EXPLORATION INCENTIVES PROGRAM DESIGNATION NUMBER EIP87-001

TRENCHING AND BULK SAMPLING REPORT

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QUARTZ CLAIMS REEF 1-4 INCLUSIVE (YA78081-84) QUARTZ CLAIMS REEF 5-10 INCLUSIVE (YA82517-22) PLACER CLAIMS KATE 1-8 INCLUSIVE (P26858-865)

YUKON TERRITORY CLAIM SHEET 115-N-2

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63°04'N 140°55'W

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BY IAN WARRICK AND KATHERINE ROBERTSON

MOOSEHORN EXPLORATION PROGRAM LIMITED PARTNERSHIP

MAY 9,1987 TO SEPTEMBER 22,1987

PAGE
Property ownership1
Introduction
The Hardrock Program
a) Introduction
b) History
c) 1987 Trenching & Bulk Sampling4
I Trenching4
II Bulk Sampling6
i) 19876
ii) 19867
d) Conclusion7
Photo & Section of "M" Vein8
Quartz Claim Sheet Detail9
Map of Reef Claim No. 510
Trench Detail10
Flow Diagram of Milling Process11
Assays
The Placer Program16
a) Introduction16
b) Trenching & Bulk Sampling16
c) Conclusion17
Photo & Section of Placer Ground
Placer Claim Sheet Detail19
Exploration Crew20
Report Preparation

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## PROPERTY OWNERSHIP

The following property is held in good standing by Ian Warrick:

-Quartz Claims Reef 1-4 (YA78081-84) inclusive -former Placer Prospecting Lease #7205; currently Placer Claims Kate 1-8 (P26858-865) inclusive

The following property is held in good standing by Katherine Robertson:

-Quartz Claims Reef 5-10 (YA82517-22) inclusive

## INTRODUCTION

The 1987 Moosehorn exploration season began in mid-March when the General Partner, along with a trucking contractor, hauled the heavy machinery and supplies (such as diesel and gasoline fuel) on a winter road that connects the Alaska Highway north of Beaver Creek and the foot of the Moosehorn Range. A hi-boy semi-tractor/trailer, along with a 4-wheel drive truck and trailer, were used to make several trips along this 75 km long winter ice road. Materials were cached at the bottom of the current Placer workings on Swamp Creek (which is located at the Alaska/ Yukon border on the Moosehorn Range).

Later in the spring, on May 9th, the General Partner along with 3000 pounds of supplies flew into the Claymore airstrip which is located half-way up the west slope of the Moosehorn Range. The road construction between this airstrip and the summit ridge which contained the primary exploration target was begun. A 2.6 km. ATV trail was upgraded to a road capable of use by heavy machinery. A John Deere 350 bulldozer along with a Case backhoe mounted on Nodwell were alternately used in this grade work. а Machinery problems and the rugged terrain hampered construction. Snow drifts, permafrost, lack of fill, and abundant felsenmeer also caused delays. Considerable drilling and blasting were required along the summit ridge because of the latter. A semi-permanent camp was constructed near the showings on the summit at an altitude of 4400 feet. Road construction was also begun at this point to up-grade access to the Partnership's placer ground which is located on the northeast slope of the range. This road construction was carried on intermittently throughout the summer and An airstrip that had begun to service this placer Fall. area was also up-graded to be of use in supplying future placer development.

Two programs of exploration were carried out: a hard rock program of trenching and bulk sampling on the Reef Quartz Claims, and a sampling program on the Kate Placer Claims.

The General Partner, along with several employees, were continuously engaged in the above programs until the end of the season. On September 24th the camps were shut down for the year, and the crew was flown out.

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## THE HARDROCK PROGRAM

## INTRODUCTION

The Moosehorn Exploration hardrock program is designed to test the viability of developing a small high-grade hardrock gold mine on the Reef Quartz Claim group.

Mineralization consists of many parallel. gently dipping, narrow, hydrothermal quartz veins containing abundant sulphides and visible gold. Common base metal minerals include galena, arsenopyrite, sphalerite, jamesonite, and boulangerite, with minor amounts of pyrrhotite, anglesite, cerrusite, chalcopyrite, molybdenite, and calcite. Visible gold occurs in association with the sulphides, and surface assays average 4 oz. Au/ton along 300 feet of the strike of the "M vein" (the only vein so far closely examined). Quartz vein alteration consists of oolitic limonite, smithsonite, and cervantite (usually in association with visible gold in quartz float). All the economic mineralization so far discovered occurs within the granodiorite pluton. It is possible that the porphyritic plug immediately south of the property could be the source of the hydrothermal Evidence of this is the transition of the vein solutions. minerology to the north. Vein occurrences here contain increasing amounts of carbonates and low gold/high silver, with some tetrahedrite at the boundary.

