MR 104-3

NOTED

APR 30 1943

D. D. STEWART

CONFIDENTIAL

Report on Operations of

Red Mountain Chromite, Inc.,

April, 1943

Red Mountain Chromite was organized in about 1940 by a group of Portland businessmen. Mr. Blodgett, a millionaire lumberman, controlling seventy-five percent of the stock. Mr. Hamblin, a promoter-engineer, controlling twenty-five percent of the capital stock plus a salary for engineering the job. It is reported that Hamblin then turned five percent of his stock to Mr. Pierre Hines, an equipment designer. It is not clear whether some stock was turned over to the Stephen Adamson Equipment Co., however all mining and other equipment seemed to have come from this source.

Operations were commenced on Claim Point, a large low-grade deposit on the southwest tip of Kenai Penninsula. A wild orgy of spending then began and tons of equipment were unloaded on every incoming boat. (Cost sheet enclosed gives partial list of equipment owned by Red Mountain.) However late in 1940 a plan was initiated to mine, crush to three-quarter inch, convey to a 600' wharf, load on open barges and ship to the Alaska Juneau Mine at Juneau for milling. The ore being about eighteen percent chromic oxide, a milling process was necessary before the material would have a market. The U.S. Bureau of Mines had conducted some milling tests on the ore and reported a table concentration to fifty percent Cr_2O_3 after grinding

to 40 mesh. A large conveyor was also installed in the Alaska Juneau mill to bring the raw ore to the mill. This same conveyor was to bring the finished product back to the dock for shipment to the states. At this time a Mr. Knause was superintendent of operations. A total of nine conveyors conveying from inside the mine to the dock were ordered. Two large crushers were ordered, one being lost in over twenty fathoms of water off Claim Point when it was unloaded onto a small raft. To this date, April, 1943, the above equipment has not been uncrated.

In early 1942 the USBM drilled on the property, roughly outlining the deposit. By the middle of 1942 a few hundred feet of drift had been driven to the ore body. However, as soon as this took place, operations were closed down and a wild scramble was begun to develop the high grade deposit about twenty-five miles away on the "Star 4" claim at the head of Windy River Valley on Red Mountain. As a new camp had to be built and 9½ miles of road over the worst kind of terrain constructed, no mining operations were carried out in 1942. Attempted construction of a road, the building of the dock camp, a wharf, a lower tram terminal camp, an attempt at construction of an aerial tram, took all the summer and fall of 1942.

The tramline to the upper workings was never finished, although the lower bunker was constructed. Two of the tram towers were blown down during the winter of 1942-1943.

Mr. Knause had been relieved of his position and a Mr. Woodward was installed as superintendent in April, 1942. A cat trail to the to of Red Mountain was constructed during the fall of 1942 and all supplies were brought up this way. However, no camp was yet constructed at the deposit at the time of snowfall and Woodward was relieved of his position. Mr. Collis E. Druley, formerly of the Alaska Juneau, who superintended the tunnel driving at Claim Point, was then made superintendent. During November, December of 1942, January, February, and March of 1943, an upper camp was established and the cross cut to ore was driven (see plan map Star 4.) Mr. Druley made a trip to Portland during this period and expected to push the opening of the ore body during the summer. However, after reaching the ore and drifting 200' on ore, a closing down order was received on April 5. One watchman was left at the upper working and four men were left at the dock camp. The upper camp is constructed in the worst possible place, blasted out of solid rock. No water, except that from melted snow, is available. During April, 1943, about 15' of drifted snow covered the camp Quansit huts and it is doubtful if they will survive the winter.

Future Operations

It is understood that of the $1,500,000 already spent by Red Mountain Chromite, about $20,000, was spent in actual mining at both Claim Point and at the Star # 4. Apparently

Red Mountain Chromite has now applied to the R.F.C. for a loan, as $100,000 has been made available to Mr. Larry Doheny, RFC Engineer, to commence operations as soon as possible. Doheny has laid out the enclosed program and costs. There are three possibilities:

1. Finish construction of the tramline and close down during the four to five winter months operation is impossible because of high winds and heavy snow conditions.
2. Repair road and grades to top of Red Mountain and truck ore down and supplies up, closing down during the winter months as in 1.
3. Construct or move upper camp to Windy River valley floor about a half mile south of the Chrome Queen Mine. Start a 2000' crosscut and 1200' inclined raise to ore in floor of present x-cut. This would also prospect some promising surface exposures on the slope northwest of the Star # 4. This work would guarantee year-round operations. At the same time during the summer of 1943 some ore could be extracted from the upper workings. In this way at least some ore could be made available during the estimated 250 days of driving the crosscut. If any bodies of ore at depth were intersected by the drift or raise they would immediately become available by cross cutting and mining. However, as per the enclosed cost sheet, over $200,000 would be necessary for the work. The final decision will be with the R.F.C.

It is understood that the U. S. Bureau of Mines is to drill in Windy River Valley this coming summer. The Juneau claim has been mentioned as a site of drilling. It should be stressed that all deposits available to transportation be drilled first, after these the other deposits should then be drilled. Above 2000' the snow, slides and heavy winds make continuous operation difficult if not impossible. Also it should be stressed that drilling be more thorough as some holes drilled last summer showing low grade ore or blanks, have revealed excellent deposits on mining. Specifically, the area south of the Chrome Queen to the Star 4 should be thoroughly drilled.

Submitted, 4/24/43,

Leo H. Saarela

Leo H. Saarela,
Assayer in Charge,
Territorial Dept. of Mines,
Anchorage, Alaska.

B. D. Stewart

DEPARTMENT OF MINES
TERRITORY OF ALASKA

ACKNOWLEDGMENT OF ORDER -- Please Check Carefully
Keep this sheet for reference when ordering Repair Parts

Los Angeles, January 23, 1942.

Sheet Number 1

CONFIDENTIAL

L. A. No. 31131

Sold to: Red Mountain Chromite, Inc., Your No. Contract
904 Public Service Bldg., Portland, Oregon. Your Req.

Ship to: Above, c/o Alaska Steamship Pier, A/O
Seattle, Wn. L. A. Inv.

Via Rail Freight, Collect Terms Promised: see below

PRIORITY: "A-1-C", ORDER P-19A, SERIAL No. 2294-A.

DELIVERY: APPROXIMATELY EIGHT (8) WEEKS.

(1) All shipments to be boxed for shipment to Alaska.

(2) No package to weigh over 10,000# gross. (Max. for ship's tackle)

(3) Get final shipping instructions from Mr. K. E. Hamblen, Mgr., Red Mountain Chromite, Inc., 904 Public Service Bldg., Portland, Oreg. Phone Beacon 8836.

(4) All packages to be marked with gross & net weights, dimensions and "MADE IN U.S.A." Final marking instructions to come from customer.

(5) Acknowledgement sheets in quadruplicate to customer at Portland.

(6) Blue-prints in quadruplicate to customer at Portland.

(7) Shipping notices in quadruplicate to customer at Portland. Open Bill-of-Lading.

(8) Three (3) rolls of belting to be shipped directly to Seattle, all to be properly marked & protected from weather and other forms of damage.

