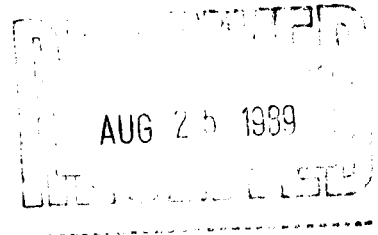


680135
Sheep Creek
82F/3-6

MICHAEL P. GROSS
P.O. Box 250
Kingston, Idaho 83839-0250
Ph (208) 682-4374
Ph (604) 357-9343

October 4, 1989

Peter Busse
Blackdome Mining Corporation
P.O. Box 549
Clinton, B.C. V0K 1K0



Dear Mr. Busse:

I have previously corresponded with Scott Drever about the attached project. However I have recently learned that Scott is no longer with Blackdome and you are now the Executive Vice President of Blackdome Mining Corporation. Since files have a tendency to be lost during mergers I'm taking the liberty of sending you the same information that I provided to Scott. Gunsteel is still very much interested in obtaining start-up financing for its Sheep Creek gold project.

After reviewing the attached information please contact me for clarification about any points in the package that you don't understand. I can usually be reached at the Gunsteel Office in Salmo B.C., the phone number here is (604) 357-9343.

I'm confident that after reviewing the enclosed material you will agree with my assessment that the project is viable and will become a very profitable operation.

A question I anticipate your asking is, "If this is so good, why hasn't someone else discovered it sooner?" My answer is that current economics require that old mining camps like Sheep Creek be consolidated or unitized in order to offer a return on investment that's attractive to operating mining companies. Also, someone knowledgeable about narrow vein underground mining has to develop the operating plans, which is where I come in.

Gunsteel has already done the hardest part by getting agreements to unitize the camp and obtaining a mill to process the ore. The easy part is starting up production. Start up capital of \$2,000,000 will generate a profitable mining operation. However, a larger initial funding will yield a higher return on investment because the operation can be brought to 500 tons a day faster. The attached pro-forma statement only covers the minimum investment scenario.

Following is a list of the contents of this package:

1. Pro-Forma Financial Statement With Attached Notes.
2. Property Map Showing Ground Now Controlled By Gunsteel Which Includes The Goldrich Holdings.
3. 1941 CIM Magazine Article On the Camp By McGuire.

4. Production Potential - Sheep Creek Gold Camp.
5. Current Ore Reserves - Sheep Creek Gold Camp.
6. Two Magazine Articles About Mills That Operated In The Camp.
7. Statement Of Pertinent Facts With Accompanying Cost Data.
8. Resumes Of Principles.
9. Copies Of News Releases.
10. Copy Of 1988 Report To Shareholders.
11. Copy Of First Quarter 1989 Financial Statement.

Apparently I have built so much conservatism into the enclosed pro-forma financial statement that any additional conservatism added by a potential investor makes the project appear unattractive. To help you understand the conservatism already built into the project numbers, the following explanation is included for your reference.

1. A 25% success factor was used for finding ore in favorable rock types. This compares with the following success rates actually experienced in the camp:

- 1.1 Reno Mine 38%
- 1.2 Combined Reno-Nugget-Motherlode Mine 27%
- 1.3 Goldbelt Mine 34%
- 1.4 Kootenay Belle Mine +50% (file memo)
- 1.5 Queen Vein +50% (file memo)
- 1.6 81 Vein +35%

2. The amount of development drifting required to achieve 25% success was increased by 25%.

3. The amount of knuckle raising required to block out ore at a 25% success rate was increased +35%.

4. Development drifting costs include an additional 20% to cover development work than does not find ore.

5. Extra manpower was added to all direct costs to insure that labor costs are realistic.

6. The rate of drift development and knuckle raise advance was increased a year before production increases occurred. This was done for two reasons:

- 6.1 To insure that mill throughput would remain at the increased tonnage once it was reached.

6.2 To insure that adequate ore reserves were developed.

Following next are summaries of three concepts that are important to understand and remember when evaluating the Camp and its potential.

1. Gold bearing quartz veins are normally 1000 feet long and vary from two to eight feet wide. Some veins have over 2000 feet of continuous gold bearing quartz veining.
2. Within favorable host rocks, ore grade gold mineralization can occur over a vertical distance of 1600 feet. (This 1600 foot limit may have been controlled more by economics than by mineral deposition.)
3. Single ore shoots have been mined over vertical distances greater than 800 feet and horizontal distances greater than 400 feet. Ore shoots usually extend 200 feet horizontally and 400 feet vertically. An ore shoot of this dimension would contain about 24,000 tons of ore, which, @ .4 oz Au per ton, contains more than \$4,000,000 in gross metal value.

Initial mining is planned for developed and semi-developed reserves already blocked out in existing workings. These reserves are adequate for two plus years of production. In addition, recent work indicates more than 10,000 tons of dump material is available on the consolidated properties. These dumps will average .15 oz Au per ton and only need to be loaded and hauled to the mill for processing.

On the western anticline and the recumbent limb of the eastern anticline there is a combined strike length of 20,000 feet of unexplored ground that may host as many as 40 new veins. In addition, the upturned limb of the eastern anticline contains another 20,000 feet of unexplored ground that may well host another 30 to 40 ore bearing veins.

In reviewing the literature, I came across a 1941 CIM paper that contains production and cost data for the four companies then operating in the camp.

Production:

1. Total designed production capacity of the four cyanide vat leach mills was 670 tons per day.
2. The mills were probably operating seven days per week because the actual tons milled would have required operating at 140% of design capacity.
3. Average Au recovery was +97.5%.
4. The weighted average cost per ton milled was \$1.53.
5. Based on a five day week, total mine production in the camp averaged over 850 tons per day.

Costs:

1. The weighted average total cost from all four operations (mining, milling and overhead) was \$7.39 per ton milled.
2. The average mining cost to development cost ratio was 1.8.

Using my pro-forma statement for production increasing from 150 to 500 tons per day, the mining cost to development cost ratio is 1.24. This represents a development cost 45% higher than the old timers needed to develop reserves adequate to mine a combined total of more than 850 tons per day. This comparison supports the conservatism that was built into development costs in the pro-forma financial statements.

My base cost estimate for mining, milling and property overhead, including 10% contingency, but without any capital or rehabilitation costs, is \$90.00 per ton. A cost of \$90.00 per ton represents a 1219% increase over costs actually incurred. This increase equates to an inflation rate of 24.39% per year for 50 years. Inflation in the U.S. actually averaged 16.8% per year for those 50 years. Based on a cost of \$7.39 per ton, the following costs were calculated using an inflation rate of 24.39% per year:

1. 1950 - Costs are \$18.02 per ton
2. 1960 - Costs are \$36.03 per ton
3. 1970 - Costs are \$54.05 per ton
4. 1980 - Costs are \$72.07 per ton
5. 1990 - Costs are \$90.00 per ton

The following costs for deep mines having significant ground support costs, which is not required in the Sheep Creek camp, are presented for comparison purposes:

1. 1980 - Homestake Mine, about \$50.00 per ton
2. 1980 - Lucky Friday Mine, about \$75.00 per ton
3. 1982 - Star Mine, about \$54.00 per ton

These cost comparisons further support the cost estimate that basic mining, milling and property overhead will not be more than \$90.00 per ton. I believe that after the first year of operation, actual costs will be closer to \$60.00 per ton than \$90.00 per ton.

Based on the pro-forma financial statements for a grade of .4 oz Au per ton, in year two of the project, total cost per ounce produced, including capital and rehab costs, is as follows:

1. Canadian \$328 per oz Au
2. U.S. \$262 per oz Au

In year seven of the project, cost per ounce produced, including capital costs, is as follows:

1. Canadian \$230 per oz Au
2. U.S. \$184 per oz Au

After reviewing the enclosed material please give me a call at (604) 357-9343 so I can answer the additional questions I'm sure you'll have. If you are interested in learning more about the project I can come to Clinton or wherever for a show and tell. However, a site visit would be even more helpful to help you understand the potential that this project holds.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Michael P. Gross".

Michael P. Gross

Enclosures:

PROFORMA FINANCIAL STATEMENT

Gunsteel Resources Inc.
Sheep Creek Gold Camp

May 22, 1989

Metals Mined - Primary Gold Grade Mined 0.4 oz per ton
- Secondary Silver 0.35 oz per ton
Price Per Oz Au - Canadian \$420
Initial Investment \$2,000,000

Notes # 2, 3 & 4

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Tons Milled Per Day	150	150	150	300	300	500	500	500	500	500	

COSTS

Preproduction Expenses

Acquisition - Mine	\$350,000	\$25,000									\$375,000
- Mill	\$200,000	\$100,000	\$100,000	\$200,000							\$600,000
Capital - Mine	\$81,200	\$165,200	\$150,000	\$250,000	\$150,000	\$250,000	\$100,000	\$100,000			\$1,246,400
- Mill	\$250,000	\$250,000	\$200,000	\$100,000	\$500,000	\$100,000	\$100,000	\$100,000			\$1,600,000
Rehabilitation - Mine	\$75,000	\$125,000	\$100,000	\$100,000	\$100,000	\$100,000					\$600,000
- Mill	\$200,000										\$200,000

Notes # 12 & 13

Sub-Total Preproduction Exp	\$606,200	\$540,200	\$450,000	\$450,000	\$750,000	\$450,000	\$200,000	\$200,000			\$3,646,400
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Note # 5

Direct Mining Costs

Stoping	\$509,873	\$550,635	\$480,943	\$1,101,270	\$1,101,270	\$1,996,914	\$1,996,914	\$1,996,914	\$1,996,914	\$1,996,914	\$13,728,562
Stope Development		\$25,494	\$25,494	\$25,494	\$25,494	\$25,494	\$25,494	\$25,494	\$25,494	\$25,494	\$229,447
Raising	\$333,082	\$447,066	\$670,599	\$894,132	\$894,132	\$894,132	\$894,132	\$894,132	\$894,132	\$894,132	\$7,709,673
Drifting	\$326,625	\$588,868	\$883,301	\$1,177,735	\$1,177,735	\$1,374,024	\$1,374,024	\$1,374,024	\$1,374,024	\$1,374,024	\$11,024,386
Diamond Drilling	\$99,000	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$594,000
Truck Haulage	\$250,320	\$112,500	\$112,500	\$225,000	\$225,000	\$375,000	\$375,000	\$375,000	\$375,000	\$375,000	\$2,800,320

Note # 6

Note # 7

Sub-Total Direct Mining	\$1,518,900	\$1,779,563	\$2,227,838	\$3,478,631	\$3,478,631	\$4,720,565	\$4,720,565	\$4,720,565	\$4,720,565	\$4,720,565	\$36,086,387
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Indirect Costs

Labor

Hourly	\$326,600	\$449,075	\$571,550	\$775,675	\$775,675	\$1,102,275	\$1,102,275	\$1,102,275	\$1,102,275	\$1,102,275	\$8,409,950
Salary	\$300,000	\$458,160	\$492,660	\$492,660	\$492,660	\$536,820	\$536,820	\$536,820	\$536,820	\$536,820	\$4,920,240
Supplies & Services	\$227,835	\$266,934	\$334,176	\$521,795	\$521,795	\$708,085	\$708,085	\$708,085	\$708,085	\$708,085	\$5,412,958

Note # 8

Sub-Total Indirect Mining	\$854,435	\$1,174,169	\$1,398,386	\$1,790,130	\$1,790,130	\$2,347,180	\$2,347,180	\$2,347,180	\$2,347,180	\$2,347,180	\$18,743,148
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Milling Costs	\$904,800	\$1,087,500	\$1,087,500	\$1,987,500	\$1,987,500	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000	\$22,054,800
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Sub-Total All Costs	\$3,884,335	\$4,581,432	\$5,163,723	\$7,706,261	\$8,006,261	\$10,517,745	\$10,267,745	\$10,267,745	\$10,067,745	\$10,067,745	\$80,530,736
Royalties On Goldrich			\$239,145	\$467,482	\$437,816	\$626,644	\$525,953	\$525,953	\$525,953	\$525,953	\$3,874,901
Contingency - 5%	\$163,907	\$202,062	\$235,686	\$362,813	\$362,813	\$503,387	\$503,387	\$503,387	\$503,387	\$503,387	\$3,844,217

Note # 5

TOTAL COSTS	\$4,048,242	\$4,783,494	\$5,638,554	\$8,536,556	\$8,806,890	\$11,647,776	\$11,297,085	\$11,297,085	\$11,097,085	\$11,097,085	\$88,249,853
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REVENUES - TOTAL	\$4,586,525	\$6,203,088	\$6,497,195	\$12,856,176	\$12,856,176	\$21,488,139	\$21,488,139	\$21,488,139	\$21,488,139	\$21,488,139	\$150,439,854
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Notes # 9 & 11

Annual Profit	\$538,283	\$1,419,594	\$858,640	\$4,319,620	\$4,049,286	\$9,840,363	\$10,191,054	\$10,191,054	\$10,391,054	\$10,391,054	\$62,190,001
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Cumulative Cash Flow	\$538,283	\$1,957,877	\$2,816,517	\$7,136,137	\$11,185,423	\$21,025,786	\$31,216,840	\$41,407,894	\$51,798,948	\$62,190,001	\$62,190,001
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Net Present Value For The Project	\$22,775,370	Note # 14
IRR For The Project	ERR	Note # 16
Net Present Value For The Investor	\$4,050,667	Total Cash To Investor @ 25% of Net Profits \$16,701,674
IRR For The Investor	43%	
Net Present Value For The Company	\$17,856,234	
IRR For The Company	ERR	Note # 16

Note # 1 - All dollars are pre-tax Canadian Dollars. Average long term U.S gold price is estimated @ \$350 per oz. Exchange rate is 20%.

Note # 2 - In this Pro-forma, the initial investment by an investor will be recouped at 80% of monthly cash flow.

Note # 3 - In this Pro-forma, after recoupment, an investor will participate in Net Profits at 25%.

Note # 4 - The initial investment is not included in the Project NPV & IRR calculations.

Note # 5 - Contingency costs are calculated on operating costs. Preproduction costs are not included in the contingency calculation.

Note # 6 - Raising costs include 35% more work than is projected to be required to develop adequate ore to feed the mill.

Note # 7 - Drifting costs include 25% more work than is projected to be required to develop adequate ore to feed the mill.

Note # 8 - Average days pay labor costs, with fringes included, are estimated at \$20.41 per hour.

Note # 9 - The revenue calculation also includes a credit for silver @ .35 oz per ton and 75% recovery. Price is \$7.20 per oz Canadian.

Note # 10 - Exploration and diamond drilling costs can be reduced if more ore than expected is found.

Note # 11 - Revenues include the sale of both Au and Ag in Dore'. Starting in year 3, sale of smelter flux is added. Profits from mill operation are included from mill startup.

Note # 12 - Acquisition costs are not included in the operating and pre-production costs.

Note # 13 - Acquisition costs are included in the NPV and IRR calculations.

Note # 14 - The discount rate used in NPV and IRR calculations is 15%.

Note # 15 - IRR is discounted cash flow rate of return.

Note # 16 - IRR cannot be calculated because the first period (year) number is a positive number.

Note # 17 - Sensitivity Analysis - Only the grades of mined ore were changed, dump ore grades remained unchanged.

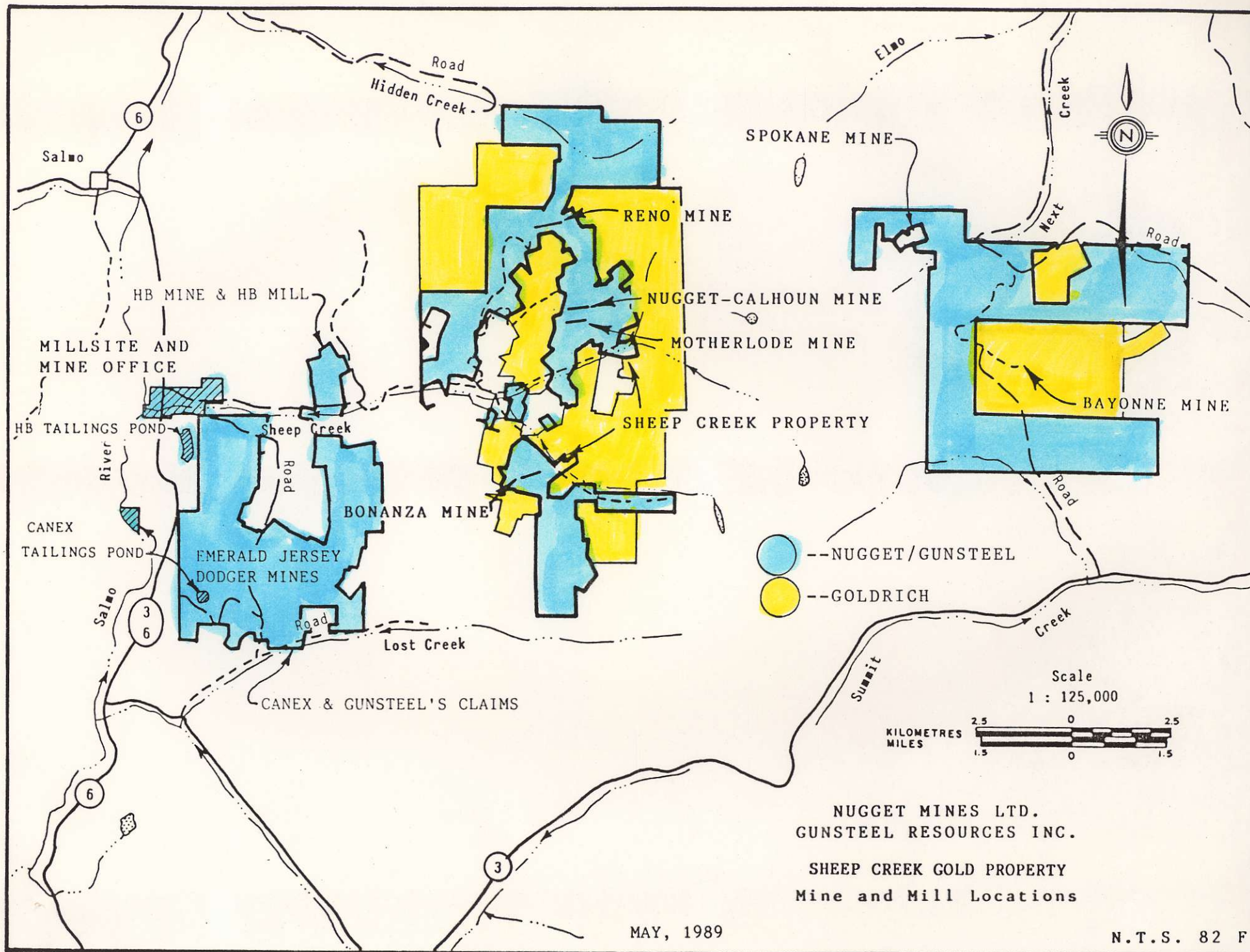
Note # 18 - Sensitivity Analysis - \$437 Canadian per ounce is the price used when calculating NPV and IRR for the various grades of ore.

Note # 19 - Sensitivity Analysis - .35 oz Au per ton is the grade of ore used when calculating NPV and IRR for various gold prices.

Note # 20 - The Cost per ounce of gold contained in the developed and semi-developed reserves is \$65.33 for the initial investment.

Sensitivity Analysis For A 10 Year Life

At \$550 per oz	NPV = \$32,676,000	Note # 19	At \$450 per oz and .35 oz per ton	
	IRR =			NPV = \$20,660,000
At \$500 per oz	NPV = \$26,671,000			IRR =
	IRR =			
At \$450 per oz	NPV = \$20,666,000		At \$450 per oz and .45 oz per ton	
	IRR =			NPV = \$32,879,000
At \$400 per oz	NPV = \$14,662,000			IRR =
	IRR =			
			At \$400 per oz and .35 oz per ton	
At .30 oz per Ton	NPV = \$13,175,000	Note # 18		NPV = \$14,662,000
	IRR =			IRR =
At .35 oz per ton	NPV = \$19,105,000			
	IRR =		At \$400 per oz and .45 oz per ton	
At .40 oz per ton	NPV = \$25,035,000			NPV = \$25,517,000
	IRR =			IRR =
At .45 oz per ton	NPV = \$30,965,000			
	IRR =			



The Sheep Creek Gold Mining Camp*

By R. A. McGUIRE†

Introductory

THE recorded production of the Sheep Creek camp from 1900, when the Yellowstone Mining Company first put its mill into operation, to the present day is in excess of \$17,500,000. Of this total, \$2,500,000 can be attributed to the early period from 1900 to 1916, at which time increased costs of labor and material due to the Great War forced abandonment of any operations on a large scale for a number of years. Since the camp was revived in 1929, at which time the Reno mine started large-scale operations, and the early thirties, when the increased price of gold induced the commencement of operations on other properties in the district, total gross production has been in excess of \$15,000,000. In addition to the above totals, intermittent shipments were made by lessees and all operators, principally during the period of inactivity from 1916 to 1929, but no records of this production are available.

The Sheep Creek camp would rank fifth in the province behind Rossland, Portland Canal, Bridge River and Hedley camps in gross gold production, but because of relatively inexpensive mining and milling costs, would occupy a more prominent position in regard to total dividends paid.

Operating mines at the present time include Reno Gold Mines, Gold Belt Mining Company, Kootenay Belle Gold Mines and Sheep Creek Gold Mines. Each one of these companies, with the exception of Kootenay Belle, represents a consolidation of several smaller properties, all of which were in existence for a number of years prior to 1929. These four companies, at the present time, own, or hold options, on practically all the important claims in the district with the exception of a very few claims and fractions still held by private owners.

