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Report on the

Silver Hill Group

Wallapai Mining District

Mohave County, Arizona

for

Highland Queen Mines Ltd.

by

John R. Poloni, B.Sc., P. Eng.

May 26, 1981

John R. Poloni & Associates Ltd.
1512B - 56th Street
Delta, B.C.
V4L 2A8

JOHN R. POLONI P. Eng.
Consulting Geologist

TABLE OF CONTENTS

1.0 Summary and Conclusions

The Silver Hill group of patented claims covers approximately 4,500 feet of a strong mineralized shear zone ranging in width from 7 feet to 32 feet.

Small production, of excellent grades, has been achieved, principally from minimal stoping and development work. A shipment of 155 tons was made to Midvale, Utah in the early 1940's, reportedly containing an average of 0.34 Au oz/T., 3.5 Ag oz/T., 4.2% Pb and 4.4% Zm.

Historical data indicates that the mineralized (high grade) shoots may occur at any local in the structure. Past mining, however, was generally restricted to the foot wall side.

Ground conditions tend to be heavy and mining will require timber, locally.

The property warrants further detailed surveys as outlined in this report, estimated to cost $137,500.00 as Phase 1.

2.0 Introduction

The Silver Hill group of claims located near Chloride, Arizona, consist of three patented mining claims and one mill site controlled by Highland Queen Mines Ltd. by Option Agreement.

The property is situated in sections 3, 4, 9, 10, Twp. 23N, Range 18W in the Walapai Mining District of Mohave County, Arizona.

Development work consisting of surface pits and shafts, one adit on the vein, one crosscut cutting the vein at depth, a winze from this crosscut level, and a limited amount of stoping, has explored the structure for a length of over 4,000 feet.

Production of excellent grade material has been small, principally coming from development work, and a stope on the Segar Level.

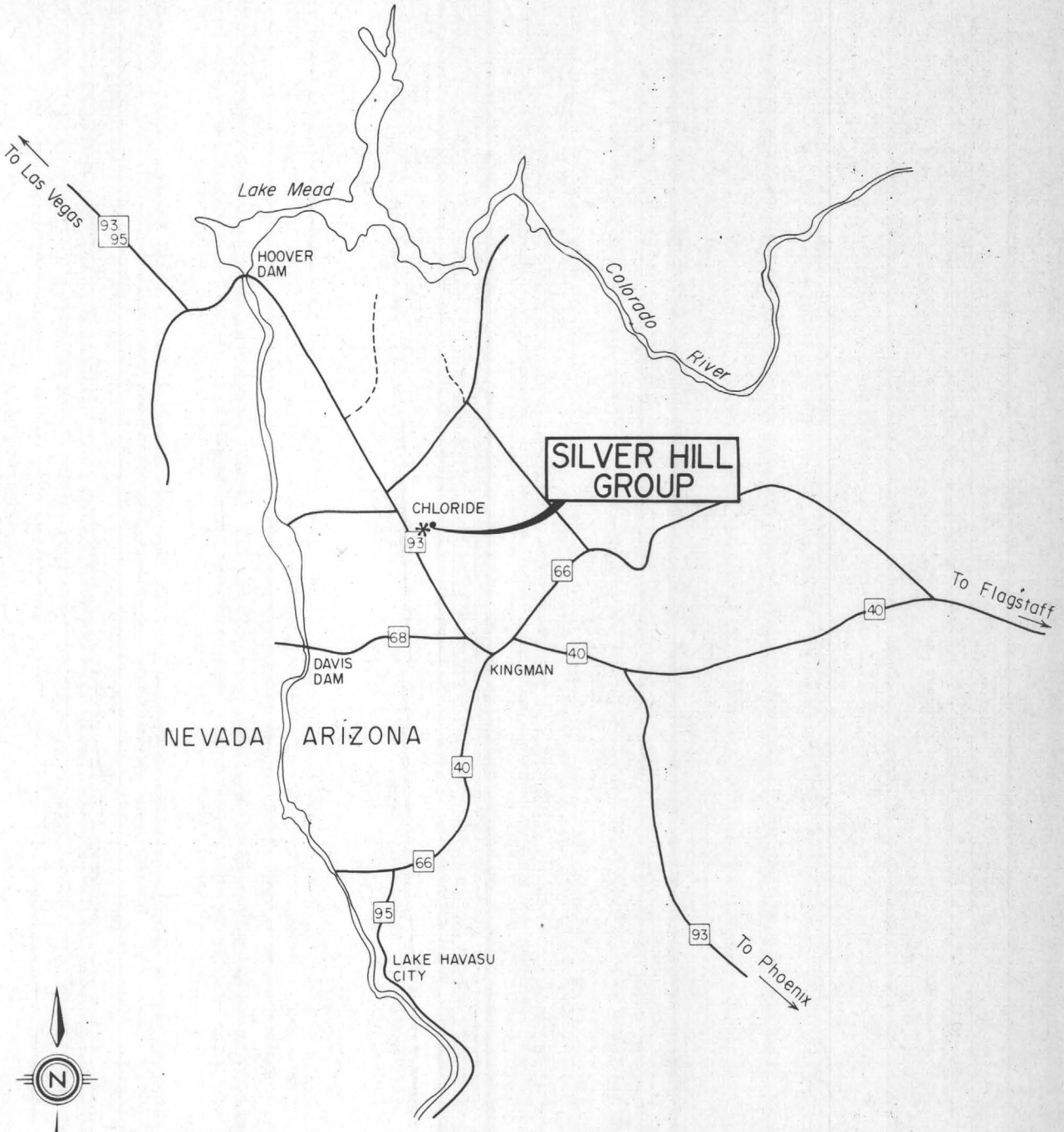
The author visited the property on May 8, 1981, accompanied by Mr. Clive Bailey, Geologist.

This report presents a summary of the historical, development, and production data on the property and is based on private reports and a field examination.

Recommendations are made for further detailed exploratory surveys and rehabilitation of the underground workings.

Location Map

Plan No. 1



HIGHLAND QUEEN MINES LTD.

SILVER HILL GROUP

PROPERTY LOCATION

WALLAPAI MINING DISTRICT

MOHAVE COUNTY, ARIZONA

JOHN R. POLONI & ASSOCIATES LTD.

DRAWN : J.R.P.	CHECKED : J.R.P.	PLAN No.
SCALE : 1" ≈ 234 miles	DATE : MAY 26, 1981	1

3.0 Location and Accessibility

The claims are located near Chloride in Township 23N, Range 18W in sections 3 4, 9, 10, Wallapai Mining District of Mohave County, Arizona. The property is situated on a gentle, elongated north-south knoll, on the westerly slopes of the Cerbat Mountains.

Chloride is located about 25 miles north westerly from Kingman, and four miles east of Highway No. 93.

Access is excellent, as Chloride is serviced by paved highways. The claims are traversed by numerous old roads which will require minimal dozer work.

4.0 Claim Information

The property is controlled by Highland Queen Mines Ltd. under Option to Purchase Agreement dated May 1st, 1981, with Mr. Douglas K. Martin of Phoenix, Arizona. Three patented mining claims and one mill site are included in the Silver Hill Group.

Patent proceedings are dated February 16, 1900, with patent and serial numbers being 32094 and ME368, respectively.

Claims data as stated in Exhibit "A" of the option agreements is as follows:

"Those certain Patented Mining Claims as listed in Mineral Certificate Number 368, recorded 5/1/01 in Book 14, Pages 263 through 268, also shown on the Mineral Survey Number 1273-A

4.0 and 1273-B, situated in Sections 3, 4, 9 and 10; Township 23 North, Range 18 West of the G. & S.R.B. & M., Mohave County, Arizona, known as the "Silver Hill" group, specifically:

Valley View	20.66 acres
Sonoma	20.33 acres
Silver Bell	20.33 acres
Silver Bell Millsite	4.71 acres"

A copy of the survey Plat is included in Appendix D.

5.0 Physical Features

The Silver Hill group is located on a gentle hill, elongated north-south, in the westerly foothills of the Cerbat Mountains. Elevations on the property are approximately 4,000 feet above sea level with local variations of 150 - 250'.

Vegetation is typically south western desert terrain variety, consisting of sparce juniper, infrequent grass, scrub sage brush and cactus. Water for domestic purpose can be obtained at Chloride. It is possible that ample water for operational requirements may be available from underground workings.

Precipitation in the area amounts to 10 - 15 inches annually, occurring mostly during the winter months, December through March. Occasional snowfalls are experienced. Strong winds frequently occur in colder periods. Summer temperatures can be unbearably hot, reaching highs of 115° F., thus restricting surface exploration to morning and early afternoon activities.

5.0 Chloride, having a population of a few hundred, has only limited services, including a bar-restaurant, service station, post office and grocery store. Electricity, however, is present a few hundred feet north of the Silver Hill group.

6.0 History

The property dates back to the early 1860's when the showings were initially explored by surface pits and declines. The claims were brought to patent on February 16, 1900, having Patent No. 32094.

Ownership changed hands frequently.

Much of the initial underground development work was completed around the turn of the Century and possibly prior to bringing the claims to patent.

The best documented period of activity occurred in the early 1940's when development ore from drifting, and winzing below the Segar level, and stope ore were shipped to Midvale, Utah. Total development amounts to:

	Shaft	X-Cut	Drift	Rse	Winze
Segar level & No. 3 Shaft	60'	430'	225'		95'
No. 1 & No. 2 Shaft	240'		350'		
North Adit			50'		

Reference is made to Plans No. 4 - 7 inclusive included in Appendix E.

6.0 The total development amounts to approximately 300 feet of shafts, 430 feet of X-cuts, 625 feet of drifting and 95 feet of winzing.

Assay data from historical information shows excellent widths and grades of gold, silver, lead, and zinc. In a letter, Jim Hutchinson reports compiling data on 130 assays from old documents which showed an average of 0.34 Au oz/T, 2.87 Ag oz/T, 4.12% Pb and 4.91% Zonc.

Hedges, S.M. reportedly shipped 49.6 tons of winze ore which averaged 0.525 Au oz/T, 4.4 Ag oz/T, 8.9% Pb and 6.2% Zinc. This material was mined from the Segar level winze between the level and a depth of 17 feet with shipping ore width averaging 2.0 feet. On the level the ore shoot was about 70 feet long, had an average width of 3.4 feet and an average value of 0.30 Au oz/T, 2.0 Ag oz/T, 4.5% Pb and 6.0% Zn.

