ore - 6,483 tons - content 301 ozs. Ag - 79.6% Pb
Mill Ore -11,610 " - " (est) 70 " Ag -

Present Operating Profit

At present prices and charges, this high grade ore and milling ore would show approximately the following net returns:

Smelting ore - 301 ounces Ag and 79.6% Pb.

Smelter Payments		
Ag - 95% x 301 ozs. x 55¢		$ 157.27
Pb - 90% x (79.6 - 1.5) x 2,000 x 4¢		56.24
Total payments		$ 213.51
Smelter Deductions and Charges		
Base rate: treatment	$ 10.00	
Frt. lead to N.Y. on 1406# @ $13.50	9.45	
As and Sb - .7 @ $1	.70	
Ag refining charge -(286-35) @ 1.5¢	3.75	23.90
Net Smelter Returns (per ton)		$ 189.60
Costs per Ton Crude Ore		
Mining	$ 20.00	
Hauling to Keno	5.00	
Sacks and sacking	5.00	
Hauling to Mayo	10.00	
Steamer & R.R. freights	32.00	
Federal Duty on lead - 1406# @ 1.5¢	21.09	
Brokerage and insurance	1.50	94.59
Present Net Operating Profit Per Ton		$ 95.01

Shamrock Group - Cont'd

Operating Profit Per Ton - Smelting Ore Locally:
(With property operated by Smelter Co.)

On Crude Smelting Ore

Recovery
95% of 301 ozs. Ag - 286 ozs. @ 55¢ — $ 157.27

Cost		
Treatment	$ 18.15	
Mining	20.00	
Hauling to plant	5.00	
Royalty (applying on purchase) 10% of $157.27 - $40.	11.72	54.87
Net Operating Profit per ton		$ 102.40

(with additional later profit on 1406# pig lead reduced at Keno at no cost.)

Mill Ore

Although there is good reason for the belief that present mill ore dumps average 70 ozs. Ag, I am taking a basis for calculations of possible profits on mill ore, a content of 50 ozs. Ag.

Ag Extraction: 95% of 50 = 47.5 ozs. @ 55¢ — $ 26.12

Rate of concentration; 8:1

Operating Cost		
Hauling	$5.00	
Milling	5.00	
Smelting - 1/8 of $18.15	2.27	12.27
Net Per Ton Mill ore		$ 13.85

Estimated Approximate Value: (NET OPERATING PROFIT) Ore Blocked out under development program outlined.

Smelting Ore -	6,483 tons	@ $102.40	$	663,859.00
Mill Ore	- 11,610 "	" 13.85		160,798.00
		Total	$	824,657.00

It is obvious that costs quoted in the foregoing can be materially reduced. In particular, development having been done, mining cost is confined to stoping, tramming, hoisting and sorting, which should not total over $12.00

Hauling at $5.00 can, I believe, be reduced to $2.00. (Haul is 4.0 miles down grade) as a maximum.

Milling cost - Treadwell Yukon Co. - 125 ton basis was $3.70, where I have allowed $5.00.

Shamrock Group - Con't'd

CONCLUSIONS:

The profits just cited are indeed paper profits and are all based on what the mine has done with limited development heretofore. Nevertheless, every indication points to even better results than those indicated. The figures cited will at least partly show why my conviction is so strong that this is an unusually meritorious property and well worthy of development.

Two further factors add to this belief. First, outlined profits can still further be augmented by ownership of reduction plant on the ground. Second, the record of the camp and its individual mines is very illuminating and impressive as regards profits.

Like most of the other mines, operations, when ore was extracted, were conducted under primitive conditions of all kinds. Yet, a net profit of between $375,000 and $400,000. was made over all expenses.

Summarized, I consider this one of the best properties available in this camp, and, in view of the price and terms, a particularly attractive investment.

RECOMMENDATIONS:

I strongly recommend that this property be acquired as soon as possible. Incidentally, operations can be started at any time, as a small gas hoist was offered for sale just before my departure for $700. Replacement of present small rig is advisable.

With growing interest in this camp in general, due to advancing silver prices, it will not be long before the owner is approached by other parties.

Respectfully.

Marshall D. Draper.

November 24th, 1934.