CONFIDENTIAL

-DRWG.LA-8-306-1 M/P -

- CONVEYOR #1.24" x 325'0" C-TO-C APPROX. -

- HEADSHAFT. MARK S-1-1 -

1		Shaft, 4-7/16" crs x 6'2" Lg., KS per Drwg. & Keys A
2		Rigid Quarter Bearings 4-7/16" babbitted 4-bolt base
	4-	#3 Grease Cups
2		Shaft Collars 4-7/16"
1		Cast Iron Double-arm Pulley 36" x 26" Crown Face, fitted with rubber-covered lagging, hubs 8" x 6" thru, bore 4-7/16" K8 1-1/8" x 9/16" & 2 88 1" USS @ 120° each hub.
1		Cut Cast Steel Sprocket, 70-teeth, 1-3/4" pitch, 40.1" pd, hub 8" x 6" long, central, bore 4-7/16", KS 1-1/8" x 9/16" & # 2 ~~88~~ 1" USS @ 90°
		(Ratchet Holdback per Drwg. M-2023-4 M/P to Follow.)
18' 0"		#474 Diamond Roller Chain 1-3/4" pitch
1		#474 Offset Link 1-3/4" Pitch
		(Gearmotor, sprocket & starter to follow) S
75		Style #235 Pacific Timken Carriers for 24" belt, 5" rolls, complete per std. form LA-3A, except fitted with Mall. Iron end stands, Patt. LA-1624-R -L. A
32		Style #235 Pacific Timken Return Rolls for 24" belt, 5" rolls, complete per std. form LA-3A, with Mall. Iron Hangers, 3-3/4" drop, Patt. LA-1629-R -L.

- SNUBSHAFTS, MARK S - 1 - 2 -

3		Shafts, 2-15/16" CRS x 4'10" LG., KS per Drwg. & Keys H

4 Rigid Pillow Bearings 2-15/16" babbitted 2-bolt base K.

6- #3 grease cups

6 Shaft Collars 2-15/16"

3 Cast Iron double-arm Pulleys 18" x 26" straight face,
Hubs 5-1/2" x 4-1/2" long, bore 2-7/16", KS & 2 ss 88 @ 120°
One Hub, 2 SS @ 120° only other hub.

- TAILSHAFT, MARK S-1-3 -

1 Shaft, 3-7/16" CRS x 4'10" long, KS per drwg. & key

2 Shaft Collars 3-7/16" S

2 Style "C" heavy duty cast iron TAKE-UPS 3-7/16" x 12" A
travel, with: B

2- Pipe Nipples 3/8" x 3" long T.B.E. C

2-Pipe Couplers 3/8" D

2- #3 Grease Cups E

1 Cast Iron double-arm Pulley 24" x 26" Crown face, hubs F
6-1/4" x 5" long, bore 3-7/16", KS & 2 SS @ 120° one hub, G
2 SS @ 120° only other hub. H

(NOTE: VERTICAL GRAVITY TAKE-UP TO FOLLOW.) K

- DRWG. LA-M-2023-4 M/P -

1 8-A Silent Safety Holdback for Conveyor #1, bore 4-7/16", A
left-hand assembly, complete as follows:

1 Cast Steel Ratchet Wheel, Patt. LA-1547, 20-teeth, 2" C.P., 2½"
face, 19.10" OD, hub 8-1/4" x 4-3/4" thru, offset 1-1/4" x 3-1/2",
left-hand arrangement, bore 4-7/16", KS 1-1/8" x 9/16"
& ~~#~~ 2 SS @ 90°.

1 Cast Steel Ratchet Pawl, Patt. LA-1548, drilled per drwg.

1 Brake-Band, mark 4-BB-1, made of 1/16" x 1-1/2" SAE 1095
Steel, riveted to 1/2" x 6-1/2" long stud, flattened at one
end & threaded per drwg., & fitted with:

1- Hex Nut 1/2" USS

1- Hex Half-Nut 1/2" USS

1- Cut Washer 1/2"

1- Compression Spring, 7/8" OD x 2-1/2" Free Length, #10 GA. wire,
ends ground flat. Stock Spring #49, C.S.CO.

1 Pawl Bracket, mark 4-PB-1, 3" x 2" x 3/8" angles x 9" long,
welded, drilled & punched per drwg. S

1 Lever, mark 4-L-1, made of 5/16" x 1-1/2" steel, bent & punched A
per drwg., with 1/2" pin x 2-1/2" LG., drilled & welded on.

2- Cut Washers 1/2"

2- Cotter-Pins 1/8" x 1" long

1 Pawl Pin, mark 4-P-1, 1" CRS x 4-3/4" long, drilled per drwg.

2- Cut Washers 1"

2- Cotter Pins 3/16" x 1-3/4" long G

1 Link-Pin, mark 4-P-2, ~~[illegible]~~ 1/2" x 3-9/16" lg., drilled per drwg. H I

2- Cut Washers 1/2" K

2- Cotter-Pins 1/8" x 1" long L

1 Bar-Link, mark 4-L-2, made of 3/16" x 1-1/4" bar, bent & punched per drwg. M N O

1 Ditto, mark 3-L-3, as above

1 "U.S." Synchrogear motor, 25HP @ 100 RPM, frame 912-60, type 6D, 3 Ø, 60-cycle, 440-volts. A B

1 Sliding base for same. C

1 Cutler-Hammer Mag. Starter with separate push-button, 440-V. D

1 Cut Steel Sprocket, 14-teeth, 1-3/4" pitch, 8.712" PD, hub 5¼" x 2-3/8" thru, offset one side, bore 3", KS 2" x 3/8" & 2 88 E F

Sheet Number 17

- TUNNEL CONVEYOR #7.24" x 260'0" C-to-C -

- HEADSHAFT, mark S-7-1 -

1 Shaft, 4-7/16" CRS x 5'7" lg., KS per drwg. & keys F

2 Shaft Collars 4-7/16" G

2 Rigid Quarter Bearings 4-7/16" babbitted 4-bolt base H

4- #2 Grease Cups K

1 Cast Iron Double-Arm Pulley, 36" x 26" crown face, fitted with rubber-covered lagging, hubs 8" x 6" long, bore 4-7/16", KS 1-1/8" x 9/16" & 2 ~~SS~~ @ 120° each hub. Arm Patt. LA-1558. L M N

1 Cut Cast Steel Sprocket, 70-teeth, 1-3/4" pitch, 39.006" PD, hub 8" x 6" long, central, bore 4-7/16", KS 1-1/8" x 9/16" & 2 ~~35~~ @ 90°. O P Q

- SNUBSHAFTS, Mark S-7-~~[illegible]~~ -2,3-REQ'D - R

Shafts, 2-15/16" crs x 4'10" lg., KS per drwg. & keys S

- DRWG. LA-S-306-1 M/P (Cont'd) -

		Item no
6	Shaft Collars 2-15/16"	A
6	Rigid Pillow Bearings 2-15/16" babbitted 2-bolt base	B
6-	#2 Grease Cups	C
3	Cast Iron Double-Arm Pulleys 18" x 26" straight face,	D
	hubs 5½" x 4½" lg., bore 2-15/16", KS & 2 SS @ 120° one hub,	E
	2 SS @ 120° only other hub.	F
	- TAILSHAFT, mark S-7-3 -	G
1	Shaft, 3-7/16" crs x 4'10" lg., KS per drwg. & key	H
2	Shaft Collars 3-7/16"	K
1	Cast Iron double-arm Pulley, 24" x 26" crown face, hubs 6¼"	L
	x 5" long, bore 3-7/16", KS & 2 SS @ 120° one hub, 2 SS @	M
	120° only, other hub.	N
2	Style "C" heavy-duty take-ups 3-7/16" x 12" travel, with:	O
2-	#3 Grease Cups	P
	- DRIVE -	Q
18'0"	#474 Diamond Roller Chain 1-3/4" pitch	R
1	#474 Offset Link 1-3/4" pitch	S
	PAGE 19	
1	Cut Steel Motor Sprocket, 21-teeth, 1-3/4" pitch, 11.742" PD,	A
	hub 5-3/4" x 2-1/2" thru, offset one side, bore 3", KS 3/4" x	B
	3/8" & 2 SS @ 90°	C
1	"U.S." Synchrogear Motor, 25 HP @ 100 RPM, frame 912-60, type GD,	D
	3,60-cycle, 440-volts.	E
1	Sliding base for same.	F
1	Cutler-Hammer Magnetic Starter for same, with separate push-	G
	button, 440-volts.	H

65 Style #235 Pacific-Timken carriers for 24" belt, 3-roll, 5" ø rolls, complete per std. form LA-3A, except fitted with Mall. Iron end-stands, Patt. LA-1624-R & -L.