## HISTORY

In 1974, high assays of gold in grab samples obtained by M. Kenyon on the summit of the Moosehorn Range resulted in the staking of the 58 LORI Claims. Claymore Resources purchased the claims from Kenyon, and conducted an exploration program during the summer of 1975. There is no record of previous staking or other work having been done on the property.

The exploration program consisted of a geo-physics program over the "M vein", a geo-chemical soil sampling program over most of the property, an eighteen hole diamond drilling program consisting of 2,050 feet of BQ wireline drilling, and a geological survey of the ridgetop.

The geophysical, geochemical, and diamond drilling programs failed to give any meaningful response over the subcropping M vein, although the quartz float and soils covering this vein contain large amounts of visible native gold.

Because of the discouraging results, and low gold prices at the time, no further work was done, and after eight years, the assessment work ran out, and the claims were allowed to lapse.

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Other subcropping quartz veins also located on the property contain high grade gold mineralization, and have no history of previous work.

During the 1986 exploration season, Moosehorn Exploration conducted a prospecting and bulk sampling program (EIP 86-006) on the "M" vein to determine the grade of the erratic gold mineralization.

#### 1987 TRENCHING AND BULK SAMPLING

## I. TRENCHING

Trenching of the "M" vein, which was begun in 1986 by hand, was continued during the 1987 season using a Case backhoe with a 24" wide bucket mounted on a rubber-tracked Nodwell. A John Deere 350 bulldozer was used to assist the backhoe by building access routes through the boulder field. These routes were necessary for frequent backhoe removal from the trench site in order to blast bedrock and very large boulders. A gasoline powered Pionjar rock drill was used extensively to drill multiple hole patterns in the fractured bedrock. Forcite 75% on a 3 ft. interval hole pattern produced good results.

A Honda 3" trash pump was used frequently during the trenching operations to dewater the test pits. The water flow from the trash pump was directed on to a 1" screen placed above a hopper (6' x8'x4'). This hopper was loaded from the trench with the backhoe and two employees handsorted the +1" eluvial float material, separating the high-grade quartz vein float from the waste hanging wall and footwall rock. This wall rock exhibited a typically distinct alteration (sericitization and oxidization). This allowed the backhoe operator to follow the float of the quartz vein. The -1" material from the hopper was discharged over a 3/8" mesh inclined screen. The +3/8" material was caught in an ore car for transport to the mill for processing. -3/8" material passed through the screen and was processed in a 1'x8' sluice containing expanded metal riffles above Nomad matting.

This processing plant provided clean quartz for the bulk sampling process. The soils overlying the subcropping veins on the Moosehorn Range contain abundant quartz vein float with visible gold. Weathering of this float has caused extensive alteration of the contained sulphides and fracturing, so that a high percentage of the contained gold has been released into the residual soils. Unfortunately, this soil has a high kaolin content which greatly increases the difficulty in processing using either gravity or visual concentration methods. Therefore, the operator plans to include in the future some device (such as a log washer or barrel scrubber) to process this material. Another alternative method would be to load trench material directly into a ball mill with only a coarse grizzly used to separate very large gangue.

Both trench M-1 and M-2 were greatly increased in size. The waste rock, including large boulders, were pushed east in order not to interfere with future operations. Trenching was also carried out near the mill site (see map) to test the size and grade of the eluvial deposit. These trenches were later used as water storage tanks for the mill processing.

At the end of the season, the excavated material from trench T-1 was found to contain a very high grade quartz vein float. This float (estimated at +50 oz./ton Au) . possibly originated from the subcropping "O" veins or a yet undiscovered vein.

At a depth of 13 feet (limit of backhoe reach) an inclined shaft was started in trench M-1. The "M" vein at this point (ore-shoot) had developed a stock-work structure (see photo). A 5' high, 30° dipping shaft was collared. Contained in this zone were four narrow quartz veins that exhibited visible gold. Six inch diameter spruce pit-props were cut below tree line and transported to the site. It was found necessary to continually de-water the tunnel but this water was useful, as it was used in the mill process.

