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Item 59
(report 1 of 9)

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KEYSTONE MINE

REPORT AND RECOMMENDATIONS

By

Raymond Brooks

January 6th, 1940

for

SILVER BURRO EXPLORATION COMPANY

LOCATION:

Situated near the eastern base of Eugene Mountain, in the north central portion of Pershing County, Nevada, in the Central Mining District. Eight miles southwest of Pronto, a station on the Western Pacific R.R., and fifteen miles north of Mill City (by road), a station on the Southern Pacific R.R. The mine is in what was known in early days as the Central District. It is four miles north and a little east of the tungsten mines of the Nevada-Massachusetts Company. Elevation: 4900 ft.

PROPERTY:

The group, now called THE KEYSTONE MINE, comprises eighteen lode mining claims of which the majority are full claims and the remainder large fractions. Sheet No. 1, appended hereto, shows these claims with their relationship to the public land survey of the district. Certain other claims or fractions are being located to fill in gaps between this group and land held under patent by the Central Pacific Railroad, as well as whatever other mineral ground in the vicinity appears to be desirable.

A patented homestead of 158.05 acres, also shown on Sheet No. 1, as area "A", has been bought by the owners of the above mineral claims and title is in process of being perfected. A suitable mill and townsite can be located in section 6 if the present holdings do not provide satisfactory ones. A well on this homestead, fourteen feet deep, provides an adequate domestic water supply for the camp.

OWNERSHIP:

The Keystone claim is owned, under location, by Mrs. Bertha Jackson of Winnemucca, Nevada, and is now operated under a lease and option by two brothers, H. A. Jones and R. M. Jones, who live at the mine.

The Jones brothers, with a third brother, R. B. Jones, also hold, under location, seventeen claims joining the Keystone on the north, south, west and east and covering possible extensions of the Keystone orebody. These are shown on appended Sheet No. 1.

PRESENT MINE DEVELOPMENT:

KEYSTONE CLAIM: Surface cuts, shallow adits and stoping for a distance of three hundred and fifty feet along the Keystone vein.

Drifting on main adit level on original outcropping vein: 380 ft.

Second level: 170 ft. of drifting, 290 ft. of crosscutting (practically drifting in flat formation), and 350 ft. of inclined winzes.

Total underground development work 1190 ft. (exclusive of stopes).

OLD TIMER NO. 1 AND NO. 2 CLAIMS: A great deal of old surface trenching, stoping and several small inclined shafts on five veins. Most of these workings have caved but in the aggregate they show unmistakable evidence of the mining of payable ore at some unknown period in the past. No records are available, though there is evidence of ore having been milled in the general vicinity. Two of the shafts were equipped with whims. Silver and lead were probably the principal metals recovered.

The water level in the Old Timer section is not far below the lower outcrops and mining was probably governed by this condition. There is no evidence of any deep shaft that would have explored the ground much below water level. On one or two of the veins it is known that stoping at shallow depth was continuous along the vein for a considerable distance. No maps or history are known.

SURFACE GEOLOGY:

The principal formations found on the property are: grano-diorite, silicified shale (Hornfels), laminated lime shale, Limestone and quartz (in veins and outcropping patches and knolls). The contacts and limits of these formations are not exposed, except in a few cuts, and there they are not clearly defined. For the most part, formations have to be traced by float that is scattered over the surface on the gently sloping hills.

The ore on the KEYSTONE Claim that was mined from the surface down to an average incline depth of one hundred

feet was in a quartz vein striking about N-S and dipping 30 deg. E., at some points entirely bounded by grano-diorite, but, farther north, along the outcrop, it appears to have been within walls of Hornfels, or on a contact of grano-diorite and Hornfels.

On the OLD TIMER claims, the ore occurs in parallel quartz veins and with easterly-westerly strike, three dipping north and two south. The walls there are in some places oxidized grano-diorite and elsewhere laminated shale. At the top of the hill on the OLD TIMER No. 2 claim a quartz vein appears to terminate towards the east in an area marked by a large outcrop of iron gossan.

The area between the KEYSTONE claim and the OLD TIMER No. 1 claim does not show any rock outcrops, though there is, near the eastern side line of the KEYSTONE claim, an extensive outcrop of blueish-white limestone that converges with the ore-bearing area in the southern portion of that claim.

Laminated lime shales occur at the surface, striking in a general easterly-westerly direction a short distance south of the surface exposures of ore in grano-diorite walls on the southerly portion of the KEYSTONE claim, and are seen for some distance to the west.

On the KEYSTONE No. 5 claim and on the TAMZY Nos. 2 and 3 claims there are well exposed quartz veins, similar in appearance to the outcrop of the Keystone vein, which were developed to a limited extent by former miners and from all of which some ore appears to have been mined. My sample No. 192 (on appended Sheet 6) describes the grade of ore exposed on the TAMZY No. 2 claim at one point, and it is interesting to note the higher gold content.