Several progress letters signed by J.P. Klein dated between July 30th and November 14th, 1943, describe development progress in the winze. Excellent grades are reported.

William Segar in July 1943 had obtained a governmental development loan of $20,000.00 which was used for mine rehabilitation, water supply, buildings, raising, and winzing. The winze had been driven to 110 feet below the Segar level at an average dip of 47°. Production amounted to 587 tons of ore and 97 tons of waste. A shipment of 155 tons was made to Midvale, Utah, which reportedly had a head assay of 0.34 Au oz/T,

6.0 3.5 Ag oz/T, 4.2% Pb and 4.4% Zn. Sockpiled ore is reported to have amounted to 432 tons with an average grade of 0.25 Au oz/T, 2.0 Ag oz/T, 2.4% Pb, and 4.8% Zn.

Carload shipments reported to Asarco are as follows:

Date	Tons	Au oz/T	Ag oz/T	PB %
3/19/42	41.96	0.78	3.7	5.25
5/21/42	22.98	0.915	5.15	9.45
7/21/42	40.84	0.565	3.4	6.4
9/21/42	27.32	0.572	4.9	8.05
11/23/42	42.67	0.52	4.25	6.9

Plan No. 6, redrafted from old data, indicates that much of the hangwall zone had not been explored. Six jack leg drill holes show excellent grades and widths, Plan No. 6.

As described by Heron, C.M., 1941,

"The Silver Hill vein was one of the very early discoveries of the district. Jacobson's report quotes Schrader's report as follows: 'The Silver Hill mine from 1880 to 1930 produced 700,000 pounds of lead, $5,000 in gold and $10,000 in silver, a total of $50,000.00.' William S. Segar acquired the mine in 1936, and during the ownership most of the work was done on the tunnel level, the adit of which is on the east side of the hill."

7.0 Geology

The geology is well described by Heron, C.M. in 1941 as follows:

"The predominant rock of the district is a pre-Cambrian granite, gneiss and amphibole schist. The earlier rocks have been intruded by a later granite, pegmatite, minette and rhyolite, which are very little altered. The dikes for the most part seem to have been intruded along the schistosity, or on the faults which follow the schistosity.

The Silver Hill vein occurs in a strong persistent fissure or fracture zone which follows the contact between the pre-Cambrian schist and a younger granite. The Silver Hill vein or fault has a strike of N 10 W and an average dip of 47 E.

The crushed rock appears to be chiefly a quartz porphyry or rhyolite, an intrusion along the contact which was thoroughly crushed by movements subsequent to the intrusion. The ore deposition appears to have taken place in open fissures within the fault zone, which at the crosscut, where it is now exposed, is over 50 feet wide horizontally with true width of about 32 feet measured at right angles to the dip of the fault, which is 47. Because this zone is so thoroughly crushed much of the drifting is timbered and lagged tightly, and the character of the material can be seen only through narrow openings in the lagging.

Throughout the fault zone are numerous slips and faults along which is formed a heavy clayey gouge, indicating substantial movements. Many of these faults do not cut the footwall, but seem to result from subsidence in the zone.

The fact that the lenses of ore take all sorts of positions within the crushed zone, some even lying at right angles to the walls, seems to indicate their deposition was subsequent to the

7.0 movement which crushed the intrusion.

Silicification is not general throughout the crushed zone, but the seams of quartz ore are fairly continuous, although varying greatly in width and in position in the zone. When the ore lies on the hanging wall the mining should be simple, but when it is in the center of the zone or toward the footwall it will be difficult to prevent excessive dilution.

A typical section across the vein in the sulphide zone would include two or three distinct seams of well mineralized quartz (heavily impregnated with sulphides) separated by crushed and kaolinized material.

The sulphides found, in order of abundance, pyrite, zinc blend and galena; there is chalco-pyrite in some of the ore but this less general. In the oxidized zone the quartz is honeycombed and heavily stained with iron oxide.

In certain parts of the vein the material is crushed almost to a powder, and contains disseminated pyrite; the powder has the appearance of being kaoline but is actually finely crushed quartz."

8.0 Mineralization

Sulphide mineralization in the form of galena, sphalerite, and pyrite occurs disseminated and massive in the shear zone. Silicification is reported as being fairly continuous but varying in width and position.

Heron, C.M. reported the results of 30 samples taken from the property in an attempt to correlate results obtained by Jacobson and Blackburn. These show values ranging between 0.01 - 1.10 Au oz/T, 0.03 - 7.30 Ag oz/T, 0.21 - 12.00% Pb, and 0.50 - 13.52% Zn. A copy of his report is included in Appendix D.

8.0 Samples taken by the author from surface exposures are as follows:

Location	Width	Description	Assay			
			Au oz/T	Ag oz/T	Pb %	Zn %
Loc. #1	5.0'	#576. Small pit, ochred material, qtzy & gouge, poor exposure.	0.486	1.57	-	-
Loc. #2	10.0'	#577. Pit, as above, both walls exposed.	0.094	0.38	0.68	1.16
Loc. #2	10.0'	#578. Contiguous sample to #577.	0.028	0.69	-	-
Loc. #3	12.0'	#579. Ochred qtzy material and gouge.	-	-	0.41	0.48
Loc. #4	Grab	#580. Mineralized material from dump with Pbs.	0.444	2.80	2.23	10.81

A copy of the assay certificate is included in Appendix D.

9.0 Recommendations

The Silver Hill structure is reported to have produced gold, silver, lead and zinc ore of small volumes but of excellent values, from high grade ore shoots contained in a mineralized shear zone ranging from approximately 5 feet to 32 feet in width.

The following recommendations are made to further explore the property:

9.1 Surface exploration and development openings are to be surveyed.

9.0 9.2 Access roads are to be cleaned out so that all parts of the claims are easily accessible.

9.3 Dozer work is recommended to expose the structure at surface for detail mapping and sampling.

9.4 Surface geological mapping is to be completed.

9.5 Rehabilitation of the north adit and Segar crosscut workings is to be undertaken so that detailed mapping, surveying, and sampling can be completed.

9.6 E - M Surveys may define the best mineralized areas.

9.7 Testing of the structure by diamond drilling and rotary drilling is warranted after preliminary work and rehabilitation.

Appendix A

Estimated Cost of the Recommended Surveys

Cost Estimate

Phase 1

1.0	Camp and living costs - field crew and geologist		$4,000.00
2.0	Transportation, airfares, truck and expenses		5,000.00
3.0	Surface Surveying, shafts, pits, adits		3,000.00
4.0	Access Roads, cleanout and construction		2,500.00
5.0	Dozer stripping of the mineralized zone		2,500.00
6.0	Surface geological mapping		1,500.00
7.0	Rehabilitation of Segar X-cut and north adit - as conditions are presently unknown - allow		30,000.00
8.0	Surveying - Segar workings		1,500.00
9.0	Sampling underground, including assays		2,500.00
10.0	Mapping underground workings		2,500.00
11.0	E-M Surveys to test for mineralized zones in the structure		2,500.00
12.0	Preliminary diamond drilling and rotary reverse circulation drilling based on the results of above		
	Rotary Drilling	2,000 feet @ $10.00	20,000.00
	Diamond Drilling	2,000 feet @ $25.00	50,000.00
13.0	Consulting		5,000.00
14.0	Contingencies		15,000.00
	Total Phase 1		$147,500.00

Cost Estimate

Phase 2

Phase two surveys will include additional rotary and diamond drilling depending on the results of Phase one surveys.

Respectfully submitted,

John R. Poloni, B.Sc., P. Eng.

Appendix B

References

References

1.0 Heron, Charles M., 1941, Report on the Silver Hill Mine, Chloride Mining District, Mohave County, Arizona.

2.0 Several letters, copies of assay data, old underground plans as supplied by Highland Queen Mines Ltd. obtained from the archives of Mohave County, Arizona.

3.0 Poloni, J.R., 1981, Report on the I.X.L. Property, Wallapai Mining District, Mohave County, Arizona.

Appendix C

Certificate

Certificate

I, John R. Poloni, of 5502 - 8B Avenue, in the Municipality of Delta, in the Province of British Columbia,

DO HEREBY CERTIFY THAT:

1. I am a Consulting Geologist.
2. I am a graduate of McGill University of Montreal, Quebec, where I obtained a B.Sc. degree in Geology in 1964.
3. I am a registered Professional Engineer in the Geological Section of the Association of Professional Engineers of the Province of British Columbia.
4. I have practiced my profession since 1964.
5. I am a Fellow of the Geological Association of Canada and a member of the Canadian Institute of Mining and Metallurgy.
6. I have personally visited the Silver Hill Group on May 8, 1981.
7. I have no interest in the properties or securities of Highland Queen Mines Ltd., nor do I expect to receive or acquire any.

Dated this 26th day of May, 1981.

John R. Poloni, B.Sc., P. Eng.

Appendix D

Substantiating Data

1.0 Report by Heron, Charles M., 1941.

2.0 Letters, assay data from archives.

3.0 Copy of Mineral Survey Plat.

4.0 Current assay certificate.

Appendix E

Maps

Plan	Description	Scale
Plan No. 2	Regional Geology	1" = 6 mls.
Plan No. 3	Claim Map	1" = 500 feet
Plan No. 4	Segar Adit - Level Plan	1" = 30'
Plan No. 5	Section A - A'	1" = 30'
Plan No. 6	Section B - B'	1" = 30'
Plan No. 7	Longitudinal Section	1" = 60'

REPORT ON THE

SILVER HILL MINE

CHLORIDE MINING DISTRICT

MOHAVE COUNTY, ARIZONA

Examined October 10th. to 13th. 1941

By Charles M. Heron, E.M.

REPORT ON THE

SILVER HILL MINE

CHLORIDE MINING DISTRICT

MOAVE COUNTY, ARIZONA

GENERAL:

The older workings of the Silver Hill Mine are caved and inaccessible, except the #3 shaft, which is connected with the recent work done by W.S.Segar. The extensive sampling of these older workings by R.C.Jacobson in 1936 has been checked to a certain extent more recently by WM.H.Blackburn, and seems to be fairly accurate. R.D.Leisk, who examined the property in 1934 for the United Verde Extension Mining Co.,obtained an average of .37 oz. gold, 2.1 ozs. silver and 1.56% lead, but made no mention of zinc. His samples were taken from the 100 foot level, along which Jacobson obtained an average of .17 oz. gold .

