Hund.- Sill Coll.

2190 0090

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ITEM 88

March 23, 1942.

Mr. Roy Bayly,

Los Angeles, California.

Estimated value of Lead and Zinc concentrates

based on 100 tons of crude ore per day with lead and zinc at 8¢ per pound.

Product	Tons Recovered	Silver Ounces	Silver Value	Lead %	Lead Value	Zinc %	Zinc Value	Total Value
Lead concentrates	6.81	7.4	$46.34	67.34	$949.22			$995.56
Zinc concentrates	18.86					29.4	$887.17	887.17
					Total value			$1,882.73

Harley Hill
Consulting Engineer

Root Hill Mine
Goodsprings
Nev.
Clark Co.

March 23, 1942

Mr. Roy Bayly
Los Angeles, California.

A S S A Y S

(Root Hill, Hoosier, I X L Mines, Goodsprings, Nevada)

DESCRIPTION	% Lead	% Zinc
Root Hill tunnel level Block 14' x 13'	1.7	10.4
" " " " crosscut 14'	.0	3.8
" " upper 15' of 45' stope	.2	4.3
" " middle 15' " 45' "	1.2	5.3
" " lower 15' " 45' "	1.7	5.7
" " dump sample above tunnel	5.8	13.1
" " " " below "	4.6	12.9
Hoosier broken ore south end upper level	9.8	8.6
" cut sample face south drift	8.8	11.5
" broken ore south drift 200 tons	24.0	8.8
" broken ore N end south drift	8.1	7.0
" broken ore north of winze	4.5	18.7
" broken ore south east end	14.0	22.7
" broken ore southwest end	11.1	17.5
" West exit # 2 level	7.8	9.8
" East end 2500 ton dump	5.4	8.9
" middle section 2500 ton dump	13.1	8.4
" West end 2500 ton dump	4.1	2.9

DESCRIPTION	% Lead	% Zinc
I X L ore collar of shaft	5.8	4.1
" " " bottom 145' winze south side	1.1	1.4
" " " " 145' " north side	11.7	11.9

* Composite sample of Root Hill for silver = 1.30 ounces = $0.92 per ton

" " " Hoosier " " = 2.25 " = 1.61 " "

" " " I X L " " = 0.68 " = 0.48 " "

** Head sample for test work, Silver 2.25 ounces, Lead 10.4%, Zinc 11.6 %

Harley A. Gill
Consulting Engineer

March 23, 1942

Mr. Roy Bayly
Los Angeles, California.

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Harley N. Gill
Consulting Engineer

March 23, 1942.

Mr. Roy Bayly,

Los Angeles, California.

TABLE CONCENTRATION TEST.

(Hoosier Mine, Goodsprings, Nevada.)

Description	Per cent	Silver Ounces	Silver Value	% Lead	% Zinc
Head Sample	100.00	2.25	$1.61	10.4	11.6
Lead Concentrates	6.66	8.14	5.77	75.1	4.0
Zinc "	2.15	5.00	3.55	34.3	24.7
Zinc " (Flotation)	.25	7.37	5.25	43.3	19.6
Zinc Middlings	18.86	.50	.35	2.4	29.4
Table Tailings	72.08	.80	.57	.3	5.5

* Ratio of Concentration = 11.35 tons into 1.

Harley N. Gill
Consulting Engineer

March 23, 1942.

Mr. Roy Bayly,

Los Angeles, California.

Estimated value of Lead and Zinc concentrates

based on 100 tons of crude ore per day with lead and zinc at 8¢ per pound.

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					Total value			$1,882.73

Consulting Engineer

March 23, 1942.

Mr. Roy Bayly,

Los Angeles, California.

To: 2 days field work		$200.00
13 silver and 29 lead and zinc analysis		100.00
Metallurgical testing (4 days)		100.00
	Total	$400.00

Consulting Engineer

April 8, 1942

Mr. Roy Bayly
Los Angeles, California.

My dear Mr. Bayly:

In answer to your request for my further opinion of the Root Hill, Hoosier and I. X. L. properties which I examined hurriedly, the following were my observations.

1) The Root Hill is supposedly a lead property which has been worked superficially. While I did not make a survey of the workings, nevertheless, it is my opinion that they do not reach a depth of 100 feet at the deepest horizon. I took a few key samples underground and from the ore on the dumps. Contrary to the statement that was made to me that the ore is almost entirely lead, my samples indicated that the zinc content was greater than the lead by a considerable degree in all of my seven samples. If you will refer to the assays submitted previously you will note that in the two dump samples from this property, they will show that the zinc content was 13.1 and 12.9% respectively while the lead was but 5.8 and 4.6%. Although my study of this property was hurried and not in any detail, nevertheless, I can not see sufficient commercial tonnage in sight to justify further development during the inception of your mining program, nor the construction of a road to recover the small amount of dump material available.

