REPORT

On

CROWN POINT MINE

Submitted by Applicant

By: Howard W. Squires.
Mining Engineer.

Virginia City, Nevada
November 8, 1933.

Mr. James M. Leonard
Virginia City,
Nevada.

Dear Sir:

I herewith submit my report on the Crown Point Mine, located in the Gold Hill Section of the Comstock Lode, Storey County, Nevada.

The report contains five maps. - Longitudinal Section of Comstock Lode, Large.

Longitudinal Section Crown Point, Small.

Cross Section of Comstock Lode at Crown Point, Small

Assay Map of workings Crown Point, Large

Railway and Surface survey at Crown Point, Large.

Respectfully yours,

(Signed) Howard W. Squires.

INTRODUCTION

The Comstock District is in Storey County, Virginia City and Gold Hill are the two towns on the Lode. It is sometimes subdivided into the Virginia City District on the North and the Gold Hill District on the South. These towns are built on the top of the Lode, and the mines are under the towns. Mt. Davidson rises to the west of the Lode, is the highest peak in the district, and has an altitude of 7,870 feet, and the district of the Comstock Lode outcrops on its E. flank at elevations in the neighborhood of 6,550 feet. During the Bonanza days, these towns had a combined population of some thirty thousand people. The present population is estimated at fifteen hundred.

The Comstock Lode is connected by Broad gauge railroad with Carson City, the Nevada State Capitol by the Virginia and Truckee Railroad, which also connects with the Southern Pacific Railroad at Reno. The Sierra Pacific Power Company serves the district with hydro-electric power. Telephone and telegraph lines connect with the outside world, and the Comstock has one of the best water supplies in the western country, water being brought through pipe lines and flume, some twenty five miles from the Sierra Nevada Range.

DISCOVERY:

No one individual can be credited with the discovery of the Comstock Lode, nor any exact date given. It was through the activities of a large number of people extending over a long period of time. Abner Blackburn discovered placer gold near the present site of Dayton in July, 1849. The Grosh brothers discovered rich ore in the region in 1853 possibly

at Silver City, or perhaps they located the outcrop of the Comstock Lode at the head of Gold Canyon, but both died before they could take advantage of their find. James Fennirmore, known as "Old Virginia", located Gold Hill cropping of the Comstock Lode as placer ground in January, 1859. Peter O'Riley and Patrick McLaughlin digging a water hole at the head of Six Mile Canyon uncovered the Ophir bonanza in June, 1859. Henry Comstock, for whom the district is named, bluffed his way into part ownership. Rich silver sulphide occurred with the gold, but was not recognized as such until Judge Walsh of Grass Valley had it assayed and its real nature was discovered. This inaugurated the "great Washoe rush" and hundreds crossed the mountains from California that year, while thousands followed the succeeding years, and in 1864 Nevada had sufficient population to warrant making it a state.

GENERAL

Without question, the Comstock Lode is one of the most extensive gold and silver deposits ever discovered in the Western Hemisphere. The Comstock mines were of great importance in their day, and no such volume of money had ever been produced from a single source up to the time of their operations. Most people have the conception that the Comstock was strictly a silver district. This, however, is decidedly an error. Reduced to dollars and cents, the actual gold content of the ore today constitutes about 75% of the value.

From 1862 until 1886 the United States Government first through the War Department, and later the Interior took an active hand in the guidance of all underground

work. Accurate underground surveys were made by Government Engineers and statistics of costs and bullion production were printed and distributed to the various mine managers. The Government Atlas of Hague, followed by Becker are records of care and accuracy and it is from these sources we are indebted today to much valuable information we possess concerning the Comstock Mines.

PRODUCTION FROM SURFACE BONANZAS

The recorded production furnished by the Director of the Mint from 1859 to 1864 is as follows:

Year	Tons	Total
1859		$ 30,000
1860	10,000	750,000
1861	140,000	3,500,000
1862	250,000	7,000,000
1863	450,000	12,400,000
1864	680,000	16,000,000

There was no doubt a large unrecorded production in the early days which cannot be roughly estimated. By this time, however, the ore bodies first discovered had begun to play out and we find a gradual decline in production from 1865 to 1871 as follows:

Year	Tons	Total
1865	430,745	$ 15,833,720
1866	640,282	14,907,895
1867	462,176	13,738,608
1868	300,560	8,779,769
1869	279,584	7,405,578
1870	238,967	8,704,325

During the above period enormous sums of money had been spent in litigation; the V. & T. R. R. had been completed from Carson City to Gold Hill in 1869, and the same year Adolph Sutro began work on the Sutro Tunnel four miles from the Comstock Lode, connecting in the Savage

mine in 1878 at an approximate vertical depth of 1750 feet, and immediately became of great value for drainage purposes although many mines had reached greater depth and were forced to pump to the tunnel level.