Earlier, at the beginning of the trenching, it was necessary, because of the abundant ground water, to blast and remove winter ice build-up from the 1986 trenches. Winter groundwater seepage could pose future icing problems for a seasonal operation on the flat summit ridge.

On three separate occasions, different geologists (including Grant Abbott with DIAND) visited the property and suggested that the deposit be developed by open pit methods (bedrock trenching with air track drill) rather than immediate underground development. As a result, underground operations were suspended.

Abundant high grade quartz float downslope from the summit ridge has always suggested the possibility of undiscovered, subcropping quartz veins on the willow covered slope. A 600 meter long by 4 meter wide trench was therefore begun above the airstrip ridge. It is hoped that this trench, which is perpendicular to the strike of all the known quartz veins in the area, will intersect many new as yet undiscovered veins. Permafrost was found underlying the willow and moss and therefore the residual soils were not penetrated far enough to expose the bedrock. It is Later in the season, quartz veins containing visible gold were found in-situ in the bedrock exposed by the placer workings at the top of Kenyon Creek. These veins, along with large amounts of similar float found in the Swamp Creek placer deposit and the summit ridge vein systems, suggest a vein frequency of approximately 100 yards on an east-west line across the Moosehorn pluton. Therefore, the Reef Claim group was extended to the southwest by the staking of ten additional claims (Reef 11-20) in order to cover the new discoveries.

## II. BULK SAMPLING

The program of bulk sampling the trench material from the "M" vein, which had begun in 1986, was continued using basically the same mill process.

This consisted of crushing and grinding the ore in a three-stage portable mill. The mill product was gravity concentrated in a duplex Pan Am jig. Concentrates were then almalgamated and retorted.

A wheelbarrow-load of the mill product (-10 mesh to -200 mesh) was found to average 150 pounds. Approximately 1/3 of this was returned by the screen classifier in the mill process. Therefore each wheelbarrow-load was judged to represent .05 of a ton in the bulk sample results.

During the program several different batch lots of "M" vein ore, along with small amounts of wall rock gangue, were processed. The test results are as follows:

## 1987

5.65 tons of "M" vein were fully processed to produce 9.69 oz of raw gold. This gives an average grade of 1.72 oz./ton. Earlier assays indicate an additional 1 oz. of gold is to be found in the tailings. Assays on approximately 600 lbs. of concentrate that had been processed in the amalgamator indicate 11.784 oz./ton Au that will eventually be recovered at the smelter. At the time of the writing of this report, other assay results (such as base metal content tailing content, etc.) are not yet available. The sum of all the above gold content gives an average grade of 2.515 oz/ton in the "M" vein sampled during the 1987 season. 1.35 tons of "M" vein were fully processed to produce 4.76 oz of raw gold. This gives an average grade of 3.53 oz/ton. Assays indicate an additional .2 oz. of gold is to be found in the tailings. Assays on approximately 150 pounds of concentrate that had been processed in the amalgamator indicate 8.35 oz/ton Au that will eventually be recovered at the smelter. The sum of all the above gold content gives an average grade of 4.06 oz/ton. in the "M" vein sampled during the 1986 season.

## CONCLUSION

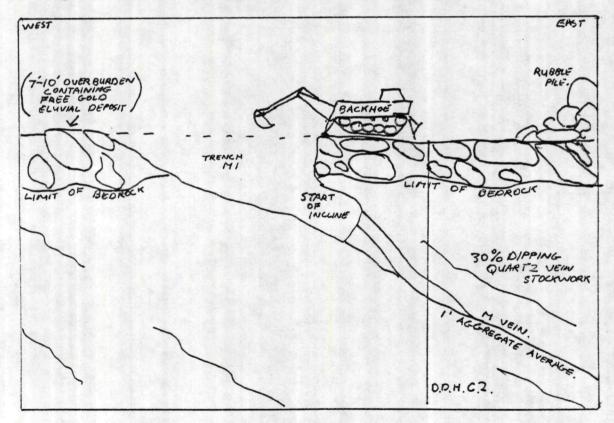
The erratic nature of the gold mineralization found in the "M" quartz vein justifies the use of the on-site portable mill bulk sampling program. Assays of grab samples and diamond drill hole intersections tend to produce very erratic results. The 1986 and 1987 bulk sampling of 7 tons of the ore produced an average grade of 2.81 oz/ton. The ore reserves of the "M" vein alone can be calculated by multiplying its average aggregate width of 1' by its known strike of 300 feet by its estimated dip (as outlined by drilling) of at least 100 feet to produce 30,000 cubic feet of quartz. 12 cubic feet of this quartz weighs one ton, and therefore there are approximately 2500 tons of proven reserve.