Report on

HANS FORMO'S CLAIMS

North Galena Hill

MAYO MINING DISTRICT

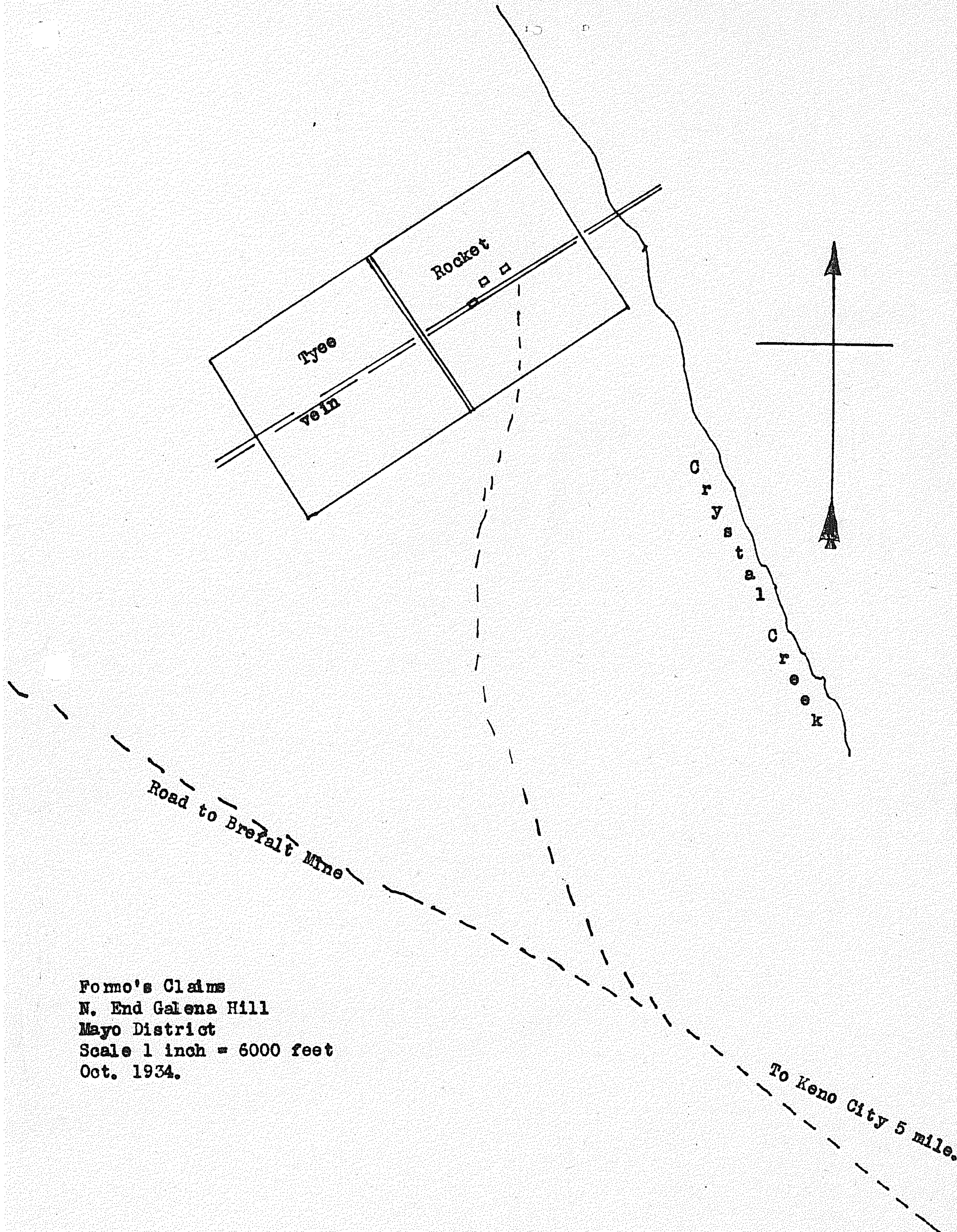
Yukon Territory.