26 Style #235 Pacific-Timken return rolls for 24" belt, 5" ø rolls, complete per std. form LA-3A. Fitted with mall. iron hanger brackets, Patt. LA-1629-R & -L.drop 3-3/4".

Change Item "S", sheet 33, to read as follows:

22 Boxes (220 sets) #1½ Flexco H-D Fasteners

- BELTING & FASTENERS -

The following "Goodrich" Conveyor Belting, 24" wide, 5-ply, 32-oz. Duck, 1/8" x 1/32" rubber covers, style "C":

1 Pce 750'0" long

1 pce 700'0" long

1 pce 1350'0" long

The following "Goodrich" conveyor belting, 18" wide, 5-ply, 28-oz. duck, 1/8" x 1/32" rubber covers, style "C":

1 pce 500'0" long

1 #1½ Flexco Template x 18" long

1 #1½ Flexco Template x 24" long

2 #2 Flexco Belt Punches

2 #2 Flexco Belt Wrenches

16 Boxes (160 sets) #1½ Flexco H-D Fasteners

2 #1080 "Alemite" Grease Guns, 1/8" Pt, with: A

2 #1189 "Alemite" armored hoses with botton-head nozzles. B

12 #A-1184 Alemite Lubricators (spares) C

24 #C-69 Alemite Lubricators (spares), with: D

24- Nipples 1/8" PT x 4" long, threaded both ends E

- MORE TO FOLLOW -

(DRWG. LA-L-3003-15)

1 36" x 8'0" C-to-C Amsco Manganese feeder, complete per drwg. asfollows: A B

1 Steel frame, mark F-1-F, made of 10" x 5 3/4" I-beams @ 21.0#, C

9" channels @ 13.4#,10" channels @ 15.3# and various bars & plates D

per drwg. Finish with one shop coat of red lead. E

- HEADSHAFT, mark S-2-F - F

1 shaft, 3-15/16" ∅ crs x 5'5-1/2" long, KS per drwg. & keys G

2 Shaft Collars 3-15/16" H

2 Angle Pillow Bearings 3-15/16" babbitted 4-bolt base, K

with bases planed, patt. LA-1639-8 & -C. with: L

4- #2 Grease Cups M

2 Manganese Steel Sprockets, 9-teeth, 6" pitch, 17.543" pd, hubs N

5" long, central, bore 3-15/16", KS-in-line & 2 [illegible] @ 90° — O

1 SAE 1040 cast steel cut-tooth spur gear, 112-teeth, 2½ DP, — P

44.80" PD, hub 7" ∅ x 6" thru, central, bore 3-15/16", KS & 2 Q

[illegible] @ 90°. Patt. LA-2½ DP/112T. Face 4¼". R

CHANGE TAILSHAFT TO READ AS FOLLOWS: A

- TAILSHAFT, mark S-2-F - B

1 Shaft 3-3/16" ∅ x 4'11" long, KS per drwg. & keys C

2 Shaft Collars 3-3/16" D

2 Angle Pillow Bearings 3-3/16" babbitted 4-bolt base with bases planed, (use Patt. LA-1437-B & -C, babbit to 3-3/16"),

4- #2 Grease Cups

2 Manganese Steel Traction Wheels, 14.793" PD, hubs 5" long, central, bore 3-3/16", KS & s 88 @ 90°.

(Place 3-7/16" Ø shaft, collars and bearings in stock.)

- TAILSHAFT, mark S-2-F -

1 Shaft, 3-7/16" Ø crs x 4'11" long, KS per drwg. & keys

2 Shaft Collars 3-7/16"

2 Angle Pillow Bearings 3-7/16" babbitted 4-bolt base with bases planed, with: (Patt. LA-1457-B & -C)

4- #2 Grease Cups

2 Manganese Steel Traction Wheels, 14.793" PD hubs 5" long, central, bore 3-7/16", KS & 2 88 @ 90°

- COUNTERSHAFT, mark S-3-F -

1 Shaft, 2-15/16" Ø crs x 5'9-1/2" long, KS per drwg. & keys

2 Shaft Collars 2-15/16"

2 Rigid Pillow Bearings 2-15/16" babbitted 4-bolt base with bases planed, with:

2- #2 Grease Cups

1 Cut Steel Sprocket, 70-teeth, 1¼" pitch, 27.862" PD, hub 6" Ø x 5" thru, central, bore 2-15/16" Ø, KS & 2 88 @ 90°

1 SAE 1040 Cut Steel Spur Pinion, 17-teeth, 2½ DP, 6.800" PD, 4½" face, bore 2-15/16", KS & 2 88 @ 90°, hub 5½" Ø x 1½" proj. one side.

Drwg. LA-L-3003-15 (Cont'd) -

- UPPER TRACK WHEEL SHAFTS, MARK S-4-F -

4 Shafts, made of 2-1/4" Ø Hot-Rolled Steel, length 3'3", turned at each end to 2" and 1-31/32" and 1-15/16" diameters per drwg.

8 Cast Iron Pedestal bearings, patt. LA-1282, babbitted 1-15/16", drilled & tapped for: (use stock castings)

8- #1 Grease Cups

8 Manganese Steel single-flanged wheels 8" Ø, bore for press fit on 1-31/32" Ø shaft.

8 Manganese Steel plain wheels 8" Ø, bore for press fit on 2" Ø shaft.

- LOWER TRACK WHEEL SHAFTS, mark S-5-F -

2 Shafts, made of 2-1/4" Ø Hot-Rolled Steel x 4'5" long, turned at each end to 1-15/16" & 1-31/32" diameters per drwg.

4 Cast Steel Pedestal Bearings, Patt. LA-1282, babbitted 1-15/16" & drilled & tapped for:

4- #1 Grease Cups

4 Manganese Steel single-flange Wheels, 8" Ø, hubs bored for press fit on 1-31/32" Ø shaft.

* DRIVE *

1 Cut Steel Sprocket, 15-teeth, 1-1/4" pitch, 6.012" PD, hub 4¼" Ø x 1-3/4" thru, offset one side, bore 2-1/2", KS 5/8" x 5/16" & 2 ~~SS~~ @ 90°.

15'0" #470 Diamond Roller Chain ~~XXXX~~ 1-1/4" pitch

1 #470 Offset Link 1-1/4" pitch

1 "U.S." synchrogear Motor, 3 HP @ 37 RPM, frame B22-40, Type 60, 3 Ø, 60-cycle, 440-volts.