DEEP BONANZAS

From 1860 to 1870, Crown Point, Kentuck and Yellow Jacket had their first bonanza ore body extending practically from the surface down to the 900 foot level. In 1871 Crown Point and Belcher encountered an immense body of high grade ore at a depth of 1160 feet, which extended down to the 2000 foot level, being one of the biggest and richest bodies ever discovered and which produced in a very few years $67,499,000 in bullion.

When Crown Point-Belcher discovered the large bonanza at depth, all other mining companies started shafts far out east of the lode with the intent to intersect the Comstock at depth on its downward 45 degree east dip. In 1874 the Big Bonanza in Con. Virginia was encountered first on the 1167 foot level. This extended in California ground adjoining the north. It extended down to the 2060 foot level and according to J. A. Church the Big Bonanza yielded $104,007,653, which averaged $93.35 per ton. All the bonanzas taken together produced 6,350,520 tons yielding an average of $42.89 per ton. The average recorded value of all the ores mined from 1859 to 1921, including values recovered by re-treatment of tailings, is $31.16 per ton. Bullion production rose with the discovery of deep bonanzas in Crown Point and Con Virginia from 8 million dollars in 1870 to over 36 million dollars in 1877.

Year	Tons	Total
1871	409,718	$ 10,249,528
1872	384,668	12,236,399
1873	448,301	21,671,980
1874	526,743	22,476,785
1875	546,425	25,825,521
1876	598,818	31,618,660
1877	562,519	36,301,536

MEDIUM GRADE ORES:

Upon exhaustion of the Big Bonanza the low grade ores in the mines were systematically worked. Production however declined steadily to a trifle over one million dollars in 1881. In 1882 an immense flow of hot water drowned out the Gold Hill Mines below the Sutro Tunnel and they were forced back to mining ore above the drainage level. The Virginia City mines continued pumping until 1886, when they also suspended work below the Sutro Tunnel and worked above this horizon. However, production again rose to over seven million dollars in 1888 and declined to less than $200,000 in 1899. Pumping was resumed in 1899 by the Comstock Pumping Association and considerable ore mined before discontinuing in 1922. Production ranged from under four thousand dollars per year to nearly one million four hundred thousand yearly.

In 1920, through Bulkley Wells, the United Comstock took over the Alpha, Imperial, Challenge, Confidence, Yellow Jacket, Kentuck, Crown Point, Belcher, Segregated Belcher, and Overman Mines, built a 2,500 mill at American Flat, and connected the mines and mill with a haulage tunnel 9,585 feet long giving a maximum back of 650 feet of low grade ores and old fills. Wells resigned in 1923.

In 1922 the Comstock Merger was formed and took over the Best and Belcher, Gould & Curry, Savage, Hale & Norcross, Chollar, Potosi, Bullion, and Exchequer Mines, together with

the Caledonia at the S. end of the lode, and a group of claims on the S. E. branch of the Comstock Lode in Gold Canyon.

Volume production was attempted but due to dilution of ore values by wall rock caving, and an unwieldy operation, rather than from any lack of ore supply, these ventures proved disastrous.

GEOLOGY:

The latest important contribution to the geology of the Comstock is that made by Professor Reid of the University of California in 1905. California University Publication, volume 4, pages 177 - 199, 1905. Reid says in part that the Comstock Lode is on the east flank of Mt. Davidson which is composed of a mass of diorite bounded upon all sides by faults. The lode occupies the great fissure made by the E. member of this block faulting system, which is a normal fault with a movement of 3,000 feet. This movement resulted in the shattering of the hanging wall and the production of numerous fissures which join the lode in depth but pinch out in height. The lode has a length of 13,000 feet, terminating by branching at both extremeties, and varies in width from 100 to 1,400 feet. The strike of the lode is N 14° E., and its dip is 43° easterly. The country consists of late Tertiary igneous rocks ranging from diorite on the W., which forms Mt. Davidson and the foot wall of the lode, through a hanging wall consisting mainly of hornblende andesite to augite andesite on the E.