It has become obvious to anyone visiting the property that there are many other high grade gold-bearing quartz veins located on the property. Further exploration in 1988 is therefore warranted in order to outline larger reserves of high grade ore.

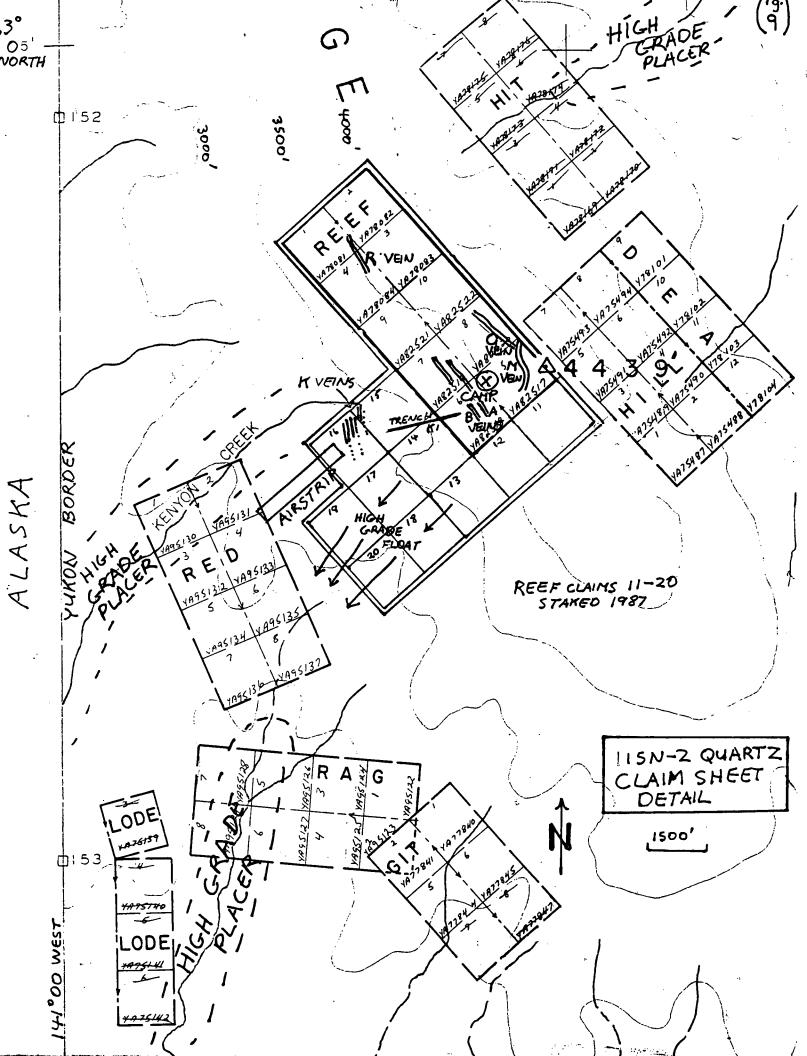
Tests in 1986 and 1987 of the residual soils overlying the known vein structures have indicated the possibility of a very large low-grade gold deposit. Processed material in 1987 revealed a bulk sampled grade of .04 oz/ton. These eluvial deposits are comprised of many millions of tons.