2) The Hoosier has a considerable amount of development work and an appreciable tonnage of lead-zinc ore showing in the different drifts and stopes. There is a rock dump at the portal of the tunnel which is a mixture of ore and waste. The foreman of the mine estimates between four and five thousand tons in this dump. Again, due to the very limited time I had for observation I was not able to make an accurate estimate but it is my opinion that the estimate given by the mine foreman is too high. A considerable percentage of the dump, in my opinion, is pure waste and should be sorted before delivering this dump to the mill. Perhaps 1500 tons of commercial ore could be sorted from this deposit. It is useless to haul waste to the mill for obvious reasons. While no great tonnage can be considered as blocked in this mine, nevertheless, the ore is continuous throughout the workings, and, in my opinion, the limits of the orebody have not been outlined. The grade of ore, as represented by my samples, is commercial throughout, at present lead and zinc prices, and should yield a substantial margin of profit if handled efficiently.

3) The I. X. L. is a small lead-zinc property whose development consists of a short tunnel and a 145 foot winze sunk on the vein. There is no drifting at the bottom of this winze. Two samples from the bottom showed commercial ore on the north side and very low grade material on the south. There is no tonnage that could be mined from this property without further exploratory work and, in my opinion, its further development should await the satisfactory operation of the mill on ore from the Hoosiern and perhaps Shenandoah. This property was also represented as being lead only with the exception of a small silver content. My samples indicate as much zinc as lead.

4) My very limited time of one day did not permit me to visit the Shenandoah and therefore my opinion of this property is of no value. It is stated that this property has large bodies of commercial ore which can be mined at a low cost.

Trusting that this will clarify my observations to you, which, as I have already explained were not in detail. I am,

Yours very truly,

May 1, 1942.

Mr. Roy Bayly,

Los Angeles, California.

Dear Mr. Bayly:

In accordance with your instructions I have visited your property at Goodsprings, Nevada and herewith submit my findings and recommendations. For greater clarity I am segregating the mine and mill and will give you my conclusions on them in that manner.

MINING

HOOSIER MINE

1) I recommend that preparations be made immediately for mining ore from the main workings of the Hoosier Mine as follows:

a) Installation of a chute in the raise connecting the intermediate level and the upper workings.

b) That as soon as sufficient of the Dump ore has been removed, to lower its level to that of the tunnel at the lowest horizon, that preparations be made for mining ore from this lowest elevation.

c) That water and air connections be installed to the working faces in these ore horizons immediately.

d) Because of the dry and dusty character of the workings all working faces and haulage ways should be sprinkled and kept in a moist condition to prevent dusting. The mining laws are very stringent in the prevention of Silicosos which is a dreaded and prevalent disease unless properly guarded against.

e) I suggest that due to the limited capital available for

putting this property into profitable production that the exploratory work on the outcroppings in the bedding planes on both the north and south side of the canyon, immediately below the Hoosier workings, be suspended temporarily and that the miners used in this development program be placed in the main mine workings to augment the production of new ore for available mill tonnage.

f) I urge that a concentrated mining production program be initiated before all of the dump ore has been depleted in order that this latter small ore reserve may be available in case of machinery break-downs or loss in working time through other causes. This will help to insure, at least in some measure, a steady production of ore to the mill, which is the key to the success or failure of this project.

g) In suggesting the temporary abandonment of exploratory work in the possible ore horizons both north and south of the Hoosier canyon I do not wish to infer that a comprehensive exploratory program will not develop commercial ore. It must be remembered that work of this kind, by its very nature, is a gamble and, in my opinion, should not take precedence over the mining of known ore bodies in the main workings which are of workable size and profitable commercial value.

ROOT HILL

1) It is my understanding that this property is held under a performance contract requiring ninety shifts of labor per month. All of the workings on this property are very shallow and there is no tonnage of consequence opened in the present developed horizon. If it is the decision of the management that the prospective value of this property is sufficient to justify the retention of this mine in a development program, in spite of the fact that all of your available capital is necessary for known ore production, then I would make the following recommendations.

a) That the present short upraise in the main tunnel at the head of the canyon be continued to the surface, an estimated distance of approximately twenty five feet. In this raise a narrow band (a few inches) of an excellent grade of Galena ore has been encountered and is being stock-piled at the entrance to the tunnel. I have estimated the amount of this ore at approximately one and one half tons, which I understand has been developed in approximately seven days of three man shifts. It is evident that in the remaining few feet to the surface that this tonnage cannot be materially increased.

b) After the completion of the raise to the ground level I suggest that this opening be made into a shaft and that further development be confined to deepening this shaft and following the ore down on the bedding plane.

c) I suggest that the proposed road not be built until there is ample evidence to justify its construction as a minor charge against ore production. This short piece of road will be difficult and costly to build and in my opinion there is no justification or need for it at the present time.