ORE BODIES:

The country rock of the Comstock Lode has been highly altered by hydothermal action. The wide body of quartz

and altered rock which constitutes the lode, contains rich ore shoots or "bonanzas" separated from one another by long irregular stretches of low grade material. In the north section, the principal bonanzas occur in the vertical hanging wall fractures, while in the south of Crown Point section they occur in the main lode. The location of bonanzas appears to have been determined by N. W. and N. E. pre-mineral fractures intersecting the main lode, and their size by the strength of these fractures.

ORE MINERALS

Typical Comstock ore consists of quartz and more or less calcite in which is disseminated a fine grained mixture of sulphides. According to Clarence King, "The Comstock Lode, in Hague, Mining Industry;" U. S. Geological Exploration, 40th Parallel, Vol. 3, 1870. He says that the main ore mass of the bonanzas is composed of quartz (several generations), pyrite, sphalerite, galena, chalcopyrite, argentite, polybasite, stephanite, and calcite. Gypsum occurring locally. Gold and silver are the two minerals of economic value. Gold occurs in the native state, and associated with pyrite and small particles of chalcopyrite. Silver occurs mostly in the form of argentite, with small quantities of native silver, horn silver, and stephantite occasionally in evidence.

LOW GRADE ORES:

It must be remembered that when the Comstock was discovered, metal mining in the United States was in its infancy; equipment was crude, and costly to install. Little was known about metallurgy and ore reduction. Power was generated by burning wood under steam boilers and as

operations expanded, fuel became more costly on the Comstock. Operating costs were very high and extraction of ore values low. Consequently nothing but high grade ore was profitable. In 1860 Almarin B. Paul experimented with the extraction of gold and silver from Comstock ores and built a mill near what is now Silver City by a modification of the old Mexican patio process, which came to be known as "Pan Amalgamation" or the "Washoe Process", and at that period represented the last word in metallurgical treatment of gold and silver ores of similar character, and later was used all over the world.

From 1860 to 1875 ores mined were shipped to the nearby mills for treatment. The mines required the mills to return at least 65% of the assay value of the ore, in bullion. It is safe to say the mills seldom returned more than the percentage required.

The United States Government statistics of working costs of Comstock mines at the height of their production is very complete. This book Volume 3, U. S. Geological Survey of the 40th Parallel; Page 172, J. D. Hague compiles the mining and milling costs of Gould and Curry Company from 1860 to 1869 as follows:

TABULAR STATEMENT SHOWING OPERATIONS OF GOULD AND CURRY MINING CO. FROM DATE OF THEIR ORGANIZATION TO NOV. 30, 1869

Year ending	Tons of ore produced	Cost per ton for mining	Cost per ton for milling Co. mill	Cost per ton for milling Custom Mill
Nov. 30	--------	----------	---------	----------
Nov. 30	--------	----------	---------	----------
Nov. 30	8,442	$12.54	---------	$34.55
Nov. 30	48,743	12.54	$38.00	22.30
Nov. 30	64,443	12.00	40.00	26.00
Nov. 30	47,217	10.34	12.93	20.36
Nov. 30	62,425	8.78	12.27	15.67
Nov. 30	24,940	11.35	13.00	14.34
Nov. 30	12,153	10.34	---------	12.62
Nov. 30	15,879	7.29	---------	13.08

Thus we find over the nine year period average mining cost was $10.82 a ton. Company milling cost was $23.24 a tom, and Custom milling cost $20.36 a ton. As mill extraction did not exceed 67% of the value of of the ore, it is plain that ore of an assay value of $50.00 a ton would not pay to extract. Gould & Curry was an average illustration of the day.

On page 248 the same book as before referred to, U. S. Geological Survey of the 40th Parallel mill extraction is given on Savage Mine.

COMPARATIVE STATEMENT OF OPERATIONS OF TWENTY ONE DIFFERENT MILLS TREATING ORE FROM THE SAVAGE MINE BETWEEN JULY 1867 AND FEB. 1868.