1 set Sliding Bases for same.

1

1 "Cutler-Hammer" Magnetic starter for same, with separate push-button, 440-V.

* CHAIN & PANS *

43 Manganese Steel Feeder pans, 6" pitch x 36" wide x 1/2" thick, riveted to:

2 Strands, 43-Links each, of Manganese Steel Feeder chain, 6" pitch, with Manganese steel pins, & with soft iron wedges,

* BOLT LIST *

50	Machine Bolts	5/8" x 2" long with nuts & cut washers	—
8	" "	5/8" x 3" long, ditto	—
8	" "	3/4" x 3-1/2" long, ditto	—
8	" "	3/4" x 4" long ditto	—
2	Sq.Head Setscrews	3/4" x 3" long & lock nuts	—
2	Ditto	3/4" x 6" long & ditto	—

* DRWG. LA-L-3003-12 *

2 5' x 8' single-deck vibrating screens, complete as follows:

2 Screen Upper Decks, mark UD-1, made of 1/4" steel plate & angles per drwg.

2 Screen Blower decks, mark 1-LD-1, per drwg., made of 1/4" steel & Angles.

Finish in one coat of red lead.

(OPTIONAL) Some parts may be necessary.

* DRWG. L-16815-54 *

15 24" belt loading tunnel gates, style #410-D, as follows:

15 Chutes, mark 54-C1, made of 1/4" steel & angles per drwg.

15 Basket chutes, mark 54-B1, made of 3/16" steel & bars per drwg. with std. handle welded on as shown.

15 Gates, mark 54-G1, made of 1/4" steel, with:

30- Cast Iron Flange Bearings, Patt. LA-1742 (new), bore 1-7/16", 15-Req'd KS & SS. 15-Req'd SS only.

60- Capt Screws 1/2" x 3/4" long & LW

15 Cast Iron Lever hubs, Patt. LA-1741 (new), bore 1-7/16", KS & SS per drwg. hub 3" thru. M N

15- Levers 5/16" x 2" bar x 4'11" long, punched per drwg. O

30- Machine Bolts 5/8" x 1-3/4" long with nuts & LW P

75'0" #2/0 Triumph lock link chain (each gate provided with two (2) pces 2'6" long. Q

15 Operating shafts, mark 54-"1, 1-7/16" Ø crs x 2'3-1/2" lg., KS per drwg. R

Sheet 46

30- Shaft Collars 1-7/16" A

15 Latch Frames, mark 54-LF-1, made of $\frac{1}{8}$ of $\frac{1}{4}$" x 2" bars & 3" pipe per drwg. B

Sheet Number 49

1 Grizzly Section, 3'1" x 6' 2", made of 3/4" x 6" bars x 6'2" long, $1\frac{1}{2}$" x $1\frac{1}{2}$" bars, welded thereto, 1" Ø bolts x 3'1" long, 1" pipe spacers x $3\frac{1}{4}$" long & 1" Hex Nuts, all as per drwg.

CONFIDENTIAL

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PLAN AND COST OF METALS RESERVE

CHROME PURCHASE DEPOT AT KASITSNA BAY ALASKA

The proposed site of the Metals Reserve Co. chrome purchase depot is at Kasitsna Bay, a small tributary of Jackaloff Bay on Cook Inlet, and is twelve miles south of Homer. Sheet 1 gives the general layout of the camp and wharf of Red Mountain Chromite, Inc. Sheet 2 gives the wharf details.

Camp

The camp of Red Mountain Chromite, whose head office is at 904 Public Service Building, Portland, Oregon, consists of mess and bunkhouse, office, warehouse, completely equipped shop, power house and two prefabricated cabins. The camp is modern throughout with all facilities for approximately fifty men. The bunkhouse is a structure about fifty by eighty feet with mess included. The shop is completely equipped with welders, lathes, and other repair tools. The power house contains a gasoline driven 25KW generator and also a small 5KW Kohler light plant.

Wharf

The wharf consists of an approach of 180 feet supported by twelve bents of five piles each. The dock section is 135 x 25 feet and is supported by ten bents of seven piles each. The approach is driven from a rock faced cliff at about 25 feet above mean low water. The end of dock section averages four

and a half fathoms at mean low water. (The driving pattern is given in sheet two.) The piling for the dock was cut near the camp and the wharf was constructed during September and October, 1942. The present condition of the dock is not good, as brace piles were never driven. Also the wood boring Toredos are especially active in this part of Kachemak Bay and they may have attacked the piling. Across the bay at Homer the piles must be replaced constantly as the piles are completely honeycombed within a year. The only real solution to this is treated fir piling. Red Mountain Chromite has on order 25 seventy-five foot untreated fir piling from the Pacific Coast. However they had not arrived at the time of visit. These fir piles with bark have an estimated life of four to five years. More work will be necessary to maintain the dock before the summer of 1943 is over. Following is a breakdown of costs of construction of the wharf as near as could be obtained from the mine office:

Pile Cutting May 1 to August 15	$ 2946.02
Decking labor Sept. 1 to Oct. 15	3575.45
Decking Material (estimated)	1500.00
Driving Dock Anderson Dock Co.	3716.50
	$11,737.97

GENERAL CONSIDERATIONS

IN CONNECTION WITH THE CONSTRUCTION AND OPERATION

OF CHROME PURCHASING DEPOT

Expected Production

1. According to Mr. Larry Doheny, RFC Supervising Engineer, the Chrome Queen Mine in Windy River valley now has one thousand tons of low grade-A chrome on the ore dump and

another five hundred tons are being held in the stopes. Doheny expects the Chrome Queen to produce approximately one thousand tons per month. Total proved reserves of this property are seven thousand tons with much higher probables.

2. Red Mountain Chromite's Star # 4 claim has probable reserves of 29,000 tons of low grade "A", and possibly some of this will be high grade "A". If the proposed RFC program for a long x-cut and inclined raise goes through, (as per the enclosed map) approximately two thousand tons per month will be produced by this property. This program will take approximately two hundred days to get into production but it would assure a year-round operation. Snow conditions are not critical on the Windy River valley floor as they are on the summits. The present mining setup at the Star 4 is not practical as the high winds and drifting snow make transportation almost impossible. Considering the above, after a year's time a total of three thousand tons might be purchased each month, and a rate of one thousand tons is guaranteed at least for the first eight months.

KX 104-12

Road Transportation from Mines

The truck road to the properties is not yet complete, some parts being passable only with a caterpillar tractor. The Alaska Road Commission crew arrived at Red Mountain Camp on April 20 and began work immediately. Mr. Edmunds, superintendent, estimates that about two months will be necessary to complete the work. The road may be expected to be ready for trucking by July 1st.

The road could be easily kept open in the winter although some snowplowing will be necessary. Severe as last winter was, the road was perfectly clear until the last of February, when plowing became necessary.

Shipping Situation

According to Mr. Collis E. Druley, superintendent at Red Mountain Chromite who had investigated the shipping question, the Alaska Steamship Co. would load a minimum of one thousand tons in twenty-four hours. The demurrage on the Alaska Steamship's "Cordova" is $100 per hour for each hour over the allotted time. Thus assuming a minimum of one thousand tons per sixteen hours, this gives an hourly loading rate of 62.5 tons or a little over one ton a minute. Assuming a loading of two thousand tons gives 125 tons per hour or over two tons per minute.