Early History (1900-1916)

Yellowstone

This, the oldest mine in the district, was located in July 1896 near the confluence of Wulf and Sheep Creeks. Development began late in the same year, and in 1900, a 10-stamp mill using amalgamation only, was erected to treat the ore developed. By the end of 1901, all the known ore in the Yellowstone had been developed and mined, the vein proving unproductive below the third level where oxidation ceases. During this time, 16,987 tons of ore were treated, yielding 5,912 ounces of gold and 4,354 ounces of silver, having a gross value of \$124,331.

Queen

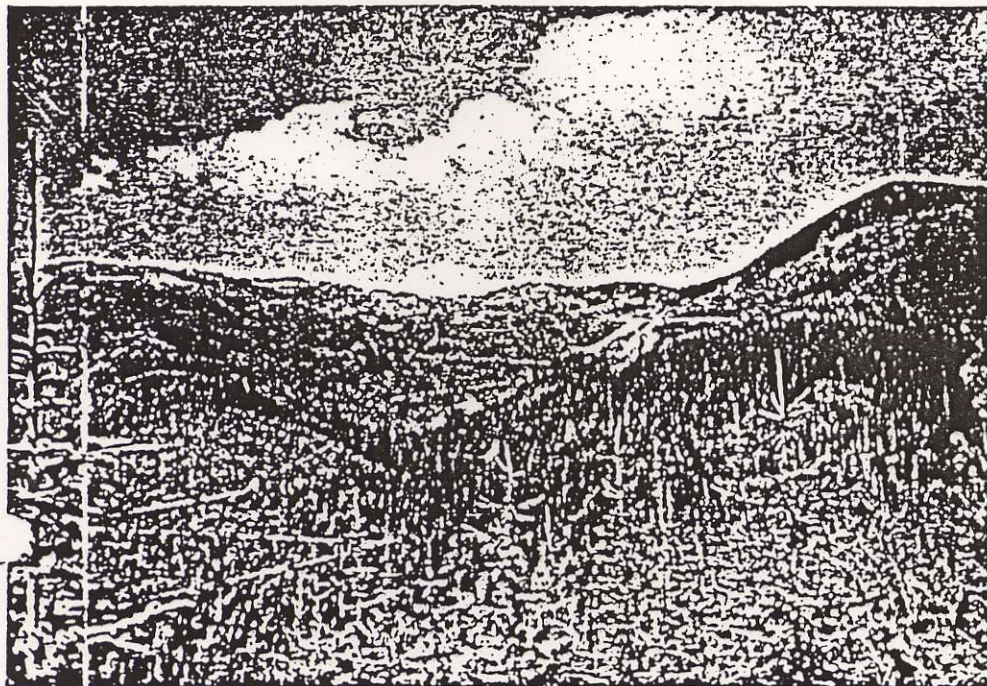
This property was located in the fall of 1896 and after spasmodic development work, was bonded by the Holmes Syndicate about 1900. This syndicate mined and shipped some 4,500 tons of ore yielding about 2,400 ounces of gold and 924 ounces of silver at the nearby Yellowstone mill. Late in 1902, believing the property to be exhausted of ore, they allowed their bond to lapse. It is probable that these operators thought the bottoming of the oxidized zone marked the termination of commercial ore as was the case in the nearby Yellowstone.

After the Holmes syndicate allowed its bond to lapse, William Waldie acquired the property. He soon had it producing steadily and continued to treat ore in the Yellowstone mill.

In 1906, Mr. Waldie sold the property to Queen Mines Incorporated, which company also acquired the adjoining Yellowstone property and mill. The mill was enlarged to 20 stamps and Wilfley tables were installed to make a shipping concentrate in addition to the regular malgam. This step was necessary as most of the ore coming from below the zone of oxidation was unsuitable for treatment by amalgamation alone.

Development was pushed ahead below creek level by means of a vertical shaft from No. 3 level west and production was maintained steadily until 1915, at which time labor trouble and increased costs together with adverse development results on No. 7 level caused cessation of operations. At that time, base metal mines were increasing wages and operation of gold properties was becoming increasingly difficult.

When higher wages were refused them, the miners went on strike, and the property was closed and only reopened for a short time in 1916 to draw broken ore from the stopes. Subsequently the mine was allowed to fill with water, and thus a very serious obstacle to any future development and mining operations was



Old Reno mine, looking north across Fawn Basin.

*A paper to be read before the Annual Meeting, B. C. Division, C.I.M.M., Vancouver, Oct. 8-10, 1941.

†Engineer, Sheep Creek Gold Mines, Ltd.

presented. During its 16-year period of operation, the records show the Queen mine to have produced 57,762 ounces of gold and 19,952 ounces of silver from 118,136 tons of ore milled. It is noted that during this time, no assays were regularly taken, mining control being almost entirely governed by mill and smelter returns. Mill tails were reported to be high and it is doubtful whether indicated returns of 0.488 ounces gold and 0.169 ounces of silver per ton represent more than a 65 per cent recovery.

Subsequent to 1916, many attempts were made to revive the property, but with no great success until the present company took over operations in the fall of 1933. The most notable of these attempts was perhaps made in 1920 when the McCune interests of Salt Lake City optioned the Kootenay Belle Queen and Vancouver properties and drove a 1,700-foot crosscut to intersect the Vancouver vein at depth. The crosscut was in an unfavorable belt and the work badly directed. The tunnel was stopped 800 feet short of its objective with disappointing results, as Yellowstone and Queen veins did not make ore on their extensions into the schists.

The problem of dewatering the workings on the old Queen vein was beyond the resources of the various parties interested in the property previous to 1933, the result being that work was confined to the upper levels of the Queen and the Vancouver and Alexandra veins on the property in another quartzite band to the east, from which small quantities of ore were mined and shipped from time to time.

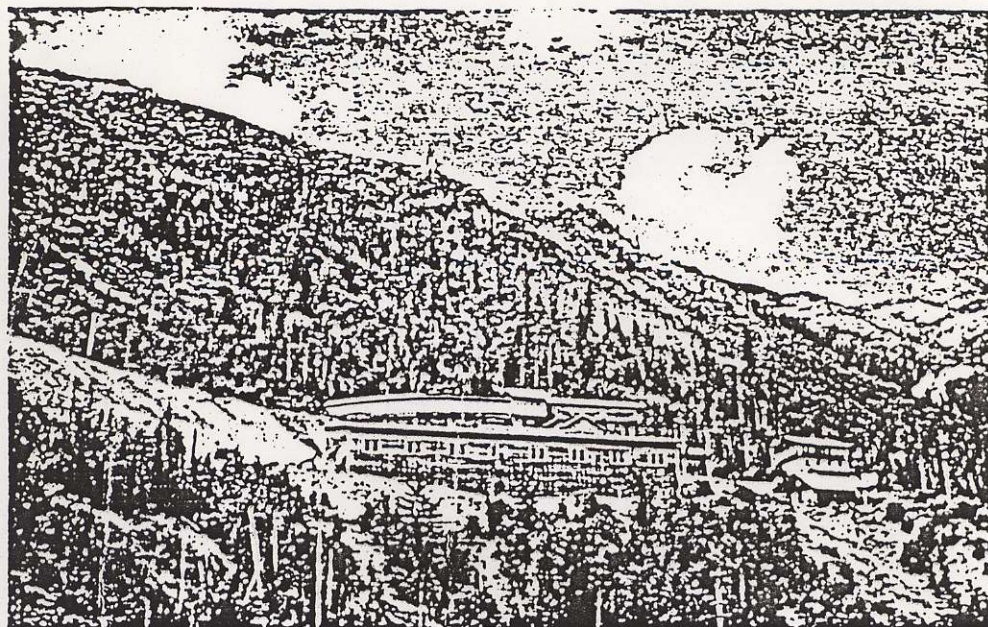
Kootenay Belle

This property was located in 1898 and 1899 on surface showings of two small veins occurring close together in the eastern quartzite band above the Queen and Yellowstone veins. Surface ore was very high-grade, assaying several ounces to the ton, but although some ore shipments must have been made, no recorded production is listed for the property until 1905, at which time it was acquired by the Rogers Syndicate of Vancouver and a 4-stamp mill erected. Later this mill was enlarged to 14 stamps and a Wilfley table and Frue vanner installed. Production was on a very small scale until 1911, but in all 5,137 tons of ore yielded 5,022 ounces of gold and 2,328 ounces of silver having a gross value of \$104,966 were mined and treated. All this ore was taken apparently from above the No. 1 crosscut-level and removed by aerial tram down to the mill. Although ore was far from bottomed, values decreased from 3 ounces of gold per ton at the start of operations to 0.5 ounce of gold per ton recovered at the end of the period, and this, coupled with the fact that another long crosscut was necessary to mine the ore below No. 1 level, discouraged the owners at the time from continuing operations and the property remained relatively idle until 1927.

In that year, however, F. M. Black and associates of Vancouver commenced shipments of crude high-grade ore from the upper levels. This policy was continued until February 28th, 1934, during which period 1,463 tons of crude ore, having a gross value of \$55,461, were shipped. The present company was organized in 1933.

Motherlode

This group of claims was located in the early years of the century on the Sheep Creek slope of Reno mountain, princi-



Gold belt mill on south slope of Reno Mountain.

pally on the surface showings of the Motherlode vein in the western quartzite belts. Ore occurred in two separate quartzite belts, later to be known as Nugget and Motherlode bands, the two being separated by an argillaceous band through which the vein was but a tight crack. The group was developed on a limited scale and small shipments were made from upper workings in the period 1906 to 1910, to the aggregate amount of 832 tons of sorted ore yielding 3,110 ounces of gold and 2,263 ounces of silver. During this time, the property was bonded by John McMartin and the title completed in 1910. Development work by 1910 had indicated enough ore to supply a mill of prescribed capacity for three years, and on the strength of this a company, known as the Motherlode Sheep Creek Mining Company, capitalized at \$1,250,000, was organized.

After extensive tests of the ore in San Francisco, the Merrill Company installed a 100-ton cyanide plant (the first of its kind in British Columbia), the property being completed by the summer of 1912. The mine, meanwhile, was developed extensively from the lowest (500-foot level) from which a bucket tram was to transport ore 500 feet down the hillside to the mill on Sheep Creek.

Eventually, when the mill went into operation, the Motherlode became the largest producer in Sheep Creek, but for a period of three years only. By 1915 most of the ore above No. 5 level, which was about the lower limit of the oxidized zone, had been extracted. A winze had been sunk from No. 5 level into primary ore but drifting results were not very promising so operations were discontinued early in 1915.

During its 2½-year period of operation, the Motherlode mill treated 60,504 tons of ore from which was recovered 34,043 ounces of gold and 12,762 ounces of silver having a gross value of \$706,180. This represented a recovery varying from 94 to 96 per cent of the values, and was an unusual performance at that time. The mill was nominally rated at 100 tons per day but often treated up to 125 tons per day. Although tonnage developed on the Motherlode vein obviously did not warrant the construction of such a large and expensive mill, from the point of view of economical operation the plant was all that could be desired, and was the forerunner of many more of its kind in British Columbia.

Nugget

This property, located on the south ridge of Reno mountain, directly above the Motherlode, was staked in the early 1900's. Of the seven veins on the property, the principal one

was the Nugget, which by 1910 was developed by four levels from both sides of the mountain. Crude ore was shipped in 1907; and, in 1908, Nugget Gold Mines, Limited, acquired the property and installed a 4-stamp steam-driven mill and concentrating equipment. The mine was worked continuously until 1911, during which time bullion was produced and concentrates shipped to Trail. 15,471 tons of ore, treated and shipped, yielded 16,689 ounces of gold and 3,101 ounces of silver having a gross value of \$292,549 during this four-year period.

In 1911 control of the Nugget stock was acquired by R. S. Lennie and associates of Vancouver and Spokane. Thereafter due to labor difficulties, the mine was closed.

Nugget-Motherlode

In 1918, an amalgamation was effected with the Motherlode, and a new company, known as Nugget Gold Mines, Limited, organized, whose programme was to tap the Nugget vein in depth from the Motherlode workings. This project was commenced in March, 1919, and the objective 625 feet below No. 4 level on the Nugget vein was reached early in 1919 after 1,165 feet of crosscutting.

Development work began on the vein and some ore was blocked out. Milling was commenced but costs were so high at that time that its continuance was deemed inadvisable. The last recorded run until the properties were acquired by Reno Gold Mines in 1932 was from July to November, 1922. Apparently, the Nugget vein did not prove up as well on the lower elevation as on the higher horizons and much delay resulted when raising to the upper workings was undertaken in search of commercial ore. Lack of capital seems to have been the principal cause of cessation of further operations by this company.

Reno

This group of 16 claims was staked in 1912 by W. B. Poole, Mike O'Donnell and Thomas Kilpatrick. The group took in the summit of Reno mountain and extended over to the Hidden Creek slope. The Reno vein was the most important, and by far the richest showing, although the Donnybrook, Clarence and Lake veins towards Hidden Creek were also known.

Work was continuous on a small scale by the owners under the direction of Mr. Poole and by 1927, four levels had been driven on the Reno vein, all of which were in ore of very good grade. Towards the end of 1927, negotiations were under way for further financing, principally by English capital, and in 1928, camp construction and development were advanced. Work was also started on a 30-ton cyanide and flotation plant which first went into production in 1929.

Miscellaneous

Other smaller showings in the district which were worked in the early days, most of which did not prove of any great importance at that time, include Kootenay Ore Hill, Midnite and Vancouver, Alexandra, now owned by Sheep Creek Gold Mines and Bonanza, held by the same company under option; Nevada, now split between Kootenay Belle and Gold Belt; Columbia and Clyde, which formed the nucleus of the present Gold Belt property; Golden Belle, latterly optioned to Kootenay Belle; and Golden Fawn and Bluestone, now owned by Reno. Of these, the Nevada, Columbia and Clyde are the only ones that have proved of any great importance to date.

Eureka

An interesting sidelight on the district was provided in 1910, when interests representing Kaiser Wilhelm of Germany optioned the Davenport Group east of Reno and the Eureka in Motherlode quartzite, across the creek from the Motherlode mill. A few high-grade spots were found in the Eureka, whence some small shipments were made; and in 1912, the owners, William Kennedy and William McCarthy, were paid the full

purchase price of \$50,000. However, the outbreak of war soon caused cessation of all operations and the co-owners had their property returned. The Eureka has since proved of no importance as a mine.

Geological

General

Ore deposits in the Sheep Creek area lie within a series of beds consisting of fissile and schistose to massive argillaceous quartzites and pure quartzites overlain by lime-argillites, phyllites and limestones. All the above beds have been fixed as late Precambrian.*

Locally, the beds have been pushed into two sharply-folded anticlines and an intervening syncline. The axis of these structures strikes generally N. 8 to 12 degrees E., and their axial planes dip about 58 degrees E. with appreciably shallower dips at lower horizons. The eastern anticline is much the larger and appears to over-ride the smaller structure to the west to a certain extent. (Refer to Plates 1, 2, 3, 4 and 5.)

Although the different beds show a gradation, one into the other, and in most places the boundaries are optional, they have been locally divided into four series as follows: Motherlode, Nugget, Reno and Pend Oreille, in chronological order.

The Motherlode series consists of 200 to 300 feet of green weathering schistose argillite forming the core of the eastern anticline. This is overlain by 500 to 600 feet of generally massive white quartzite. The Motherlode series is encountered in the eastern anticline but has not been definitely placed to date in the western anticline, as granite, here, has assimilated most of this part of the structure. The Motherlode series has not proved of any great economic importance to date, the only known occurrence of ore of any significance being on the eastern extension of the Motherlode vein where ore was found in the upper quartzites of the series.

The Nugget series consists of 200 to 300 feet of argillite and argillaceous quartzite overlain by 800 to 900 feet of grey to white quartzite, for the most part, thin-bedded with occasional thin bands of argillaceous quartzite and limestone. Development of bedding planes and schistosity varies directly with the degree of folding of the anticlinal structures. The Nugget band is the host rock of most of the ore in Sheep Creek district. Fawn, Nugget, Motherlode, A and B, Black, Midnite and Vancouver, Alexandra and Bonanza veins are found in it in the western limb of the eastern anticline. In the crest of the anticline where the same band has a double thickness, the

*Walker, J. F., Geol. Survey of Canada, Memoir 172.

Geological-Key to Formations in Plates 1, 2, 3, 4 and 5

BA—Basal argillites of Motherlode series. Generally green weathering, schistose argillites.

MLQ—Motherlode quartzites. Massive, generally white, brittle quartzites.

NA—Nugget argillites of the Nugget series. Dark, generally schistose argillites.

NQ—Massive to thin bedded white and grey quartzites of the Nugget series. Generally brittle but contain occasional narrow bands of softer limy and argillaceous sediments.

RAQ—Generally schistose argillites with numerous interbeds of dark to white quartzites. Forms basal member of Reno series.

RQ—Dark to white quartzites. Brittle. Form core of the Reno series.

RA—Schistose to massive argillites, forming upper member of the Reno series.

PO—Pend Oreille series of sediments made up of limy argillites and dark, occasionally marbelized limestones.

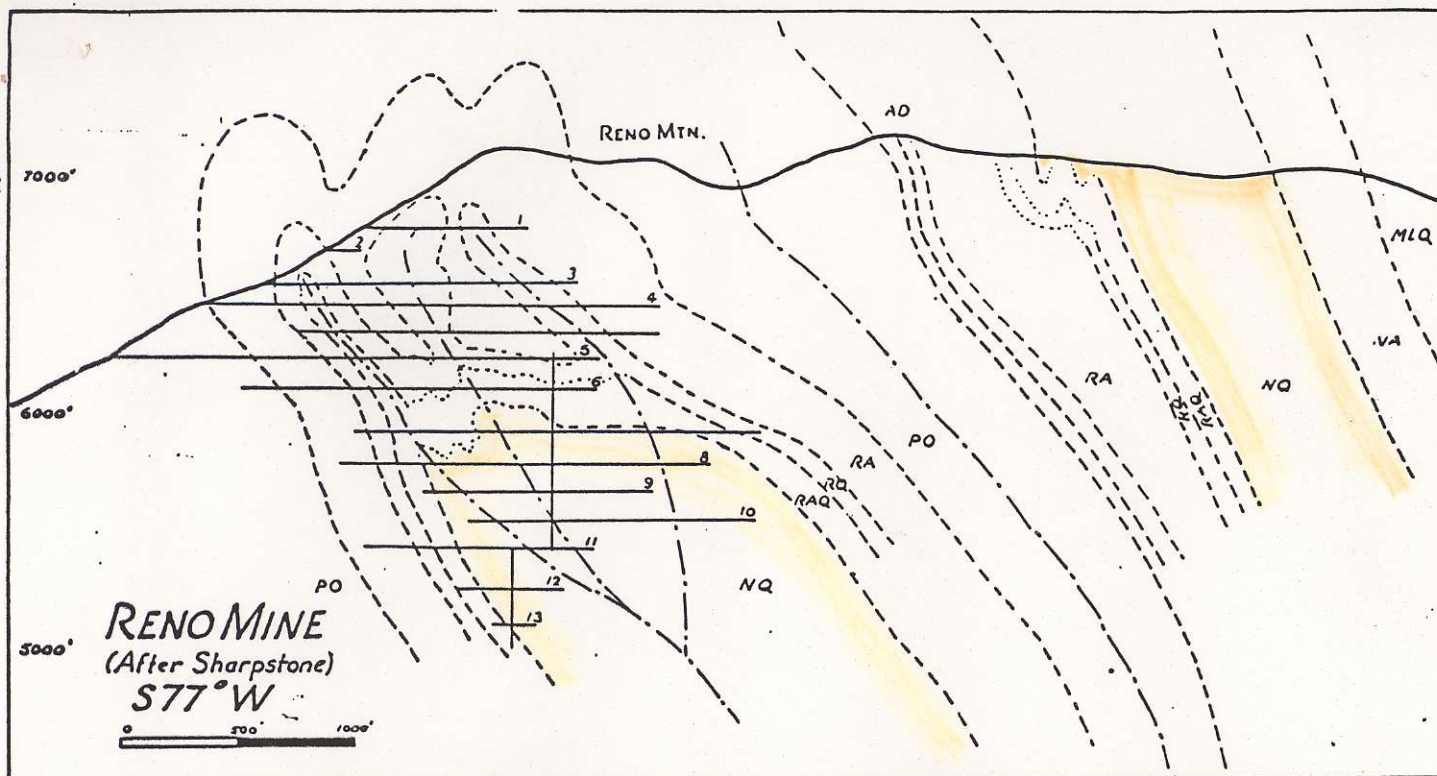


PLATE No. 1—Reno Gold Mines, Ltd. Section across formations along strike of the Reno vein.

lower part of the Reno, Coyote, Bluestone, 4500, 4300, 4100, 3900, 3500, 3040, 2590, 2360, 8200, 8000, 6600, Dixie, Yellowstone, Queen, 92, 85, 83, 81, 76, 75, 68 and 57 veins have ore-shoots or possibilities of ore shoots in it.

Directly overlying the Nugget series is the Reno series, which is from 400 to 500 feet in thickness and consists generally of schistose, argillites and argillaceous quartzites, and includes a band of 50 to 100 feet of hard, dark to white quartzite in its lower portion. This last mentioned hard layer has been subjected to intense folding and local thinning and thickening

and places in the anticlinal crest with the resultant deformation of the softer surrounding beds. In some places, particularly the upper workings of the Gold Belt and the upper part of Reno vein, it is an important host for ore-shoots. The relatively impervious layers of the Reno formation probably acted as a seal for the rising mineralizing solutions and gases.