One point which has not been made perfectly clear in the data submitted is the structure of the vein, - its lack of continuity, and the difficulty in mining the ore without excessive dilution. In the 220 feet of developed length shown on the map accompanying this report the ore is found,(a) on the footwall of the 30 foot crushed zone toward the north face,(b)half way between the foot and hanging walls at the centre, and (c)on both the hanging wall and footwall, as seen at the south end of the drift.

The distribution of gold for the full length of the outcrop as shown in the shafts and test pits, is so general that one wonders why the mine has not been more fully developed. Whether the wide crushed zone exists throughout the entire length of the claims has not been brought out;however in the open pit at #2 shaft this wide crushed zone is clearly shown; also the map of the 100 foot level by Jacobson shows the drift meandering back and forth, which perhaps indicates a similar condition. The fact that the old workings are now inaccessible is probably accounted for to a great extent by the width of the crushed zone.

LOCATION AND PROPERTY:

The Silver Hill property consists of 4 patented claims, including a 500-foot square millsite, and 3 full-sized lode claims as follows:

Valley View	Silver Bell
Sonoma	Silver Bell Millsite

The claims cover a length of 4500 feet, and for the full length of the three claims the outcrop can be traced intermittently by testpits and outcroppings.

The property is on the west edge of the town of Chloride, Mohave County, Arizona.

TOPOGRAPHY:

The outcrop of the Silver Hill vein forms the crest of the hill rising to a hight of about 150 feet above the valley floor which surrounds the hill has a rolling soil covered surface, with a sparse growth of low vegetation. The outcrop is indicated more by oxide stain and scattered quartz than by any continuous projecting rock. The hill is evidently an erosional feature of topography rather than a fault scarp.

Water for domestic purposes is obtained from a 40-foot well, on the Sonoma claim, from which it is pumped by a windmill.

For a mill water could probably be developed and pumped from the valley floor, within a short distance. The mine would undoubtedly encounter a considerable amount of water within a hundred feet from the tunnel level, the amount increasing with depth.

HISTORY:

The ore occurances of the Chloride district were discovered in the early sixties. The town was established in the seventies, and some mining has been carried on almost continuously since that time. While there have been two or three fairly successful operations, such as the Tennessee, the Schuylkill and the Golconda, there have been many more short unsuccessful attempts to operate, and many stock promotions.

The Silver Hill vein was one of the very early discoveries of the district. Jacobson's report quotes Schrader's report as follows: "The Silver Hill mine from 1880 to 1930 produced 700,000 pounds of lead, $5,000 in gold and $10,000 in silver, a total of $50,000.00."

Wm. S. Segar acquired the mine in 1936, and during the ownership most of the work was done on the tunnel level the adit of which is on the east side of the hill. This recent work has been connected with the old #3 shaft. Within the past few months Shaft #1, which is well timbered, caved at a depth of about 40 feet.

In 1940 Mr. Segar leased the Ruth Mill, and made a test run of 300 tons of ore from the Silver Hill; the ore was partially oxidized but the results shed some light on the metallurgical problems.

GEOLOGY:

The predominant rock of the district is a pre-Cambrian granite, gneiss and amphibole schist. The earlier rocks have been intruded by a later granite, pegmatite, minette and rhyolite, which are very little altered. The dikes for the most part seem to have been intruded along the schistosity, or on the faults which follow the schistosity.

The Silver Hill vein occurs in a strong persistent fissure or fracture zone which follows the contact between the pre-Cambrian schist and a younger granite. The Silver Hill vein or fault has a strike of N 10 W and an average dip of 47 E.

The crushed rock appears to be chiefly a quartz porphyry or rhyolite intrusion along the contact which was thoroughly crushed by movements subsequent to the intrusion. The ore deposition appears To have taken place in open fissures within the fault zone, which at the crosscut, where it is now exposed, is over 50 feet wide horizontally and true width of about 32 feet measured at right angles to the dip the fault, which is 47 . Because this zone is so thoroughly crushed much of the drifting is timbered and lagged tightly, and the character of the material can be seen only through narrow openings in the lagging.

Throughout the fault zone are numerous slips and faults along which is formed a heavy clayey gouge, indicating substantial movements. Many of these faults do not cut the footwall, but seem to result from subsidence in the zone.

The fact that the lenses of ore take all sorts of positions within the crushed zone, - some even lying at right angles to the walls,- seems to indicate there deposition was subsequent to the movement which crushed the intrusion.

Silicification is not general throughout the crushed zone, but the seams of quartz ore are fairly continuous, although varying greatly in width and in position in the zone. When the ore lies on the hanging wall the mining should be simple, but when it is in the center of the zone or toward the footwall it will be difficult to prevent excessive dilution.

A typical section across the vein in the sulphide zone would include two or three distinct seams of well mineralized quartz (heavily impregnated with sulphides) separated by crushed and kaolinized material.

The sulphides found, in order of abundance, pyrite, zinc blend and galena; there is chalco-pyrite in some of the ore but this less general.In the oxidized zone the quartz is honeycombed and heavily stained with iron oxide.

In certain parts of the vein the material is crushed almost to a powder,and contains disseminated pyrite; the powder has the appearance of being kaoline but is actually finely crushed quartz.

The lens of sulphide ore which is exposed from the south end of the stope to the point where sample #22 was taken, 70 feet in length, is cut off to the north by the diagonally striking fault along which samples #18,19,20,21,22,28,29 and 30 were taken. Beyond this fault to the north the ore is entirely oxidized.

There seems to be a fairly uniform relation between the lead and the silver; the gold seems to have been depositied with the quartz and the pyrite,- but occurs in no uniform ratio to either thelead or the zinc. Generally speaking, where there is not considerable amount of orequartz the ore is low in each of the four metals.

The character of the sulphides,- galena, sphalerite and pyrite,- even where they occur in massive form, is not complex but such that they could easily be separated by flotation. Whether the association of metals is such that three distinct flotation products could be made to advantage is a question to be answered by careful metallurgical tests. The assays seem to indicate that such a selective process would be justified.

DEVELOPMENT

The recent development work done by Wm. S. Segar comprises:

Crosscut adit to hanging wall	335 feet
Drifting	262 "
Crosscutting in crushed zone	105 "
Connection with old #3 shaft	40 "
	742 Feet

Because of the extent of timbering which had been necessary certain parts of this development work could not be examined or sampled, but where the vein was exposed it was sampled with a certain degree of regularity; the assays and geology were plotted on the enclosed map.

The data submitted by Mr. Segar includes a report and maps by R.C.Jacobson, mining engineer of Kingman, dated August 1936; from these maps the following measurements were taken:

At the north end, on the Valley View claim:

Shaft #1	150 feet	(caved about 45 ft from collar)
Shaft #2	100 "	(caved)
Shaft #3	60 "	(open and connected with the recent work)
Drifting on 40 foot level	110feet	
Drifting on [illegible] foot level	25 "	
Drifting on the 100 ft "	230 "	

At the south end, on the Sonoma claim:

Adit	640 feet
Shaft #4	140 "
Shaft #5	140 "
Intermediate level	60 "
Numerous open pits	

Between the work on the Sonoma and that of the Valley View there is an offset, apparently a fault, although the work has not been continuous enough to show whether it is the same vein displaced by a fault or two parallel veins.

The collar of #1 shaft is 4 feet lower than the collar of #3 shaft. The drift is at 100 feet of depth at the #1 shaft, while the new north drift in recent work is 62 feet below the collar of #3 shaft. Taking into consideration the grade of the drifting, the north face of the new work is roughly 40 feet higher than the south face of the old level.

Judging from the dumps, most of the ore encountered in the older workings was oxidized.

In the Jacobson report, while the presence of galena and zinc blend is mentioned, their commercial importance is not stressed; in fact in the three-page list of samples, the lead and zinc content is not shown in any of the assays.

EQUIPMENT:

The equipment on the property at the mine includes:

12' X 14' blacksmith shop, with forge, anvil and hand tools.
12' X 24' compressor house.
Chicago Pneumatic 210 cubic foot compressor driven by
Allis Chalmers 40 HP motor
4' X 8' air receiver
Water tank 4' X 6'
30 feet 4-inch pipe
400 " 2- " airline
460 " 1½-" "
600 " 3/4 " pipe
100 gallon pressure tank
550 feet track @ 10 pound rails
2 - 16 cubic foot mine cars
4-room house (needing some repairing) for foreman
Windmill and storage tank

Inasmuch as the mine is in the town of Chloride no provision would have to be made for living quarters for the workmen.

SAMPLING:

30 samples were taken on the Silver Hill property. This was not a complete sampling, even of the old workings, but was sufficient to correlate the results with the sampling done in the old workings by Jacobson and the late M.H.Blackburn. The samples taken in this examination of oxidized materialwere assayed for gold, silver, lead and zinc.

The following list of assays shows the total value in addition to the gold, silver, lead and zinc:

Number	Width in Feet	Oz.Gold	Ozs. Silver	%Lead	% Zinc	Total Value
1	4½	.08	.45	1.04	2.17	7.46
2	5½	.04	.21	.21	1.61	4.12
3	2	.01	.05			.39
4	4	.10	.80	1.46	3.84	11.28
5	4	.03	.22	.63	2.53	5.60
6	4	.04	.21			1.56
7	4	.05	.55	1.25	6.36	12.84
8	3½	1.10	7.30	12.00	5.66	66.00
9	6	.55	.65			19.71
10	3½	.17	118	.21	1.67	8.73
11	3½	.08	.32	.63	1.62	6.10
12	2	.06	.19	.31	.50	3.31
13	2½	.03	.27			1.24
14	3	.07	.33			2.68
15	2½	.02	.05			.74
16	3½	.02	.03			.72
17	3	.14	2.46	4.18	3.94	17.13
18	4½	.23	3.15	7.52	6.06	27.65
19	4	.39	1.31	5.74	3.28	25.88
20	1½	.32	5.38	9.40	8.33	37.71

Number	Width in Feet	Oz. Gold	Ozs. Silver	% Lead	% Zinc	Total Value
1		.07	.73	1.04	2.12	$7.23
2		1.08	1.68	2.40	13.52	61.33
3	3½	.25	.50			9
4	2	.06	1.84			
5	2	.58	2.			22.4
6		.13				4.74
27		.10		.31	.76	5.09
28	4	.39		2.30	3.33	21.94
29	3	.26	4	4.59	4.95	22.90
30	3	.18	2	3.86	3.38	16.25
31	3	.16	9			6.16

Gold at $35 per oz/
Silver at 71 cts per oz.
[illegible] at [illegible] per pound
[illegible] at 7.[illegible] cts per pound

MAPS:

Included in the report are two maps:

Plan and section with geology and assays of the new work, (based on Brunton survey by Aaron)

Photostat of [illegible] to which had been added assays of samples by Blackburn.