Canada

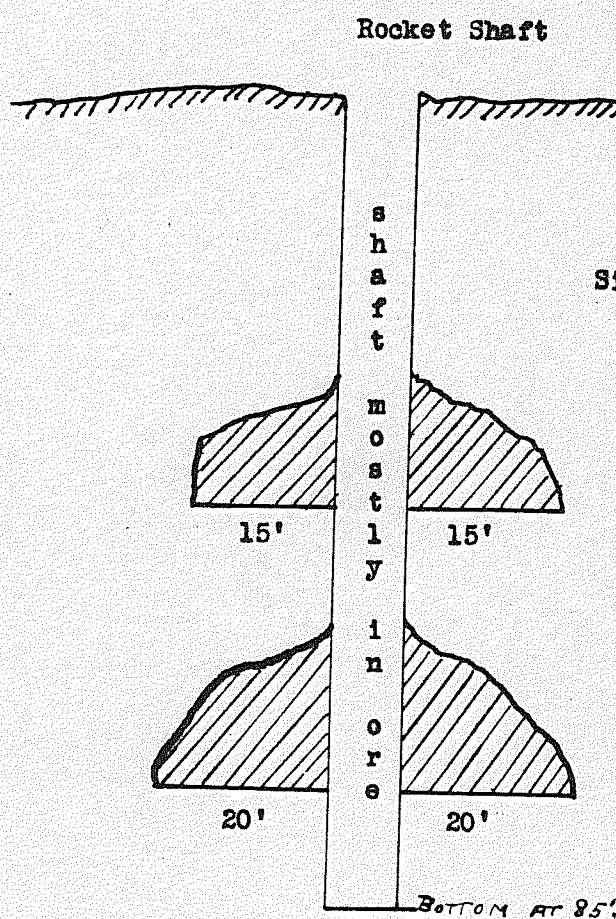
by

MARSHALL D. DRAPER.
E. M.

November 24,
1934



Fomo's Claims
N. End Galena Hill
Mayo District
Scale 1 inch = 6000 feet
Oct. 1934.



Side Elevation looking East

Production to date£
103 tons
AG - 250 ozs.
PB - 65%

Formo Shaft - Rocket Claim

N. End Galena Hill

Mayo District

Scale 1 inch = 20 feet

Oct. 15, 1934

To accompany report by
Marshall D. Draper

MARSHALL D. DRAPER, E.M.

Hollingsworth Building
Los Angeles, Calif.

Report on

HANS FORMO'S CLAIMS

LOCATION:

Four miles north of Keno City on North end of Galena Hill near Christal Creek. Fair road to property.

PROPERTY:

Two claims - ROCKET AND TYEE, embracing 2,700 feet on the vein. Each claim approximately 1500' x 1500' containing 100 acres, more or less.

VEIN AND ORE:

The vein is the usual fault fissure, but with greenstone walls. It is about three feet wide, apparently widening in the shaft and small stopes as shown on accompanying sketch map. The shaft is 85 feet deep.

SHIPMENTS:

Tons		Ag Ozs.	Pb%
35 tons - already shipped		250	65
10 " - now en route		250	60
36 " - now sacked and being hauled		245	68
22 " - " " " " "		254	59
103 tons total	Average Ag ozs.	250 av.	65%

GENERAL

This is a strong vein with recurrent lenses of galena - 2.5 feet in width. Galena shows zinc blende - some calcite as vein filling. The ore averaging 250 ozs. Ag. the owner, under present conditions, will make an operating profit of about $45.00 per ton. which explains the present price at which it is offered. Royalty is much too high, but the matter is not of great importance, in my opinion.

103 tons have been recovered from this small development as shown on the map, which will net the owners between $4,000. and $5,000. They have already spent much more than this in camp, equipment, development, roads and other expenses and will continue to operate during this winter, probably having for shipment some 300 tons or more by spring.

Hans Formo's Claims - Cont'd

Under the following tabulation are listed profits under different phases of ownership and conditions:

Operating Profits:
Shipment to Smelter in U.S.
Content - Ag 250 ozs. - 65% Pb.

Payments		
Ag 95% of 250 - 212.5 ozs. @ 55¢		$ 116.88
Pb 65-1.5 - 63.5 x 90 - 56.25% - 1125# @ 4¢		45.00
		$ 161.88
Costs		
Mining	$ 20.00	
Sacks and sacking	5.33	
Truck Haul, mine to Mayo	15.00	
Str. & R.R. Freight	32.00	
Federal Duty - lead - 1125# @ 1.5¢	16.88	
Smelter Charges and Deductions	25.00	
Brokerage and Insurance	2.00	116.21
1. Owners present net operating profit		$ 45.67

Shipment to local Smelter

Payments: Ag 95% of 250 - 212.5 @ .55¢		$ 116.88
Pb - Nil		
Costs and Charges		
Mining	$ 20.00	
Truck Haul - Mine to Keno	5.00	
Smelter Charges	40.00	65.00
2. Owners net operating profit		$ 61.88

Shipment to local smelter
When Mine is Owned by Smelter

Recovery: Ag - 95% of 250 - 212.5 @ .55¢		116.88
Pb - 95% of 1300# - 1235# (Val.?)		
Costs and Charges		
Mining	$ 20.00	
Truck haul	5.00	
Cost of treatment	18.00	43.00
3. Smelters total operating profit		$ 73.88

(Royalty not deducted)
(Possible lead profit not added)

Hans Formo's Claims - Cont'd.