Immediately above the Reno series, the argillite grades into 300 to 400 feet of limy argillite, successively overlain by 200 to 300 feet of dark limestone, in places, marbelized. These beds are found on either wing of the two anticlines and extend down

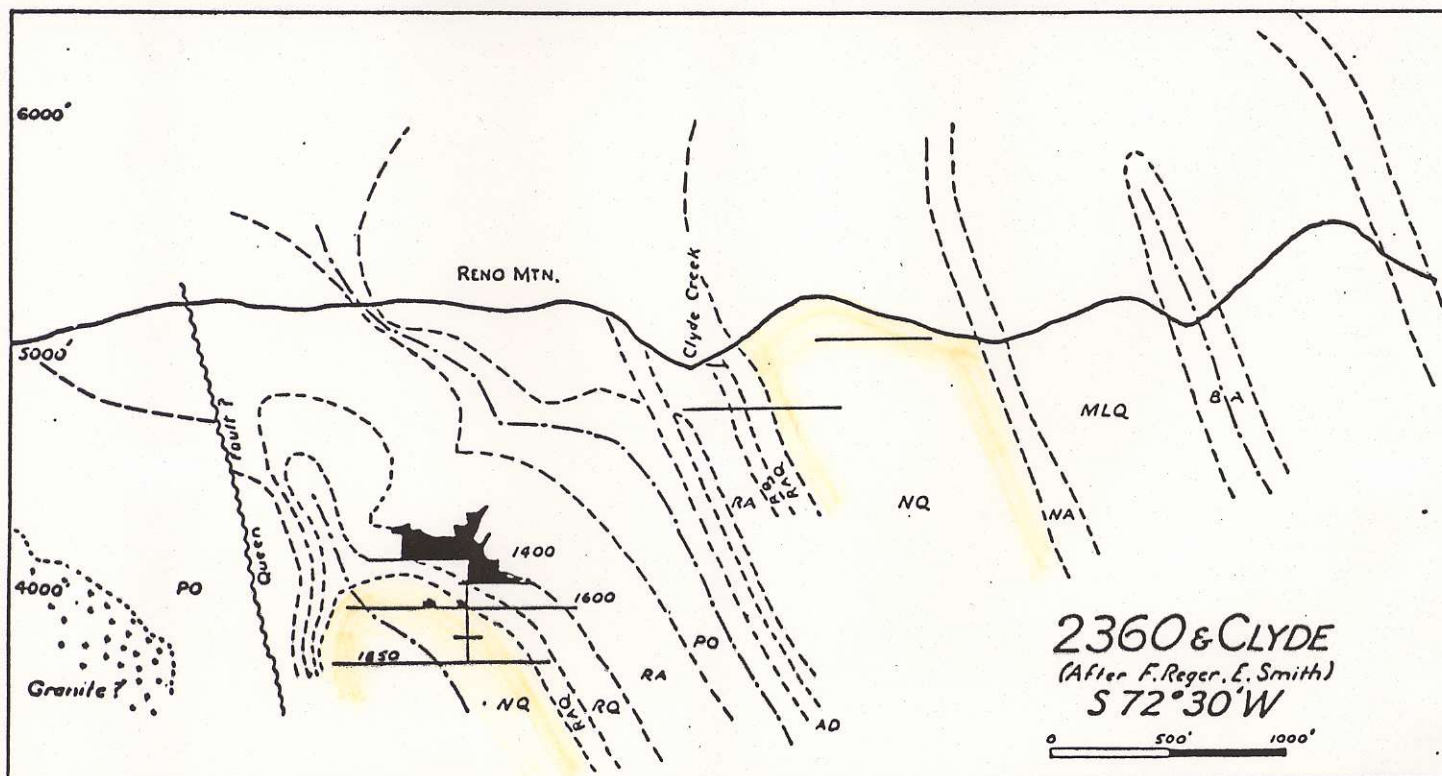


PLATE No. 2—Gold Belt Mining Co., Ltd., and Golden Belle group (under option to Kootenay Belle Gold Mines, Ltd.). Section across formation along stroke of 2360-vein (Gold Belt) and Clyde vein (Golden Belle)

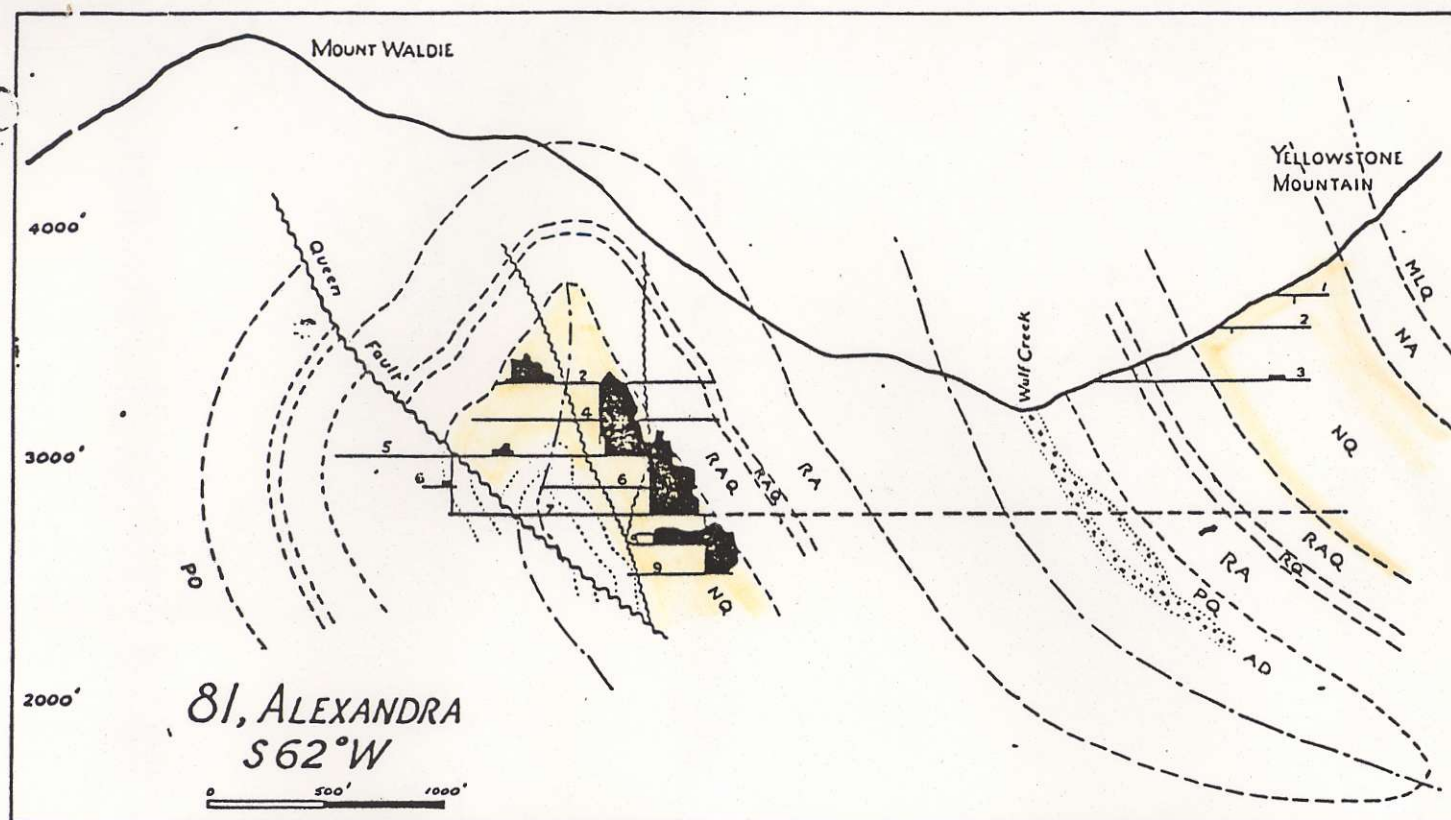


PLATE No. 5—Sheep Creek Gold Mines, Ltd. Section across formation along strike of '81' and Alexandra veins.

entered at 2200 feet elevation in the Queen shaft and a diamond-drill hole from this point in a westerly direction ran into a large body of it. Evidently, the lower parts of the anticlines and intervening synclines have been assimilated by the granite intrusive. Fairly extensive development work on the Queen vein (the lowest in the camp), suggests that temperature conditions did not permit of deposition of commercial ore deposits at a distance nearer than 600 feet from the granite.

As most of the veins in the camp now have been bottomed as far as commercial ore is concerned, the suggestion is that the contour of the underlying granite rises under the north end of the district, i.e., the section under Reno Mountain. Further evidence of this is shown by the fact that the crest of the Nugget quartzite in the western anticlinal structure plunges from an elevation of 6000 feet at the Reno vein near the top of Reno Mountain to an elevation of about 3900 feet at the 8000 vein, 11,000 feet to the south near Sheep Creek. This uplift is accompanied by a shift to the east of that part of the structure on Reno Mountain in relation to that part in Mount Waldie.

Accompanying this uplift or deformation which first shows at the 8000 vein in Gold Belt and becomes markedly more intense from the 2360 vein north (refer to Plate No. 2) is a marked deformation and thinning and thickening of some of the strata, especially in the crestal beds of the western anticlinal structure. This is also apparent in the upper levels of the Reno vein (see Plate No. 2). The Queen vein marks the low point on the structure (Plate No. 4) and the anticline rises at a very slight angle, progressing southward into Mount Waldie. (See Plate No. 5.)

Elevation of ore-horizons is then governed by two factors, namely, the contour of the underlying granite and the amount of uplift of the anticlinal structures and would appear to be closely related to both.

Ore Deposits

Shear fractures of a somewhat sinuous trend traverse the structures in directions varying from N. 35 degrees E. to N. 80 degrees E. In every case, the north wall of the fracture

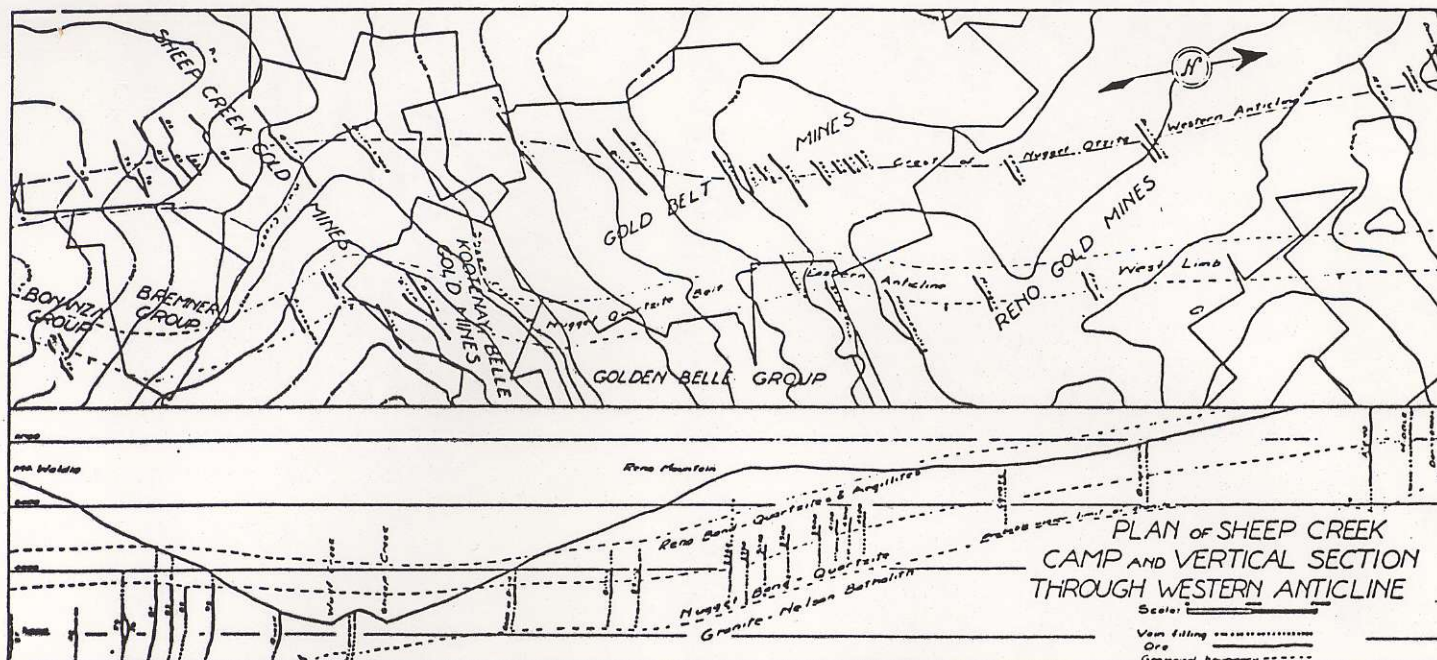
has been moved to the east and, in some cases, upward, in relation to the south wall. Apparent movement varies from 160 feet and 130 feet respectively on the Yellowstone and Queen veins to only a few feet on some of the veins. For most of the important veins in the camp, the apparent horizontal movement is from 12 to 50 feet but definite evidence as to amount of vertical movement is lacking.

Where the shears cross the brittle quartzite beds, a clean fracture results. Where they cross more resilient limy and argillaceous beds, the shearing force had a tendency to develop tensional fractures along the bedding planes and these combined with the shear fracture to form an echelon along the shear plane as in the Reno vein and the extension of the 92 vein into the argillites. However, no definite rule-of-thumb exists for this as veins of large movement such as the Yellowstone and the Queen show as clean straight shears on their extensions into the softer beds while veins of very small movement, such as the 57 and 68, show as echelons, even in the brittle white quartzites.

In many cases, two definite fractures seem to be allied with the same shear. Examples are the A and B veins in Kootenay Belle, the 75 and 76 veins and 85 and 83 veins in Sheep Creek. Generally, the fractures rejoin on vertical or lateral extensions.

All the veins along the eastern anticline have a pronounced dip to the south. Generally speaking, veins are nearly vertical in the upper and central portions of the western anticline and show a slight south dip on the wing which becomes more pronounced at depth.

Vein-filling, which consist of quartz and a variety of sulphides, is the result, partly of pressure of the mineral fluids themselves, but is more directly connected with openings caused by movement of the vein walls. The assumption is that such openings were maintained and successively reopened in the brittle hard quartzite beds, but in the more resilient limy and argillaceous beds, rock-pressure closed the openings, especially at lower horizons. Subsequently, reopenings for enrichment are explained in the same way. One prerequisite for



an ore-vein is hard quartzite on at least one wall. Where softer beds are found on both walls, the vein shows generally as a sheared crack and often echelons off into the bedding planes.

Dip of the bedding appears to have profound influence on angle of fracturing. Generally speaking, on the wings of either anticline where dip is more uniform and folding not particularly intense, long uniform veins or long tight cracks result, while in the central and upper portions of the western anticline, where folding is more intense, vein filling is spotty and erratic.

Movement of the walls in relation to each other is still going on in some of the veins in the camp, especially the more important ones. Symptoms of this condition show by actual measurement, miniature rock blasts and banding of the sulphides. The 81 vein is an outstanding example. Such movement has, undoubtedly, in the past, resulted in enrichment of many of the veins.

Mineralization

Quartz and pyrite were the first minerals introduced into the veins and they were subsequently injected in smaller amounts during the whole period of mineralization. Pyrrhotite was next in order, but its occurrence is more erratic than pyrite. Sphalerite and fine galena were the last sulphide minerals introduced in any amount and they were closely followed by the gold-bearing solutions. Sphalerite at Sheep Creek acts as an indicator for gold, the assumption being that where openings were maintained for the sphalerite, they were generally maintained for the gold solutions. However, pyrite acts as the precipitant for gold in most cases and it is with that mineral that the gold in a free state is associated. Gold was found free in the upper levels of most of the veins in the early days. The values are sometimes quite general in the vein but more often occur as one or more high grade streaks running through the vein. Other minerals of much more erratic occurrence and whose period has not definitely been fixed include chalcopryite, bornite and coarse galena. All three act as indicators of gold values where found. In parts of Kootenay Belle and in Gold Belt and Reno, a fine galena appears to be a better indicator for gold values than the sphalerite. This type of galena was closely associated with the sphalerite and gold.

In the lower levels of some of the veins, presumably on approaching the underlying granite batholith, veins are characterized by the presence of large amounts of various hydrous

iron, lime and aluminum silicates which mark the bottom horizon of commercial gold values. Where these silicate minerals were not precipitated to such a great extent in the upper levels of the mines, they have been entirely absorbed by resiliification and give the quartz a bluish tinge.

Structural

Most of the ore-shoots are longer in their vertical than lateral dimensions, indicating their formation is more attributable to horizontal displacement. In some veins, such as the 81, there is a definite horizontal banding of the ore, indicating that vertical movement exerted a structural influence on the ore-body as well. Most of the larger ore-shoots occur where the fissure trends to the right off its usual course.

In the Sheep Creek property, most of the ore is confined to the white Nugget quartzite band with a possibility of ore occurring also in the outer hard quartzite band in the Reno layer, as yet largely untested. Proceeding north into Reno Mountain, the ore is found more and more in the upper crest of the Nugget and associated with the hard overlying Reno band. For example, ore in 81, 92 and Queen veins has been found almost entirely in the Nugget quartzite while in the northern part of the Gold Belt and in Reno vein, perhaps two-thirds of the values are found in or associated with the upper band of Reno quartzite. Along the eastern anticline, ore deposits are confined almost entirely to the Nugget quartzite with the same corresponding rise in ore horizons going into Reno Mountain as in the western anticlinal structure. Exceptions to the above are Eureka and part of Motherlode, where some ore was found in underlying quartzite (Motherlode) band.

Minor Intrusives

One large aplite porphyry dike, 40 to 80 feet wide, with a few similar associated dikes, are intruded along a plane parallel to and some distance east of the axial plane of the synclinal trough. The large dike outcrops through the whole district from north to south with a strike of N. 10 to 12 E., and is located about midway between the ore deposits of either syncline. In the past, much speculation has been aroused as to whether or not the ore deposits in the district are in any way connected with this dike. Recently, it and some other associated aplite dikes in depth have been found to assay small amounts in gold, always less than 0.10 ounce and generally less than 0.05 ounce, lending further credence to this view. However, the dike may be only the result of structural features caused by the intense folding in the district and may only,

for that reason, be fortuitously located between the white quartzite belts where the ore is found. It is not known whether this dike was intruded before, after or during the period of ore deposition.

Numerous lamprophyre dikes, representing the last phase of igneous intrusion, are found throughout the camp. They have followed the paths of least resistance, namely, the faults, the vein shears and the bedding planes. They have resulted in considerable dilution of the ore but have given no serious trouble in mining operations.

Faults

As far as vein shearing, the only definitely known major fault in the district is the Queen fault, which slices across the western part of the western anticline at an angle and dip approximately that of the bedding. It passes out of the anticlines at about 50 to 70 degrees east dip and shows a considerably shallower dip at lower elevations. It is definitely post mineral and the hanging wall (east side) has slipped down and southward about 230 feet and 130 feet respectively in relation to the footwall of the Queen vein. To the north, the Queen fault appears to line up with a fault running about N. 10 E. to N. 25 E. across Kootenay Belle Dixie claim and Gold Belt properties. Because of the eastward and upward shift of the anticlinal structure, the fault is largely confined to the overlying Pend Orielle sediments west of the structure and dips too steeply to affect the mine workings in Gold Belt. Farther north, the fault has not been definitely traced. The Queen fault appears to split up rather badly in the south end of Sheep Creek property.

A number of minor faults, generally paralleling the bedding and trending with the softer beds have resulted in minor displacements of the veins throughout the camp. Also, some small faults occur which were pre-mineral and have become obscured by silicification. There is evidence of post-mineral faulting along some of the veins, and this is still proceeding. In such places, the ore is softer and broken up and mining is made easier.

Recent History and Development

Reno

This, the oldest of the present operating companies of the district, put its 30-ton cyanide mill in operation on the Reno vein above Fawn Basin in September, 1929. Production was continuous until February, 1932, at which time the mill burnt down. During this period, tails ran high and recovery was only around 85 per cent.

After the destruction of the mill, the old Motherlode mill on Sheep Creek was acquired. During 1932, this mill was remodeled and a 12,600-foot tram line constructed down to it from No. 5 portal on the Reno vein. This mill went into production in November, 1932, and the Reno vein was mined more or less continuously until October, 1939, at which time it appeared exhausted of ore. The mine was developed on twelve levels with inside shafts from No. 5 level downward.

Development work cut the Donnybrook vein 1000 feet to the north and also cut another vein, not known to outcrop, on the way. This was known as the Middle vein. Values were subcommercial in both.

During its 10-year production period, 263,437 tons of ore of 0.552 ounce grade and aggregate value of \$4,738,537.75 were taken from the Reno vein to make it the premier producer in the district. Roughly two-thirds of the values came from the upper or Reno formation.

Meanwhile, when it appeared that the Reno vein was nearly exhausted of ore, a low-level tunnel known as the 4900, was driven to the Motherlode vein. This ore proved to be too low

grade, but subsequent raising and sinking operations were moderately successful and the mill produced intermittently after the Reno vein was exhausted. From October, 1939, to November, 1940, the Motherlode vein yielded 39,197 tons of ore of 0.333 oz. grade and gross value of \$500,388.21. In January, 1940, the Bluestone vein in Fawn Basin also went into production and to November, 1940, had produced 3,393 tons of ore of 0.249 ounce grade and gross value of \$32,294.41. During the current year, operations have been curtailed at Reno but development work was continuous and the mill has recently gone into production on ore from the Nugget vein.

The present mill, as remodeled by the Reno Company is a modern cyanide plant capable of treating 150 tons per day; recovery is around 98 per cent.

Kootenay Belle

This company was incorporated in 1933 and an extensive mining and development programme was commenced on A and B veins. In 1934, a 50-ton mill was constructed with a Hardinge-Hadsel mill for fine grinding and flotation equipment. It produced continuously but proved too small and inadequate. In 1936 a modern 150-ton cyanide mill with conventional grinding equipment was installed and has been in continuous operation ever since, although tonnage has been curtailed somewhat during the past two years due to near exhaustion of ore from A vein, the principal producer.