Method of Storage and Loading

Previous to the shut down order of April 5 from the Portland Office, Red Mountain Chromite had expected to load the chrome ore themselves and Mr. Druley had decided on a surface ore storage and an ore pass with a conveyor system. As per sheet B, it is estimated that eight hundred dollars has been expended for cutting out the dump and ore pass. As the firm had a total of nine conveyors ranging from fifty to six hundred feet in storage at Claim Point, the Kasitsna Bay conveyor was to be constructed from one of these.

Character of Ore

The fifteen hundred tons of low Grade "A" in storage at the Chrome Queen is exceptionally coarse size, the average being squares of about five inches. According to Doheny, forty percent of the material is approximately 10" to 12". An estimated five percent is rice size. The chrome ore from the Red Mountain Chromite's Star # 4 claim will not be as large as the Chrome Queen ore as the vein is banded with fractures. As it is naturally crushed, shooting will cause finer breakage. Handling this ore should not be difficult. The specific gravity according to the U.S. Geological Survey is 3.6 for forty percent ore. This gives ten cubic feet to a long ton of 2240 lbs., or 8.8 cubic feet per short ton.

LAYOUT AND DESCRIPTION OF CHROME PURCHASE PLANT

Scales and Scale House

This unit has not as yet been drawn up as the scales are not available. The location of this unit will be difficult as the present road from the Machine shop to the truck dump is only twenty feet wide. This makes it impossible for a bulldozer to pass on its way to the ore dump. Some rock work must be done before the road will be wide enough. The best location would be about thirty feet from the Power House, toward the Dump. An alternative would be the construction of a scale house with a covered and necessitating backing out each time the truck is weighed. If this arrangement could be carried out, no rock

work would be necessary and the unit could be placed off the side of the truck road where the seventy foot contour crosses the road just before the beginning of the grade to the truck dump.

Sample Crushing Space

The sample crushing and preparation room could be constructed as an addition to the weighing house or in the room covering the actual scales beam. One four inch by six inch jaw crusher is available in Anchorage from the Anchorage Sand and Gravel. Power for this will have to be a gasoline motor as electric motors are not available and power is limited.

Living Quarters

A twenty-four by twenty foot prefabricated cabin (cabin 1 Sheet A) owned by Red Mountain Chromite, Inc., is available at cost. This would serve as living quarters for the Metals Reserve crew as oil heat is already installed.

This cabin could also be set up as a laboratory for chrome analysis at the plant site. Red Mountain Chromite has complete assay equipment including a pulverizer and a chipmunk crusher in storage in the company warehouse. This equipment was not examined as it was still in crates. However it had been set up and used at Claim Point.

Board

Red Mountain Chromite has a contract for furnishing the board to the Alaska Road Commission crew now working on the road to Windy River Basin. The cost of board is $3.00 a day per man plus $0.20 a day for room. The cost to the employee

is $2.00 per day, the ARC absorbing the balance. Mr. Druley said the same arrangement could be made with the Metals Reserve crew.

Ore Dump # 2 Sheet A

As previously stated, approximately four thousand square feet storage space is already excavated. The storage space will have to be decked to prevent loss of chrome ore. A concrete floor was considered but scarcity of aggregate makes this unfeasible. Tamping one foot stringers to the dump level and covering with four by twelve inch plank would be the best solution. Approximately twelve thousand board feet will be needed for this decking. During operations, Red Mountain Chromite had a saw mill in operation and were sawing three thousand board feet daily. If Red Mountain Chromite were to resume operations, this lumber could be obtained at cost ($30.00 per thousand.) Otherwise lumber must be obtained from some other source. However, this should not be too difficult as there are numerous mills in the vicinity.

Grizzley # 3 Sheet A

Red Mountain Chromite has a grizzley in storage at Claim Point. The grizzley is described in the bill of lading as follows: (L.A. No. 31131 Sheet 49. 1 Grizzly section 3'1" x 6'2", made of 3/4" x 6" bars x 6'2" long, 1 1/2" x 1 1/2" bars welded thereto, 1" bolts x 3'1" long, 1" pipe spacers x 3 1/4" long & 1" hex nuts, all as per drwg.) As the ore is very coarse (see ore description above) very large pieces will have to be removed. Some cross bars will have to be cut out as the

size to be passed will be about ten inches.

Moving the ore from the storage pile to the chute must be done by a caterpillar bulldozer. No other arrangement would be practical. Red Mountain Chromite has a total of seven bulldozers now at the camp. Chrome Queen Mine also has a bulldozer large enough for the work. Any of these could be rented for the loading period.

Ore Pass and Chute # 4 Sheet A

The ore pass has been holed through but some work is still necessary. Trimming of the breakthrough and sides is necessary. The chute of the ore pass must be built well owing to the high specific gravity of the ore. Lining the chute lip with ¼ steel plates will be necessary to prevent destruction of the timbers. The ore pass will hold about 120 tons of ore and during discharging it must be kept partly filled.

Considerations of System for Moving Ore from Ore Chute to the Hold of Boat

The system to transport the ore from the chute to the hold must have the following qualifications:

1. It must be capable of averaging over two tons a minute for 16 hours (Loading 2000 tons.)
2. It must not place too great a stress over any one section of approach or wharf. Absolute maximum allowable weight 25 tons per section on dock in its present condition.

3. The loading system must not obstruct the passage of traffic on the dock.

4. Operating cost and initial cost should be low.

In conclusion, with the exception of initial cost, the conveyor system is the only system that fulfills the above qualifications.

Feeder # 5 Sheet A

The feeder must be able to feed the rated capacity of the conveyor (250 tons per hr.) Red Mountain Chromite has a 36" x 3'-0" AMS Co. Manganese Feeder in storage at Claim Point. The AMS Co. Feeder has a rated speed of 40 tons/hr with 50 lbs/cu ft and 10' per minute. As the chromite has a weight of 200 lbs/cu ft, this would raise the rate to 160 tons/hr, and as a belt speed of 30 feet per minute can be obtained, 250 tons per hour could easily be loaded. The feeder is complete as per the enclosed invoice # 31131 pages 36 to 40. The feeder should be driven by a gasoline motor as variable speed is necessary.

Hand feeding the conveyor was considered but if large shipments of say 2000 tons were to be loaded in the allotted 16 hours, hand loading would be impossible. Also considering the smooth feed and the saving of the belt, the feeder would soon pay for itself as rushes of the heavy ore would soon destroy the belt. Conveyor sheet # 1 shows approximate setup of the feeder.

Conveyor System # 6 Sheet A & Conveyor Sheets 1 & 2

The nine conveyors in storage at Claim Point include conveyors suited for the job. These are conveyors No. 1 (pages 2 - 4) and No. 7 (pages 17 - 19) as per the enclosed invoice. The conveyor belts have a width of 24" and a limiting maximum belt speed of 300 feet per minute. The rated capacity at this belt speed is 250 tons/hr for material with specific gravity 100 lbs/cu ft. The material to be moved has a weight per cubic foot of 200 pounds in the solid and the belt would easily carry the rated 250 tons/hr allowing for voids. The enclosed conveyor sheets one and two were drawn up from a sketch at the Red Mountain Chromite's office. However, numerous changes were made to facilitate building. Sections A to H will be simple to construct as each unit is identical. These sections are to be made of finished fir lumber. Red Mountain Chromite has over 100,000 board feet of this at Claim Point. The details of sections A to H are given on Conveyor Sheet No. 1

Conveyor Sheet No. 2 gives details of the Conveyor incline to the discharge. The maximum upward slope is 12½°. Exact vertical distances for each roller must be laid out during the work due to the imperfections in the surface of the dock. The reason for making the conveyor in 16 and 12 foot sections is that repairs of the dock will be necessary and sections of the conveyor will then have to be moved. The incline sections would be made from fir lumber as are sections A to H.