ORE RESERVES:

There is some basis for assuming a definite tonnage per foot of depth along a given length of drift which has been adequately sampled; considering the lack of systematic sampling, or of development work itself, beyond the 100 foot level of the #2 shaft, it would seem that an assumption of a specific tonnage is not warranted.

On the north drift of the new work the 70 foot lens of sulphide ore averages 3.4 feet in width, with an average assay of $25.13, and represents 20 tons per foot of depth.

Beyond the sulphide lens for 40 feet to the north face of the workings the ore is oxidized, and the values include no lead and zinc. The average assay for the 40 feet for 2.5 feet of width is $9.56. If this 40 feet still contained the sulphides which have been oxidized, the entire 110 feet would very rpobably constitute a lens of commercial ore. In other words, when the work reaches the permanent sulphide zone, as it should do within 100 feet, the continuity of the ore should be considerably greater than it is in the oxide zone.

METALLURGY:

As mentioned above, a mill test was made for MR. Segar in 1940, on 300 tons of the Silver Hill ore. The Ruth Reduction mill was leased, and the test was conducted by Wm.A.Crowfoot. The test was made on a mixed oxidized and sulphide ore, which averaged $12.08 per ton in gold and silver. An extraction of 88% of the gold and 84% of the silver was obtained under difficult and unfavorable conditions.

Heads assayed $12.08 (.296 oz. gold, 2.24 ozs. silver)
Tails 1.54
Concentrates 40.17 plus 12.60% Pb; 5.30% Zn

(gold at $35 and silver at 71 cts per oz.)

MINING METHODS AND COSTS:

Judging from what can be seen, the ore may be found anywhere in a 30 foot crushed zone. Where the ore lies on the hanging wall the dilution in mining will be [illegible] less timbering will be required. From any other part of the zone it will be necessary to mine the ore selectively - by some sort of cut and fill system of mining, with the fill kept well up toward the back of the stope. The mining costs will be high, but if frequent bodies of ore are encountered - 70 to 100 foot lengths of continuous ore - , as seems possible from what can be seen, the cost should not be prohibitive.

If the development [illegible] below should prove productive there should be sufficient stoping ground to furnish between 75 and 100 tons per day.

On this basis the operating costs would probably be about as follows:

Mining costs (including development)	$5.50 per ton
Milling costs	1.50
	$7.00 "

This figure does not include taxes, insurance, overhead or metallurgical loss; nor does it take into account the scarcity of labor or any rise in wages.

PROPOSED DEVELOPMENT:

For the most immediate results a 100 foot inclined shaft should be sunk from the Segar tunnel level on the crushed zone, following the hanging wall. At a 100 foot depth a station and pocket should be cut, and drifts run both north and south with crosscuts at 50 foot intervals.

There is no reason to believe that the structural characteristics of the vein should change within a few hundred feet of depth, except that it is to be hoped that the sulphide content will be fairly uniform and widely distributed, as the gold seems to be in the oxidized zone.

CONCLUSIONS:

From the sampling done in connection with this examination there seems to be every reason to assume that the average of the Jacobson and Blackburn sampling is reasonably correct for the part of the mine that is now accessible.

Granting this assumption, there appears to be a length indicated by the Segar north drift and the olf 100 foot level of at least 200 feet of ore of minable width (at least 3 feet wide) which averages .30 oz. gold and 1.75 ozs. silver in the Segar drift and .19 oz. gold and 3.22 ozs. silver in the old 100 foot level; or an average of .20 oz. gold and 2.49 ozs. silver, or about $9.27 in gold and silver.

ing f om the 70 feet of sulphide ore in the Segar drift, e lead content where the zone is unoxidized will be 4.62% ad and 6.01% zinc, or $13.98 per ton (lead at 5.7 cts and zinc at 25 cts per pound).

In other words the zinc and lead contents, which has been riously considered in previous examinations, is of considerably more lue than the gold and silver.

Within a hundred [illegible] er level should be reached and the zone of oxidation bottomed. [illegible] o apparent reason why the ore occurance should not extend [illegible] the sulphide zone.

RECOMMENDATION:

The program suggested above [illegible] warranted by the probabiltiy of developing a substantial [illegible] and it is therefore recommended that this development work [illegible].

Respectfully submitted,

(signed) Charles M. Heron

Examined October 10 to 15, 19[illegible]

ASSAY RECORD — MINE RUN SAMPLES FROM DEVELOPMENT WORK — SILVER HILL MINE

Samples taken from ore used in mill-run test made in June 1940; ore taken from the new Segar north drift level; work done since that time in driving drifts and upraise to complete #3 shaft connection show higher values.

Date 1940	Number	Description	Gold	Silver	Lead	Zinc
4-22	57	1st 10 cars -south drift	.52	1.38		
4-24	60	24 cars -face south drift,upraise	.38	1.86		
5-1	63	18 cars - face " " "	.19	1.81		
5-3	65	24 cars " " " "	.27	1.81		
5-4	65	(recheck by Jacobson)	.58	2.98		
5-4	66	" of 57, 60, 63	.145	2.38		
5-6	68	9 cars north drift CC	.14	2.36	3.8%	
5-6	69	14 " south " & upraise	.66	4.94	2.7	
5-6	69	Recheck by Jacobson	.49	7.43	4.7	
5-8	71	10 cars north drift CC	.18	1.22	3.6	
5-13	--	Check by Nelson " "	.24	1.76		
5-8	71	Recheck	.645	2.22	3.2	

Note: From #63 to 71 totalling 75 mine cars, our first carload of ore to AS&RCo,El Paso, averaged .315 Au, 2.5 Ag; shipped May 10; AS&RCo averaged .325 Au & 2.6 Ag.

5-10	72	6 cars south drift	.375	6.87	3.6%	
5-13	73	14 cars " & N " s	.335	3.37		
5-16	76	10 cars 1st round N drift	.40	3.60	6.7	
5-21	77	11 cars south & 30 cars N CC	.295	2.03	2.4	3.2

Note: From #72 to 7% , 78 cars - our second carload shipment to AS&RCo at Hayden, Ariz., averaged .315 Au & 2.9 Ag; shipped May 24th; AS&RCo paid for .275 Au & 1.7 Ag

5-25	78	14 cars north drift	.30	1.50		
5-26	80	11 " " "	.37	1.87		
5-27	81	11 " " "	.262	2.14		
5-29	83	41 " " "	.345	3.33	5.2	
6-3	84	60 " " "	.365	2.66		
6-5	86	36 " " "	.38	2.34		
6-8	88	60 " " "	.295	2.71		
6-10	89	54 " " "	.365	2.28		

Note: Assay averages remain close to an average of .33 Au, 2.5 Ag, and 2.5% to 3% lead, the same average obtained from the sampling done in the 200 feet of the 100 foot level drift north from #1 shaft .

REPRESENTATIVE SAMPLES TAKEN SINCE JANUARY 1941 :

Number	Description	Ounces Gold	Silver	Lead	Zinc
A25	Ist contact new ore -south drift	.19	16.53		
B9	6' upper outside edge,new ore 22' above drift level	.355	1.41		
B10	7' Breast, across vein, drift	.485	2.34		
B11	From fault next to ore, "	.215	1.59		
B13	4' lower half, face in drift, under ore body	.24	6.40		
B14	4' upper half, ditto above	.21	2.00		
B15	Grab sample, from breast of drift around B13,B14,A25	.40	4.60		
B16	Breast sample 7' wide	.70	6.10		
B17	32 cars - after blasting breast shown in B16	.44	2.84		
B18	4' upper part of stope	.23	1.40		
B19	5' lower " " "	.64	6.20		
B20	18 cars - all taken on break of B18, B19 - broke thru to main tunnel, taking much fault mat.	.39	4.60		
#14	In north drift, driving to connect with #1 shaft	.23	4.80	9.02%	4.46%
15	ditto	.91	3.60	6.16	10.60
16	"	.04	.20		
17	"	.23	.90		
18	"	.58	3.40	4.12	8.03
19	"	.32	5.40	4.95	
20	"	.61	.70		
21	"	.56	6.50	3.47	11.60
23	"	.97	1.90		
24	"	.47	1.80		
25	" - 4' oxides ,top of drift	.67	1.60		
26	" - 4' " next to top	.56	1.60		

- -

CARLOAD SHIPMENTS TO AS&RCO:

3-19-42	41.96 tons	.78 Au, 3.7 Ag, 5.25% Pb	Value-$30.39	per ton
5-21-42	22.98 "	.915 Au,5.15 Ag, 9.45% Pb	39.45	"
7-21-42	40.84 "	.565 Au,3.4 Ag, 6.4% Pb	24.24	"
9-21-42	27.32 "	.572 Au,4.9 Ag, 8.05% Pb	26.98	"
11-23-42	42.67 "	.52 Au, 4.25 Ag, 6.9% Pb	23.82	"

Note: until recently it was necessary to cob out the zinc because the Smelter fined us for anything in excess of 8%; now we have a contract with USS&RCo to pay for the zinc as well, and are just sending them a carload od ore containing zinc as well as the gold,silverand lead.

SILVER HILL MINE

Assume sulphide ore to be , without dilution,
.30 oz. gold, 1.75 ozs. silver, 4.6% lead and 6% zinc.