The A and B vein system in Nugget quartzite of the eastern anticline has been developed on ten levels with a shaft down from 6 level. Production has been negligible below 7 level; and below 4 level, the ore was found to occur in more isolated lenses. Considerable development work was done on the Dixie vein, which is actually a western extension of the 6600-vein in the Gold Belt in the western anticline. However, only a 'stump' of an orebody was found, extending into Kootenay Belle ground in the crest of the Nugget quartzites, and this was so small that it little more than repaid the costs of development. (See Plate No. 3.)

Of recent interest is the Black vein, which is located 500 feet south of A-vein in the same Nugget quartzite band and which has been developed by crosscutting and drifting from 3-, 6- and 7-levels on A-vein. This vein has proved rather narrow but high-grade to date and, at present, constitutes the principal ore reserves of Kootenay Belle. Unfortunately it has a pronounced south dip and, below 7-level, it passes largely into Sheep Creek property.

Other veins on the property including the Queen and Yellowstone or possible extensions of them have not proved productive to date.

Golden Belle property, which includes two veins on Reno Mountain in the northern extension of Reno and Nugget beds in Kootenay Belle property, was recently optioned and developed but results proved disappointing and work has been discontinued.

Kootenay Belle is the smallest but most highly developed property in Sheep Creek and, next to Reno vein, its A vein has been the most consistent in the camp. Production from February, 1934, until February, 1941, has been \$2,969,876 from 216,056 tons of ore whose average grade was around 0.37 ounce gold. 80 per cent of this production came from A vein with the remaining 20 per cent from B, Dixie and Black veins.

Sheep Creek

This company dates back to 1933 when the Midnite Gold Mining Syndicate and the Queen Mining and Milling Company were consolidated to form Sheep Creek Gold Mines Limited.

The old Queen workings were dewatered in February, 1934, and after some diamond drilling was done with negative results, actual development work was started on the Queen vein

in May, 1934. Ore was found after drifting for a short distance to the east and by crosscutting beneath the Queen fault to the west on 7-level. Results were such that a 150-ton cyanide plant was constructed and put into operation in May, 1935.

A new shaft was sunk from 7-level in the central part of the anticline and subsequently deepened 1050 feet below the collar where tongues of granite were encountered and 8-, 9-, 10- and 12-levels were driven.

However, ore proved to bottom just below 8-level on the east wing of the anticline and at 7-level below the Queen fault to the west, and in consequence further development work took the form of crosscutting to the south along the gently dipping western anticline in the favorable Nugget quartzite beds to look for parallel veins, two of which were known to exist as tight breaks on the surface.

The 92-vein was encountered on the east wing of the anticline after 800 feet of crosscutting on both 5- and 7-levels, but did not make ore until drifting reached the central part of the anticline structure. Here, a high-grade ore-shoot was encountered which extended from 8-level up to 300 feet above 2-level, a vertical distance of over 900 feet. Other ore-shoots were later found on the 92-vein on both sides of the Queen fault, but it was this particular ore-shoot which assured the success of the Sheep Creek operation at that time.

Further crosscutting to the south revealed the 85-, 83-, 81-, 76-, 75-, 68- and 57-veins, of which the 81 has proved by far the most important. On the 81-vein, an ore-shoot on the east contact has extended from 70 feet above 2-level down to 9-level, where it is still strong. Currently, another important ore-shoot is being developed on 5- and 6-levels on this vein near the west contact and below the Queen fault.

Ore shoots have been found on 85-, 83-, 76- and 75-veins but they are all largely undeveloped to date.

68- and 57-veins, which were tested still further south by drifting and diamond drilling, show narrow erratic but sometimes high-grade shoots. They show as weak breaks where encountered and do not extend up very far.

A crosscut north from the Queen vein on 7-level cut the Yellowstone vein 900 feet below surface workings where it showed as a wide, strong vein but was barren of values.

Work has been done from time to time on the Midnite, Bonanza and Alexandra veins in Nugget quartzite on the eastern anticline by surface tunnels but results have been disappointing.

Recently a 2060-foot crosscut from 7-level on 92-vein has been completed and encountered the Alexandra vein 500 feet below surface workings. It shows here as a narrow, flat-dipping break with erratic values only. The same crosscut is currently being driven north to test Midnite and Black veins in depth.

Sheep Creek has a production record of \$5,503,343.19 gross value from 325,699 tons milled from the time its mill was put into operation in May, 1935, until the end of May, 1941, and is now the premier gold producer of the district, having passed Reno early in 1941.

Gold Belt

This, the youngest mine in the district, dates back to 1905-11, when a number of claims were staked and held under the name of the Gold Belt Mining Company. However, aside from a few tons of ore shipped from the Nevada tunnel, no production is recorded for the early period.

The present company dates back to 1932, when the Lakes brothers, realizing the significance of the quartzite belt, staked

a number of claims on the south slope of Reno Mountain. In 1933, a consolidation of various claims was effected and the present Gold Belt Mining Company formed. Work on the upper (200 and 600 levels), largely in argillites, gave promise of better values in depth on several veins encountered.

In 1935, the North America Mines took over a controlling interest and instituted a development programme. The results ultimately justified the erection of a modern cyanide mill, which was constructed and put into operation in October, 1938. The plant has ever since been treating 150 to 170 tons of ore daily.

The 1850-level, started in 1935, hit the 8000- and 8200-veins in the Reno formation, where they showed as tight breaks only. This crosscut was advanced and intersected, in order, the 2360-, 2590- and 3040-veins in the Nugget quartzite anticline, all at points too low to make ore.

Meanwhile, drifting on the 8000- and 8200-veins to the west in the Nugget quartzite anticline showed substantial ore-shoots and the 2100-level was driven still lower to intersect them in the Nugget quartzite. A little low grade ore only was found here on the 8000-vein, but the important 6600-vein was encountered near the portal of the 2100-crosscut and subsequently developed and mined.

At the same time, raising on the 2360- and 2590-veins and subsequent further crosscutting to the north on 1400- and 1600-levels revealed ore on the 2360-, 2590- and 3040-veins in the crest of the Nugget quartzites. Important ore-shoots were also found in the overlying Reno quartzites on the 2360-vein.

Subsequently, crosscutting to the north on 1400- and 1600-levels revealed ore in the anticlinal crest on 3500-vein with increased values at the upper horizon. Accordingly, the 1400-level crosscut was advanced and encountered in succession, the 3900-, 4100-, 4300- and 4500-veins, all named according to footage from the 1850-portal.

A little ore was found on the 3900-vein, but because of the fact that the axis of the Nugget quartzite anticline rises steeply towards the north, in consequence of which the ore horizon also rises in this direction, it is believed that the last three veins were cut at points too low to intersect ore-shoots. The Western anticlinal structure at Gold Belt is nearly level from the 6600-vein to the 8200-vein, from which point it rises a bit to the 2350-vein and then rises much more steeply to the north towards the old Reno vein. Ore horizons have proved to rise with the structure so that the future of Gold Belt at present appears to lie in raising on the existing veins and gaining more and more elevation in crosscutting towards the north end of the property.

To date important shoots of ore have been found on the 8000-, 8200- and 2360-veins in the overlying Reno quartzite band, which appears very encouraging for future exploration on existing veins.

From October, 1928, to the end of March, 1941, the Gold Belt mill treated 145,129 tons, having a gross recovered value of \$1,562,864.35.

Statistics

I. Value of Gross Production

Mine	Period of Production	Value
Yellowstone	1900-1902	\$ 115,000
Queen	1902-1916	1,204,726
Kootenay Belle	1905-1934*	160,427
Motherlode	1906-1915	771,600
Nugget	1907-1911	292,459
		<hr/>
		\$2,444,212

Recent Period

Mine	Period of Production	Value
Reno	Sept. 1, '29-Nov. 18, '40	\$5,271,220
Kootenay Belle.....	Mar. 31, '34-Sept. 1, '41	3,207,246
Sheep Creek	May 31, '35-May 31, '41	5,503,343
Gold Belt.....	Oct. 31, '38-Mar. 31, '41	1,562,864
		<u>\$15,544,673</u>
Grand total		\$17,988,885

II. Gold Production by Individual Veins

Early Period

Veins	Tons	Oz. Gold	Grade
Yellowstone	17,167	5,912	0.345
Queen	118,136	57,762	0.488
"A" vein	3,000	6,300	2.100
"B" vein	1,000	800	0.800
Motherlode	61,136	37,153	0.607
Nugget	15,471	16,089	1.040
	<u>215,910</u>	<u>124,016</u>	<u>0.574</u>

Recent Period

Reno

Vein	Tons	Oz. Gold	Grade
Reno	263,437	145,417	0.552
Motherlode	39,137	13,033	0.333
Bluestone	3,393	849	0.249
	<u>306,027</u>	<u>159,299</u>	<u>0.521</u>

Kootenay Belle

Vein	Tons	Oz. Gold	Grade
"A" vein	191,523	75,619	0.395
"B" vein	30,781	7,709	0.251
Dixie	2,570	1,079	0.420
Black	10,521	4,270	0.405
	<u>235,395</u>	<u>88,677</u>	<u>0.377</u>

Sheep Creek

Vein	Tons	Oz. Gold	Grade
Queen	113,131	33,715	0.298
92	128,007	70,873	0.553
85	1,395	518	0.371
83	19,256	6,467	0.336
81	56,063	30,693	0.548
76	2,445	770	0.315
75	1,389	434	0.313
68	4,013	1,205	0.300
	<u>325,699</u>	<u>144,675</u>	<u>0.444</u>

Gold Belt

Veins	Tons	Oz. Gold	Grade
6600	26,998	10,430	0.386
8000	49,484	14,972	0.303
8200	35,723	9,228	0.258
2360	22,386	5,493	0.245
2590	157	60	0.380
3040	5,296	1,385	0.261
3500	5,085	1,861	0.366
	<u>145,129</u>	<u>43,429</u>	<u>0.299</u>

Total (recent period) 1,012,250 436,080 0.431

III. Costs*

Reno—For fiscal year ending June 30, 1938.

(a) Metallurgical Data

Ore milled-dry tons	50,068
Gold bullion, ounces	21,787
Assay, heads, ounces per ton	0.442
Assay, tails, ounces per ton	0.007
Recovered, ounces per ton	0.435 or 98.3%
Average daily tonnage	137.1
Value of heads per ton	\$15.170

(b) Costs

	Per ton	Per ounce
Mining	\$3.870	\$8.893
Development	2.018	4.637
Aerial tramming	0.319	0.732
Milling	2.034	4.675
Marketing	0.096	0.221
Plant overhead	0.383	0.881
	<u>\$8.720</u>	<u>\$20.039</u>

Kootenay Belle—For fiscal year ending Feb. 28, 1939.

(a) Metallurgical Data

Ore milled, dry tons	48,984
Gold bullion, ounces	19,627
Assay, heads, ounces per ton	0.409
Assay, tails, ounces per ton	0.008
Recovered, ounces per ton	0.401 or 98.0%
Average daily tonnage	134.0
Value of heads per ton	\$14.165

(b) Costs

	Per ton	Per ounce
Mining	\$3.700	\$9.250
Development	1.960	4.890
Ore transportation	0.380	0.940
Milling	1.330	3.330
Marketing	0.210	0.510
Mine administration	0.440	1.100
	<u>\$8.020</u>	<u>\$20.020</u>

Sheep Creek—For fiscal year ending May 31, 1941.

(a) Metallurgical Data

Ore milled, dry tons	55,504
Gold bullion, ounces	25,546
Assay, heads, ounces per ton	0.476
Assay, tails, ounces per ton	0.012
Recovered, ounces per ton	0.464 or 97.48%
Value of heads per ton	\$17.776

(b) Costs

	Per ton	Per ounce
Mining	\$2.935	\$6.325
Development	1.708	3.681
Ore delivery to mill	0.082	0.177
Milling	1.605	3.459
Refining	0.029	0.062
Marketing	0.225	0.485
	<u>\$6.584</u>	<u>\$14.189</u>

Gold Belt—For fiscal year ending March 31, 1941.

(a) Metallurgical Data

Ore milled, dry tons	62,037
Gold bullion, ounces	16,686
Assay, heads, ounces per ton	0.279
Assay, tails, ounces per ton	0.009
Recovered, ounces per ton	0.270 or 96.21%
Value of heads per ton	\$10.397

(b) Costs

	Per ton	Per ounce
Mining	\$3.162	\$11.326
Development	1.882	6.749
Milling	1.217	4.358
Ore delivery to mill	0.111	0.398
Refining	0.016	0.057
Marketing	0.134	0.480
	<u>\$6.522</u>	<u>\$23.368</u>

Note: The author wishes to thank the managements and staffs of Reno Gold Mines, Ltd., Gold Belt Mining Co., Ltd., Kootenay Belle Gold Mines, Ltd., and Sheep Creek Gold Mines, Ltd., for their kind co-operation in furnishing material and advice relative to the writing of this report.

GUNSTEEL RESOURCES INC.

May 23, 1989

Memorandum To: Stan Endersby
Gary Allen

From: Michael Gross

Subject: Production Potential Of Sheep Creek Gold Camp

Blocking out enough proven and probable ore reserves to support a five to ten year mine life will cost more than \$3,000,000. The estimated lead time to complete the work is more than three years. This investment is not justified because the lead times required to block out reserves negatively impacts the time value of money using NPV and DCFROR investment analysis.

Therefore, another means of estimating ore and profit potential in the Sheep Creek Camp is needed. Past production from the camp is significant (sixth largest gold camp in B.C. with more than 750,000 ounces of Au recovered). Ore reserves developed by recent exploration and development work proves that the old timers didn't get it all (Gunsteel and Goldbelt work). The ability to predict ore potential (inferred ore reserves), enables an economic evaluation of the Camp or of a particular vein to be done.

Examination of past operations and the literature provided the idea for a method to estimate inferred and/or geologic ore reserves. The method developed estimates the average percent ore expected on a given strike length of vein. The average percent ore expected can apply to new and/or projected veins as well as to known veins. This percentage figure is called the "success factor". The method used to determine the success factor is as follows:

1. Using long sections from various mine records, the total length of drifts in favorable host rocks were marked. (Favorable host rocks are any rocks that have hosted ore in any mine in the camp, not just on a particular vein. Thus, any errors should be on the conservative side.)
2. Next, ore blocks were drawn on the long sections by connecting the points marked on the drifts. The highest elevation drift on a long section includes an ore block projected upward, either to the surface or for a reasonable distance. No ore projection will extend below the lowest elevation drift because that ore is not minable.
3. Calculate the total possible tonnage of these blocks using width times length times height.
 - 3.1 The calculation for total possible tons on the western anticline uses a three foot mining width. On the eastern anticline, the mining width used is four feet. The reason for using different mining widths is that veins on the western anticline show more clearly defined faults bounding both sides of veins compared to veins on the eastern anticline.

3.2 The historic tonnage factor used in the camp is 12 cu ft per ton. Present and future ore reserve calculations will continue using that factor.

4. Dividing total tons of ore mined by the total possible tons gives the percentage mined. This is the "success factor", which represents the historical percent success in finding and mining ore on a given vein.

5. Averaging the percent mined for several veins gives an average success factor.

The average success factor is used to predict inferred reserves for the whole camp. The success factor for a specific vein is used to predict success on that particular vein.

The following tabulation of veins in the Goldbelt mine shows total possible tons compared to actual tons mined and the success factor is expressed as the percent mined.

<u>Vein</u>	<u>Total Tons Poss</u>	<u>Total Tons Mined</u>	<u>% Mined</u>
6600 Vein	74,000	33,500	45%
8000 Vein	112,625	59,500	53%
8200 Vein	127,275	41,000	32%
2360 Vein	89,563	47,000	52%
3040 Vein	78,900	18,000	23%
3500 Vein *	271,100	47,000	17%
3900 Vein	29,250	17,500	60%
<hr/>			
Totals	782,713	263,500	34%

* The 3500 vein contains 25,000 tons of developed reserves that the Goldbelt Co. should have mined. Adding 25,000 tons to the total tons mined increases the total average percent mined to 37%.

The following tabulation of three veins in Gunsteel ground shows total possible tons compared to actual tons mined and the success factor is expressed as the percent mined.

<u>VEIN</u>	<u>Total Tons Poss</u>	<u>Total Tons Mined</u>	<u>% Mined</u>
Motherlode	644,325	108,000	17%
Nugget	217,689	57,500	26%
Reno	686,500	261,500	38%
<hr/>			
Totals	1,548,514	427,000	28%

Future mine planning and economic analysis will use a 25% success factor when estimating inferred and/or geologic ore reserve tonnage. The success factor will apply only to rocks known to be favorable host rocks for ore grade gold mineralization.

W. H. Mathews (B.C. Department of Mines Bulletin #31) estimates that gold bearing mineral veins occur every 500 feet along strike and perpendicular to the axis of both anticlines. Reviewing a composite map of the camp strongly suggests that the same structures occur on both anticlines. Mathews also believes that this may be true, but to date, no vein development from one anticline to the other has occurred. The point remains unproven, even though the evidence strongly supports the conclusion that the same vein structures occur on both anticlines.

Both the literature and the operating histories of mines in the camp indicate that productive veins extend over a maximum vertical distance of 1600 feet. While some veins have only been productive over 500 or 600 vertical feet, the development work necessary to prove that they extend deeper has not been done. Inferred ore reserve calculations will use a vertical height of 1200 feet for new or projected veins. Inferred ore reserve estimates will only use four of every five possible new veins to keep estimates conservative. This has the effect of adding another 1000 plus feet of drift or \$250,000 to the costs of developing four ore producing veins.

Gold bearing veins usually have 1000 feet of strike length in favorable host rocks. This conclusion resulted from reviewing maps of different mines in the camp.

Inferred ore reserve calculations on new veins will use the following dimensions: 1000 feet long by 1200 feet high by 3 feet wide. The results are more conservative by not calculating any reserves at a four foot width. The above dimensions calculate to 300,000 total possible tons, which at 25% success factor, equals 75,000 tons of inferred ore reserves on every new vein discovered or projected.

Historically, .42 oz Au per ton is the recovered ore grade from the camp. At a grade of .30 oz Au per ton, every new vein will contain 22,500 ounces of gold. Using \$437 per oz Au Canadian, total revenues per vein are \$9,833,000. At a grade of .35 oz Au per ton, every new vein will contain 26,500 ounces of gold. Using \$437 per oz Au Canadian, total revenues per vein are \$11,580,000.

Estimated development costs for each new vein are \$15 per ton. This assumes each new vein requires 4500 feet of cross-cut and development drift. Estimated raise and stope preparation costs are \$12 per ton. Estimated mining costs are \$20 per ton. Estimated exploration costs are \$5 per ton. Estimated milling costs are \$29 per ton. Estimated costs of not finding any ore on a vein are \$1 per ton. Total estimated costs are \$82 per ton. Adding 10% contingency and rounding off brings estimated total costs to \$90 per ton.

Estimated revenues are \$153 per ton based on a grade of .35 oz Au per ton and a price of \$437 per oz Au Canadian. A grade of .35 oz Au is .07 oz Au lower than the historic average for the camp. A mining cost of \$90 per ton produces an estimated profit potential of \$63 per ton.

The Sheep Creek Camp still contains more than 20,000 feet of strike length along the axial planes of the two anticlines that requires exploration and development to confirm or deny the presence of gold bearing structures. Based on assumptions outlined above, the structural and mineralization patterns observed in the camp suggests that 10,000 feet of strike length will contain at least 15 new veins. Note that this is 1/2 the unexplored strike length. Fifteen new veins will contain

1,125,000 tons of ore. At a grade of .35 oz Au per ton, total contained ounces are 394,000 oz Au. At a production rate of 300 tons per day, 1,125,000 tons of ore is a 15 years mine life.

The above estimate does not include any known, geologic or inferred ore reserves on veins already known and developed. Ore from these sources have an estimated mine life of six to ten years at 100 T/D. At 300 T/D, their estimated mine life is two to three years.

Also, the above estimate does not include any inferred ore reserves on the eastern limb of the eastern anticline. Mathews has mapped favorable host rocks on the eastern limb and one vein containing gold mineralization was explored. Therefore, another 20,000 plus feet of strike length in favorable host rocks provides an excellent exploration target for discovering additional ore. If gold bearing veins in the eastern limb of the eastern anticline occur with 1/2 the frequency they occur in the western limb of the eastern anticline or in the western anticline, then another 1,000,000 plus tons of gold ore is likely. Another 1,000,000 plus tons of ore adds another 15 years of mine life at 300 tons per day. One million tons of ore also contains another 350,000 oz Au.

Evaluating the camps potential using the 25% success factor provides ample reason to project a 20 year mine life at 300 T/D.

GUNSTEEL RESOURCES INC.

May 23, 1989

Memorandum To: Stan Endersby
Gary Allen

From: Michael Gross

Subject: Current Ore Reserves - Sheep Creek Gold Camp

Maintaining continuous mill operations after mill start-up is dependent on adequate ore reserves. Developed and semi-developed ore reserves (tabulated later in this memo) are adequate for 3.5 years of production at 100 T/D or 2.4 years at 150 T/D. 131,400 T

Criteria dated January 12, 1989 were used to calculate Gunsteel's developed and semi-developed ore reserves. Gunsteel's remaining reserves are based on criteria established prior to my association with Gunsteel. In addition, semi-developed reserves can be converted to developed reserves within four months or less from the date work begins. Yellowstone reserves should actually be classed as geologic reserves rather than ore reserves because there is not enough hard data to calculate an ore reserve. However, Yellowstone reserves are included because both geologic knowledge of the camp and mine production statistics are considered adequate to estimate the existence of these reserves.

Terra Mines Ltd. supplied maps of the Goldbelt workings. Ore reserve information on these maps was summarized to arrive at the totals for Goldbelt reserves. Reserve grades taken from the maps were further diluted to a minimum four foot mining width. Criteria for the calculation of the Goldbelt reserves, other than those shown on the maps, are unknown.