Mill No.	Tons	Mill Sample	Yield a ton	Yield % a ton
1	5,830	$54.65	$37.86	69.2
2	6,720	55.66	38.67	69.4
3	5,109	124.25	78.16	62.9
4	3,090	50.22	32.47	64.6
5	7,334	48.34	32.92	68.1

Space not permitting the remainder of all the mill runs, the total is here given as a whole:

Tons 56,656 Mill sample $56.62 Yield a ton $38.27

Yield % 67.5

SUMMARY OF MIDDLE MINES.

FROM 1860 TO 1875, AS TAKEN FROM REPORTS OF KING & RAYMOND

SUMMARY - 1860 to 1875

Property	Tons Mined	COSTS Mining	COSTS Milling	COSTS Total	Assay Value	Bullion Yield per Ton	Total Bullion	Total Value
Gould & Curry	311,171	$10.72	$12.80	23.52	77.48	50.30	15,629,235	24,100,000
Savage	473,871	9.79	12.16	21.95	51.20	33.22	15,720,460	24,198,000
Hale & Norcross	278,631	8.90	12.70	21.60	38.60	25.50	7,006,040	10,700,000
Chollar-Potosi	416,419	6.40	13.00	19.40	41.60	27.00	12,201,000	18,217,981
	1,479,092						$50,556,735	77,215,981

Total tons mined 1,479,092
Total bullion produced.....$50,556,735 or $34.40 per ton.
Value ore mined ..... 77,215,981 or $52.30 per ton.

AVERAGE COSTS

Mining	$ 9.00
Milling.	12.70
Metallurg'l Loss . .	17.90
	$39.60 per ton
Profit . .	12.70 per ton

Lowest grade of any ore milled during this period was by the Savage Company, who, in 1873, milled ore that assayed them only $20.40 per ton, returning them $13.29 per ton in bullion.

Much of the above has been written so that it may be thoroughly understood that ore worth $20.00 to $25.00 a ton could not be mined at a profit, during operations in the Bonanza days.

Driven back to levels above the Sutro Tunnel, which now drains the ledge above the 2500 foot level, the companies tried to pay a profit by working over old ground. However they did not improve their milling methods, increase their

extraction or ore values, or reduce their power costs. Pan amalgamation mills were still in vogue. Illustrative of anything that did not carry $25.00 a ton or better, if a profit was to be realized, I give a 3 months run of 12 mines operating on the Comstock Lode in the year 1901.

	TONS	BULLION	COST	LOSS	YIELD PER TON
Belcher	3,250	$47,741	$62,684	$18,941	$19.28
Con.Cal.Va.	21,340	275,496	292,261	14,765	13.70
Chollar	6,765	84,520	110,470	25,960	16.33
Imperial	1,135	15,041	42,160	27,617	13.25
Challenge	125	1,643	15,718	14,075	13.15
Crown Point	3,787	31,571	55,850	21,079	14.70
Justice	2,399	41,478	48,606	7,128	20.00
Overman	5,159	68,110	74,458	6,348	14.46
Occidental	4,257	78,273	75,956	PROFIT	17.37
Savage	9,622	130,058	142,278	12,220	14.79
Y. Jacket	4,849	64,218	90,102	25,885	18.60

Thus it is apparent that on old Company operation ore of a value which today would be considered "high grade", could not be made to pay. Consider this sitaution, as compared to our mining operations today. Our largest gold properties seldom carry assay values to exceed $10.00 a ton, while millions of dollars in profit is derived annually from Canadian mines with an assay value of little more than half that amount.

In 1928 the Comstock Tunnel and Drainage Co., purchased all the mines owned or controlled by the Merger Company on the Comstock Lode, which includes everything south of Consolidated Virginia (see Longitudinal Map of the Lode) and the Sutro Tunnel Coalition Inc., a wholly owned subsidiary of the Comstock Tunnel and Drainage Company, was formed and began development work under supervision of Mr. James Leonard on the Crown Point Mine in the Gold Hill section and Middle Lode Mines in the Virginia City section of the Lode. The writer has had the privilege of becoming intimately acquainted

with this development since February, 1930 and results obtained.

RECENT CROWN POINT DEVELOPMENT

Reference is here made to three maps which accompany this report. The ore body described is the upper one on the "Longitudinal Section" on the north end of Crown Point, Kentuck and Yellow Jacket. A "Cross Section" of the Lode at Crown Point indicated how the upper ore body has a westerly dip for several hundred feet. The Lode gradually straightening and eventually dipping easterly about 38° to 40° as far down as explored. The "Assay Map" is a plan of the new development which was started in 1928 and brought up to the present.