100 tons of crude ore will have:-

30 ozs. gold	175 ozs. silver	9,200 lbs Pb.	12,000 lbs Zn.
at $35	70 cts	6½ cts	8¼ cts.
$990.00	$122.50	$598.00	$990.00

Gross value contents : $2,700.50

Assume 20 tons pyrite conc., 8 tons Pb. conc, 10 tons Zn. conc., and 62 tons tailings:

	ASSUME	AMOUNT IN PRODUCT	PER TON PRODUCT	KINGMAN VALUE PRODUCT PER TON F.O.B.	VALUE PRODUCT 100 TONS CRUDE
Pyrite	80% of Au	24 ozs.	1.2	$35	$700
20 tons	50% of Ag	87.5 ozs	4.4		
	5% of Pb	460 lbs	1.1		
	5% of Zn	600 lbs	1.5		
Galena	80% of Pb	7360 lbs	46%	$52	$416
8 tons	20% of Ag	35 ozs.	4.375 ozs.		
	5% of Zn	600 lbs	3.75%		
	6% of Au	1.8 ozs	0.225 ozs.		
Blend	80% of Zn	9600 lbs	43%		
10 tons	5% of Pb	460 lbs	2.3%	$34	$340
	15% pf Ag	26.25 ozs	2.625 ozs		
	6% of Au	1.8 ozs	0.018 ozs.		
Tailings	8% of Au	2.4 ozs	0.039 oz		
62 tons	15% of Ag	26.25 ozs	0.42 ozs		Nil
	10% of Pb	920 lbs	0.07%		
	10% of Zn	1200 lbs	0.10%		
					$1,456.00

$14.56 net smelter returns per ton crude on 100 tons F.O.B. cars Kingman

Mining (and development)	$5.50
Milling	1.50
Ins. etc	.40
Gen'l	1.00
	$8.40 before taxes

Chloride, Arizona,
July 30th, 43.

Dear Chubby:

I am enclosing a letter written to Mr. Gohring and will send a copy of this to Mr. Davis. Both of which will save some time.

Gohrings letter will tell you that we are about ready to go here and I am hoping that the pump gets here to-day so we will not have that hanging over us. Also hope that fellow gets here with timber any day but saturday.

The last round in the raise showed up a full face of low grade oxidised ore, about 7ft wide. The following are assays I had made at the Tenne.

Grab of fines from last round--About 75% was fine material;

Au.18 hundreds; Ag 3.43 ozs; Pb 4%.

Grab of fines now in ore-bin. Taken from bunch in shaft , 5ft below tunnel level ;

Au. $.34 ; Ag. 4.05; Pb. 3.1 %; Zn. 4.9%

Same--Coarse Ore
Au. 0.16; Ag. 3.48; Pb. 3.4%; Zn. 6.1%.

We are having a good deal of trouble with the soft ground plugging the drills. I hope that Liggett will soon get us some of the other bits.

The weather has been plenty hot, as when you where here . Have had some rain.

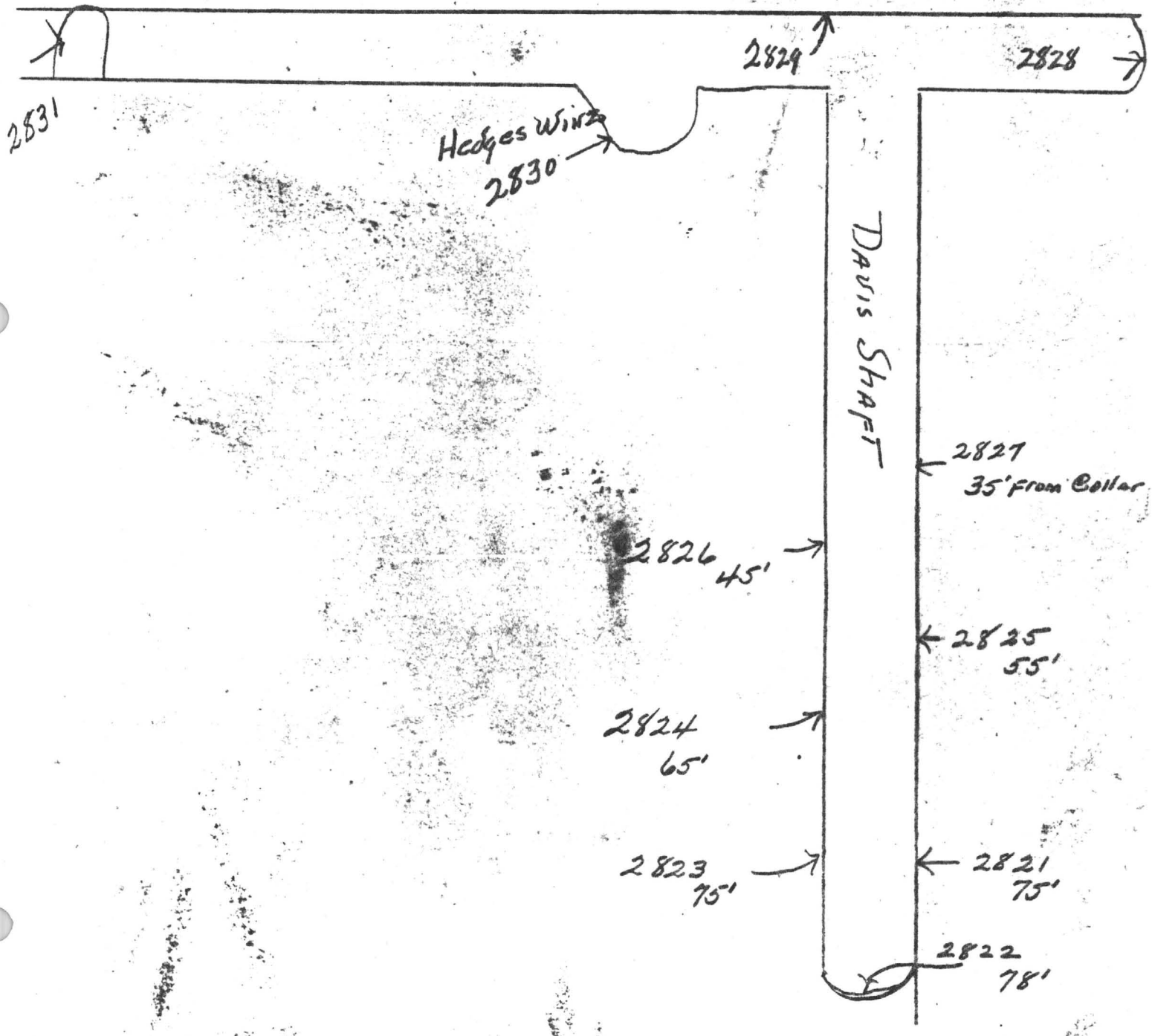
Lane was here yesterday. He certainly has plenty of hopes for this mine. He remarked that he did not feel there was a definate ore-body now in sight; but says it was--outside the Tenn. vein, the strongest in the district. And having values scattered all through it, he felt that some place a real ore-body must exist in it. He feels that where we are working is a good a place as any to look for this ore-body. He also said he was pleased with the work so far done.

Very Truly Yours,

J. P. K.

[illegible] by Bur[illegible] of Mines
July 194[illegible]

No.	Width	Pb	Zn	Cu	Au	Ag
282I	6.0 ft	2.3	3.6	.03	.I85	I.2
2822	4.5	2.6	3.8	.03	.I25	2.95
2823	5.5	0.4	0.I	--	.045	0.05
2824	5.2	4.3	5.4	.09	.26	2.I5
2825	5.3	6.9	6.5	.02	.255	2.85
2826	6.0	I.4	3.7	.03	.73	I.I0
2827	5.2	2.6	6.7	.20	.935	2.35
2828	4.0	0.3	0.I	.03	.005	0.40
2829	2.3	0.2	0.I	.02	.005	0.50
2830	5.2	7.I	3.2	.47	.36	3.95
283I	2.8	0.2	2.6	.02	.09	0.60



Mayer, Ariz?
April 8, 1943.

Dear Mr. Davis;

Joe and I have just returned from Silver Hill. We found no nigger in the wood pile and still think it an unusually good prospect, but a mill is not in the picture at this stage. The Tennesse Supt told me they were planning on increasing their mill capacity and treating custom ores.

S.M. Hedges had received the assay results of his last shipment of 49.6 tons, all of which came from the winze he was working when we first visited the mine last month. This 49.6 tons assayed as follows; 0.525 au: 4.4 ag: 8.9% Lead; 6.2% Zinc. Hedges says that he formely shipped about nine tons of ore from this same winze so it has produced about 59 tons of ore all together. This checks reasonably well with the present volume of the hole, allowing for some 5 tons of waste sorted out of the ore. The average width of this shipping ore was about 2.0 ft and of course represents the best portion of the ore exposed along the drift. This winze is now 17 feet deep, the bottom shows 1.5 to 2.0 ft of ore, of comparable grade to that shipped, along a length of about 12 ft. The lense of ore upon which this winze was sunk has an exposed length along the Segar drift of about 70 feet, with an average width of 3.4 ft and an average value of 0.30 au: 2.0 ag: 4.5 % Lead and 6.0% Zinc. This lens then, should it prove presistant down the dip, would produce about 20 tons of ore per foot of depth. This is really all the ore that there is in sight in the mine, with the exception of a few small scattered bunches in the oxidized zone.

Judging from the sampling of Jacobson and Leisk on the old 100 ft level, I would consider the prospect good for finding additional lenses of ore for 150 feet north of the north end of the present ore body. The grade is uncertain as Jacobson averaged 0.18 au and 2.1 ag with no lead or zinc given. Leisk average, at irregular intervals with no widths given, was 0.33 Au; 2.1 Ag: 1.4% Lead, no zinc given. Jacobsons average width of sample was 5.0 ft. It may be that Leisk sampled the narrower higher grade portions of the vein, yet the low lead content (1.4) would certainly not indicate that he had confined his samples to the streaks of better ore.

I think that the possibilities of fiding commerical ore bodies below water level are excellent and the search for same fully justified, but the mill should be held in abeyance until the results of some development work are known.

Yours Truly.

au - 10.50
ag - 1.42
PB - 8.31
ZN - 13.20

au 7.78
ag 1.05
PB 1.62
ZN 2.50
12.95
1. on hand
11.95
5 oz
695
PB 212 Premium
ZN 254
11.61
12
$5.00

Smelter Returns & Payments Based on Inco King's Contract
au - 13.64 = 74.2 % of gross value
ag - 230 = 74
PB - 323 = 33-125 Premium
ZN - 2.59 = 19
Total 21.76 less 180 cts for handling = 18.26
25.07

Premium
PB = 261
ZN = 420
TOTAL PREM = 681

Chloride, Arizona,
August 10th, 43.

Dear Chubby:

Befor the day is over we will have the shaft timbered to the 45ft mark.

Ever thing we have taken out; since we left the "fault" will make a good grade of mill dirt and it seems to be gradually getting better. In fact the muck coming out to-day might ship. I have a good sample--Broken up and split-- will take a check to Kingman.