Twenty five thousand tons of reserves on the Goldbelt 3500 vein are listed as developed because Goldrich Resources considers these to be proven reserves. The reserves require four to six months of rehabilitation and development work estimated to cost between \$150,000 and \$200,000 before mining can begin. Therefore, the 3500 reserves are considered semi-developed for planning purposes, but they will be available when needed.

Gunsteel developed and semi-developed reserves are the only reserves in this tabulation that I have recalculated or supervised the recalculation of using the criteria established for ore reserve calculations dated January 12, 1989.

Only known structures that have produced ore were used in summarizing possible ore reserves. Development of any particular block of possible reserves will require less than 18 months work.

Developed Ore Reserves

<u>Mine-Area</u>	<u>Proven</u>		<u>Probable</u>		<u>Possible</u>	
	<u>Tons</u>	<u>Grade</u>	<u>Tons</u>	<u>Grade</u>	<u>Tons</u>	<u>Grade</u>
Nugget	9579	.296	7741	.256		
Calhoun	7121	.268	2479	.281		
3500	8473	.419	14693	.385	1834	.367
Reno Dumps			8000	.18		
1810	2000	.200				
<hr/>						
Totals	27173	.320	32913	.305	1834	.367
<hr/>						
Total Developed Ore Reserves			61,290 Tons	@	.314 Au	

Semi-Developed Reserves

<u>Mine-Area</u>	<u>Proven</u>		<u>Probable</u>		<u>Possible</u>	
	<u>Tons</u>	<u>Grade</u>	<u>Tons</u>	<u>Grade</u>	<u>Tons</u>	<u>Grade</u>
Yellowstone*					10000	.30
Reno	8879	.719	9862	.548		
<hr/>						
Totals	8879	.719	9862	.548	10000	.30
<hr/>						
Total Semi-Developed Reserves			28,741 Tons	@	.515 Au	
Total Developed and Semi-Developed			90,031 Tons	@	.34 Au	

* The Yellowstone geologic reserve estimate is 18,682 Tons @ .302 oz Au per ton. Only 10,000 tons are included in totals to keep estimates conservative.

Balance of Reserves

<u>Mine-Area</u>	<u>Proven</u>		<u>Probable</u>		<u>Possible</u>	
	<u>Tons</u>	<u>Grade</u>	<u>Tons</u>	<u>Grade</u>	<u>Tons</u>	<u>Grade</u>
Gunsteel			47621	.490	127718	.240
Goldbelt	10161	.305	32996	.311	65489	.312
<hr/>						
Totals	10161	.305	80617	.417	193,207	.264
<hr/>						
Total Balance of Reserves			283,985 Tons	@	.309 Au	
<u>TOTAL - ALL CATEGORIES OF RESERVES</u>					<u>374,646 Tons @</u>	<u>.325 Au</u>
<u>TOTAL - ALL GUNSTEEL RESERVES</u>					<u>241,000 Tons @</u>	<u>.324 Au</u>
<u>TOTAL - ALL GOLDRICH RESERVES</u>					<u>133,646 Tons @</u>	<u>.327 Au</u>

The above summary shows there are enough developed ore reserves in the Sheep Creek Camp (Nugget & Gunsteel ground) to support 18 months of mining at 100 T/D. Converting the semi-developed reserves to the developed category during that 18 months will add another 18 months of mining.

The above summary shows that planning for three years of production at an average grade produced higher than .30 oz Au per ton is justified. Three years of production will enable Gunsteel to generate enough cash flow to fund a continuing program of exploration and development that will ensure continued production from the Sheep Creek Gold Camp.

KOOTENAY BELLE GOLD MINES, LTD.

By J. C. BLACK, Mill Supt.

ACKNOWLEDGMENT

THE FOLLOWING DATA on Kootenay Belle Gold Mines, Limited, at Sheep Creek, British Columbia, is the record of a property which was located prior to 1900 and since that time has been worked only intermittently until its present successful operation. This is due to far-sighted management and the efforts of a competent staff.

To the Company and Mr. Vere McDowall Mine Manager, DECO TREFOIL wishes to express its sincere appreciation for the permission to publish these data. Many thanks are also due Mr. J. C. Black, Mill Superintendent, who prepared the article. The comprehensive data and the costs of this operation are outstanding and the description of this plant is a tribute to Mr. Black's thoroughness and engineering ability.

This 150-ton mill was designed and built by Mr. Stanley Gray of Chapman Camp, British Columbia, for the Kootenay Belle Gold Mines, Ltd.

LOCATION

The operations of the Kootenay Belle Gold Mines, Limited, are located at Sheep Creek, which is 36 miles south of Nelson, British Columbia, and 19 miles by road from the Canadian-United States boundary. Sheep Creek is connected to Salmo by ten miles of road, the latter town being situated on the Marcus-Nelson branch of the Great Northern Railway.

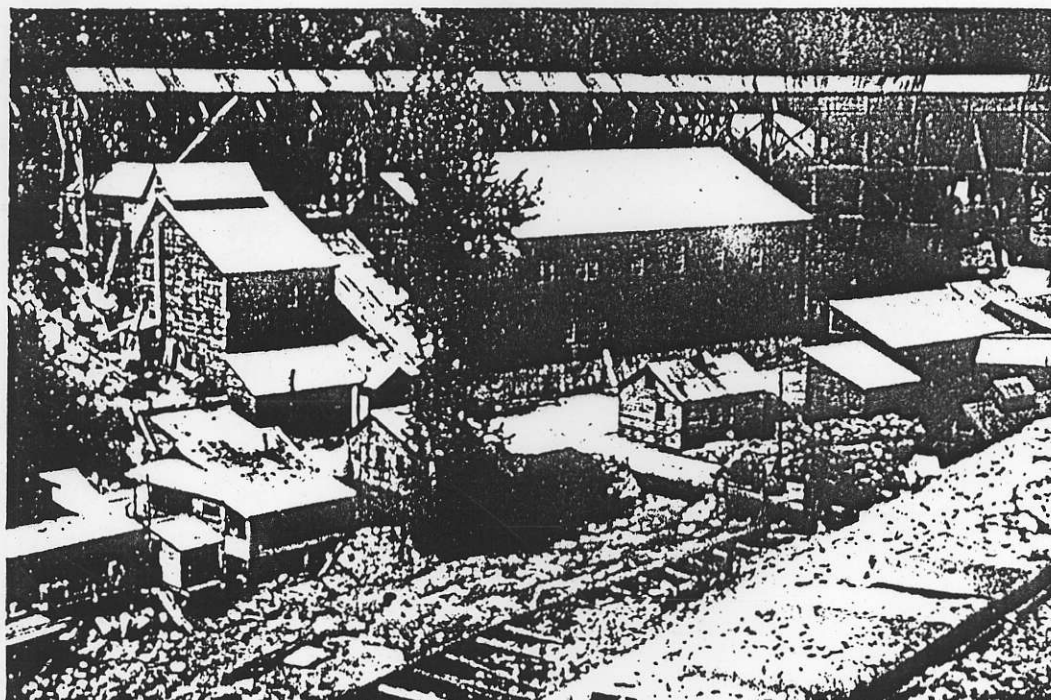
GEOLOGY

The age of the sediments in which the mine is located is late Pre-Cambrian. The ore bodies occur in the Westerly Limb of a major anticlinal fold and this productive area lies in the upper members of the quartzite range formation which is known locally as the Nugget Quartzites. This formation consists of brittle, white and gray-banded quartzites, with occasional interbeds of argillites and argillaceous quartzites.

HISTORY

The property was located prior to 1900 and early production was from surface showings. In 1905, No. 1 adit was driven and a four-stamp mill erected which recovered values by amalgamation and a Frue Vanner. Later, ten additional stamps were added, but this milling was suspended early in 1910.

Operations from that time forward were intermittent until the organization of the present company in 1933. At this time a progressive development campaign was undertaken and as a result, sufficient ore was blocked out to warrant the erection of a 50-ton flota-



THE MILL BUILDING AND COVERED TRESTLE TAKEN FROM WASTE DUMP AT PORTAL OF NO. 6 ADIT WITH WEST KOOTENAY 60,000 VOLT SUB-STATION SHOWN IN BACKGROUND AT THE RIGHT

tion plant. This plant was equipped with a Hardinge Hadsel grinding unit and operated until September of 1936, when flotation equipment was removed to allow the installation of the grinding unit for the present plant. The plant which is operating now was put into production in October of 1936. The chronological record of the operations and values produced at this property since 1905 are as follows:

PRODUCTION:

1905-1911	\$ 105,000.00
1927-Feb. 28, 1934.....	55,461.00
March, 1934-Feb., 1935....	61,810.00
March, 1935-Feb., 1942..	3,284,761.00

Total to Feb. 28, 1942..\$3,507,032.00

ORE DEPOSITS

The ore bodies are tabular deposits of the fissure vein type occurring in shoots generally irregular in shape, due to the fact that the veins are fault fissures. Development of the seven parallel veins has been undertaken with "A" vein producing the greater tonnage to date. Ore from this vein is highly oxidized near the surface and in the section known locally as the "Cave" which extends from above No. 2 to below No. 6 levels. Except in these oxidized zones, the ore consists of a quartz gangue with varying amounts of pyrite, sphalerite, galena, pyrrhotite, and in

some sections, chalcopyrite and scheelite.

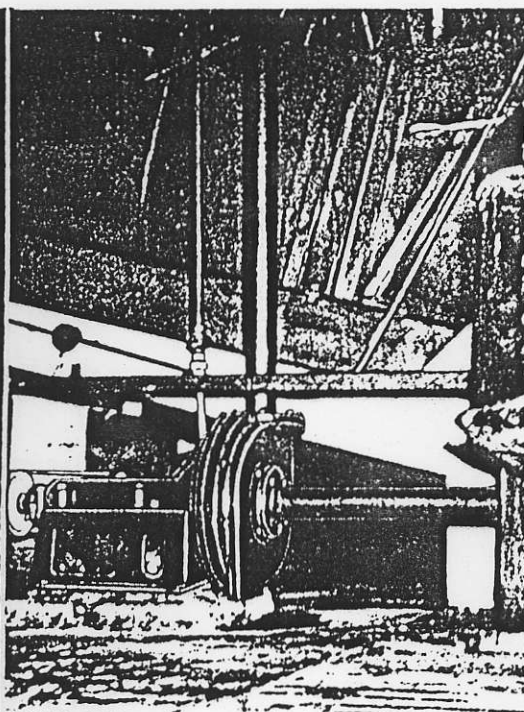
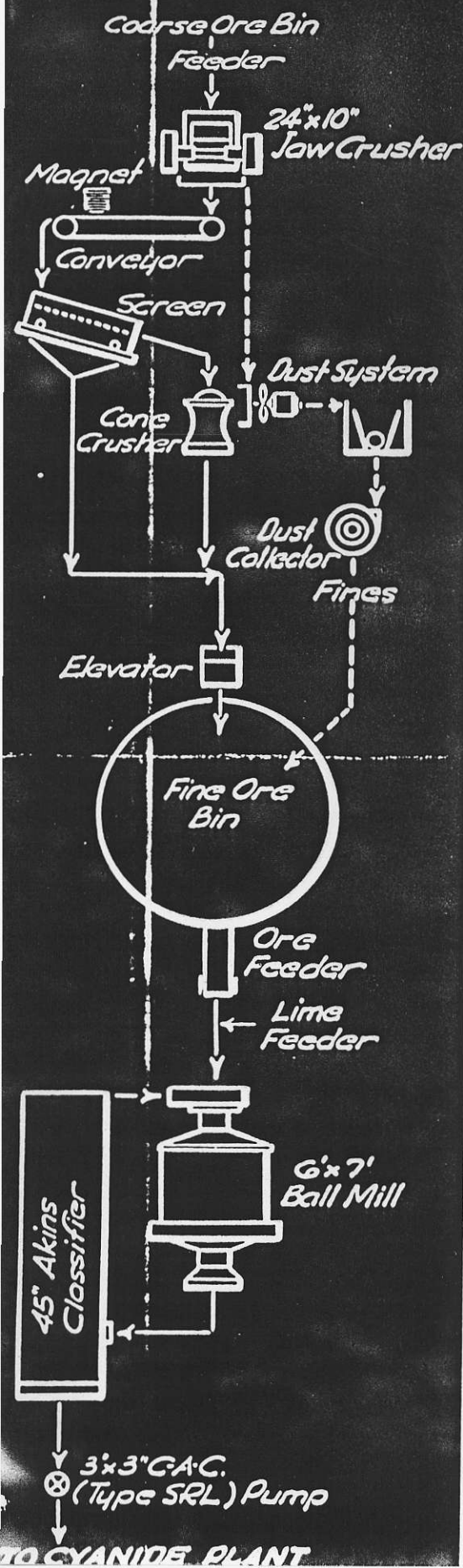
The "Black Vein" is much more highly mineralized and mineralization extends into the wall rock. Sphalerite is the predominant mineral, being almost massive for considerable lengths over narrow widths. Gold values are definitely in proportion to the amount of sphalerite. Another vein, the "Dixie Vein," has pyrrhotite as the principal mineral with smaller amounts of copper.

MINE

The mine is opened by four adits on the south side of Sheep Creek, Nos. 1, 2, 3 and 6, and the Dixie Claim on the north side by one adit which is at the same elevation as No. 6 on the south side of the creek. No. 6, the lowest adit, is the main haulage level, and is connected to the mill bins by a trestle over the creek and highway. From this level a vertical 500-foot shaft opens an additional four levels at 125-foot intervals. Sinking is in progress to open additional ground. Ore is delivered to the mill by a storage battery locomotive hauling six 24-cubic-foot cars.

At this property, shrinkage stoping is the general mining practice, although in certain sections the cut and fill method is used. This variation in mining practice is followed to reduce mining costs and in some instances, is due to the variations in the ore bodies.

CRUSHING and GRINDING FLOWSHEET



3" x 3" C-A-C (TYPE SRL) PUMP WHICH HANDLES CLASSIFIER OVERFLOW TO THE PRIMARY DENVER THICKENER IN THE SLIME PLANT

POWER

Electric power is purchased from the West Kootenay Power and Light Company, Ltd., which has generating stations located on the Kootenay River, 12 miles from Nelson, B. C. Lighting for the camp as well as power for the mill and mine operations is supplied by this company at 0.85 cents per kilowatt hour.

MILLING

CRUSHING: Ore from the mine is dumped onto a horizontal grizzly set with 8" openings. The undersize passes directly to the 300-ton coarse ore bin and the oversize is broken by sledging. Ore from the coarse ore bin is conveyed by a short 24" belt acting as a continuous feeder which is controlled by two push button stations located at strategic points. This belt carries the coarse ore to a 24"x10" fine reduction jaw crusher set at 2 inches. The crushed ore is conveyed by a 16" belt, over which is suspended a magnet, to a 3'x5' vibrating screen which is equipped with a 3/4" square mesh screen cloth. The oversize from this screen passes directly to a 1'-8" gyratory crusher set at 3/8" on the closed side. The screen undersize and the cone product are conveyed to a bucket elevator equipped with 5"x10" buckets and discharged directly into a totally enclosed 18'x18' wood stave tank with a hoppered bottom which serves as a fine ore bin.

Dust is removed from the crushers by a Sirocco No. 30 Exhaust Fan operating at 1,600 r.p.m. and driven by a 3-hp. motor. The fan exhausts into an air-tight sand trap with hopper bottom from which the air is then sent through an 11" stack to a Sirocco No. 12 Type D Dust Collector, located above the fine

ore bin. The exhaust from the latter goes into the atmosphere while the dust is discharged into the fine ore bin.

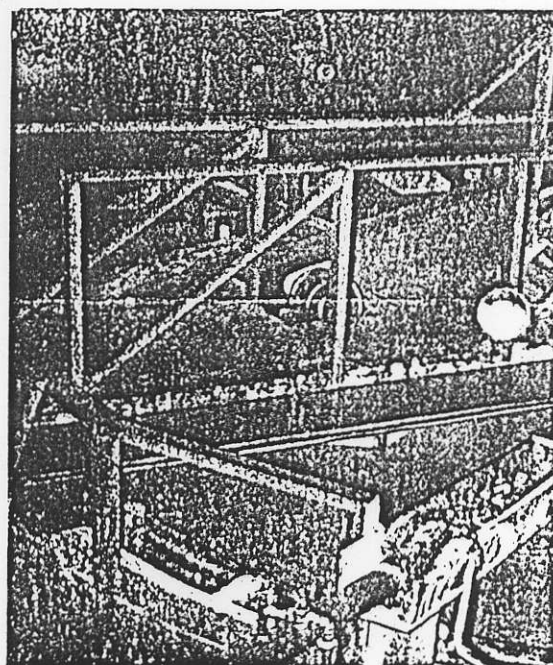
Assays on the dust collector show that the values in the dust are not in proportion to the ore being crushed, but vary from 10 to 30 percent. Following are tabulations showing the recoveries and screen analysis:

Recovery

% H ₂ O in Feed	% Wt. of Feed-Dust Recovered
3	0.012
6	0.004

Screen Analysis

Plus 100-Mesh	Minus 100-Mesh Plus 200-Mesh	Minus 200-Mesh
1.3%	2.5%	96.2%



ABOVE: 24'x8' PRIMARY DENVER THICKENER

GRINDING: The ore is fed from the fine ore bin by a 20" endless conveyor belt to a 6'x7' ball mill equipped with a combination drum and scoop feeder. Manganese steel liners and 3" forged chrome steel balls are used.

STEEL CONSUMPTION IN BALL MILL:

Liner Steel.....	0.95 lbs. per ton
Balls	3.5 lbs. per ton

A 45" Akins Classifier is in closed circuit with the ball mill, and shoes on this classifier are replaced about once a year.

Screen analysis of solids in the grinding circuit and assays of each sizing are as follows:

Ball Mill Discharge—76 to 78 % Solids

Mesh	% Weight	Oz. Au.
+100	32.0	1.03
-100	33.6	0.84
+200	34.4	0.64

Classifier Sands

Mesh	% Weight	Oz. Au.
+100	48.8	1.44
-100	36.4	1.12
+200	14.8	0.84

Classifier Overflow—26% Solids

Mesh	% Weight	Oz. Au.
+100	0.4	0.035
-100	24.0	0.03
+200	75.6	0.045

The Classifier overflow is pumped by a 3"x3" C-A-C (Type SRL) Sand Pump to the first Denver Thickener which is 24'x8' in size. The C-A-C Pump has the original impeller and casing liners and has been in continuous use for almost five and one-half years. It has handled 230,428 tons of dry ore, or approximately 921,700 tons of pulp.

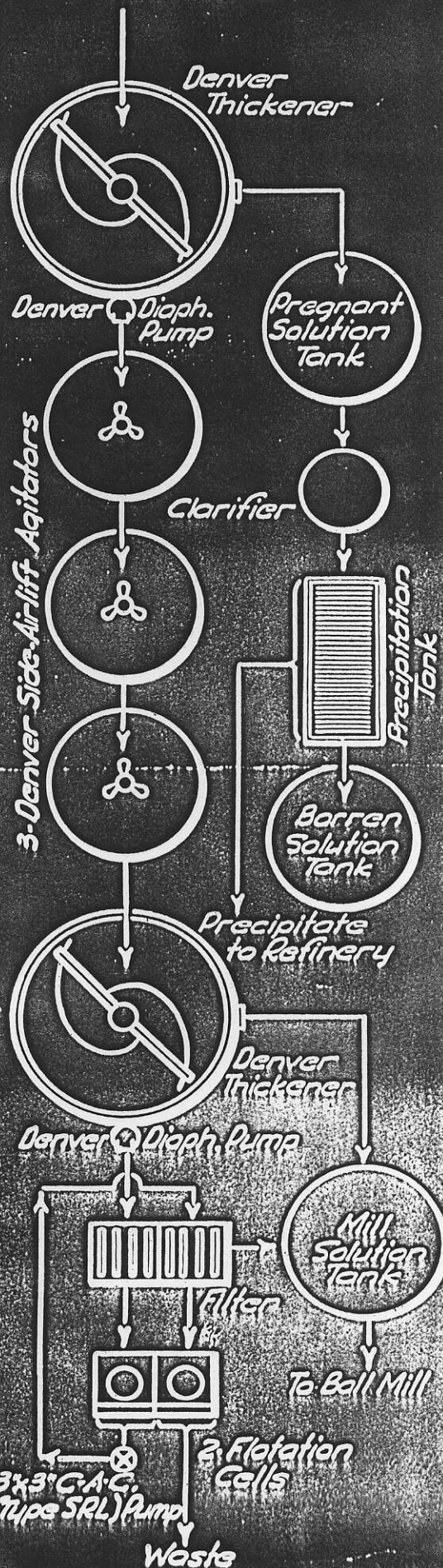
SLIME PLANT: The overflow from the first 24'x8' Denver Rake Thickener flows by gravity to the gold solution storage tank. The underflow is pumped at 58 to 60 percent solids by a 4" Denver Adjustable Stroke Diaphragm Dump to the first of three Denver Side Air-lift Agitators operating in series. These agitators operate at 52 percent solids and barren solution is used for dilution. Approximately 78 percent of the values in the feed to the agitators are dissolved in the first agitator with an agitation period of approximately seventeen hours. An additional 11 percent is accounted for in the other two agitators combined.