A cross cut tunnel having a course about N60°W intersects the vein 210' from the portal approximately 145 feet under the railroad grade on the surface. This tunnel continues 40 feet through the ore body which is massive quartz. Assay values throughout the workings are indicated on the Assay Map at places where obtained. An offset was driven 15 feet southerly and a winze sunk on, or near the east wall of the lode on an incline with the dip of the ore body. The ore body has an average dip here of 53° 30' N.W.

At a depth of 50 feet on the incline, being 42 feet in elevation, the second level is driven north following the east wall a distance of approximately 265 feet and south 35 feet. Five cross cuts have been driven westerly into the ore body. No. 3 crosscut showing 50 feet width of ore. From this cross cut a drift north and south is driven 150 feet in length along the west wall of the ore body, and an

exceedingly interesting exposure is here shown. The drift is through old stope fills and the assay results and shipping returns of ore taken out doing this work are equally as good as ore in place elsewhere. I might add the stope fills are the result of old timbers giving away, allowing the ground to crush and squeeze in thus filling the cavity itself with crushed ore left by the early day miners, being too low in grade for them to mine at a profit at that time.

The winze continues down on the same incline, and at approximately 55 feet on the incline or 45 feet elevation below the 2nd level, the 3rd level is driven approximately 200 feet south, and 200 feet north of the winze. Ore shows 100 feet south and all the way north to the face of this drift. On this level No. 3 cross cut driven west shows a width of ore 65 feet across, the last 15 feet being in stope fills. South of the winze the ore body apparently narrows varying from 10 to 20 feet in width.

Below the 3rd level the winze continues down on the same incline and at 60 feet in the dip being at an elevation of 48 feet below the 3rd level a station is cut and drifts north and south started, being 15 feet north and 10 feet south of the winze. Car samples hoisted from the north drift averaged $11.39 a ton.

TONNAGE:

The Crown Point ore body is mostly a massive quartz with sections of calcite in evidence. The specific gravity is taken at 12 cubic feet to a ton. For purposes of estimating tonnage or ore in sight, 300 feet in length exposed is conservative. I am allowing 25 feet above the 1st level

and 25 feet below the 3rd level for height of ore. Width of ore exposed in several places greatly exceeds my allowance, but 30 feet wide is apparently a fair estimate.

300 x 150 x 30 equals 1,350,000 cubic feet, divided by 12 equals 112,500 tons.

As the north face of both 2nd and 3rd levels is still in ore of good value, and the bottom of the winze is likewise in approximately the same value of ore, it is reasonable to suppose an additional 40,000 tons of "Probable Ore" exists.

ORE VALUE

An explanation of ore shipped is here in order. During the course of development work, where the workings are run in the ore body, the rock was shipped. Following is a complete list of shipments giving dates, where shipped, and returns.

SUTRO TUNNEL COALITION INC.

ORE SHIPPED TO SMELTERS

CROWN POINT MINE

MASON VALLEY MINES CO.

Oct. 3, 1928	25.63 tons at $19.98		$512.09
Nov. 23,1928	30.838 " " 22.46		692.61
Dec.18, 1928	26.743 " " 26.05		696.65
Jan.25, 1929	28.974 " " 14.90		431.71
Mar. 15,1929	17 " "		
Mar. 9, 1929	55.729 " " 20.63		1149.68

INTERNATIONAL SMELTING

May 8, 1929	48.943 tons at $27.85	1362.61
Nov. 14,1929	28.437 " " 16.554	301.83
Dec. 2, 1929	47,737 " " 15.601	744.75
Mar. 17,1930	43.602 " " 13.535	585.79
Apr. 4, 1930	47.599 " " 12.936	615.74
May 16,1930	57,163 " " 8.89	508.18

AMERICAN SMELTING

Oct. 7, 1929	43.89 tons at	18.95	827.92

TONOPAH MINING CO.