Additional bracing for the incline and discharge deck may be necessary. This can be easily taken care of during construction.

The conveyor is to be powered with a 1942 V-8 Model Ford power unit rated at forty h.p. at 2000 RPM available and at the property. The conveyor is equipped with an electric motor, but as the Red Mountain Camp Generator has a capacity of only 25KW and is already loaded, this could not be used as a source of power. Also, a power failure with a loaded belt would be disastrous, as no reserve is available. A gasoline power unit with the standard roller chain drive would be excellent as the speed of the conveyor could be controlled. Total power consumed by the conveyor is as follows:

Empty conveyor, 300'/min belt speed	3.2
Conveyor loaded level 300'/min	4.0
Conveyor loaded Lft 15'	4.8
H. P. Conveyor loaded	12.0 H.P.
10% for friction losses	1.2
Total H.P.	13.2

Conveyor Discharge into Hold

Discharging the conveyor into the hold will be a problem in checking the velocity of the ore so that it will not damage the hold. That is, until enough material has accumulated on the floor of the hold to absorb the impact. A telescopic chute approximately 24" deep and wide, swinging from the platform near the head pulley and suspended by the ship's rigging at approximately fifty degrees from horizontal, will bring the

ore from the conveyor discharge to the hold. A drape of 1" link-diameter chains will be suspended above the chute discharge to check excess velocity. From there, the ore will drop down a vertical chute with fifty degree deflectors every five feet and drapes of chains in front of these deflectors to check excess velocity. This initial precaution must be taken if the bottom of the hold has not been planked. After the first two hundred tons or so, the retarding chute should be removed and the discharge chute allowed to discharge directly into the hold.

COSTS - METALS RESERVE CHROME PURCHASE & LOADING PLANT

Scales - 1

1.	Scales and construction including $ 200.00 allotted for rock work) est.	$ 1300.00
2.	Living quarters for Metals Reserve Co, Building 24' x 20'. (Possible site for lab.)	300.00
3.	Freight from Portland and construction (estimated)	400.00
4.	Sample Crusher 4" x 6" - from Anchorage Sand & Gravel	200.00
5.	Power for crusher (gasoline) est.	100.00
		$ 2800.00

Storage and Dump - 2 & 3

1.	Dump surfacing 12,000 board feet lumber @ $30.00	$ 360.00
2.	Grizzley est.	50.00
3.	Dump, grizzley and chute labor est.	400.00
		$ 810.00

Chute and Feeder - 4 & 5

1.	AMS Co. 36" x 8' Feeder		$ 670.00
2.	Freight feeder from Claim Point	10% est.	67.00
3.	Power and gears for above	est.	100.00
4.	Chute and feeder labor	est.	200.00
			$ 1037.00

Conveyor - 6

1.	75 Stephens Adamson 235 Pacific Carriers @ $24.00		$ 1800.00
2.	26 " " " " Return @ 10.30		267.80
3.	500' 5-ply rubber conveyor belting @ $4.50 per foot		2250.00
4.	Pulleys for the above		130.00
5.	3000 feet Fir lumber @ $60.00 / 1000		180.00
6.	Freight on above from Claim Point	10% est.	462.00
7.	1 V-8 Industrial power unit (complete		647.00
8.	1 Transmission for the above	~~$400.00~~	255.00
9.	Labor 2-men 6 weeks construction above @ $400.00	est.	1200.00
10.	Discharge Chute labor & materials	est.	200.00
			$ 7391.80
			12,138.80
	10% allowed for contingencies		1,213.88
	Total Cost		$ 13,352.68

Submitted, 4/22/43,

Leo H. Saarela

Leo H. Saarela,
Assayer in Charge,
Territorial Dept. of Mine
Anchorage, Alaska.

Copy for Henry W. Clark

CONFIDENTIAL

TERRITORY OF ALASKA

DEPARTMENT OF MINES

JUNEAU, ALASKA

Report on Operations of
RED MOUNTAIN CHROMITE, INC.,
April 1943

KT, 104-B

35

Red Mountain Chromite was organized in about 1940 by a group of Portland businessmen. Mr. Blodgett, a millionaire lumberman, controlling seventy-five percent of the stock. Mr. Hamblin, a promoter-engineer, controlling twenty-five percent of the capital stock plus a salary for engineering the job. It is reported that Hamblin then turned five percent of his stock to Mr. Pierre Hines, an equipment designer. It is not clear whether some stock was turned over to the Stephen Adamson Equipment Co., however all mining and other equipment seemed to have come from this source.

Operations were commenced on Claim Point, a large low-grade deposit on the southwest tip of Kenai Peninsula. A wild orgy of spending then began and tons of equipment were unloaded on every incoming boat. (Cost sheet enclosed gives partial list of equipment owned by Red Mountain.) However late in 1940 a plan was initiated to mine, crush to three-quarter inch, convey to a 600' wharf, load on open barges and ship to the Alaska Juneau Mine at Juneau for milling. The ore being about eighteen percent chromic oxide, a milling process was necessary before the material would have a market. The U. S. Bureau of Mines had conducted some milling tests on the ore and reported a table concentration to fifty percent Cr_2O_3 after grinding to 40 mesh. A large conveyor was also installed in the Alaska Juneau mill to bring the raw ore to the mill. This same conveyor was to bring the finished product back to the dock for shipment to the states. At this time a Mr. Knause was superintendent of operations. A total of nine conveyors conveying from inside the mine to the dock were ordered. Two large crushers were ordered, one being lost in over twenty fathoms of water off Claim Point when it was unloaded onto a small raft. To this date, April 1943, the above equipment has not been uncrated.

In early 1942 the USBM drilled on the property, roughly outlining the deposit. By the middle of 1942 a few hundred feet of drift had been driven to the ore body. However, as soon as this took place, operations were closed down and a wild scramble was begun to develop the high grade deposit about twenty-five miles away on the "Star 4" claim at the head of Windy River Valley on Red Mountain. As a new camp had to be built and 9½ miles of road over the worst kind of terrain constructed, no mining operations were carried out in 1942. Attempted construction of a road, the building of the dock camp, a wharf, a lower tram terminal camp, an attempt at construction of an aerial tram, took all the summer and fall of 1942.

The tramline to the upper workings was never finished, although the lower bunker was constructed. Two of the tram towers were blown down during the winter of 1942-1943. Mr. Knause had been relieved of his position and a Mr. Woodward was installed as superintendent in April 1942. A cat trail to the top of Red Mountain was constructed during the fall of 1942 and all supplies were brought up this way. However, no camp was yet constructed at the deposit at the time of snowfall and Woodward was relieved of his position. Mr. Collis E. Druley, formerly of the Alaska Juneau, who superintended the tunnel driving at Claim Point, was then made superintendent. During November, December of 1942, January, February and March of 1943, an upper camp was established and the cross cut to ore was driven (see plan map Star 4.). Mr. Druley made a trip to Portland during this period and expected to push the opening of the ore body during the summer. However, after reaching the ore and drifting 200' on ore, a closing down order was received on April 5. One watchman was left at the upper working and four men were left at the dock camp. The upper camp is constructed in the worst possible place, blasted out of solid rock. No water, except that from melted snow, is available. During April 1943, about 15' of drifted snow covered the camp Quansit huts and it is doubtful if they will survive the winter.