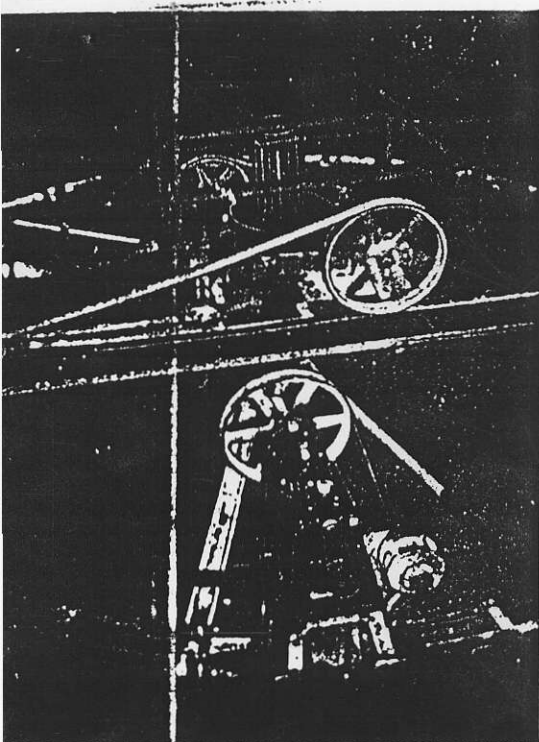
Power consumed per Agitator
(Rakes)1.90 Amps.
Cyanide loss per ton of solution per
Agitator0.06 lbs.
Lime loss per ton of solution per
Agitator0.065 lbs.
Air required to operate Air-lifts per
Agitator.....35 cu. ft. per min.
(at 18 lbs. pressure)

The discharge from the third agitator is diluted to 30 percent solids with both barren solution and secondary filtrate and

THE THREE DENVER SIDE AIR-LIFT AGITATORS

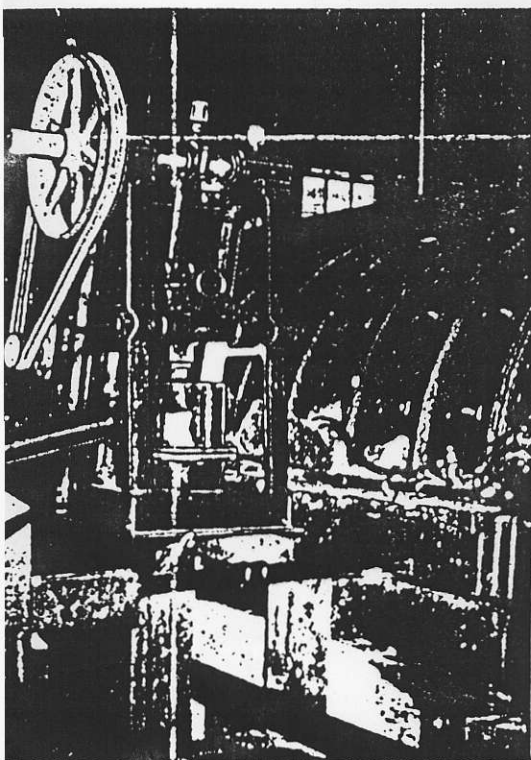
CYANIDE PLANT FLOWSHEET





ABOVE: 24'x8' SECONDARY DENVER THICKENER WITH 1" DENVER ADJUSTABLE STROKE DIAPHRAGM PUMP

BELOW: DENVER DIAPHRAGM PUMP AS SHOWN ABOVE WHICH IS DISCHARGING INTO DISC FILTER AT RIGHT



Photographs taken by HAROLD M. WRIGHT

Typical Assays of the Various Solutions—Oz. Au Per Ton

Mill Stock	Second Thickener Overflow	Primary Filtrate	Secondary Filtrate	Preg. Sol. Gold in Solution
0.04	0.055	0.028	0.0024	0.1-0.15

Tailing Assays—Oz. Au Per Ton of Solids—June

Dissolved	Undissolved	Total
.00069	.0037	.00406

Recovery averages 98.5 percent.

is fed to the well of the second 24'x8' Denver Thickener. This thickener overflow is pumped to the mill stock tank and at times a part of it is sent to precipitation. The underflow is pumped by a 4" Denver Adjustable Stroke Diaphragm Pump to the first four discs of a 6'x8-disc American Filter where it is washed with barren solution.

Discharged filter cake falls into the first cell of a 22" 2-cell flotation unit where it is repulped with barren solution and pumped by a 3" C-A-C SRL Sand Pump to the second 4 discs of the filter. The filter cake is washed with barren solution or both barren solution and water, and the discharge cake is repulped in the second cell of the flotation machine with water and flows to waste. The filtrates are pumped to the mill stock tank, excepting a portion of the secondary filtrate which is used to dilute the third agitator discharge.

Sector covers for the filter last approximately seven months and are repaired with latex cement. Sixteen sectors are removed daily and acid treated to improve their filtering efficiency.

Diaphragm life in the diaphragm pumps has been extended by changing the motor pulley rather than using the full stroke on the pump when an appreciable increase in tonnage is effected. The diaphragm life on the first pump is two years and on the second pump one year of service is obtained. The shorter life on the latter is due to the higher lift and greater fluctuation in tonnages and piling up of pulp while changing filter sectors.

PRECIPITATION: The precipitation unit is a standard Merrill-Crowe simultaneous clarification precipitation, bag-type unit consisting of an 8'x8' clarifier tank with nine 6'x4' leaves, de-aerating tower, and precipitation tank with sixty-four bags. Dicalite is fed on a zinc dust belt feeder to alleviate premature bag pressure. Lead nitrate is fed to the Zinc Cone at the rate of 0.0015 pound per ton of solution.

Cleanups are made when required, usually at twenty-day intervals. Scrap-

ings from the ball mill shell and discarded liners are amalgamated at each liner change using cyanide, lime, and nitre as reagents. The precipitates are dried in an electrically-heated oven and to each thirty pounds is added the following flux:

Soda Ash	4 lbs.
Borax Glass	8 lbs.
MnO ₂	15 lbs.
Nitre	5 lbs.
Sand	5 lbs.

Bars varying from 825 to 950 fine are cast and forwarded to the Mint at Ottawa.

Reagent Consumption Per Ton Ore Ground

Reagent	Lbs.
Cyanide	0.95
Lime	2.00
Zinc Dust	0.11
Lead Acetate	0.037
Lead Nitrate	0.005

Costs Per Ton Milled

Tons Per Day	Cost In Dollars
75	\$1.75
100	1.55
140	1.46
160	1.33

Cost of Constructing and Equipping Plant

Mill Buildings, new and old.....	\$30,131.00
Equipment, including Foundations and Refinery.....	78,500.00
Total cost, fully equipped plant	108,631.00
Cost per ton of 150-ton plant	724.21



NEW YORK CITY, NEW YORK: 30 Church St.
CHICAGO: Suite 1005, 69 W. Washington St.
SALT LAKE CITY, UTAH: 727 McIntyre Bldg.
TORONTO, ONTARIO: 43 Richmond St. W.

MEXICO, D.F.: Edificio Jallisco, Calle Ejido No. 7
MIDDLESEX, ENG.: 492A, Northolt Rd. S. Harrow
VICTORIA, AUSTRALIA: 530 Victoria Street
JOHANNESBURG, S. AFRICA: 8 Village Road



DENVER EQUIPMENT COMPANY, 1400 17th St., Denver, Colorado

Short History and Description of Reno Mill

By A. C. Norcross

THE present Reno Mill was built in 1911 by the Motherlode Sheep Creek Mining Company to handle 80 tons of oxidized ore per day. It was operated by this Company for 3 years. In 1919 it was taken over by the Selkirk Gold Mines Limited and operated for another 3 years.

In 1932 the Motherlode Mine and the Mill were bought by the Reno Gold Mines Limited. The Mill was connected with the Reno Mine by a two-mile aerial tramway and has operated continuously since then with the exception of a seven months' shut-down in 1939.

There have been various changes made from time to time in both flow sheet and equipment to meet the changes in ore from the different properties and to keep pace with modern practice.

The original equipment consisted of a 10" x 20" Blake Jaw Crusher, ten 1,400 lb. Gravity Stamps, a 5' by 20' Allis Chalmers Tube Mill using flint pebbles and in closed circuit with two 4' x 16' copper Amalgam Plates and Dorr Classifier. The grinding and amalgamating were done in fresh water. The cyanide circuit was the usual counter-current decantation system, using the old type Merrill precipitation process and Merrill bottom sluicing slime presses. However the Amalgamation plates were soon discarded due to poor recovery and the Mill changed over to all Cyanidation.

When the Reno Company took over the Mill a secondary Jaw Crusher was installed and the Stamps were replaced by a 4½' by 4½' Ball Mill. Four No. 6 Wilfley Tables were placed in the space previously occupied by the Amalgam Plates. The Merrill precipitation process was replaced by the Crow vacuum process. When these alterations were completed the mill capacity was stepped up to 100 tons per day.

Due to the high pyrrhotite content of the Reno ore a concentrate had to be made from the tables and shipped to the Smelter. This concentrate averaged about 6 ounces Gold per ton and relieved

the cyanide circuit of this sulphide which if put through the circuit fouled the solutions. At this time blankets, jigs, etc. were tried out without success due to the extreme fineness of the gold.

Later it was found that by the use of fairly large amounts of Lead Acetate added to the pregnant solution just prior to clarification the fouling of solutions was overcome. Two of the Wilfley Tables were then removed, and of the two remaining, one is used as a rougher taking all of the Tube Mill discharge. A concentrate is cut on this table and pumped over to the second table where it is re-cleaned and a high-grade streak cut out and treated with mercury in a 3' x 3' Amalgam barrel. All concentrates and residue are returned to the grinding circuit. This change has resulted in from 30% to 50% of the total production being taken out in free gold. The shipment of concentrates to the Smelter was discontinued.

The Merrill slime presses have been replaced by a two-compartment 6' x 8' disc American Oliver filter. A Dorr bowl classifier with 8' bowl has been added to the Tube Mill circuit. The flint pebbles originally used in the Tube Mill have been replaced by 2" steel balls.

The Crushing Plant has been completely rebuilt. The ore is now dumped from the Aerial Tramway into a coarse ore bin from it is fed to the 10" x 20" Jaw Crusher by a short 36" conveyor belt. The product from the Jaw Crusher, which is about 2" maximum, is delivered to a double-deck 3' x 6' Ty-Rock vibrating screen with 1¼" square openings on the top deck and ⅝" openings on the bottom deck. The oversize from the screen passes into a 3' Symons Cone Crusher. The product from the screen and crusher is conveyed to the fine ore bin. The maximum size of this material is less than ⅝".

From the fine ore bin it is fed to the Ball Mill which is charged with 4" steel balls. The Ball Mill discharge enters a 36" x 20' Dorr

Simplex Classifier. The oversize from the Classifier goes directly to the Tube Mill and the overflow to the Bowl Classifier in the Tube Mill circuit. No lime is added at the Ball Mill but is added to the Tube Mill feed at the rate of about 10 lbs per hour. Fresh pebble lime is used and a small steel spiral conveyor is used for slackening the lime and feeding it to the Tube Mill.

The Wilfley Tables and Bowl Classifier are in closed circuit with the Tube Mill. The Bowl Classifier overflow is maintained at 17% to 18% solids and 85% minus 200 mesh. From the Bowl Classifier the pulp overflow enters the No. 1 Thickener and from there on follows the usual Cyanide equipment.

The Mill now has a capacity of 150 tons per day except at times when argillaceous material and talc in the ore from caving of the wall rock in the stopes at the Motherlode Mine causes sliming and poor settling conditions in the Thickeners.

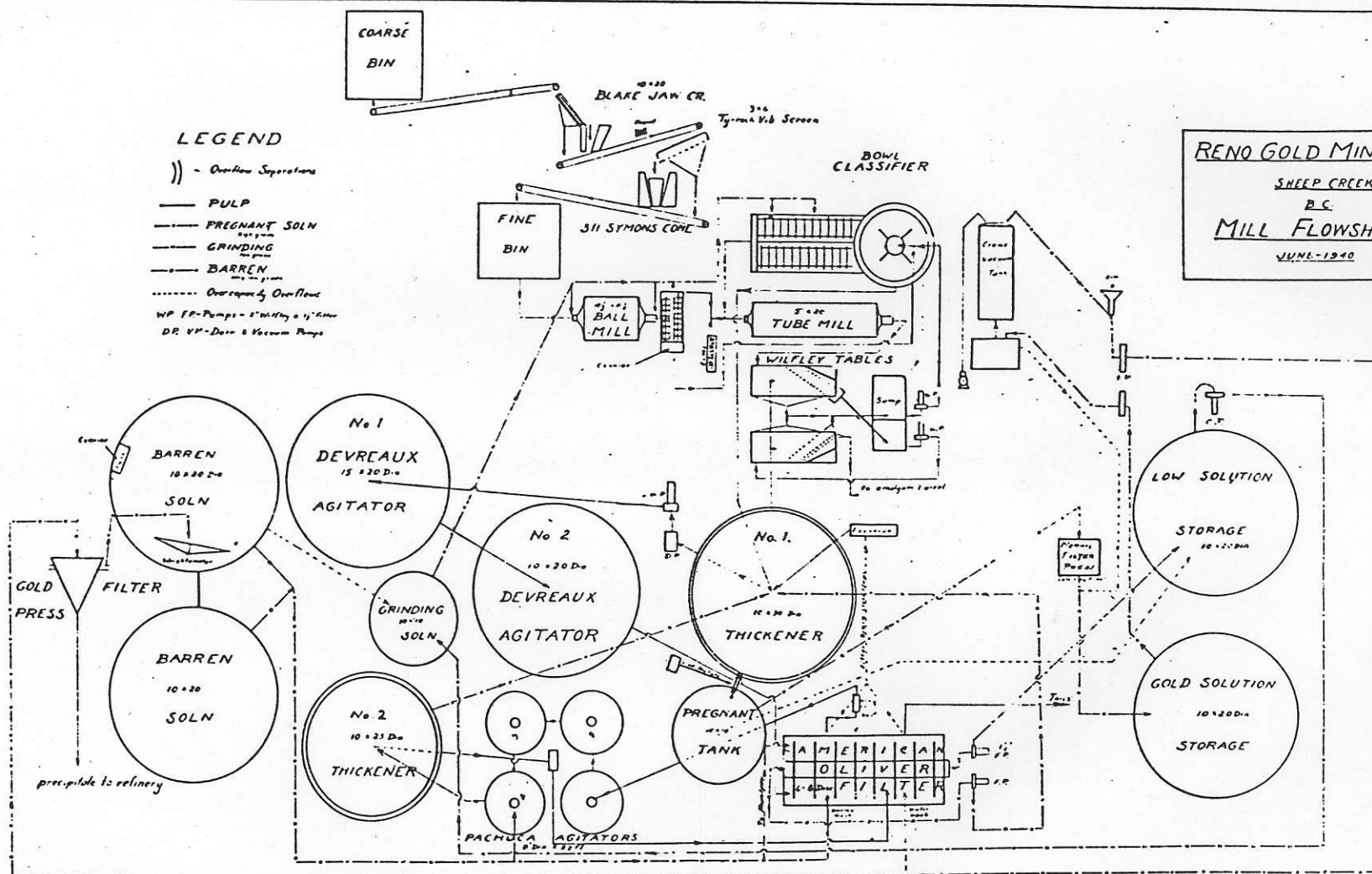
In the Agitators the cyanide strength is maintained at 2.6 lbs. of cyanide per ton of solution and .5 lbs of lime per ton of solution. The cyanide consumption is approximately 1.4 lbs per ton of ore, and lime about 2. lbs per ton of ore.

Total Milling Costs average about \$1.85 per ton of ore. This relatively high cost is mainly due to the fact that this mill was originally designed as a Stamp Mill with gravity flow which now necessitates considerable expensive pumping, handling of supplies, etc.

The total recovery of Gold is over 98%.

The refining is done in a Rockwell furnace fired with fuel oil. All low-grade slag is shipped to the Smelter in empty cyanide cans.

During the past nine months most of the ore milled has come from the new workings of the Motherlode Vein with some development ore from the Bluestone Vein.



RENO GOLD MINES LTD.
SHEEP CREEK
B.C.
MILL FLOWSHEET
JUNE-1940

*Consultant/
Mine Manager*

RESUME
of
MICHAEL P. GROSS
P. O. Box 250
Kingston, Idaho 83839
(208) 682-4374

BACKGROUND SUMMARY

More than 13 years of professional mine management experience in mine planning, feasibility studies, scheduling, mining, milling, supervision and safety as evidenced by the following accomplishments:

- * At a 1 mile deep underground mine, increased productivity 41%, reduced costs 4% during a period of substantial inflation, improved grade 21%, decreased absenteeism 13%.
- * Planned and supervised increasing the muck handling capacity of a deep shaft from 925 tons per day to 1,300 tons per day at a capital investment of \$4,500 by installing equipment to monitor hoisting activity. This enabled ore production to be increased from 750 to 1,000 tons per day 1-1/2 years ahead of schedule.
- * Managed a multi-mine division where productivity increased 21% at one operation. At another mine, costs decreased 15% while inflation went up 10%.
- * Achieved a 72% reduction in the frequency of lost-time injuries.
- * Won 11 of 12 arbitration cases over a seven-year period as a result of training and developing subordinates to be effective supervisors.
- * Implemented, supervised and directed an ongoing program of team building and organizational development that improved the effectiveness and managerial competency of subordinates in order to achieve the results presented above.
- * Did economic analysis and feasibility study of a gold property. The final report was used in conjunction with a revised geologic interpretation to raise \$6 million for additional exploration and development.

EMPLOYMENT HISTORY

SELF EMPLOYED
KINGSTON, IDAHO

August 1988 to Present

Mining Consultant

Conducted economic analysis, feasibility studies and mine planning. Prepared fund raising information packages. Contracted mine manager duties at small underground gold mine.

MOSQUITO CONSOLIDATED
GOLD MINES, LIMITED
Wells, British Columbia

January 1988 to August 1988

General Manager

A gold property in an exploration and development mode. Responsible for all aspects of the operation including personnel recruitment, selecting drifting methods, selecting and procuring equipment, developing safety program, establishing wages and salaries, developing and implementing bonus systems for hourly and staff and modifying operating plans as dictated by new geological information.

SELF EMPLOYED
Pinehurst, Idaho

June 1988 to December 1988

Mining Consultant

Conducted economic analysis, feasibility studies and underground mine planning. Work with Mosquito Consolidated was converted to full-time employment.

HECLA MINING COMPANY
Coeur d'Alene, Idaho

October 1974 to May 1987

Manager - Metal Mining Division - 1983 to 1987

Responsible for three operating units and a budget of over \$40 million. Sites located in Idaho, Washington and Utah. Responsibilities included mine planning and scheduling, labor relations and negotiations, administration, cost control, safety, grade control, career planning and development for both salary and hourly employees. Created a work environment where new ideas and mining methods were developed to improve the competitive position of each operating unit.

Manager - Lucky Friday Mine - 1980 to 1983

A one-mile deep lead-silver mine in the Coeur d'Alene mining district. Responsibilities included safe, efficient and cost effective operation of \$19 million budget, labor relations, administration of labor management agreement, training and development of salary and hourly employees.

Developed and implemented the minable width concept for paying contract miners incentive pay, which resulted in a 12% improvement in grade of ore mined and contributed to a 41% improvement in productivity.

Related Experience - 1968 to 1980

Project Engineer - Lucky Friday Mine
Supervisor - Lucky Friday Mine
Management Trainee
Senior Geologist - Star Mine
Junior Geologist

EDUCATION - M.S. in Economic Geology - University of Arizona, 1968
- B.S. in Geology - University of Wisconsin, Madison, 1965

AFFILIATIONS - Member - American Institute of Mining Engineers
- Member - Northwest Mining Association
- Registered Professional Geologist - State of Idaho

PERSONAL - Born: 1939 Height: 5'9"
- Married: no children Weight: 185 lbs.
- Military Service: USN Submarine Service

REFERENCES - Available upon request.

MICHAEL P. GROSS
P.O. Box 250
Kingston, Idaho 83839
Ph (208) 682-4374

Reference List

William M. Calhoun
Mining Consultant
Former President & CEO -
Day Mines, Inc.
P.O. Box 114
Silverton, ID 83867
Ph (208) 556-2871

Richard Stoehr
Mining Consultant
Former Senior Vice President -
Homestake Mining Co.
650 California Street
c/o Homestake Mining Co.
San Francisco, CA 94108
Ph (415) 981-8150

Keith Droste
Director/Acquisitions -
FMC Gold Company
1801 California St #2720
Denver, CO 80202
Ph (303) 292-7551

William A. Griffith
Retired President & CEO -
Hecla Mining Company
630 South 14th Street
Coeur d'Alene, ID 83814
Ph (208) 664-3851

Robert H. Mullen
Appellate Judge -
Dept. of Interior
4900 Schuyler Drive
Annandale, Va 22330
Home Ph (703) 941-2129

Cecil Bell
Management Consultant
Professor -
University of Washington School of
Business
30807 50th Place SW
Federal Way, WA 98023
Home Ph (206) 927-3081
Work Ph (206) 543-1184

Arthur Brown
President and CEO -
Hecla Mining Company
6500 Mineral Drive
P.O. Box C-8000
Coeur d'Alene, ID 83814-1931
Ph (208) 769-4100

GUNSTEEL RESOURCES INCORPORATED

July 12, 1989

Pertinent Facts About The Gunsteel Package

Gunsteel Resources Inc., (Gunsteel) a Canadian company incorporated in the province of British Columbia and listed on the Vancouver Stock Exchange desires a partner to assist with production financing.

During the past 10+ years, Stanley A. Endersby, P. Eng., President of Gunsteel Resources Inc., has been working toward the goal of bringing the Sheep Creek Gold Camp back into production. The Sheep Creek Camp is the 6th ranking gold camp in the province of British Columbia, Canada. A Joint Venture between Gunsteel, a publicly traded company and Nugget Mines Ltd., a private corporation controlled by the Endersby family was formed to return the Sheep Creek gold Camp to production.

Gunsteel management believes that sufficient reserves have been developed to justify a production decision. In preparing for production, Gunsteel has entered into a Joint Venture for the HB Mine and Mill. Also, Gunsteel and Goldrich Resources Inc. have agreed to amalgamate Goldrich into Gunsteel.