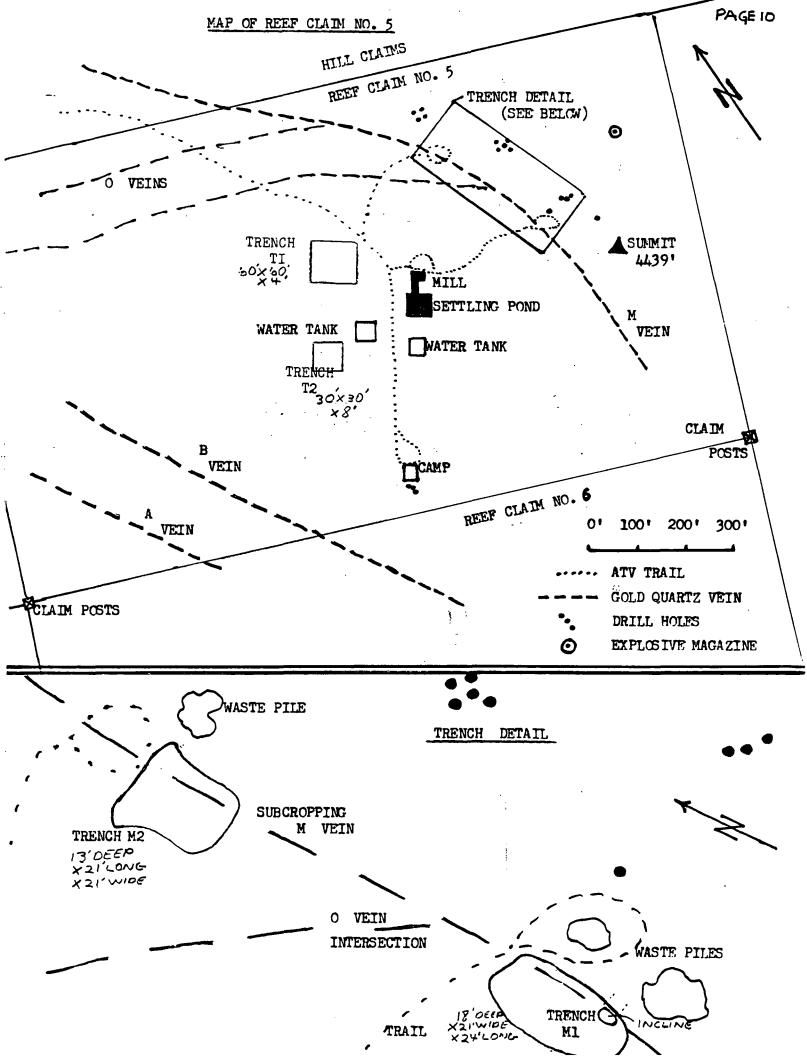


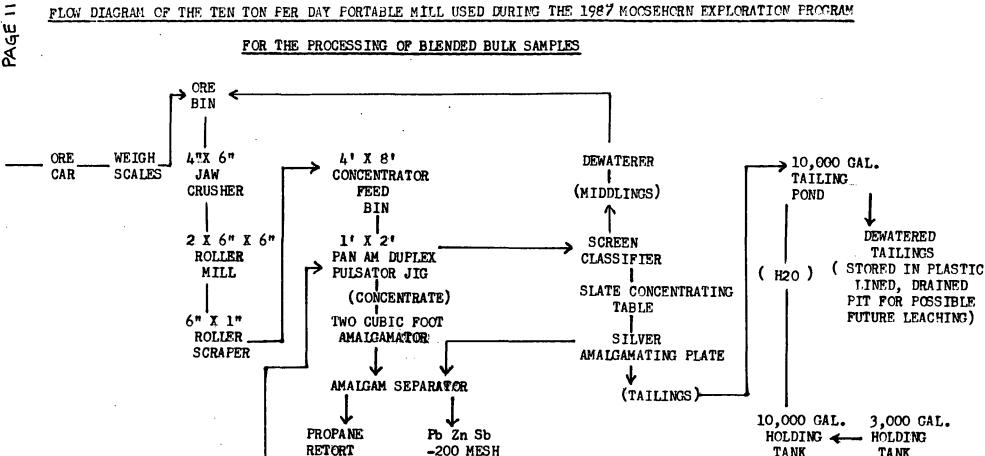
START OF HARDROCK UNDERGROUND DEVELOPMENT IN TRENCH M1(-13') THE 3 QUARTZ VEINS PICTURED ALL SHOWED VISIBLE GOLD



SECTION OF "M" VEIN, SHOWING TRENCHING







CONCENTRATE

20' STAND PIPE WATER PRESSURE REGULATOR

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TANK

TANK

2" HONDA WATER PUMP

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## Ltd. Chemex Labs

Analytical Chemists \* Geochemists \* Registered Assayers 212 BROOKSBANK AVE., NORTH VANCOUVER, BRITISH COLUMBIA, CANADA V7J-2C1

PHONE (604) 984-0221

#### To MOOSEHORN EXPLORATION

P.O. BOX 4707 WHITEHORSE, YUKON Y1A 3V7

Comments: ATT'N: IAN WARRICK

A8724864

## CERTIFICATE A8724864

MOOSEHOR	N EXPLORATION
PROJECT	:
P.O.#	: NONE
Samples	submitted to our lab in Vancouver.