<u>I. X. L. MINE</u>

1) I am informed that this mine is held under an ore contract with a payment of two dollars per ton for ore having a lead content of seven and one half percent or more. In addition to the per ton cost your company is to furnish the necessary equipment for mining. While there is no developed ore in the I X L at the present time this, in my opinion, is a reasonable contract and one which does not involve the company in any capital investment other than that already incurred. I believe that this contract should continue in force. The I X L vein is strong and may develop an appreciable tonnage. At least the hazzard of its successful production will be a burden

for the contractor rather than yourself and associates.

SHENANDOAH MINE

1) At the suggestion of the management I spent my available time on other factors pertaining to your property and therefore did not visit this mine. I am informed that ore reserves and mining conditions in the Shenandoah are similar to those in adjacent mines. My recommendations on this property are of no value.

MILLING

1) The mill, although a reconditioned, used unit, is, in my opinion, adaptable to the metallurgy of your ore. Its capacity is unknown since no protracted period of operation has been recorded. However, it is probable that this mill will have a capacity approximating seventy tons per day of twenty four hours. Your ores are essentially base metals (lead and zinc) with a minor value in silver. In the shipment of a lead ore to a smelter the presence of zinc is detrimental and is usually penalized in excess of eight percent as a base charge. If a zinc ore containing lead is shipped to a zinc smelter the loss of the lead content is so great in the retorting of the ore that no payment is made for this base metal. If a combined zinc-lead concentrate or ore is accepted by a smelter the payment for thecontained metals is so low as to make the shipment of such a product of questionable value. I am informed by your management that the smelter at Coffeeville, Kansas, would accept a combined product with a payment of 3.63 cents per pound of combined metallic content. The present price of lead, including the bonus offered by the United States Government in excess of the present quoted smelter price, is nine and one quarter cents per pound while that of zinc similarly is eleven cents. Therefore, in my opinion, the success of your project depends largely on the segregation of

the lead and zinc into saleable products with a minimum contamination of each base metal in the product of the other. In accordance with this proposed procedure I suggest the following:

a) That the gangue consisting mainly of lime and quartz be removed from the circuit as quickly as possible, this will raise the metallic content of the combined base metals before segregation is completed.

b) The material coming from the grinding circuit and the Jig product at present pass to a rougher table. This table instead of serving as a preliminary concentrator is acting merely as a de-slimer or as a segregation of the slime from the coarse material, all of which passes into concentrate bin as a finished product. In other words there is no segregation, concentration or any appreciable elimination of gangue in this step of the metallurgical refinement of your ore. Therefore, I suggest that a separation of the lead from the zinc and the zinc from the attendant gangue be made at this point, otherwise it is my opinion, that you will make a finished combined concentrate so low in metallic value that it will not pay its way. There is some evidence in confirmation of this conclusion from a sample which I took from the finished concentrate already stored as an integral part of an initial shipment. This sample indicated a lead content of but 21.7% and a zinc content of 14.1%. Such a concentrate probably will not pay its way. By a concentration of your coarse material at this stage of your circuit you can produce a lead concentrate which should exceed 65% of metallic content and for which you should be paid 7.75 cents per pound after deductions are made. This is a substantial differential in its favor over the payment which would be received by the shipment of a mixed product to a smelter.

c) The second concentrating table handling the finer products offers the same condition as that pertaining to the coarser product. Here

you are making a mixed lead-zinc concentrate with no attempt at segregation. You will receive a minimum payment on material of this character and I there fore suggest that a clean lead concentrate be made at this stage in the circuit.

d) In the flotation which comes as a final step in the metallurgy of your ore it is difficult to make a clean separation between the remaining lead which occurs both as the sulfide (Galena) and Cerrusite (Lead Carbonate) and hydro-zincite an oxidised form of zinc. A protracted period of conditioning will, I believe, aid in the recovery of the zinc in the flotation circuit provided proper sulfidisation and the addition of other essential reagents are provided.

Yours very truly,

Consulting Engineer.

April 29, 1942.

Mr. Roy Bayly and Mr. William Bayly, Jr.,

Los Angeles, California.

A S S A Y S

Description	% Lead	% Zinc
Concentrates	21.7	14.1

Consulting Engineer

April 30, 1942.

Examination of Mine in Nevada.

Field Work	$250.00
Expenses advanced by H. A. S.	49.88
Analysis of Concentrates	3.50
	$303.38