CONCLUSIONS:

This is particularly the type of mine to acquire for the proposed plan of local smelter, for its tenor in silver is not sufficiently high to make it attractive to the local operator, who now is inclined to view anything less than 300 ozs. with considerable suspicion as to its ability to make money for him. In passing also, it is well to stress the usual uniformity of shipments of individual mines in the district. In brief, if a mine has produced a hundred tons or more, successive shipments deviate rarely more than 20 to 30 ozs. up or down from the general average of the first hundred tons.

It is likely then, that this mine will continue to produce ore for some time to come, of average grade of 250 ozs. silver and 65% lead.

Given as an opinion, I have very little doubt that the property will show, after $25,000. has been expended on it in development, ore blocked out to the amount of 3,000 tons of high grade shipping ore and some several thousand tons or more of milling ore in addition.

The mine is so young that it is hardly capable of furnishing a base line whose extension would furnish a foundation for stable reasoning or conclusions.

Yet it is so very promising that I have not the slightest hesitation in advising its immediate acquisition on a development basis.

The terms of $25,000 and no payments for one year make it particularly attractive. I believe that the 25% royalty can readily be reduced with very little argument or persuasion.

In brief, then, here is an opportunity to acquire for $25,000. a most promising property which has every chance to not only show some $200,000 as net operating profit in ores blocked out as a result of a development campaign but to show additional profit due to mill ore and lead content. It is one of the best in the district of its kind. It is now on a profitable and producing basis.

RECOMMENDATIONS:

I advise that it be acquired at terms offered and development started as soon as possible.

Respectfully,

Marshall D. Draper

November 24th, 1934.

Report on

MAYO CUSTOM LEAD

S M E L T E R

by

MARSHALL D.DRAPER,E.M.

November 20th
1934

MARSHALL D. DRAPER, E.M.

Hollingsworth Building.
Los Angeles, Calif.

MAYO CUSTOM LEAD SMELTER.

Comparison of present ore liquidation costs versus those obtainable in proposed local custom plant.

BASIS: Content: Average ore - 300 ozs. silver and 60% lead.
Price assumed for silver - 55¢; lead - 4¢.

The foregoing represents a fair average of some 70,000 tons shipped from Mayo District to date wherein practically all that production was shipped to Kellogg for treatment. Elsewhere, I have pointed out that this production was made during a period of about five years - from 1925 to 1930 inclusive. Some production was made prior and subsequent to the times noted, but it was small in amount. About half of the production was from crude shipping ore carrying 300 ozs. silver with 60% lead and the other half was concentrate carrying 600 ozs. silver and 60% lead. One mill of 100 tons daily capacity turned out this concentrate and, in passing, it is well to note that very high extractions were uniformly obtained - 98.5 - 99%. Milling was all fine grinding and flotation without any attempt to recover coarse lead in circuit before grinding.

Some few shipments were made to Trail, B. C. and possibly to Selby plant of the A.S. & R. Co. at San Francisco, but local shippers report that, in general, the charges and deductions were about the same in any event.

This comparison is made on the basis of a 50 ton lead stack, roasting equipment and de-silverization of, say, 30 tons daily capacity. Such plant to be located at a central point in the mining district, say, at Keno City for purposes of estimate. Keno City being 40 miles by good auto and truck road from Mayo, the river shipping point.

Present Liquidation Charges - Shipment to Kellogg, Idaho.

Payments:			
Silver — 95% of 300 ozs — 285 @ 55¢		$156.75	
Lead — 90% of 1200# — 1080 @ 4¢		43.20	$ 199.95
Charges and Deductions:			
Smelting - base rate	$ 10.00		
Silver refining - 1.5¢ for ozs. over 35; 285 - 35 = 250 @ 1.5¢	3.75		
Frt. on lead - 1080# @ $13.50 per ton Kellogg to N.Y.	7.29		
As and Sb penalty @ $1. per unit avg. .7 Sb @ $1.	.70		21.74
			$178.21
Less U.S. import lead duty - 1080# @ 1.5¢			16.30
	Smelter Return		$161.91

Custom Smelter - Cont'd.