FUTURE OPERATIONS

It is understood that of the $1,500,000 already spent by Red Mountain Chromite, about $20,000 was spent in actual mining at both Claim Point and at the Star #4. Apparently Red Mountain Chromite has now applied to the R. F. C. for a loan, as $100,000 has been made available to Mr. Larry Doheny, RFC Engineer, to commence operations as soon as possible. Doheny has laid out the enclosed program and costs. There are three possibilities:

1. Finish construction of the tramline and close down during the four to give winter months operation is impossible because of high winds and heavy snow conditions.

2. Repair road and grades to top of Red Mountain and truck ore down and supplies up, closing down during the winter months as in 1.

3. Construct or move upper camp to Windy River valley floor about a half mile south of the Chrome Queen Mine. Start a 2000' crosscut and 1200' inclined raise to ore in floor of present x-cut. This would also prospect some promising surface exposures on the slope northwest of the Star #4. This work would guarantee year-round operations. At the same time during the summer of 1943 some ore could be extracted from the upper workings. In this way at least some ore could be made available during the estimated 250 days of driving the crosscut. If any bodies of ore at depth were intersected by the drift or raise they would immediately become available by cross cutting and mining. However, as per the enclosed cost sheet, over $200,000 would be necessary for the work. The final decision will be with the R. F. C.

It is understood that the U. S. Bureau of Mines is to drill in Windy River Valley this coming summer. The Juneau claim has been mentioned as a site of drilling. It should be stressed that all deposits available to transportation be drilled first, after these the other deposits should then be drilled. Above 2000' the snow, slides and heavy winds make continuous operation difficult if not impossible. Also it should be stressed that drilling be more thorough as some holes drilled last summer showing low grade ore or blanks, have revealed excellent deposits on mining. Specifically, the area south of the Chrome Queen to the Star 4 should be thoroughly drilled.

Submitted 4/24/43,

/s/ LEO H. SAARELA

Leo H. Saarela
Assayer in Charge
Territorial Department of Mines
Anchorage, Alaska

TERRITORY OF ALASKA
Department of Mines
ANCHORAGE, ALASKA

RED MOUNTAIN CHROMITE, INC.

Seldovia, Alaska

Estimate of Tunnel Construction and Mining without Tram.

Time Schedule.

				No. days:	
	Lower Work:				
1/	2000 ft. Tunnel Crosscut	15 ft. per day	3 shifts	133	Crosscut No. 2.
	1200 ft. Raise	10 ft. per day	2 shifts	120	Double compartment.
			Total	253	

Ore Body.

2/	800 ft. Drift	10 ft. per day	2 shifts	80
	1350 ft. Stope Raises	10 ft. per day	2 shifts	135
			Total	215

Wage schedule including board

	Overhead		per mo.ea.	per mo.total.
3/	1 Carpenter	@	428.00	428.00
	1 Superintendent	@	625.00	625.00
	2 Mine Foremen	@	500.00	1000.00
	1 Engineer	@	500.00	500.00
	2 Clerks	@	375.00	700.00
	2 Mechanics	@	425.00	850.00
	1 Blacksmith	@	480.00	480.00
				4583.00
	4% Taxes & Compensation Insurance			186.00

4/ Weekly Wage Schedule:

	Per week
Miner	100.00
Mucker	77.00
Laborer	70.00
Carpenter	107.00
Compressor man	120.00
Machine man	98.00
Truck driver	100.00
Tractor operator	107.00

5/ 1 Boat and Captain 600.00 per month.
1 Deck-hand 325.00 per month.
Total 925.00 per month.
Taxes and Compensation Insurance, Deck-hand only-19.00

6/ Sawmill:

	Per mo.
1 Sawyer	400.00
3 Laborers	840.00
2 Fellers	744.00
1 Tractor operator	480.00
Total	2464.00

6% Taxes & Compensation Insurance 155.00

7/ Tractor Freighting:

		Weekly:	Per mo.:
1 Tractor	@ 4.00 per hr.	224.00	896.00
1 Driver		97.00	420.00
	Total	321.00	1324.00

6% Taxes on 420.00 only 26.00

8/ Truck Freighting:

	Weekly:	Per mo.:
1 Truck	140.00	560.00
1 Driver	100.00	400.00
	240.00	960.00

6% Taxes & Compensation Insurance on 400.00 only 24.00

Labor Cost of Lower Crosscut No. 2. 3 shifts.

9/

	Weekly:	Per 30 weeks:
3 Miners	300.00	10,800.00
3 Machine men	279.00	10,044.00
3 Muckers	231.00	8,316.00
	Total	29,160.00

6% Taxes & Compensation Insurance 1750.00

10/ Labor cost of Raise. 2 shifts.

	Weekly:	Per 17 weeks:
2 Miners	200.00	3,400.00
2 Machine men	186.00	3,162.00
2 Muckers	154.00	2,618.00
	Total	9,180.00

6% Taxes & Compensation Insurance 551.00

11/ Labor cost of Upper Drift. 2 shifts.

	Weekly:	Per 11 weeks:
2 Miners	200.00	2,200.00
2 Machine men	186.00	2,046.00
2 Muckers	154.00	1,694.00
	Total	5,940.00

6% Taxes & Compensation Insurance 356.00

12/ Labor cost of Stope & Raises. 2 shifts.

	Weekly:	Per 19 weeks:
2 Miners	200.00	3,800.00
2 Machine men	186.00	3,534.00
2 Muckers	154.00	2,926.00
		10,260.00
6% Taxes & Compensation Insurance		615.60

13/ Powder, Fuse and Caps requirements:

	Length Ft.	Powder @ 20 lbs. per Lin. ft.		Fuse @ 36" per Lin. Ft.		Caps @ 4 per Lin. ft.	
Crosscut No. 2.	2,000	40,000	lbs.	72,000	ft.	8,000	
Raise	2,400	48,000	" No.	86,400	" No.	9,600	No.
Drift	800	16,000	" Tons	28,800	" Reels	3,200	Boxes
Stope Raises	1,350	27,000	"	48,600	"	5,400	
		131,000	" 65.5 tons	235,800	" 78.5	26,200	662

Summary:

66 tons powder	$18,000.00
80 reels fuse	2,400.00
265 boxes caps	397.80
	20,797.80
480 lbs. Carbide	480.00
	$21,277.80

14/ Materials Needed:

1 (2 machine jumbo) For drilling face	5,000.00
Pipe 4" - 3500 ft.	3,850.00
Vent Tube - 2400 ft.	910.00
Track Spikes 1400 lbs.	100.00
Fish plates 640	200.00
1" Hex Steel 5 tons	5,000.00
1" Air hose 300 ft.	550.00
No. 2 R.P. Shovels 12	20.00
Storage battery, Motor & extra battery	4,500.00
1 Hoist	1,500.00
1 Blower	500.00
Machine parts	2,000.00
	21,930.00

15/ Fuel Oil

Tunnel No. 2, and Raise	36,000 gals. @ .10¢	3,600.00
Upper work	21,000 gals @ 10¢	2,100.00
		5,700.00

16/ Gasoline & Lubricating Oil:

Gasoline, for all work	15,000 gals. @ 16¢	2,250.00
Lub. Oil for all work	370 gals. @	2,500.00
		4,750.00

SUMMARY

Time Schedule:

Lower Tunnel & Raise	53 weeks
Upper Mine work	30 weeks - Simultaneous with above.