I feel confident that we can make a lot of shipping material out of the fines if we were fixed to Jig them. It will take quit a little work and some timber to rig up for this. The water question would require some dewatering devise for the tailings and there is none to good a place for tailings deposial; but it can be figured out if I am authorized to make the nescessary expendure. For this reason I would be very glad to see you as soon as possible.

They way the ore is acting I would not be at all surprised to see 7 or 8 ft of shipping ore any round and if so a few rounds will fill our bin. So please send instructions as to where to ship and what instructions should I give the smelter regarding settlement.

Following are assays not yet reported to you;

		Au	Ag	Pb	Zn	
8/8	No I Fines 6th set	0.34 --	I.62 --	0.7 --	6.2	
8/8	2 Face Sample 6th	0.42	2.20	0.6 --	3.9	(9)
8/8	3 Fines below 6th	0.40	2.25	I.7 --	3.6	
8/9	1 Fines 7th set	0.27	1.42	0.6 --	2.3	
8/9	2 Four Mine Cars	0.I6	I.26	0.5 --	9.8	

I am sure we will find that the next samples will be higher in Lead and not so much zinc. One Lense will show a lot of lead and the next a lot of zinc.

No timber delivered as yet so I will have to get some more from town. Will send a copy of this to Mr Davis,

Very Truly Yours

Jno.

SAMPLES NOT KEPT OVER 30 DAYS EXCEPT BY REQUEST

SAMPLES SENT US BY MAIL WILL RECEIVE PROMPT ATTENTION

R. V. McALLISTER

ASSAYERS, CHEMISTS, METALLURGISTS

FRONT STREET

KINGMAN, ARIZONA

FLOTATION TESTS

CYANIDE TESTS

PHONE BLUE 252

Liberty Mines Operator

Aug. 13, 1943 194

MOHAVE MINER PRINT

OFFICE NUMBER	OWNER'S MARK	GOLD, PER TON OUNCES	GOLD, PER TON VALUE	SILVER, PER TON OUNCES	SILVER, PER TON VALUE	TOTAL VALUE GOLD & SILVER	COPPER PER CENT	LEAD PER CENT	ZINC PER CENT	PER CENT
10843	Silver Hill # 1 8/11	0.31		2.20	Grab Sample 48 ft. Down			2.45	6.50	
10844	" 2 "	0.24		2.20	" " 51 ft "			3.30	5.50	
10845	" 3	0.72		3.40	Hanging Wall Drillings 3 ft wide 53' Down			4.90	9.25	
10846	" 4	0.18		2.60	Grab Sample - 55' Down			4.30	3.95	
10847	" 5	0.27		4.90	Face Sample So End 58 Ft Down 7' Wide			8.60	6.70	
10848	" 6	0.54		5.50	" " N. " " " 7' Wide			12.50	5.65	
10849	" 7	0.23		1.30	Fines Foot Wall at 50 ft.			0.75	5.10	

GOLD $35 PER OUNCE

SILVER 71 CENTS PER OUNCE

R V McAllester

REGISTERED ASSAYER

Chloride, Ariz.,
August I4th, 43.

Dear Mr. Davis:

I have no reply from my last letter to Chubby; a copy of which you have; so I feel that I will soon be seeing him. And when he comes what a surprise he will have.

The shaft is now down 58ft from the level ; having averaged about 5ft per day. We certainly have a splendid showing there. There being fully a ten foot vein. Three feet of which we are leaving over the timbers and the seven feet in the face. The enclosed assays will tell you the value. Our timbers are following the foot of this part of the vein very closly but the ore appears to be a little flatter so we may get under the most of it befor reaching the I00ft level. To do so would be an advantage in cutting a station there, but this may be just a roll in the hanging wall and the ore would then come back into the shaft again. If the present showing has any lenght and depth to it--YOU CERTAINLY HAVE A WINNER.

I have not been able to work in the shaft yesterday nor untill Monday the I6th. I ordered a R.R.Car on thursday but can get one untill Monday. The Ore bin is full as is the track--on both sides back to the roadway. This ore is too good to put over the dump , so we will have to find something else to do untill we can get some ore pulled out of the bin. I have the crew making a powder magazine.

The assaying done at the Tennessee is not very satisfactory They do not check out with themselves nor Mc Allister. You will notice changed to Mc Allester.

This ore is very hard and much slower mucking; these facts pluss our attempt to get it as clean as practicable will slow up our footage.In a way I am sorry about this as I have felt that conditions such as they where, one should make 5ft per day and it looked this time like I was going to do it.,

Am sending you a little paper-weight so you can see what a specimen of the ore looks like,

Sincerly Yours,

J.o.P

Chloride, Ariz.
August 19th 43.

Dear Al:

I am wondering why you have not sent out the checks covering account on Sub Req. NO 10. I have a copy of Gohring,s approval dated the 6th. I have been asked for one of the checks. Also the Assayer at the Tennessee expect to be paid twice a month; which I had hoped to do from Petty Cash Acc.

Chubby was here yesterday. I rather think that he was pleased at what he saw.

From Drillings into the Hanging wall and the face of the shaft bottom It now appears that we have a 10ft vein of ore. All of which will be a good milling grade. Out of this we have shipped a little over 100 tons to the U.S.Smelting Co at Midvale, Utah.

Yours Very Truly,

Jno Rollins.

Chloride, Arizona,
August 25th, 43.

Dear Mr. Davis:

The following are to-days samples:

No I--5ft drill hole in hanging wall at 75ft
o.29 Au; 4.I6 Ag.; 5.2 Pb.; 2.3 Zn.

No 2 -- Car Sample of Ist Class taken at 80ft.
0.64 Au; I4.64Ag.; 7.7 Pb.; 5.8 Zn.

All of our ore is now above the shaft timbers; We do not know the exact width as none of our drill holes have reached the hanging-wall. We do know that it is four ft wide or better and all of a very good grade.

The U.S. Engineers have completed their sampling and surveying. One of them told me that their samples and maps would be available to the owner and advised me to have you write the Tucson office. He intimated th t their report would be favorable and suggested that you might some Diamond-Drilling done for no cost. Write to J.H.Hedges--Dist. Engineer--U.S.B.M. Tucson, Ariz.

Mr.Murdock was here to-day and was well pleased with the showing as well as the work.

As regards the insurance on the Hoist man. In this case he is working underground and will be untill we raise the shaft through to the surface .

I am glad that we are to use voucher checks. The men will understand , without so much explanation, why their checks vary.

We are now down 90ft with the shaft and I am glad we are under the ore rather than over it. It will make station cutting much simpler.

Sincerly,

Zone 28

August 27, 1943.

Mr. Jack How, General Manager,
Western Machinery Company,
760 Folsom St.,
San Francisco, California.

Dear Mr. How:-

Replying to your letter of August 25, 1943, it appears how that the Boggs and Hackberry will not justify a mill, especially since we have a favorable contract with the Iron King mill for treating our ore.

We have recently acquired and are now developing with RFC funds, the Silver Hill mine located at Chloride, Arizona. We have sunk a shaft all in ore now about from the 100 ft. to the 200 ft. level. From developme.t so far it ap ears that we may have a mine, indicating a 7 ft. vein 0.3 gold; 2.5 oz silver; 4% lead; 6% zinc. If this continues to show width and develops depth and length we will want a mill. Even Farnham is now already mill minded and we regret that we have disposed of some of the equipment at Alvarado.

The next time you are in Los Angeles I'd like to have a chance to talk this all over with you, I have something in my mind that may interest you.

Yours very truly,

L I B E R T Y M I N E S,

By_____Prop.

FLOTATION TEST

Liberty Mines, Operators
Silver Hill Mines

FLOTATION CIRCUIT

	Oz Au.	Oz Ag.	% Pb.	% Zn.	% Fe	VALUE
HEAD ASSAY	0.38	3.46	4.8	5.7	9.3	
PB CONCENTRATES	3.11	29.44	56.3	3.9	8.8	
ZN CONCENTRATES	0.37	2.79	0.5	55.2	7.6	
TAILING ASSAY	0.11	0.73	0.2	0.6	8.7	
EXTRACTION	71.1	78.1	95.8	39.5		

TABLE CIRCUIT

HEADS	0.11	0.73	0.2	0.6	8.7
CONCENTRATES	2.43	6.09	0.1	0.2	61.9
TAILINGS	0.04	0.28	0.1	0.4	6.4
TOTAL EXTRACTION - Au. & Ag - %	89.5	93.0			
CONCENTRATION RATIO - (Approximate)	11	11	12	10	
TOTAL EXTRACTION - BOTH CIRCUITS	89.5	93.0	95.8	89.5	

REAGENTS

PB CIRCUIT - PH 8.6	Pounds per dry ton	Remarks
Zn SO4	1.1	
Ca CO3	——	Determined by pH
Reagent 241	.12	
Pine Oil	.05	
Zn Circuit - pH 10.4		
Cu SO4	1.3	
Ca CO3		Determined by pH

REAGENTS CONT'D

ZN CIRCUIT - pH 10.4	Pounds per dry ton	Remarks
Pentasol Amyl Xanthate	.20	
Dupont Frother B-23	.03	

FLOTATION CIRCUIT DENSITY, by Weight, - 3.9 to 1

Weight of Test Samples - 1000 gms.

Computations based on 100 tons

NOTE:

A third selective flotation product for the iron and gold content of the tailings is inadvisable, as most of the iron is barren, and a tabling process will prove more efficient, as well as less costly.

/s/ J. N. SHARPE

Metallurgist.
Tennessee Schuylkill Corp.
Chloride, Ariz.

Sept. 10, 1943

September 17, 1943.

War Production Board,
Washington, D. C.

Attn: The Executive Secretary, Quota Committee,
Premium Price Plan, Copper, Lead and Zinc.

Dear Sir:

Since making my application for C Premium on zinc, I have received advice by wire that the average assay values on the first two cars shipped to Midvale to be milled and smelted were: AU .38 oz; AG 4.4 oz; P.B. 7.7%; Zn 6.8%.

I now quote from our application for second R.F.C. Loan, dated September 10, "The ore stockpiled and judging from many samples both grab and channel have an average content of AU .25 oz; AG 2.0 oz; P.B. 2.4%, Zn 4.8%" thus the weighted average of ore shipped (150 tons)&ore stockpiled (450 tons not 400 tons) would be AU .28 oz; AG 2.6 oz; P.B. 3.75%; Zn 5%. Moreover my operating manager advises me that under our present contract with U. S. Refining Company (a copy of which is now in the hands of O. M. Bait's office R.F.C.) After deducting per ton $3.25 for treatment; $1.50 trucking to Kingman and $5.00 freight to Midvale our realization less premiums would be ten cents per ton. My method of calculation was wrong. Mr. Farnham also advises me that he could not get terms from Iron King that would increase this realization. I will try again and see if it can be done.