The above is not strictly correct as other items such as freight on contained moisture, losses in shipment, etc. lessen the foregoing return to shipper.

Approximate return per ton from smelter			$ 161.91
COSTS: (Exclusive of mining) Local Operating:			
1. Sacks and sacking - 16 sacks @ 33 1/3¢		$ 5.33	
2. Truck haul - Mine to Keno	$5.00		
Keno to Mayo	10.00	15.00	
3. River transport, R.R. and Ocean Steamer		32.00	
4. Brokerage, Transfer, Insurance, over-head (estimated)		5.00	57.33
Approximate Net Receipt per Ton			$ 104.58

With custom plant established at Keno City - a lead stack of 50 tons daily capacity and de-silverization plant of say, 30 tons capacity and with material treated consisting of hand sorted galena ores carrying 300 ozs. silver and 60% lead, the following is a rough outline of probable charges, costs and profits.

OPERATING COSTS - LOCAL PLANT:

1. Fuel - Coke		
Price del. Skagway (est.)	$ 6.00	
R.R.& Str.frt.Skagway to Mayo (est.)	15.00	
Truck haul-Mayo to Keno	10.00	
Loss, transfer, over-head (est.)	3.00	
Cost per ton delivered	$34.00	
With 12% coke on charge		$4.25
2. Labor - (Est.Max.)		4.00
3. Power - 50 h.p. max. for blowers, crusher and sampler and 50 tons treated daily 24 h.p. hrs. are required: or 18 k.w. hrs. @ $.07 (Max.)		1.25
4. Fluxes- (Max.)		2.00
5. De-Silverization - Est. @ $3. max. per ton of lead. Extraction @ 95% on 1200# - 1180# 1180# or .59 tons @ $3.		1.77
6. Supplies		1.00
7. Overhead and Gen. Expense		1.57
Total per ton crude ore		$15.85

Custom Smelter - Cont'd

SETTLEMENT BASIS AND RESULTS TO PRODUCER IN LOCAL SMELTING PLANT:

Payments:		
Ag 95% of 300 ozs. - 285 @ .55¢	$	156.75
Lead - No payment		
Charges		
Treatment		40.00
Net per ton shipper receives from local plant	$	116.75
Net per ton shipping at present to Kellogg		104.58
NET GAIN PER TON TO SHIPPER	$	12.17

OPERATING PROFIT OF LOCAL PLANT:

Based on treamont charge of $40. per ton and costs of $15.85 adding thereto, for depreciation on plant equipment and interest on capital, $2.30 or total cost of $18.15 - profit is then - $21.85.

Under these conditions, as shown above, the shipper realizes $12.17 per ton more than with present operating means. The local smelting plant is also dependent for additional profit from lead metal shipments on one of two different means as follows: A. & B.

A. Truck haul - Keno to Mayo	$10.00
Mayo to San Francisco, via river str.	
R.R. and Ocean Str.	15.00
Skagway - S.F. (Est.)	5.00
Refining charges	3.00
Duty - 1.5¢ per lb.	30.00
Frt. smelter to N.Y.	7.00
Total Charges per Ton Lead	$70.00

With lead selling in the U.S. at 4¢, one ton -	$80.00
Total Charges and Costs of marketing	- 70.00
A. Net Profit per ton lead	$10.00
Net per ton of crude ore on the above basis is then - 95% extraction x 1200# x $0.50 -	6.00

B. Truck haul - Keno to Mayo	$10.00
Mayo to St. Michaels via Yukon River Str. (1800 m.) thence to Japanese or European market: (est.)	12.00
Ocean Frt. St.Michaels to Japan or Europe	7.00
Refining Charge (Max.)	3.00
Incidental - brokerage, handling etc.	3.00
Total charges per ton lead	$35.00

Custom Smelter - Cont'd.

With lead selling in the U.S. at 4¢, one ton =	$80.00
Total charges and costs of marketing	35.00
B. Profit per ton pig lead	45.00
Net per ton of crude ore on this basis is then - 95% extraction x 1200# x $2.25 -	$ 25.65

SUMMARY - SMELTING PROFITS:

Per ton Crude Ore

	Smelting Profit	Lead Profit	Total Profit
A	$ 21.85	6.00	27.85
B	21.85	25.65	47.50

The foregoing presents what I believe are fairly obtainable results. For example: As an alternative to coke as fuel, charcoal can be contracted for locally at a price delivered at $20. per ton instead of the estimated laid-down cost of $34. per ton for coke. Also, the various other items listed under costs are all thought to be high.