Nov.24, 1930	55.269 tons at	15.484	855.81

DONOVAN REDUCTION

July 17, 1930	65.5 tons at	7.01	459.18
Aug. 23, 1930	100. " "	9.21	921.00
Dec. 10, 1930	108 " "	7.78	840.24
May 19, 1931	128 " "	7.38	944.64
	48 " "	6.93	332.64
Jan. 6, 1932	100 " "	6.41	614.00
June 22, 1931	Bullion & Tailings from shipment to Trimble Mill		906.58

Here we have 1126.85 tons yielding $14,830.62 being an average of 13.16 a ton. Gold taken at $20.67 an ounce. Silver value equals or is less per ounce than today's quotation.

Mine samples considered amount to 523 assays. Gold taken at $20.67 an ounce, and silver at 40¢ an ounce. Any assay above $100 a ton was not included, there being 10 or 12 rejected from the list. The average struck from the above list is $13.90 a ton. Ratio of gold to silver is .44 ounces gold to 12.03 ounces silver, in value being $9.09 gold and $4.81 silver. Percentage being 65% gold value to 35% silver.

Attention is called to the fact that $13.16 a ton average value of shipped ore, and $13.90 average value of ore sampled in the mine, is a check of 94.6% which is exceedingly close. Ore value is therefore set at an average of the two results above obtained, being $13.53 a ton.

Figuring gold selling at $30.00 an ounce and silver at 40¢ an ounce, this ore has a worth of $18.01 a ton.

GROSS VALUE OF ORE.

Taking a proven tonnage of 112,500 tons at an average value of $13.53 we have 112,500 x $13.53 equals $1,522,125

An additional 40,000 tons of probable ore
40,000 x $13.53 equals 541,200
Value of proven and probable ore $2,063,325

Estimated Costs.

Treat 130 tons per day, 3900 tons per month, 46,800 tons per year.

The writer is General Manager of the Arizona Comstock Corporation, now operating the Savage, Hale and Norcross, Chollar-Potosi Mines at Virginia City, known as the Middle Mines on the Comstock Lode. The properties above referred to are equipped with a modern Flotation Mill and at present mining and milling 130 tons or ore daily.

For the purpose of recording certain information that will no doubt be useful for your future operations at Crown Point the following figures are set up:

MINE LABOR	DAY	MONTH
1 Foreman	$6.67	$200.00
2 Hoist men	5.50	330.00
1 Blacksmith	5.50	165.00
1 Carpenter	5.50	165.00
1 Mechanic	5.50	165.00
40 Miners	4.50	5,400.00
4 Trammers	4.50	540.00
2 Top men	4.00	240.00
	Total	$ 7,205.00

Per ton $1.84

MINE SUPPLIES	DAY	MONTH	COST PER TON
Assay	$5.00	$150.00	$0.036 per ton
Power	30.00	900.00	0.230 " "
Timber	60.00	1,800.00	0.460 " "
Explosives	15.00	450.00	0.115 " "
Miscellaneous	20.00	600.00	0.154 " "
	$130.00	$3,900.00	$0.995 " "

MILL LABOR	DAY	MONTH
1 Supt.	$6.67	$200.00
3 Flotation men	4.50	405.00
1 Crusher man	4.50	135.00
3 Laborers	4.00	360.00
	$19.67	$1,100.00

MILL SUPPLIES		
Power	$37.00	$1,110.00
Reagents	15.00	450.00
Balls and Liners	13.97	419.00
Water	13.00	390.00
Assays	8.00	240.00
	$86.97	$2,609.25

Cost per ton $0.668

TOTAL COST PER TON		
Mining	$ 2.835	
Development	.500	$3.335
Milling	$ 0.950	
Marketing Concentrates	0.310	$1.260
Compensation Insurance	$ 0.129	
Supervision	0.230	$0.359
Gold paid for by smelter @ 19.50 in place of 20.67	0.190	$0.190
Taxes	$0.025	0.081
*Depreciation	0.037	
Int. on Investment	0.019	
Total cost per ton		$5.225

Estimated Profit -- treat 130 tons daily
Estimated recovery -- 90%

Gross value Mill heads -	$13.530
Recovery 90% -	12.177
Costs as above -	5.225
Estimated profit per ton -	6.952

Treat 46,800 tons per annum	$569,883.60
Estimated costs	344,530.00
Profit per annum	$325,353.60
Profit per month	27,112.80

At the above rate the present estimated ore bodies would last 39 months before exhaustion and yield an estimated profit of $1,057,339.00

* $135,050 Equipement amortized in 10 year period

CONCLUSION:

Reference is here made to a map showing the relation of a portion of Crown Point workings to the existing line of the V. & T. Railway, and proposed change of railway line. This change must be effected before the ore bodies described in this report can be extracted. While I have no detailed or specific information as to the cost of this change, I am informed it will be somewhere between $40,000 to $50,000. It is evident however, that this change is well justified and Crown Point in its present stage of development, has an ore body far too important and valuable to let this detail block it from going on production at once.