Samples submitted to our lab in Vancouver, BC. This report was printed on 20-OCT-87.

	SAMP	LE PREPARATION
CHEMEX CODE	NUMBER Samples	DESCRIPTION
214	2	Received sample as pulp

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## ANALYTICAL PROCEDURES

CODE	NUMBER SAMPLES		DESCRIPTION	METHOD	DETECTION LIMIT	UPPER L IMI T
878	2	Ag oz/t: Tot	al, metallics calc	FA-AAS/GRAV	0.01	20.00
880	2	Au oz/t: Tot	al, metallics calc	FA-AAS/GRAV	0.003	20.000
882	2	Ag- oz/t: Me	etallics calculation	FA-AAS/GRAV	0.01	20.00
884	2		etallics calculation	FA-AAS/GRAV	0.003	20.000
886			tallics calculation	FA-AAS/GRAV	0.01	50.00
887	2	Au+ mg: Me	tallics calculation	FA-AAS/GRAV	0.001	50.000
888			letallics calculation	BALANCE	0.01	N/A
889	2	Weight- g: M	etallics calculation	BALANCE	I	N/A
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# Chemex Labs Ltd.

Analytical Chemists \* Geochemists \* Registered Assayers 212 BROOKSBANK AVE , NORTH VANCOUVER, BRITISH COLUMBIA, CANADA V7J-2C1 PHONE (604) 984-0221 To : MOOSEHORN EXPLORATION

P.O. BOX 4707 WHITEHORSE, YUKON YIA 3V7 Project : Comments: ATT N: IAN WARRICK \*\*Page No. :1 Tot. Pages:1 Date :20-OCT-87 Invoice #:I-8724864 P.O. # :NONE

## CERTIFICATE OF ANALYSIS A8724864

SAMPLE DESCRIPTION	PREP CODE	Ag tot oz/t	Au tot oz/t	Ag <sup>.</sup> – oz/t	Au – oz/t	Ag + mg	Au + mg	Wt. + grams	Wt. – grams		
C 1 1987 COURCOURS	214 214	5.31 5.55	11.784 8.356	5.22 5.52	11.304 8.220	2.11 0.63	10.032 2.365	1.70 0.60	568 469		·
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ALL. ASSAY DETERMINATIONS ARE PERFORMED OR SUPERVISED BY B.C. CERTIFIED ASSAYERS

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212 BROOKSBANK AVE., NORTH VANCOUVER, BRITISH COLUMBIA, CANADA V7J-1C1

td.

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PHONE (604) 984-0221

To: MOOSEHORN EXPLORATION

P.O. BOX 4707 WHITEHORSE, YUKON Y1A 3V7

A8724264

Comments: ATTN: IAN WARRICK

## CERTIFICATE A8724264

MOOSEHORN	EXPLORATION	•	
PROJECT	:		
Р.О.#	: NONE		

Samples submitted to our lab in Vancouver, BC. This report was printed on 19-OCT-87.

1	SAMP	LE PREPARATION
	NUMBER Samples	DESCRIPTION
225	2	No sample prep was done

			ANA	LYTICAL	PROCEDURES	•	
CHEMEX CODE	NUMBER SAMPLES			DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
400	2	Au	fineness		FA-GRAVIMETRIC	1	1000





212 BROOKSBANK AVE , NORTH VANCOUVER, BRITISH COLUMBIA. CANADA V7J-2C1 PHONE (604) 984-0221

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To : MOOSEHORN EXPLORATION

P.O. BOX 4707 WHITEHORSE, YUKON Y1A 3V7 Project : Comments: ATTN: IAN WARRICK \*\*Page No. :1 Tot. Pages: 1 :19-OCT-87 Date Invoice # : I-8724264 P.O. # :NONE

#### **CERTIFICATE OF ANALYSIS** A8724264

SAMPLE DESCRIPTION	PRE COL	EP DE	Au finenes					
G-86 G-87	225 225		787 664					
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CERTIFICATION : N. Son manuni

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## INTRODUCTION

The Moosehorn Exploration placer program is designed to test the viability of developing a large placer mine (600 to 1,000 yards per day) on the Kate Placer Claims, which are located on the west fork of Great Bear Creek.