Gunsteel desires a partner to provide the additional financing needed to begin mining and processing Sheep Creek ore reserves because Gunsteel has exhausted its financial resources developing sufficient reserves to justify a production decision. Several investment avenues are available to investors, some of which are listed below:

1. Joint Venture - Partner would participate in the venture on a net profits basis with Gunsteel as the operator.
2. Joint Venture - Partner would participate in the venture on a net profits basis and would be the operator, either as an independent company or through Gunsteel as a subsidiary.
3. Joint Venture - Partner would take an equity position in Gunsteel and would participate in proportion to the equity position.
4. Loan Gunsteel the funds necessary to commence production. Funds loaned would be repaid out of cash flow beginning about month six and at an interest rate significantly higher than the prime rate.
5. Investor would arrange to guarantee a loan for Gunsteel in exchange for an equity position.
6. Investor could elect to participate in a selected part or parts of the Gunsteel package on a net profits or an equity basis.

With financing in place, processing of gold ore could begin two months after mill rehabilitation begins. Ore production can begin following two weeks of timber and drift repair.

Economic projections show cash flow becoming positive in month five. An additional 10,000 tons of dump material averaging .15 oz Au per ton can be used to supplement mine production to keep the mill operating seven days per week at 150 tons per day for the first eight months of operation.

In year two, cost per ounce produced, including capital and rehab costs, is anticipated at \$328 Canadian or \$262 U.S.. In year seven, cost per ounce produced, including capital and rehab costs, is anticipated at \$230 Canadian or \$184 U.S.. The costs decline year by year as capital and development costs decline in relation to increased production. ie., primarily a function of increased tonnage.

The project changes very quickly from negative to positive cash flow because a majority of the investment goes directly to production related expenses. Mill processing begins in the third month of the project. Previous operators in the camp proved that additional ore reserves can be developed economically.

Estimated costs represent about a 1200% increase over actual costs 50 years ago. This compares with about 800% inflation in the U.S. over the same period. Based on this comparison, estimated costs as used are expected to be on the high side rather than the low side. Net Present Value, using a discount rate of 15%, is more than \$19,000,000 for the project over a 10 year life.

Following are additional details about the gold project and the package that Gunsteel has assembled. References are made to the attached spreadsheet to present costs in a more concise format.

A. HB Mine and Mill

A letter of intent has been signed with Nu Dawn Resources Inc., owner of the HB Mine and Mill, whereby Gunsteel can earn a 60% interest in the HB Mine and Mill for \$600,000 cash and \$200,000 worth of Gunsteel stock. The cash to be paid, \$200,000 up front and the balance at \$4.00 per ton milled or \$100,000 per year, whichever is greater. The amount of stock will be based on the market price at the time the final agreement is signed. The HB Mill, built by Cominco, is a 1200 ton per day flotation mill with two flotation circuits. The HB Mine produced about 7,000,000 tons of Pb-Zn ore. David Minerals acquired the mine and mill from Cominco after Cominco ceased operations at the HB Property in 1978. David Minerals subsequently added a 150 ton per day cyanide vat leach circuit for processing gold-molybdenum concentrates. However, David Minerals went bankrupt when the cyanide circuit was 95% complete. Since that time no ore has been milled and the cyanide circuit is still not completed. Two miles of powerline need to be constructed to make low cost hydro power available and the tailings line needs repair and/or replacement. The agreement to acquire a percentage of the mill can be finalized within two to three weeks when financing is available. Final documents are nearly completed. Financial obligations incurred under the Nu Dawn agreement as well as rehabilitation costs to place the cyanide circuit on line are listed under part A in the attached spreadsheet.

B. Goldrich Property

Gunsteel has signed a letter of intent with Goldrich Resources Inc. to amalgamate Goldrich into Gunsteel. Goldrich is the other major property holder in the Sheep Creek Gold Camp. The amalgamated company will control over 90% of the camp. In addition, Goldrich also brings other significant gold properties into the amalgamated company. This agreement will require about 75 days to finalize because a special shareholder meeting will be required. However, production from Gunsteel property can begin before the Goldrich agreement is completed. Financial obligations incurred under the Goldrich agreement are listed under Part B in the attached spreadsheet. These costs are to be incurred when Gunsteel has raised \$300,000 of the capital needed to place the project into production.

C. Yellowstone Property

A letter of intent has been signed with Yukon Minerals whereby Gunsteel will acquire ownership of the Yellowstone claims. This agreement is finalized with the payment of \$5000. Financial obligations incurred under this agreement are listed under Part C in the attached spreadsheet.

D. Operating Capital

This is the capital needed to operate the cyanide mill after rehabilitation has been completed. Also, it's the capital required to mine gold until positive cash flow has been achieved. Milling of gold ore is scheduled to begin two months after rehabilitation begins on the HB Mill. Cash flow from mining and milling should begin in month four following the start of mill rehab. Cash flow is expected to become positive in month five. Mine and mill operating capital are listed under Part D in the attached spreadsheet.

E. Gunsteel Liabilities

Part E in the attached spreadsheet contains a list of Gunsteel liabilities that were incurred while bringing the project to its present state of readiness.

F. Acquiring Nu Dawn As A Subsidiary

A block of stock representing 70% of the issued and outstanding shares of Nu Dawn are available for purchase. The price is estimated at \$350,000 cash. Purchase of these shares would in effect give Gunsteel an 88% share of the HB Mill. The balance of the Nu Dawn outstanding shares could then be amalgamated into Gunsteel in exchange for Gunsteel stock. Amalgamation would give Gunsteel a 100% share of the HB Mine and Mill. Purchase of the Nu Dawn shares will also require buying out the management agreement of Nu Dawn's current manager to insure that Nu Dawn functions as a

subsidiary of Gunsteel. Costs for this option are listed under Part F in the attached spreadsheet.

G. Lead - Zinc Mill Operation

In addition to the cyanide vat leach circuit, the HB Mill has a 1200 ton per day, two product flotation circuit. Gunsteel is currently negotiating with one party for a custom milling agreement to process as much as 20,000 tons per month of Pb-Zn ores. In addition, the HB Mine and the Canex Mine both contain Pb-Zn reserves. Some of these reserves become economic when the mill is operational. Several other small operators in the area have also expressed an interest in custom milling if the mill is operational. Putting the Pb-Zn mill circuit on line at +20,000 tons per month means that a crushing and grinding circuit for the cyanide plant will be needed because the existing crushing and grinding capacity will no longer be available. A more appropriately sized crushing and grinding circuit will also lower operating costs in the cyanide plant. Costs for this option, including a 350 ton per day crushing and grinding circuit for the cyanide plant, are listed in Part G in the attached spreadsheet.

H. Canex Mine

Gunsteel has entered into an agreement with Placer Dome whereby Gunsteel will acquire ownership of the Canex Mine. The Canex has produced about 8,000,000 tons of Pb-Zn ore and 1,600,000 tons of tungsten ore. Financial obligations under this agreement are listed under Part H in the attached spreadsheet.

I. Immediate Cash Needs By Gunsteel

Liabilities that need to be met to hold the package and to satisfy some creditors are listed under Part I in the attached spreadsheet. Other Gunsteel liabilities can be postponed for two or three months or until financing is completed.

ORE RESERVES

The following ore reserves include 90,000 tons at .34 Au that are classified in the developed and semi-developed category. Developed reserves are available for mining with two to three weeks of timber repair. Semi-developed reserves are available for mining with two to three months of work to prepare them for mining. Twenty four thousand tons of these developed reserves are in the Goldrich property. At 150 tons per day, the developed and semi-developed reserves represent 2.4 years of mining and milling.

1. Gunsteel-Nugget Property

1.1	Proven	40,364 Tons	@	0.414 oz Au/Ton
1.2	Probable	34,874 Tons	@	0.522 oz Au/Ton
1.3	Possible	167,183 Tons	@	0.268 oz Au/Ton *
1.4	Surface Dumps	+10,000 Tons	@	0.150 oz Au/Ton **
<hr/>				
	Total	241,000 Tons	@	0.324 oz Au/Ton

* Includes 18,682 tons @ .302 oz Au per ton that are not included in the Barry Price report.

** Surface dumps are not included in reserve totals.

2. Goldrich Sheep Creek Reserves

2.1	Proven	18,634 Tons	@	0.357 oz Au/Ton
2.2	Probable	47,689 Tons	@	0.334 oz Au/Ton
2.3	Possible	67,323 Tons	@	0.314 oz Au/Ton
<hr/>				
	Total	133,646 Tons	@	0.327 oz Au/Ton

3. Total Sheep Creek Reserves From 1 & 2 Above

3.1	Proven	58,998 Tons	@	0.396 oz Au/Ton
3.2	Probable	82,563 Tons	@	0.413 oz Au/Ton
3.3	Possible	234,506 Tons	@	0.281 oz Au/Ton
<hr/>				
	<u>Total</u>	<u>374,646 Tons</u>	@	<u>0.325 oz Au/Ton</u>

4. Goldrich - Bayonne Mine Reserves

4.1	All Categories	138,200 Tons	@	0.410 oz Au/Ton
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5. HB Mine

5.1	Sulfides	350,855 Tons	@	.53% Pb & 4.47% Zn
5.2	Oxides	91,960 Tons	@	4.10% Pb & 12.10% Zn

6. Canex Mine

6.1	All Categories	106,000 Tons	@	0.80% Pb & 3.10% Zn
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Gunsteel Stock Position

Two situations for Gunsteel stock are presented below. The first shows Gunsteel stock before amalgamation as of April 30, 1989. The second shows Gunsteel stock after amalgamation. Both situations are presented so the investor can see where the stock is and can then estimate what is required to take a position in the company.

Gunsteel Stock As Of April 30, 1989

1.	Nim (Investment House)	1,867,920
2.	CMP (Investment House)	336,842
3.	Vanguard Venture Capital (Inv. House)	<u>168,071</u>
	Subtotal	2,372,833
4.	Nugget Mines Ltd. (Private Company)	335,000
5.	Midas (S. A. Endersby Company)	54,000
6.	Directors	1,302,000
7.	All Others	<u>2,862,018</u>
	Total	6,925,851

Gunsteel Stock Following Amalgamation

1.	Nim (Investment House)	1,867,920
2.	CMP (Investment House)	336,842
3.	Vanguard Venture Capital (Inv. House)	168,071
4.	Nugget Mines Ltd. (Private Company)	6,335,000
5.	Goldrich Shareholders (+2000)	6,500,000
6.	Midas (S. A. Endersby Company)	54,000
7.	Directors	1,302,000
8.	All Others	<u>2,862,018</u>
	Total	19,425,851

If Nu Dawn is amalgamated into Gunsteel, the shares outstanding will increase by 750,000 to 20,175,851.

Private placements completed after April 30, 1989 are not included in the stock totals.

GUNSTEEL RESOURCES INCORPORATED

July 12, 1989

Costs For Gunsteel Package				Costs Below Included In Columns At Left	
Part A - HB Mill				With Immediate Financing Needs ASAP	
Expenditures Within Purchase Price	Costs	Subtotals	Totals		
May 15, 1989	\$8,000			\$8,000	
Within 30 days of signing	\$180,000				
Insurance (none now)	\$65,000				\$65,000
Watchman's wages - Start June 1, 1989	\$3,000			\$3,000	
		\$256,000			
Rehab in Cyanide Plant	\$84,500				
Rehab HB Crushing & Grinding	\$56,000				
Construct Power Line	\$150,000				
Repair & Replace Tailings Line	\$150,000				
Other	\$29,500				
Repair Mobile Equipment	\$25,000				
		\$495,000			
			\$751,000		
Part B - Goldrich Property					
Goldrich Liabilities	\$150,000				
Severance Agreement	\$50,000				
+ 75,000 Gunsteel Shares - No Cost					
Terra Agreement	\$50,000				
Amalgamation Costs - Spread Over 60 Days	\$50,000				
Contingency	\$50,000				
		\$350,000			
			\$350,000		
Part C - Yellowstone Property					
First Payment - Due Jan. 1989	\$5,000			\$5,000	
Second Payment - Due Dec. 31, 1989	\$25,000				
Third Payment - Due Dec. 31, 1990	\$25,000				
		\$55,000			
			\$55,000		
Part D - Operating Capital - Gold Camp					
Mine Operating Capital	\$550,000				
Mill Operating Capital	\$200,000				
		\$750,000			
			\$750,000		

	Costs	Subtotals	Totals	Immediate Needs	With Financing ASAP
Part E - Gunsteel Liabilities					
Accounts Payable @ March 31, 1989	\$260,264			\$75,000	\$185,264
Estimated Accounts Payable Since 3/31/89	\$75,000			\$25,000	\$50,000
Demand Loans @ Toronto dominion Bank	\$35,000			\$35,000	
Revenue Canada	\$12,000			\$12,000	
Notes Payable - Can Be Deferred	\$86,700				
		\$468,964			
			\$468,964		
			\$2,374,964		
Contingency @ 15%			\$356,000		
			\$2,730,964	\$163,000	\$300,264
Additional Costs That Add To & Enhance Packag					
Part F - Acquiring Nu Dawn As A Subsidiary					
Purchase Price For 70% Of Nu Dawn Shares	\$350,000				
Buy Management Contract - Costs Over 2 Yrs	\$50,000				
		\$400,000			
			\$400,000		
Part G - Lead - Zinc Operation					
Rehab Flotation Circuit	\$90,400				
Rehab Mobile Equipment	\$24,000				
350 Ton/Day Crushing & Grinding For Cyanide	\$350,000				
		\$464,400			
			\$464,400		
Part H - Canex Mine					
Insurance Payment - Due Now	\$10,000			\$10,000	
First Payment - Dec. 31, 1989	\$25,000				
Second Payment - Dec, 31, 1989	\$25,000				
		\$60,000			
			\$60,000		
Part I - Gunsteel Immediate Cash Needs					
Total From Parts A Thru H Above				\$173,000	

RESUME

President

Mr. Stan A. Endersby
1124 Lee Street,
White Rock, B.C.
V4B 4P4

(604)531-3160 Home
(604)681-0194 Work

EDUCATION:

- 1.) B.A.Sc. in Chemical Engineering - University of B.C. 1954
(Also completed 3rd year Civil Engineering)
- 2.) M.Sc. in Community & Regional Planning - University of B.C. - 1964

WORK HISTORY:

- 1985 - Gunsteel Resources Inc. - President & CEO.
present During the past 2½ years Gunsteel has carried out an exploration program in the Sheep Creek gold camp near Salmo, B.C. which has outlined ore reserves which now warrant bringing the property to production.
- 1984 - Jero Resources - President.
1985 Jero Resources was amalgamated with Gunsteel in May of 1985 to form the present Gunsteel.
- 1973 - Nugget Mines Ltd. - President.
present Nugget Mines is now the joint venture partner of Gunsteel Resources in the Sheep Creek gold camp. Work between 1980 and 1984 was full time with Nugget, and thereafter was distributed full time between Nugget and Gunsteel.
- 1977 - B.C. Hydro - Properties Division - Land Supervisor in the Reservoir
1980 Land Management Department of B.C. Hydro Properties Division.
Work involved management of lands associated with B.C. Hydro reservoirs, including leasing and sale of land for various uses, and developing and administering plans for recreational and other resource uses in reservoir watersheds. Supervision of land representatives, consultants, contractors, wardens, etc. Numerous planning, engineering and environmental studies. Considerable liaison with various government agencies, regional districts, municipalities and miscellaneous organizations.
- 1974 - B.C. Hydro Gas Group - Planning and Design Engineer in the System
1977 Design Section of the B.C. Hydro Gas Group.
Involved in selection, analysis and cost estimating for high pressure gas transmission lines and their associated rights-of-way through areas of lower mainland. Also involved in work on joint use of rights-of-way by gas, electrical and others and the study and analysis of safety problems of high pressure gas transmission pipelines.

- 1967 - Surrey Municipality - Deputy Planning Director.
1974 - Assisted Planning Director with supervision and administration of Planning Department. Work related to residential, commercial and industrial development, parks and green belts, schools, population, agriculture, transportation, etc. Involved in administrative tasks such as budgeting, employee selection, departmental organization, programs, etc. Extensive liaison with community groups, other municipalities, regional district, government departments, committees, developers and consultants. Experience covered broad range of subjects relating to urban and semi-rural development.
- 1964 - Burnaby Municipality - Planner.
1967 - Involved in various studies, including parks and recreation, schools, waterfront development, transportation, industry, etc.

Other experience includes residential and zoning studies for the City of New Westminster, planning and development of Kitimat, and consulting work in the areas of planning and resource management.

In addition, I have 10 years of Engineering and Supervisory experience with the Aluminum Company of Canada, in their smelters at Kitimat, B.C. and Isle Maligne, P.Q. and with Shell Oil Company in their Vancouver oil refinery. Prior to University graduation, most of my experience was in highway location and construction, hydroelectric construction, logging, land surveying, geological surveying and mining.

Association with Affiliated Societies:

Member of the Association of Professional Engineers of B.C.

CERTIFICATE

I, Donald G. Allen, certify that:

1. I am a Consulting Geological Engineer, of A & M Exploration Ltd., with offices at #614 - 850 West Hastings Street, Vancouver, British Columbia.
2. I am a graduate of the University of British Columbia with degrees in Geological Engineering (B.A.Sc., 1964; M.A.Sc., 1966).
3. I have been practising my profession since 1964.
4. I am a member in good standing of the Association of Professional Engineers of British Columbia.
5. This report is based on fieldwork carried out personally and by D. MacQuarrie, D. Cuvelier, A. Geoghegan, and G. Allen.
6. I am a director of Gunsteel Resources Incorporated and as such I have an interest in the Rossland properties.
7. I consent to the use of this report in a Statement of Material Facts or in a Prospectus in connection with the raising of funds for the project covered by this report.

March 5, 1986
Vancouver, B.C.

Donald G. Allen,
P. Eng. (B. C.)

RESUME

Gary M. Allen
1715 Berkley Road
N. Vancouver, B.C.
V7H 1Y9

(604)681-0194 Work
(604)929-4897 Home

Summary: - More than 19 years mining engineering, mine supervision, teaching and practical experience in underground and surface metalliferous mines including:

- "hands on" experience in narrow vein shrinkage and cut and fill operations
- Supervision of undercut and fill, cut and fill, and room and pillar operations
- Overall supervision of pre-production and production activities
- Underground experience in gold, uranium, copper, nickel and potash mines, and open pit experience in iron and coal mines
- Experience teaching undergraduate and graduate courses in mining engineering and mineral economics

History:

1987 - Gunsteel Resources Inc. - Director
present Responsibilities include day to day head office affairs, mine and mill evaluation and acquisition, contract negotiations.

1986 - Nugget Mines Ltd., - Mine Manager
1987 Nugget Mine
Responsible for exploration and development, supervised the workforce to win the 1987 Small Mines Safety Award for British Columbia.

1985 - Mining Engineering Consulting for various companies and
1986 organizations in the western United States and Canada. Mine property evaluations, mine logistics studies and feasibility studies.

1978 - South Dakota School of Mines and Technology
1985 Assistant Professor of Mining Engineering
Responsible for teaching undergraduate and graduate courses in mining engineering. Active consulting for various companies in the United States and Canada. Specialized in mine evaluation and feasibility studies and mineral economics.

1976 - Energy, Mines and Resources
1978 Uranium Reserve Evaluation Group stationed in Elliot Lake, Ontario
Required to evaluate the mineability of Canada's Uranium resources and reserves. Also Scientific Authority on several government contracts with the public sector.

- 1974 - Inco Ltd., Levack Mine Area - Division Supervisor
1976 Responsible for production, development, engineering, and construction underground and on surface.
- 1972 - Inco Ltd., Levack West Mine - Mine Planning Engineer
1974 Responsible for engineering and supervision of the mine contractor.
- 1970 - Inco Ltd., - Planning Office
1972 Responsible for mine construction, scheduling and engineering.
- 1969 - Utah International, Port Hardy, B.C. - Pit Planning Engineer
1970 Working on pit equipment selection and pit planning

Positions as a summer employee:

- 1969 - Kennecott Copper Corporation, Salt Lake City, Utah
Research Assistant
- 1967 & Kerr Addison Mine Ltd.
1968 Geological Party Leader in northern B.C.
- 1966 - Empire Development Ltd., Vancouver Island, B.C.
Geological Field Assistant
- 1965 - Zeballos Iron Mine Ltd., Zeballos, B.C.
Assay Assistant
- 1964 - San Antonio Gold Mines Ltd., Manitoba
Underground Miner

Education:

- B.Sc. 1968 South Dakota School of Mines and Technology
- M.Sc. 1969 South Dakota School of Mines and Technology

Professional Society Affiliations:

- Member: Professional Engineer, Association of Professional Engineers of Ontario
- Member: American Institute of Mining and Metallurgical Engineers
- Member: Sigma Xi Research Society

news
release

Gunsteel
Resources
Inc.

501-850 West Hastings Street
Vancouver, B.C. V6C 1E1
(604) 681-0194

Vancouver Stock Exchange
Symbol: GUN

NEWS RELEASE 89 - 03

May 25, 1989 U.S. Sec. Exemption
82-1507

PROPOSED GUNSTEEL-NUGGET-GOLDRICH AMALGAMATION

Gunsteel Resources Inc. has signed a Letter of Intent with Goldrich Resources Inc. whereby it is proposed that they will amalgamate with Gunsteel Resources Inc. and Nugget Mines Ltd. This will place most of the historic Sheep Creek gold camp near Salmo, B.C. into one ownership and combine it with a number of other gold and lead-zinc properties.

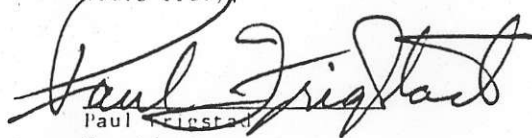
It is proposed that the Goldrich shareholders will receive one third of the shares of the combined Gunsteel-Nugget-Goldrich amalgamated company, based on the company structures as at April 30, 1989. Nugget Mines Ltd., which is Gunsteel's 50% joint venture partner in the Salmo area, will also vend its joint venture interests into the amalgamated company. The amalgamation will be subject to the approval of the shareholders of each company, the Supreme Court of British Columbia, and the regulatory authorities.