I furthermore do not wish to close, leaving the impression that a great deal more tonnage of profitable ore may not be developed. On the contrary, the history of Crown Point is such as to lead those familiar with it, into every expectation of a far greater tonnage than is now exposed, both in the present upper horizon, as well as levels known locally as the Sturgis ore body, which is located at the south end of Crown Point and at a lower horizon.

Yours respectfully,

(Signed) Howard W. Squires.

EXPERIENCE RECORD

HOWARD W SQUIRES

MINING ENGINEER

University of California. College of Mining. Class 1900.

Until 1930 engaged by Gail Borden 2nd, Homer Laughlin Bldg., Los Angeles, Calif. in research work and mine examinations.

1903-1907 Gen. Supt. of Sheep ranch Con. Gold Mining Co. operating the Sheepranch mine and 20 stamp mill, Mother Lode Dist. Calaveras County, California. Owned by C. L. Feusier, San Francisco, California.

1907-1911 Gen Mgr. Skidoo Mines Co., operating mines, stamp mill and cyanide plant, Inyo County, California. Owned by E. A. (Bob) Montgomery and Charles M. Schwab.

1912 Consulting Engineer for San Geronimo Mining Company, operating the San Geronimo and El Tajo mines and 100 tons concentrating plant at Poza, Sonora, Mexico. Owned by San Geronimo Company, New York, N.Y.

1913-1914 Operating gold mine and small mill of his own near Port Libertad, Sonoro, Mexico. Revolutionists burned camp.

1915-1916 Consulting Engineering practice with office in what is now the Rowan Bldg., Los Angeles, California.

1918-1919 Gen. Mgr. Rio Plata Mining Company, operating silver mines and 100 ton milling and cyanide plant, Chinipas District, Chihuahua, Mexico. Owned by Rio Plata Mining Co. New York, N.Y.

1920 Engineering firm of Squires and Gemmill formed with offices in the Hellman Bldg., L.A.Ca.if. Consulting Engineering and examinations. In 1922 Squires and Gemmill leased the Virginia Louise mine and 10 miles of broad gauge railroad at Pioche, Nev. shipping from 100 to 150 tons of ore daily to Salt Lake smelters until 1926. In 1924 Squires was appointed General Manager of the Prince Con. Mining Co., the Mendha Mining Company, and the Comet Mines Company, all at Pioche, Nevada and acted in that capacity until shut down in 1926. In 1925 Squires and Gemmill acquired a lease on the Arizona Binghampton Copper property at Mayer, Arizona, and operated the mine and 300 ton flotation mill, until the Rumboldt smelter shut down in 1926.

1927-1928 Consulting Engineering and mine examinations in Arizona, New Mexico, and Mexico. 1928, Consulting Engineer for E. W. Mitchell, 74 Trinity Place, New York, N.Y. operating the Alamos Silver Mining Company property at Quiriego, Sonoro, Mexico.

1929-1930 Consulting Engineer for the Diversified Mines Co., Inc., (E. W. Mitchell) Examinations in the States of Chihuahua, and Sonoro Mexico. Arizona, New Mexico, and Oregon.

1931-1933 Comstock Lode. Arizona Comstock Corporation. Operating the Savage, Hale & Norcross, Chollar-Potosi mines. Built 150 ton flotation mill at present General Manager of company.

day.

There are the accompanying costs of development, marketing, supervision, compensation and insurance, taxes, depreciation, interest on investment and other miscellaneous costs. With all costs considered, general conditions compared and special advantages at the Crown Point property accounted for the following costs are estimated for operation under the contemplated general plan and 100 tons per day capacity.

Mining cost per ton $2.90; milling cost per ton $1.60
Total of all costs per ton $4.50.

With careful management it is believed that these costs can be considerably lowered, even at the stated daily capacity. Costs at the neighboring properties are being lowered as work progresses and improvements are perfected. The Crown Point should benefit by such experience.