The creek valley consists of a typical steep north slope covered with thick moss and small isolated spruce trees. The south slope is covered with a climax forest of large deciduous trees growing in thick black muck. The creek itself averages 3' in width with a maximum flow of 4 cubic feet per second in June, declining to .1 cubic feet per second in late September.

## TRENCHING AND BULK SAMPLING

The 1987 placer program was begun later in the season, when a temporary camp was established on the Kate 1 Placer Claim.

A 50 yard wide cut was made across the creek valley bottom. A John Deere 350 bulldozer scraped the 8" thick layer of vegetation and large birch trees off the top of this cut. Immediately underneath, there was found unfrozen pay gravels that covered the 25 yard wide flat valley bottom. This pay gravel consisted of brown, coarse sand and boulders (1' average diameter), and contained 1-3 colours of gold per pan.

The grade of the creek is approximately 10%. The east limit of the creek was found to be frozen directly underlying the moss, and this permafrost intruded several feet into the pay gravel and dipped steeply  $(70^{\circ})$  down towards the valley bottom. The west side of the creek, on the other hand, was not frozen and contained thick beds of clay.

An 18" wide by 12' long wooden test sluice was constructed using expanded metal mesh for riffles and Nomad matting underneath. This design is very efficient in catching fine gold when it is found in association with large amounts of black sands (as is the case in the Moosehorn Range). Deeper riffles, when used, tend to pack up with black sand with resulting gold losses. A 12'x4' wooden hopper leading to a 4'x6' 1" grizzly inclined at 45° above the sluice box was also built. This bulk sampling plant was located 25 yards downstream of the test pit at the top of a 8' high earth ramp.

The creek was dammed with a earth dam 100 yards upstream and the total flow was diverted by pipeline into a spray bar located above the grizzly. Water and tailings from the sluice box were contained in a settling pond behind an earth dam. After settling, the water was allowed to flow through the dam down into another settling pond. Here a 3" Honda trash pump recirculated water to another grizzly spray bar.

This placer test plant was able to continuously process an average of one yard per hour with one employee tending the grizzly, and another pushing excavated pay dirt up the ramp from the test pit with the bulldozer. Panning of the tailings did not show any lost gold values, and therefore the efficiency of the system was satisfactory for a test.

The test pit was dug with surprising ease through unfrozen ground. Unlike the only other operation on the Moosehorn Range, which has had to strip a 30' thick layer of frozen black muck above its frozen pay streak, the pay streak on Kate Creek is not covered by frozen muck, and is not frozen. This, along with its good grade and large reserves, now insures the successful development of a placer mine during 1988.

The test pit was excavated to a depth of 15', at which point the ramp leading out of the pit became too steep to push material up into the hopper. Precipitation at this point also increased the amount of water flowing in the creek beyond the capacity of the diverting pipeline, with the result that the test was abandon ed.

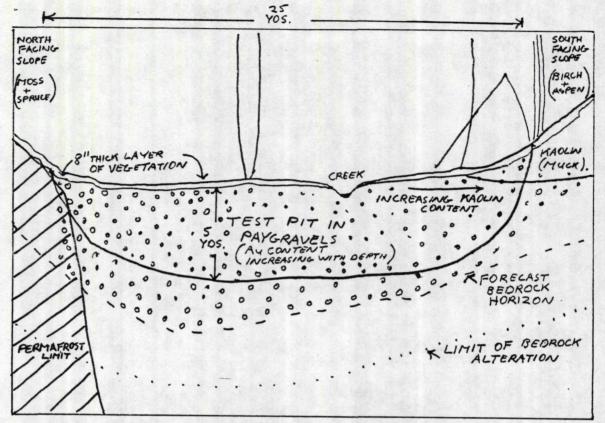
The grade of the pay gravel increased substantially at the depth of 6' below a thin clay layer. Below this clay layer the gold content steadily increased with depth. It is generally acknowledged that the last few inches of the pay streak above bedrock holds the richest gold values. Because the test was abandoned above this layer, the Partnership was unable to determine the average grade of the whole pay streak.

One hundred yards of the low grade pay gravels in the first 6' were processed and appeared to average \$2 per yard. Below the 6' clay layer, the pay gravels increase in value to \$20 per yard. Twenty yards of this material were processed, and 404.3 grains of raw gold were produced.