I regret the confusion in the name of applicant and name of mine. Mr. Stroebel fully understands how this occurred and can explain it to you. If you wish, I will have Mr. Hedges, who is now in my employ, authorize the change. It would be almost impossible for us now to take the name of Valley View Mine. I wish I could.

Yours truly,

LIBERTY MINES

R. P. M. Davis

October 1, 1940.

Western Knapp Engineering Co.
760 Folsom Street,
San Francisco, California. Attention Mr. Jack How.

Gentlemen:-

I have decided to express in written form what I wnet over the other day in my talk with Mr. Mayer.

We have a twenty year lease on the SILVER HILL mine, located in Chloride, Arizona. The Tennessee mine and mill and the SILVER HILL are both actually in the town of Chloride. Our vein parallels the Tennessee vein. Mr. Farnham, my operating manager and the engineers of the Bureau of Mines, have studied the geology and the vein structure of the two mines and agree that they are as alike as two peas. You know the Tennessee better than I do. I do know that they are in ore on the 1600 ft. level and have more ore in sight now than ever before in their history. Our ore carries from $5.00 to $7.00 more in precious metals and just about exactly the same in lead and zinc as the Tennessee ore.

Above the 100 ft. level Lessees have explored the vein for gold and lead discarding all zinc. Their work enlightens us as to the probable location of ore bodies below. I am not going into any detail regarding the mine. We can furnish you with a report by Charles W. Heron made in 1941 for Cecil Rudd also Farnham's report to the RFC.

We have secured a $20,000.00 RFC development loan and have applied for an additional loan. It is the opinion of the RFC, The Bureau of Mines and the Metal Reserve engineers that this mine has the ear marks of a big mine. It certainly has made an impression on them. The Bureau of Mines have indicated to us that they will probably drill the SILVER HILL vein structure, without cost to us. I have been assured of additional RFC money.

We have sunk a winze below the 100 ft. level to the 210 ft. level and we extracted from this hole 10 ft. x 8 ft. x 110 ft. - 570 tons of ore and proved an additional 180 tons by drilling the hanging wall. The width was 7½ ft. average. The average values were (excluding all high grade):

au. 0.28 ozs; ag 2.8 ozs; pb 3%; zn 4.9%

We have shipped four cars of sorted ore showing much higher value. By drifting, sinking and raising we should expose within the next six months a considerable body of ore and this will merely scratch the vein structure which apexes 4500 ft. in length within our property line.

I admit that the above is a very vague and superficial description. But the reports and an examination of the property by your engineer will answer all the questions.

We hope to have in sight within three months over ten thousand tons of ore equal to the above values. If and when this tonnage of ore has been blocked out and if your engineers are satisfied that much more ore is ahead, I want you to erect on the SILVER HILL property our Alvarado mill equipped with flotation to a capacity to equal the grinding capacity of the mill. I will carry a mortgage on the Alvarado mill to enable me to take depreciation with the understanding that eventually the Alvarado mill and equipment will be yours without cost. We will be responsible for upkeep. We will pay you One Dollar ($1.00) per ton for the first Forty Thousand (40,000) tons milled and Fifty (50¢) Cents per ton thereafter, but after and at any time after 40,000 tons have been milled, we will have the option to purchase the entire mill for Forty Thousand ($40,000.00) Dollars cash.

Now let us paint the blackest picture that we can. Let us assume that 10,000 tons was all the ore which could be extracted from the mine. Let us assume that you have spent $35,000.00 in moving, erecting and equiping the mill. That your salvage value of mill and equipment (including the Alvarado mill and equipment) was $25,000.00. You have received $10,000.00 as rental. You have won nothing. You have lost nothing. I have lost the Alvarado mill and equipment, unless this mill could still be used as a custom mill. I enclose a report from "Pay Dirt" Sept. 27, 1943. You know and I know that the Tennessee and Magma mills are now out of the picture. That there is little likelihood of any competition from a custom mill being in the district for some time to come. This might be a way out if the ore was exhausted in SILVER HILL mine. But I am betting on the SILVER HILL mine.

Let us carry on. If we mill 80,000 tons your returns will be the difference between your cost of erection and equipment as furnished by you and a gross of $60,000.00 or $80,000.00, based on whether or not we exercise our option to purchase. If we do not exercise our option to purchase you carry on at 50¢ per ton rental.

Tennessee tested our ore for extraction which is enclosed. Based on this test and the Tennessee smelter contract, our net profit after deducting $12.00 per ton for operating costs (Heron estimate made in 1941 - mining, development and milling $7) would be $4.00 per ton without any premiums and $8.00 per ton with "A" premium only. I believe that you will agree that the "A" premium will probably carry on for some time.

What makes this mine most attractive is that its precious metals content makes it a mine after the duration.

This now may seem to you premature. I assure you that it is not. It takes time to come to a complete understanding of minds.

We want to take all the advantage of premiums that we can. Your revenue or return of capital starts when we start operations. Your profits are not accumulated in one year.

Please advise when we can go into further details and see if we can arrive at mutually profitable conclusions.

Yours very truly,

LIBERTY MINES

By_____Prop.

Los Angeles, California.
October 11, 1943.

Mr. Jos. P. Klein,
Box 262,
Chloride, Arizona.

Dear Joe:-

As per your letter of October 7, 1943, according to my calculation the average values of the ore extracted from the drifts on the 100 ft. level, that is the same level as the Lear tunnel, are:

au. .20 ozs; ag. 2.09 ozs; pb. 1.3%; Zn. 4.6%

According to the test made by Tenn Laboratory showing 11 to 1 ratio of concentration and 89.5% recovery in Gold; 93% recovery in Silver; 95.8% recovery in Lead and 87.7% recovery in Zinc, our concentrates would contain the following:

1.969 ozs. gold; 21.23 ozs. Silver; 273.9 lbs. Lead; 887.59 lbs Zinc.

According to the Penn contract with the Smelter they are paid:

$30 per oz. for Gold in Lead; $26 for gold in Zinc; 6½¢ less 1½¢ or 4¢ for 90% of Lead; 8½¢ less 1½¢ or 6¾¢ for 90% of Zinc.

Therefore on this basis our concentrates would have the following values:

Gold $57.10; Silver $13.80; Lead $10.86; Zinc $53.91 or a total of 135.67 per ton of concentrates. From this total I have deducted $14.75, based on treatment $5.25; Trucking $1.50; Freight $8.00 and I have a balance of $120.92 or $11.00 per ton ore milled. Assuming a mining cost of $10; milling $2; Overhead 50¢; Mill rental 50¢. The above values represent a LOSS of $2 per ton without premiums, a profit of 56¢ per ton with "A" premium only; and with "A" and "B" premiums on Lead and "A", "B" and "C" premiums on Zinc a profit of $3.07 per ton.

Yours very truly,

L I B E R T Y M I N E S,

By_____Prop.

cc: LLF, WGS.

PS: Al Morrison was in L... the other day and called me on the phone and informed me that there was a car of Silver Hill ore on the Kingman siding.

Chloride, Arizona,
Nov . 24th. 43

Dear Mr. Davis:

We are loading out the 7th lot to-day, probably will be oilled out to-morrow.

All of this ore is from the raise. It is not so good as the ore in lot 6 nor is it as clean. My assays out of the Bin are. Fines Au. 0.26; Ag. 4.95; Pb 3.8; Zn. 6.3.-------- The coarse ore; Au.0.33; Ag. 5.II; Pb. 8.8; Cu. 0.9; Zn 8.2. In wieght I feel it will be about half fines and half coarse.

We have started to drift on the lower level; but after a few rounds will have to come back and do some more work in the shaft. Want to get the shooting away from the timbers befor doing the shaft work.

The ore in the raise has been a good width but has very rotten hanging wall. Can open a very small space without timbers, so it comes pretty slow. A few misplaced holes and one wouldn,t get back in there again. The raise is now up about 30ft from the bottom of the level.

Very Truly Yours,

Joe P Klein

Joe P. KLEIN

Second Loan Application - 9/10/43

Silver Hill Mine - $ 30,000.—

Balance of data on printed forms - Submitted

Sept.10,1943.

Reconstruction Finance Corp;
Washington,D.C.

Re: Wm.S.Segar; Docket 4276

Gentlemen;

During early July,1943 a $20,000 development loan was granted to Wm.S.Segar on the Silver Hill mine in Chloride, Arizona.Liberty Mines,as operator,started work about the middle of July,1943 upon above property and have,as of Sept.1, 1943 made the following expenditures thereon:

Rehabilitation of Mine;Equipment,Water Supply; Bldgs and Powder Magazine; ----------		$7534.31
Underground Work;		
20 feet of Raise for winze headworks; ----		700.00
107 feet of Winze sinking;----------		6200.00
Total expenditures to Sept.1 ------		$ 14434.31
Balance in Trust Fund Sept.1;------		$ 5565.69

At the present rate of expenditures this balance will last until about Sept.25,1943.

Owing to the excellent showing of ore,disclosed by the work to date,we feel that further expenditures are more than justified and are therefore making application for an additional $30,000 loan to continue the development of this promising ore body.