The combined assets of the amalgamated company will cover about 30,000 acres in the Salmo area and include most of the Sheep Creek gold camp, the Bayonne mine, and a 60% interest in the existing HB mill and the HB and Canex mines. The properties to be consolidated in the Sheep Creek gold camp have produced 1.41 million tons of ore yielding 617,000 ounces of gold and grading 0.44 ounces of gold per ton. Current reserves in all categories are estimated at 375,000 tons grading 0.33 ounces of gold per ton. Veins in the camp typically occur about every 500 feet along two parallel anticlinal structures, and with more than 20,000 feet of strike length along these structures relatively unexplored, and many other veins only partially explored and developed, the potential for finding more ore is excellent and should provide the opportunity to maintain reserves at present or better levels once production is commenced. The Bayonne mine, which is about 7 miles east of the Sheep Creek properties, has produced 89,000 tons of ore grading 0.47 ounces of gold per ton. It has excellent potential for developing further tonnage. Also, the HB and Canex mines, which were both significant base metal producers in the Salmo area, produced 15 million tons of lead-zinc ore and 1.7 million tons of tungsten ore.


In addition to the properties in the Salmo area, a number of other gold and base metal properties are held at Ymir, Rossland, Revelstoke and northeast Washington State.

As outlined in Gunsteel's previous news release on April 5, 1989, Gunsteel/Nugget is acquiring a 60% interest in the HB mill at Salmo from Nu-Dawn Resources. This is a 1200 tons per day lead-zinc concentrator with a 100-150 tons per day gold cyanide circuit attached. The gold circuit will be used to process ore from the nearby Sheep Creek property. The mill will also be used to process lead-zinc ore remaining in the nearby Canex and HB mines, along with custom ore from other properties in the area. Work is proceeding on the planning and arranging of financing to bring the properties to production using the existing HB mill.

Yours truly,


Paul Kristad
President
GOLDRICH RESOURCES INC.

Yours truly,


Stan Endersby
President
GUNSTEEL RESOURCES INC.

The Vancouver Stock Exchange has not reviewed and does not accept responsibility for the adequacy or accuracy of this release.



news
release

Gunsteel
Resources
Inc.

April 5, 1989

501-850 West Hastings Street
Vancouver, B.C. V6C 1E1
(604) 681-0194

Vancouver Stock Exchange
Symbol: GUN

U.S. Sec. Exemption
82-1507

MILL JOINT VENTURE PROPOSED

Gunsteel Resources Incorporated and Nugget Mines Ltd. have signed a Letter of Intent to enter into an agreement with Nu-Dawn Resources Inc. whereby Gunsteel/Nugget will acquire a 60% interest from Nu-Dawn in the HB mine and mill and related assets. This mill is located about 4 miles south of Salmo, B.C. and is about 3 miles from the Nugget property. It is a 1200 tons per day flotation mill with a 100-150 tons per day gold cyanide circuit attached. The cyanide circuit will be used to process ore from the Nugget property.

The mill was owned and operated by Cominco until 1978 to process lead-zinc ore from the adjacent HB mine. It was taken over in 1981 by David Minerals who added the cyanide circuit which is about 90% complete. Nor-Quest Resources acquired the mill in 1987, and subsequently sold it to Nu-Dawn.

Terms of the Letter of Intent require that within 30 days of signing the formal document, Gunsteel/Nugget is to make payments to Nu-Dawn totalling \$200,000 plus \$200,000 worth of stock at the then prevailing market price, but not exceeding \$0.45 per share. A further \$400,000 is payable out of proceeds from milling. Gunsteel/Nugget is to be the operator and profits from the milling operation will be shared 60% by Gunsteel/Nugget and 40% by Nu-Dawn.


The gold section of the mill will be used to process ore from the Nugget property, where total reserves are about 223,000 tons grading 0.33 ounces of gold per ton. Past production from this property totalled 430,000 tons grading 0.54 ounces of gold per ton and was from three veins. At least 20 veins are known which warrant exploration and the potential for significantly increasing reserves is excellent. Some gold ore may also be available from the Ymir mine owned by Nu-Dawn.

The lead-zinc flotation section of the mill will be used to process some existing ore remaining in the nearby Canex and HB mines, along with custom ore from other properties in the area. The HB mine and the Canex mine were both significant producers in the Salmo district. Past production from the HB mine totalled 7.3 million tons of lead zinc ore, and past production from the Canex mine totalled 8.0 million tons of lead-zinc ore and 1.5 million tons of tungsten ore. Gunsteel/Nugget has a Letter of Intent from Placer Dome to acquire the Canex mine and is giving Nu-Dawn the right to participate in it on the same 60-40 basis as with the HB mine and mill.

The mill has been kept on a care and maintenance basis for some time and initial plans for rehabilitation and startup are being formulated. Work is also proceeding on completing the required regulatory approvals.

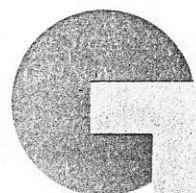


Richard Drozd, President
NU-DAWN RESOURCES INC.
930 - 800 W. Pender St.,
Vancouver, B.C.
(604)683-4895



Stan A. Endersby, President
GUNSTEEL RESOURCES INC.
507 - 850 W. Hastings St.,
Vancouver, B.C.
(604)681-0194

The Vancouver Stock Exchange has neither approved nor disapproved of the contents of this news release.



GUNSTEEL RESOURCES INCORPORATED

February 6, 1989

REPORT TO SHAREHOLDERS

It is a pleasure to present the 1988 Annual Report to our Shareholders and review the year's activities. The company continued its exploration program on the Nugget property in the Sheep Creek gold camp near Salmo, British Columbia, and participated in an exploration program on a property with Chapleau Resources near Cranbrook, British Columbia. Plans are well advanced for a 100 to 150 tons per day mill for the Nugget property near Salmo, British Columbia.

Flow through funds totalling \$1,077,000 were obtained for exploration during the year. This resulted in a somewhat lesser program than the one the year before. A reduced level of activity toward the latter part of the year was due to the very poor prevailing stock market conditions and the resultant difficulty in raising funds without excessive dilution of the existing stock. A very serious shortcoming of flow through financing is the lack of any allowance for administration and overhead costs. Funds for these very essential purposes have been particularly difficult to obtain since the October 19, 1987 stock market plunge. Fortunately, Gunsteel has been successful in defining sufficient ore reserves on the Nugget property whereby the property can be put into production, and the immediate objective is to install a mill during 1989 and get the company into a position of generating its own revenue.

A summary of the activities and status of each property is as follows:

Nugget Property (Salmo)

This property is situated in the Sheep Creek gold mining camp near Salmo in southeastern British Columbia. This camp ranks sixth in the province in terms of gold production - 736,000 ounces of gold from 1,720,000 tons of ore during the period from the early 1900's to 1951. The Nugget property itself, which is part of this camp, produced 427,000 tons of ore containing 230,580 ounces of gold, averaging 0.54 ounces of gold per ton. This production came mainly from the Reno, Nugget and Motherlode veins and accounted for 32% of the recorded gold production of the Sheep Creek camp. The Nugget property is a 50-50 joint venture between Gunsteel Resources and Nugget Mines Ltd.

The last measured reserves on the property totalled 223,000 tons grading 0.33 ounces of gold per ton and containing 74,000 ounces of gold. Work during 1988 included advancing an exploration tunnel from the adjacent workings of the Nugget mine to intersect the down dip projections of an ore zone on the Fawn veins. This target was not reached due to insufficient funds but remains one of the prime objectives as funding becomes available. Diamond drilling showed the ore zone to extend at least 360 feet below the lowest Fawn level and the exploration tunnel will cut the zone about 500 feet below the level. Other work involved opening the No. 5 level of the old Reno mine to obtain under-

ground access for exploration of several adjacent veins. The Reno vein was an excellent producer in the camp, accounting for 261,000 tons of ore grading 0.56 ounces of gold per ton.

An agreement is being completed with Yukon Minerals to option the Yellowstone claims, which will add a further 6 claims to the 131 claim units presently comprising the Nugget property. The Yellowstone vein, one of several on the property, produced about 17,000 tons of ore grading 0.51 ounces of gold per ton from the upper part of the vein. Exploration work will initially be directed to testing this ore zone from a lower level.

Immediate plans for the Nugget property are to put a mill of 100 to 150 tons per day into production during 1989. In addition to the existing ore reserves, there are 25 known veins on the property, with potential for others in overburden covered areas. When production begins, an ongoing exploration program will be carried on to maintain and expand existing ore reserves.

Purcell Property (Cranbrook)

In 1988 Gunsteel Resources entered into an agreement with Chapleau Resources whereby Gunsteel could earn a 50% interest in a property near Cranbrook, British Columbia, by expending a total of \$600,000 on exploration over two years. Diamond drilling at the intersection of two major fault structures has outlined a large hydrothermal system which is heavily mineralized with copper and anomalous in gold. At the time of writing, Gunsteel probably will not be carrying on with this project due to insufficient exploration funds and the need to concentrate its main effort on getting the Nugget Property into production.

Jero Property (Rossland)

Gunsteel has extensive holdings in the Rossland gold camp in southeastern British Columbia. This camp ranked second amongst the gold producing areas of British Columbia, having produced more than 2.7 million ounces of gold, 3.3 million ounces of silver, and 100,000 tons of copper from 5.9 million tons of ore.

Gunsteel's property in this camp covers 121 claim units covering about 6,000 acres. While no work was done during 1988 on this property, it remains a very important exploration target.

Allco Property (Revelstoke)

Gunsteel Resources holds an option to acquire a 100% interest in the Allco Silver property, which comprises 96 claim units about 18 miles northeast of Revelstoke, British Columbia.

Most of the previous work on the Allco was conducted between 1931 and 1936. The work comprised stripping, trenching, and almost 500 feet of underground development in five adits and a shaft. In the mid

1930's, 213 tons of ore containing more than 11,000 ounces of silver and more than 173,000 pounds of lead were shipped. While no work was done during 1988 on this property, widespread mineralization and showings of lead, zinc and silver have been uncovered over an area of approximately 10,000 feet along strike and 1,500 feet in width, and open at both ends. As soon as funds are available, this property will be a priority in our exploration program.

Gonzo Property

This property is owned by Gunsteel and comprises 20 claim units about 34 miles southeast of Quesnel, British Columbia. It is strategically located along the Quesnel Basin Fault, about two miles north of the QR and QR West gold deposits.

Chilko Property

The property is owned by Gunsteel and consists of 192 claim units located 150 miles north of Vancouver and 94 miles west of Lillooet. These claims were staked to cover anomalous values of gold, silver and mercury.

SUMMARY

Gunsteel Resources is directing its main efforts to bringing its Nugget joint venture project in the Sheep Creek gold camp to production during 1989. With the very poor equity markets for raising funding both for exploration and other needs, it is imperative that the company get itself into a position of generating revenue as soon as possible. In addition to generating a profit for its shareholders the company will function more effectively and will be in a much better position to explore and evaluate its many prime exploration targets.

We look forward optimistically to an active and successful year, and wish to thank our shareholders for their interest and support.

ON BEHALF OF THE BOARD



Stan A. Endersby
President
GUNSTEEL RESOURCES INCORPORATED
February, 1989

GUNSTEEL RESOURCES INC.

QUARTERLY REPORT

(January 1, 1989 to March 31, 1989)

Financial Information - Schedule A

GUNSTEEL RESOURCES INCORPORATED

SUMMARY BALANCE SHEET

MARCH 31, 1989

(UNAUDITED)

(PREPARED BY MANAGEMENT)

ASSETS

Current Assets	
Bank and cash	\$ 1,561
Term deposit	8,000
Accounts receivable	5,223
Prepaid expenses	<u>245</u>
	15,029
Mineral Properties, including deferred costs	3,136,081
Fixed Assets, net	10,852
Incorporation Costs	<u>1,786</u>
	<u>\$ 3,163,748</u>

LIABILITIES

Current Liabilities	
Accounts payable	\$ 260,264
Demand loans	35,000
Interest payable	<u>1,388</u>
	296,652
Notes Payable	486,667

SHAREHOLDERS' EQUITY

Share Capital	3,461,986
Share Subscription Advances	197,250
Deficit	<u>(1,278,807)</u>
	<u>\$ 3,163,748</u>

GUNSTEEL RESOURCES INCORPORATED
STATEMENT OF ADMINISTRATION COSTS AND DEFICIT
FOR THE THREE MONTHS ENDED MARCH 31, 1989
(UNAUDITED)
(PREPARED BY MANAGEMENT)

ADMINISTRATION COSTS:

Bank charges and interest	\$ 14,604
Consulting	20,825
Depreciation	380
Insurance	36
Management fees	6,000
Miscellaneous	710
Office and printing	6,776
Professional fees	9,383
Promotion	1,255
Rent	3,358
Stock exchange fees	1,335
Transfer agent	793
Travel	5,931
Wages and benefits	<u>25,025</u>
	96,411
Interest income	(386)
Cost recoveries	<u>(3,109)</u>
	92,916

EXTRA-ORDINARY ITEM:

Debt settlement	<u>(71,291)</u>
-----------------	-----------------

INCREASE IN DEFICIT

21,625

DEFICIT AT BEGINNING OF PERIOD

1,257,182

DEFICIT AT END OF PERIOD

\$ 1,278,807

Financial Information - Schedule A

GUNSTEEL RESOURCES INCORPORATED
SCHEDULE OF DEFERRED EXPLORATION AND DEVELOPMENT COSTS
FOR THE THREE MONTHS ENDED MARCH 31, 1989
(UNAUDITED)
(PREPARED BY MANAGEMENT)

EXPLORATION AND DEVELOPMENT COSTS:

Accommodation and meals	\$ 1,201
Depreciation	295
Equipment rental and operating expenses	73
Engineer and consulting	5,875
Licences and recording fees	755
Miscellaneous	1,410
Supplies	25
Transportation and travel	<u>662</u>
	10,296

DEFERRED COSTS AT BEGINNING OF PERIOD 2,920,686

DEFERRED COSTS AT END OF PERIOD \$ 2,930,982

Supplementary Information - Schedule B

GUNSTEEL RESOURCES INCORPORATED

RELATED TRANSACTIONS

MARCH 31, 1989

- a. A management fee of \$6,000 is payable to the President of the company.
- b. Wages totaling \$5,400 are payable to a relative of the President of the company.
- c. Wages totaling \$11,700 are payable to a Director of the company.

Supplementary Information - Schedule B
Section 2a

SECURITIES ISSUED DURING QUARTER ENDED MARCH 31, 1989

<u>Date of Issue</u>	<u>Type of Security</u>	<u>Type of Issue</u>	<u>Number or Amount</u>	<u>Price</u>	<u>Total Proceeds</u>	<u>Type of Consideration</u>	<u>Commission</u>
NIL							

Supplementary Information - Schedule B
Section 2b

OPTIONS GRANTED DURING QUARTER ENDED MARCH 31, 1989

<u>Date Granted</u>	<u>Number</u>	<u>Type</u>	<u>Name</u>	<u>Exercise Price</u>	<u>Expiry Date</u>
NIL					

Supplementary Information - Schedule B
Section 3a

AUTHORIZED AND ISSUED SHARE CAPITAL AS AT MARCH 31, 1989

<u>Class</u>	<u>Par Value</u>	<u>Authorized Number</u>	<u>Issued</u>	
			<u>Number</u>	<u>\$ Amount</u>
Common Shares	N.P.V.	25,000,000	6,172,851	\$ 3,461,986

Supplementary Information - Schedule B
Section 3b

GUNSTEEL RESOURCES INCORPORATED
OPTIONS, WARRANTS AND CONVERTIBLE SECURITIES
OUTSTANDING AS AT MARCH 31, 1989

<u>Security</u>	<u>Number or Amount</u>	<u>Exercise or Convertible Price</u>	<u>Expiry Date</u>
Options	151,000	\$0.54	December 8, 1989
Options	255,000	\$0.45	September 22, 1990

Supplementary Information - Schedule B
Section 3c

SHARES IN ESCROW OR SUBJECT TO POOLING
AS AT MARCH 31, 1989

	<u>Number of Shares</u>
Common shares in escrow	375,000

Supplementary Information - Schedule B
Section 3d

LIST OF DIRECTORS
AS AT MARCH 31, 1989

<u>List of Directors</u>	<u>Position Held</u>
S.A. Endersby	President/Director
D.G. Allen	Director
N.D. McLaren	Director
G. Allen	Director
M.A. Rosenberg	Director

MANAGEMENT DISCUSSION - 1ST QUARTER 1989

No exploration work was done during the quarter. The 1988 TAP IV fund, with which Gunsteel had an agreement to provide \$300,000 in flow through funds for the period between November 18, 1988 and February 28, 1989, was unable to meet its commitments. Gunsteel had been given an okay to proceed and was in a very tight time frame to get this work done. About half of the amount was spent and Gunsteel was almost ready to request its first draw when it was informed they did not have the money. The exploration program on the Yellowstone property at Sheep Creek had to be temporarily delayed and the joint venture with Chapleau Resources at Cranbrook, British Columbia terminated.

Gunsteel now has sufficient ore reserves in the Sheep Creek camp to put the property into production and negotiations are proceeding with Nu-Dawn Resources to acquire an interest in the HB mill at Salmo to use for processing the ore from the Nugget property.

The Company arranged two private placements which were acceptable in principle to the VSE as at March 31, 1989. The first consists of 453,000 units at \$0.25 per unit, with each unit consisting of one share and one warrant which is exercisable for one year. The warrant plus \$0.30 will entitle the holder to purchase one additional share. The second private placement is with Gunsteel's joint venture partner and consists of 300,000 units at \$0.35 per unit, with each unit consisting of one share and one warrant which is exercisable for one year. The warrant plus \$0.40 will entitle the holder to purchase one additional share. Share subscription advances of \$197,250 had been received by March 31, 1989.

The December 31, 1988 Financial Statements showed several demand loans as current liabilities. All but \$35,000 of this liability has been rescheduled as long term debt.

Subsequent Events

- 1) A Letter of Intent was signed on April, 5, 1989 with Nu-Dawn Resources whereby Gunsteel/Nugget will acquire a 60% interest from Nu-Dawn in the HB mine and mill and related assets. This mill is located about 4 miles south of Salmo, BC and is about 3 miles from the Nugget property. It is a 1200 tons per day flotation mill with a 100 - 150 tons per day gold cyanide circuit attached. The cyanide circuit will be used to process ore from the Nugget property.

The lead-zinc flotation section of the mill will be used to process some existing ore remaining in the nearby Canex and HB mines, along with custom ore from other properties in the area. Gunsteel/Nugget has a Letter of Intent from Placer Dome to acquire the Canex mine and is giving Nu-Dawn the right to participate in it on the same 60-40 basis as with the HB mine and mill.

The mill was owned and operated by Cominco until 1978 to process lead-zinc ore from the adjacent HB mine. It was taken over in 1981 by David Minerals who added the cyanide circuit which is about 90% complete. Nor-Quest Resources acquired the mill in 1987, and subsequently sold it to Nu-Dawn.

Terms of the Letter of Intent require that within 30 days of signing the formal document, Gunsteel/Nugget is to make payments to Nu-Dawn totalling \$200,000 plus 200,000 worth of stock at the then prevailing market price, but not exceeding \$0.45 per share. A further \$400,000 is payable out of proceeds from milling. Gunsteel/Nugget is to be the operator and profits from the milling operation will be shared 60% by Gunsteel/Nugget and 40% by Nu-Dawn.

- 2) Gunsteel Resources Inc. signed a Letter of Intent May 18, 1989 with Goldrich Resources Inc. whereby it is proposed that they will amalgamate with Gunsteel Resources Inc. and Nugget Mines Ltd. This will place most of the historic Sheep Creek gold camp near Salmo, BC into one ownership and combine it with a number of other gold and lead-zinc properties.

It is proposed that the Goldrich shareholders will receive one third of the shares of the combined Gunsteel-Nugget-Goldrich amalgamated company, based on the company structures as at April 30, 1989. Nugget Mines Ltd., which is Gunsteel's 50% joint venture partner in the Salmo area, will also vend its joint venture interests into the amalgamated company. The amalgamation will be subject to the approval of the shareholders of each company and the regulatory authorities.

The combined assets of the amalgamated company will cover about 30,000 acres in the Salmo area and include most of the Sheep Creek gold camp, the Bayonne mine, and a 60% interest in the existing HB mill and the HB and Canex mines. The properties to be consolidated on the Sheep Creek gold camp have produced 1.41 million tons of ore yielding 617,000 ounces of gold and grading 0.44 ounces of gold per ton. Current reserves in all the categories are estimated at 375,000 tons grading 0.33 ounces of gold per ton. Veins in the camp typically occur about every 500 feet along two parallel anticlinal structures, and with more than 20,000 feet of strike length along these structures relatively unexplored, and many other veins only partially explored

and developed, the potential for finding more ore is excellent and should provide the opportunity to maintain reserves at present or better levels once production is commenced. The Bayonne mine, which is about 7 miles east of the Sheep Creek properties, has produced 89,000 tons of ore grading 0.47 ounces of gold per ton. It has excellent potential for developing further tonnage. Also, the HB and Canex mines, which were both significant base metal producers in the Salmo area, produced 15 million tons of lead-zinc ore and 1.7 million tons of tungsten ore. In addition to the properties in the Salmo area, a number of other gold and base metal properties are held at Ymir, Rossland, Revelstoke and northeast Washington State.

- 3) Work is proceeding on the planning and arranging of financing to bring the properties to production using the existing HB mill

May 30, 1989

I have reviewed the material that you and Giles sent on Gunsted Resources sheep creek proposal. There is insufficient specific information on, ore reserves, and exploration potential to judge the feasibility of this opportunity. The financial projections, and assumptions used to determine developed.