## CONCLUSION

Because of the rich pay streak, developed trail and airstrip network, and the continued high price of gold (\$600 Cdn.) the Partnership plans immediate development of its placer holdings on the Kate Claims. There appears to be reserves capable of sustaining five to ten years of production.

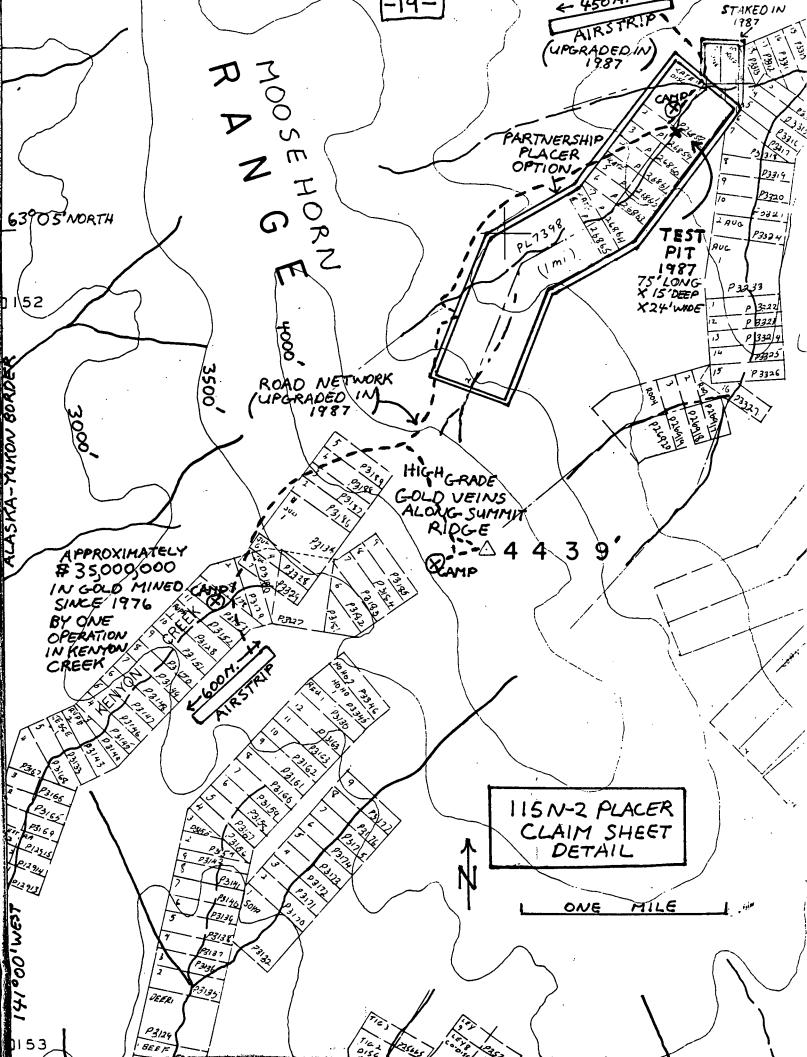
## PAGE 18



NORTH/SOUTH SECTION OF PLACER CLAIM PL26859(FAR SIDE OF FLOODED TRENCH PICTURED BELOW)



1987 TEST PIT (PL26859) IN HIGH GRADE PLACER (FLOODED RAMP IN FOREGROUND BEGINS AT 15' DEPTHAND LEADS TO CAMERA. TEST SLUICE BEHIND PHOTOGRAPHER



## EXPLORATION CREW

and blaster's helper

General	Partner	& Operator	Ian Warrick, P.O.Box 4707, Whitehorse, Yukon YIA 3V7
General	Partner	& Camp Cook	Kate Robertson, P.O.Box 4707, Whitehorse, Yukon Y1A 3V7
Machine	ry operat	or, welder,	

Cam Walker, 33041-Dewdney Trunk Road, Mission, B.C. V2V 5X4

Driller & machinery operator D. Gorovenko, 6554 Pleasant Valley Rd.

Millworker

D. LeBel, Site 15, Comp.56, RR#2, Whitehorse, Yukon Y1A 5A5

Vernon, B.C.

V1T 6L6

## REPORT PREPARATION

This report was prepared in four days by the General Partner and Operator of the 1987 season Moosehorn Exploration Program (as follows):

Ian Warrick and Katherine Robertson, P.O.Box 4707, Whitehorse, Yukon Y1A 3V7