After the rehabilitation of the mine,a winze was started near the north end of the Segar Adit level.This winze, 7 x 9 ft in clear of timbers (8 x 10 ft;rock section) was sunk during August,to a point 110 feet below the floor of the Segar Adit,with an average dip of 47 degrees.This work produced about 587 tons of ore and 97 tons of waste.At a depth of 50 feet below the collar of the winze the hangingwall of the ore flattened and passed into the back of the winze?Had this ore been taken out during the course of the sinking,judging from the drill holes samples,it would have yielded some 180 tons of ore (4.4'x 10'x 45'),assaying 0.34 Au; 3.5 Ag;4.2% Pb and 4.4% Zn.Out of the 587 tons of ore actually taken out of the winze,some 155 tons were shipped to Midvale,Utah;judging from our sampling this ore had an average assay of 0.33 Au; 4.4 Ag; 3.3% Pb; 6.1% Zn.The remaining 432 tons of ore was stock piled and judging from many samples,both grab and channel,had an average content of 0.25 Au; 2.0 Ag; 2.4% Pb; 4.8% Zn. Thus the weighed average of the ore removed from the winze, together with that that dipped out of the opening,was 0.28 Au; 2.8 Ag; 3.0%Pb; 4.9% Zn.This grade of ore with a zero quota and A-B-C premiums on lead and zinc would have a gross assay value as follows;

Gold; 0.28 @ $35.00 ----------	$ 9.80
Silver;2.8 @ 0.71 ----------	1.99
Lead;3.0%; 60 lbs @ 0.12-------	7.20
Zinc;4.9%; 98 lbs @ 0.165------	16.17
	$ 35.16

Under our contract with the U.S.Smelt.Refin;& Mng.Co; a copy of which is enclosed,we would realize with premiums on the above ore; ----------$21.23

Less Treatment ---------	3.25	
" Haul to Kingman ---	1.50	
" Frt to Midvale ---	5.00	9.75
Mill net,after all charges;---		$ 11.48

With a local mill getting only the recoveries as paid for at Midvale and with a milling cost of $2.00 per ton, the mill net on the above ore would be $19.23.With a mining and development cost of $10.00 per ton the profit would be about $9.00 per ton of ore.

The widths of ore exposed in the winze ranged from of 12 feet to a minimum of 4 feet, with an average of about 7.5 ft. This ore is exposed along the Segar Adit level for a distance of 110 feet, 60 feet to the south and 50 feet north of the winze to the face of the drift. Judging from the assay maps of R.C. Jacobson and R.D. Leisk of the old 100 ft level from No.1 shaft (Now inaccessible), this ore shoot could persist for another 200 feet north of the face of the Segar Adit level. The ore shoot thus has a possible or indicated length of some 300 feet. Should it be found to have a length of 200 feet and with an average width of 7.5 ft; it would produce about 125 tons per foot of depth. Should the porposed development program, here in outlined, prove successful, it would on the above basis, put in sight about 28,000 tons of ore.

In many respects, geolgically the neighboring Tennessee-Schuylkill and the Silver Hill properties are comparable. They are parallel fissures about one mile apart. Both are heavily crushed zones in pre-Cambrain crystalline rocks. The Tennessee fissure is traceable for nearly two miles, the Silver Hill is exposed along the outcrop for some 4000 feet. The vein filling of both are identical, compbised of a strong gouge on both walls between which occur pyrite, galena, sphalerite and small amounts of chalcopyrite in a gangue of quartz and soft altered fragments of wall rocks. Minable ore bodies in the Tennessee range from 2 to 14 feet in width. Along the strike four ore shoots, attaining stope lengths up to 600 feet, have been mined to a maximum depth of 1600 feet. The longitudinal limits of the ore down the pitch can be predicated fairly accurately, with slight if any changes in grade of ore between succeeding levels.

In 1938 the Tennessee mined and milled some 54,000 tons of ore having an average metal content of about; 0.20 Au; 2.1 Ag; 3.6% Pb; 5.7% Zn. Making a lead-iron concentrate and a zinc concentrate, the flotation plant recovered about 95 % of the gold; 94 % of the Silver; 94 % of the lead and 72 % of the zinc (in the zinc concentrate).

Exhibit A

10. Proposed Work;

By the time (Sept.25th) that the present funds are exhausted it is estimated that about 80 feet of drifting will have been accomplished on the first level below the Segar Adit.As it is proposed to do about 250 feet of lateral work on this new level,altogether,there would thus be left about 170 feet.Cost of drifting and cross cutting is estimated at $18.00 per foot;thus

170 feet of lateral work at $18.00 ---------- $3060.00- 200 Ft. Le

Should this work prove satisfactory it would then be necessary to raise to the Segar Adit level,estimated as;

130 feet of raise @ $35.00 per ft.---------- 4550.00

Then raise from the top of the present winze through to the surface,to serve as working shaft,estimated as;

60 feet of raise @ $35.00 per ft;----------2100.00

Equip at the surface of the new shaft,as follows;

Headframe & Bins;----------	1300.00
Hoist & Compressor Bldg; ----------	750.00
Moving & erection of hoist; ----------	200.00
Moving & erection of compressor,from the Alvarado mine; ----------	550.00
Extension of Power Line;----------	100.00
Water Supply to new site;----------	200.00

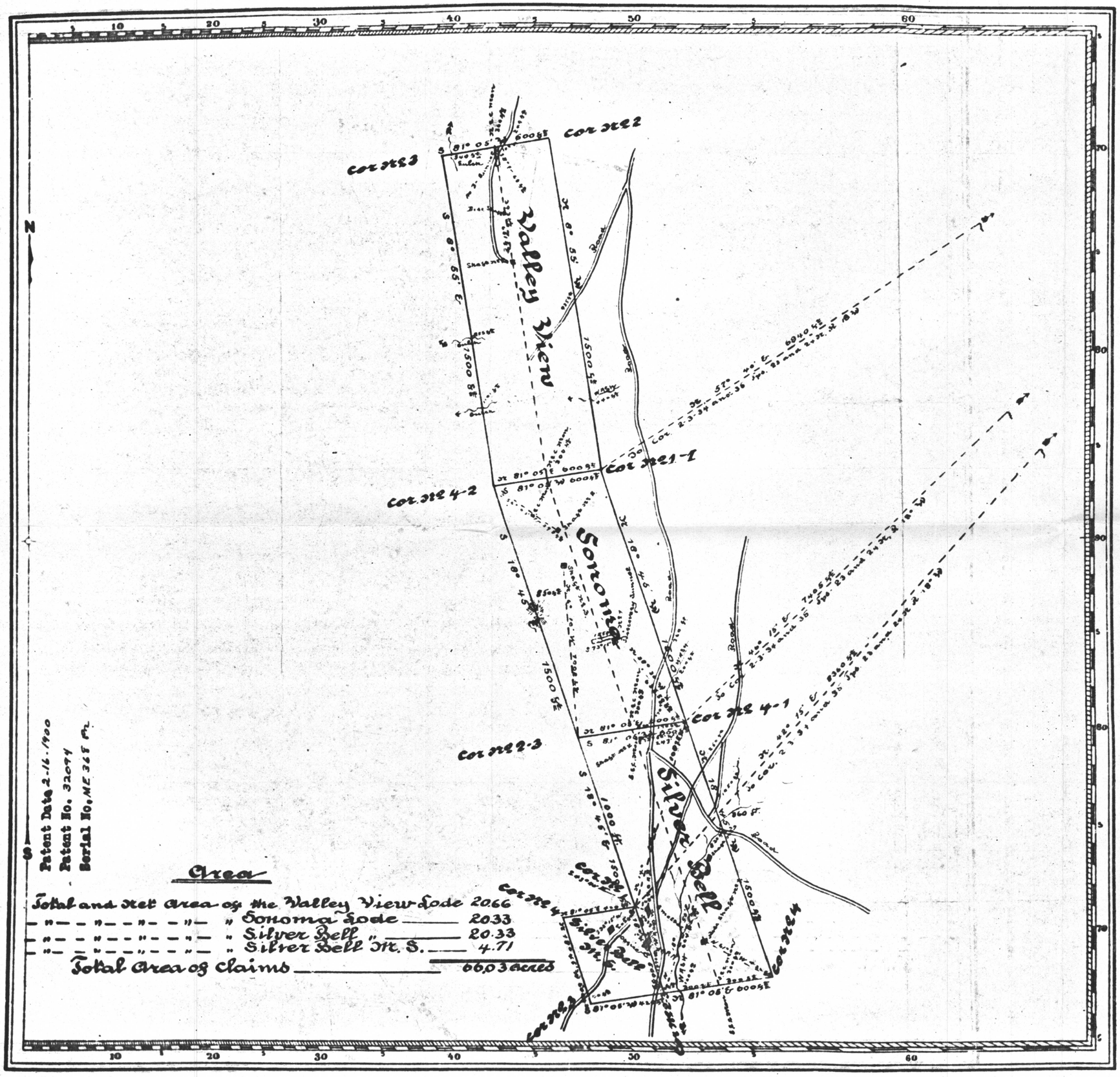
Then sink the present winze from 130 ft below the Segar Adit to a point 250 feet below the adit level,this would allow a sump 20 feet deep.

120 feet of Shaft @ $60.00 per ft;----------7200.00

Then from a pint 230 feet below the adit level,open another level (this would be the 300 Ft level measured from the outcrop) by some 250 feet of drifting and cross cutting;

250 feet of lateral work @ $18.00 ---------- 4500.00-300 Ft. Le

Then	100 feet of raise, 300 to 200 level;--------	3500.00
	Contingencies; ----------	1990.00
		$ 30,000.00



Claims Located Valley View and Sonoma Lodes 6th
Survey 1-1879 Silver Bell Lode and Silver Bell M. S.
Mineral Survey No. May 21-1898

1273 A and B.

Lot No.

Prescott Land District.

PLAT

OF THE CLAIM OF

The Southwestern Mining and Reduction Company

KNOWN AS THE

Silver Hill Group, comprising Valley View, Sonoma Silver Bell Lodes and Silver Bell Millsite

In Wallapai Mining District.

Mohave County, Arizona

Containing an Area of 66.03 Acres.

Scale of 500 Feet to the inch.

Variation 13° 50' E

Surveyed March 10-14 — 1898

O. F. Huerter U.S. Deputy Mineral Surveyor.

The Original Field Notes of the Survey of the Mining Claim of The Southwestern Mining and Reduction Company known as the Silver Hill Group, comprising Valley View Sonoma, Silver Bell Lodes and Silver Bell Millsite

, from which this plat has been made under my direction, have been examined and approved, and are on file in this Office; and I hereby certify that they furnish such an accurate description of said Mining Claim as will, if incorporated into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the locus thereof.

I further certify that Five Hundred Dollars worth of labor has been expended or improvements made upon said Mining Claim by claimant or its grantors, and that said improvements consist of 2 Tunnels, 7 Shafts, a Smelter Office - Dwelling etc. Drifts, Levels, etc

that the location of said improvements is correctly shown upon this plat, and that no portion of said labor or improvements has been included in the estimate of expenditures upon any other claim.

And I further certify that this is a correct plat of said Mining Claim made in conformity with said original field notes of the survey thereof; and the same is hereby approved.

U.S. Surveyor General's Office, Tucson, Arizona, August 8th, 1898

George Christ
U.S. Surveyor General for Arizona.