Additional net profit to the local producer is $12.00 per ton under these conditions, and which figure can obviously be changed in favor of the smelter. As a matter of policy alone, it would doubtless be better at the outset to charge the mine operator, say, $50.00 per ton treatment at least until plant operations were well under way.

Operating profits are, of course, based entirely on tonnage, and tonnage, in turn, depends largely on silver prices. At this date it seems safe to assume silver at 55¢ for some years to come and that figure has been taken as a basis of calculation.

Lead has been assumed at 4¢ per pound and any increase in price will greatly add to profits.

Although the camp has been dormant for three years, already five active operations are started and have the usual grade of ore. Four of them are breaking and sacking ore at present. In a lettersent me by Mr. Sime, Government Assayer, he states he has just interviewed Mr. Wernecke, Manager of Bradley interests (Treadwell Yukon Co.), in which the latter made the statement that he will start full operations next spring.

It is only a question of a short time until the district is again humming with activity.

Some 70,000 tons were produced in not much more than five years and it is my opinion that within a year or two at most, some 10,000 tons will be produced annually as a minimum. Certainly much more than 10,000 tons will

Custom Smelter - Cont'd.

be produced with a custom plant in operation, for a number of mines whose grade in shipment lots of 50 to 1,000 tons carrying 150 ozs. to 200 ozs. Ag are not now able to operate.

There is every indication that eventually the district will support milling capacity of at least several hundred tons per day. Custom milling also offers extremely interesting possibilities but the outstanding need and greatest immediate profits are to be derived from custom smelting rather than milling.

COST OF PLANT:

Without, at present, going into detail on this head, it is fair to say that using equipment now for sale at very nominal prices in the U.S. such a plant cost would be somewhat as follows:

50 - 60 ton lead stack	$ 15,000	
100 tons Frt. @ $50.	5,000	
Duty	5,000	
Tools and appliances	1,500	
60 h.p. gas engine and blower	1,500	
Frt. and Duty	500	
Steel and Fire Brick	8,500	
Roaster equipment	10,000	
Buildings	15,000	
Stack	5,000	
Assay Office and Equipment	3,000	
Land	5,000	
Preliminary expenses	5,000	
Refining equipment installed	10,000	
Flue Dust equipment	10,000	
Approx. Plant Cost Total		$ 100,000.

Supplies:		
Fluxes - 1,000 tons @ $7.	7,000.	
Fuel - 500 tons charcoal @ $20.	6,000	
1,000 " coke @ $34.	34,000	
Ores-1,000 " @ $100	100,000	
Pay-roll, Operating fund etc.	53,000	$ 200,000.
		$ 300,000.

The above gives a rough idea of costs involved. It has been hurriedly prepared and is frankly subject to revision, though thought to be on the safe side and with sufficient time for realization on silver produced.

Custom Smelter - Cont'd

CONCLUSIONS:

There is every reason to believe that this district will be one of increasing importance and activity in coming years.

With severe pioneering difficulties, primitive equipment and conditions, only one mill of 125 tons daily capacity, poor roads and other facilities, it has still been able to have produced some 14,000 tons of high grade ore annually up to 1931.

It is my opinion that one can calculate with safety on at least 15,000 tons annually for treatment in this proposed plant, provided only that prices assumed for silver at 55¢ and lead at 4¢ are maintained.

With such a plant operating, a large number of small operators can start mining which could not hope to have done so under a wait of some three months or longer for returns and advance charges of some $60. per ton. Further, hitherto no ore of grade under 150 ozs. Ag per ton could be considered.

On the basis of $20. per ton profit the annual net operating profit would then be $300,000. with a plant investment of about $100,000.

I, therefore, consider the enterprise a safe and conservative investment from any angle and recommend its most careful consideration.

Finally, it may be safeguarded by the acquisition of mining properties which in themselves will in all probability furnish capacity tonnage and even without such proposed smelting plant, they constitute attractively lucrative enterprises in themselves.

This phase of the matter has been taken up under other headings covered by mining operations proper.

Respectfully,

Marshall D. Draper

November 20th, 1934.