COSTS:

Group No. Refs.:			Taxes & Ins.:	
9 & 10	Labor. Lower Tunnel & Raise	$ 33,340.00	$2,300.00	
11 & 12	Labor. Upper Drift & Raises	16,200.00	972.00	
5	Labor. Overhead 12 months	55,596.00	2,225.00	
6	Labor. Sawmill 6 months	12,720.00	763.00	
7	Freighting, 6 months, Tractor	6,620.00	130.00	
8	Freighting, 12 months, Truck	11,520.00	288.00	
6	Boat Service, 12 months	11,100.00	226.00	
13	Powder	18,000.00		
	Fuse	2,400.00		
	Caps	400.00		
	Carbide	480.00		
	Renovating Windy River camp, Ore Bins etc.	10,000.00		
14	Materials needed	21,930.00		
15	Fuel Oil	5,700.00		
16	Gasoline & Lubricating Oil	4,750.00		
		$215,756.00	$6,904.00	$222,660.00
	Contingencies			10,000.00
	Total			$232,660.00

Cost Items not considered:

1. Overhead, Portland office
2. Make-off on purchases
3. Depreciation on equipment
4. Royalty or ground depletion
5. Use of all stocks on hand, no charge
6. Does not include interest on loan.

List of assets on ground

Camp Buildings and Structures:

Lower Camp:

1	Bunkhouse and Messhall, 2 story	40' X 70'
1	Office	20' X 24'
2	Houses	20' X 24'
1	Shop, fully equipped	40' X 60'
1	Warehouse	30' X 70'
1	Dock	200' plus 150' L.
6	Oil Tanks, constructed	6000 gallons each
10	Oil Tanks, knocked down	6000 gallons each
1	Powder house	8' X 8'

Windy River Camp:

1	Messhall, wooden	14' X 20'
2	Quansit Huts	22' X 32'
1	Quansit Hut	22' X 56'

Top of Mountain Camp:

5	Quansit Huts	22' X 32' (Salvage 50%)
1	Quansit Hut	22' X 56' (Salvage 50%)
1	Quansit Hut	22' X 32' (Wrecked)
2	Oil Tanks	2000 gallons each
1	Oil Tank	4000 gallons
3	Oil Tanks	500 gallons each
1	Powder house, portable	8' X 10'

Equipment:

NOTE: "C" indicates at Claim Point.

Mess and Bunk equipment for 5 men.
Complete Shop equipment
Complete Office equipment
7 Trucks, Ford 1½ ton, end and side dump, 3½ cu. yd. capacity.
2 - H.D. 14 Allis-Chalmers tractors with bull-dozers & towing winches.
1 - H.D. 10 " " " " " " " " "
1 - H.D. 7 Caterpillar tractor with bull-dozer.
1 - D-8 " " " " " and winch.
1 - Allis-Chalmers Road Grader.
1 - P & H Gasoline Shovel, ½ yd. with dragline boom & Pile Driver attachment.
2 - 15 ton Athey Wagon Trailers.
1 - Home made sled
"C" 2 - 500 cu. ft. I.R. diesel driven Air Compressors, 2 stage stationary.
2 - 105 cu. ft. C.D. Air Compressors, gasoline driven, 2 stage, portable.
1 - 360 cu. ft. C.D. Air Compressor, diesel driven, 2 stage, portable.
2 - 360 cu. ft. C.D. Air Compressors, diesel driven, 2 stage, stationary.
1 - Bitco Hot Miller.
1 - I.R. Bit Furnace, oil burning.
1 - I.R. Quencher
1 - I.R. Shank Grinder.
3 - Mine cars, 21 cu. ft.
"C" 2 - Mine cars, 14 cu. ft.
"C" 1 - C.D. 9, Mucking Machine
1 - C.D. 9, Mucking Machine
1 - Tramline 5000' Useless, unassembled.
Pipe. Plenty on hand except 4" for crosscut No. 2 air lines.

List of assets on ground - Equipment - continued

"C" 7000' - 20 lb. Rail
1200' - 20 lb. Rail

Drill Steel, Leyner Steel, all gone. Will need according to list.

1 - 25 ton Barge or Scow.
4 - Stopers, No. 104 Gardner-Denver
2 - Stopers, No. 91 " "
2 - Leyners, No. 83 " " , automatics.
2 - Leyners, No. 73, " " "
1 - Leyner No. 83, " " , hand fed.
1 - Leyner No. 73, " " " "
6 - Jackhammers, S-55, " "
1 - Single drum Tugger " "
"C" 1 - " " " " "
1 - Wagon Drill, D-99, " " with 4 sets steel.
1 - No. 30 Wheland Sawmill
"C" 1 - " " " "
1 - Lincoln Arc Welder, 300 Ampere, stationary.
1 - Wilson Arc Welder, 300 Ampere, Portable.

Stocks of:
Welding Rod - Sufficient on hand
Blacksmith steel- " " "
Plate steel " " "
Cable " " "

PROPOSED OPERATION SCHEDULE:

Mining and hand sorting in stope.
Trammimg to chute; motor haul to portal.
Trucking to depot at Beach, 9½ miles.
50 tons per day, 1,400 tons per month of 28 days.

	Mining Cost per Month:	Per month, ea.:	Total per month.	Cost per ton:
10	Miners	$400.00	$4,000.00	$ 2.86
10	Muckers	300.00	3,000.00	2.20
3	Trammers	309.00	927.00	.66
1	Blacksmith	480.00	480.00	.34
1	Compressor-man	400.00	400.00	.29
3	Trucks, 2 shifts @ $4.00 Hr.	1,792.00	5,376.00	3.84
6	Drivers	400.00	2,400.00	1.71
1	Tractor	896.00	896.00	.64
1	Driver	420.00	420.00	.31
1	Superintendent	625.00	625.00	.45
1	Mine Foreman	500.00	500.00	.36
1	Engineer	500.00	500.00	.36
2	Clerks	375.00	750.00	.54
2	Mechanics	425.00	850.00	.61
1	Carpenter	420.00	420.00	.31
1	Boat	925.00	925.00	.66
Tax & Compensation Ins. on $15,643.00			939.00	.67
Powder, Fuse, Caps and Carbide			700.00	.50
Gasoline, Fuel oil and Lubricants			294.00	.21
Lumber and Timber			200.00	.14
Repairs and Shop expense			300.00	.21
Incidentals			500.00	.36
	Totals		25,406.00	18.22
Gross Value 1,400 tons @ $40.00 ton			56,000.00	40.00
	Profit	plus	30,594.00	21.77

TERRITORY OF ALASKA
Department of Mines
ANCHORAGE, ALASKA

RECAP

Ore Reserves	29,000 tons	
10% Mining loss	2,900 "	
Note 1/	26,100 " @ $40.00 =	$1,044,000.00

1 year's mining, 12 - 28 day months, @ 1,400 tons per month.

= 16,800 tons @ $21.77 profit per ton	=	$365,736.00
Cash needed		232,660.00
Profit		133,076.00

1/ Ore dilution not considered as this will be taken care of in the knock down of assays to 40% Cr_2O_3.