There are no known exposures of ore to the east of the Keystone Claim, though the western edge of the belt of limestone, described above, shows a good deal of oxidation and iron staining (see my sample No. 196), and there are numerous exposures of quartz, as float and on knolls, none of which have as yet been sampled.

UNDERGROUND GEOLOGY AND ORE OCCURRENCE:

The workings on the KEYSTONE claim furnish the best evidence of underground conditions on the property. On this claim all of the early work was done on the Keystone vein, which strikes about north and south and dips, from the surface

to the adit level, at an average angle of 30 degs. to the east. (See section "A"-"B" on appended Sheet 2.) Below the adit level this quartz vein flattens out to a dip of 20 degs. or less. From the surface to that point the old winze, which gives access to the second level, shows the vein enclosed in highly oxidized grano-diorite walls, but at that point a brown hornfels, carrying well developed cubes of iron pyrite, was encountered as a footwall. The vein appears to continue to the east on, or near, that contact and a little ore was taken out and shipped by past and present operators, but the difficulties involved in mining it underhand led the present leasers to search for ore that was easier to get.

A drift was run north from the bottom of the winze and from this a raise, ten feet long, was run up to the adit level on the vein, from which cars No. 1,2,3 and 4 (see appended Sheet 3) were shipped. When this raise holed through, the leasers started to raise again from the second level and then, for the first time, found a flat ore body extending to the west, underneath the quartz vein that had previously been the only known ore carrier. From then on practically all development has been in this flat ore formation which they subsequently found to be dipping downward at flat angles in all directions. Eighteen cars of sulphide ore have been shipped from it to a Salt Lake Smelter where an average assay value of approximately $22.30 per ton was used as the basis for settlement. The car of lowest value, No. 14, carried $7.62 per ton, and the two highest, Nos. 10 and 21, $ 37.43 and $37.40 respectively. (For details see appended Sheet 5.)

There is some evidence that payable ore may be found in veins in the hornfels, but at present the important developments are in grano-diorite, at or near its contact with the underlying hornfels. This granitic rock is mineralized with parallel and intersecting veins and aggregates of quartz with which occur heavy sulphides, principally galena, pyrite and sphalerite. Sulphides are disseminated in the grano-diorite between the more heavily mineralized quartz bands. There seems to be no sharp upper limit to mineralization, though the grano-diorite shows a good deal of iron oxide staining and alteration near the upper limit of ore deposition.

In the general vicinity of winze "a" (see appended Sheet 3), I have seen chunks of galena six inches in diameter, and, within thirty feet of that locality, similar aggregates of zinc-blend associated with galena and pyrite.

A Spectographic qualitative examination, by Smith-

Emery Company of Los Angeles, of a specimen showing zinc-blend galena and pyrite, selected by me from a band in the bottom of winze "a", showed:

Major Constituents:

Silicon, Iron, Arsenic, Zinc

Minor Constituents:

Lead ----------	Approximately	1%
Antimony ------	"	0.5%
Aluminum ------	"	0.5%
Magnesium -----	"	0.1%
Copper --------	"	0.1%
Cadmium -------	"	0.1%
Calcium -------	"	0.1%
Titanium ------	"	0.01%
Manganese -----	"	0.01%
Molybdenum ----	"	0.01%
Chromium ------	"	0.01%
Barium --------	"	0.001%
Tin -----------	"	0.001%
Silver --------	Present	

(This specimen was from the same portion of the ore body as sample No. 190 (see appended Sheet 6).)

The ores thus far exposed on the second level appear to be of magmatic origin, occurring in an intrusive mass of grano-diorite at or near its margins, and probably near contacts of this rock with the intruded, silicified shales. The existence of three classes of sedimentary or metamorphic rocks in the immediate vicinity of this highly mineralized granitic intrusive should make ideal conditions for the occurrence of an orebody or ore bodies of exceptional permanence and extent.

The present orebody may in reality be the upper limit of sulphides in an ore-bearing mass of grano-diorite, which has been oxidized from the surface to that depth. Evidence that this could be the case lies in the fact that both the foot and hanging walls of the original quartz vein, that was followed down to the sulphide orebody, show heavy iron staining, oxidation and decomposition from the top of the sulphides right through to the surface. Old dumps in this locality are composed almost entirely of reddish, partially decomposed grano-diorite.

ORE IN SIGHT:

KEYSTONE CLAIM: The accompanying plan of the second level

(see appended Sheet 4) shows areas that can be expected to contain extensions of the orebody which is now being developed in the flat vein and from which over eight hundred tons of ore have been shipped. It would be quick tonnage if mined from the development level recommended herein.

The true character and extent of the ore deposit, or deposits, in the Keystone Claim must be determined by development work. From the character of this orebody, I conclude that there is a very definite possibility of proving very considerable tonnages of milling ore that may vary in mining width from three feet to ten feet or much more. It is very probable that some ore of shipping grade will be produced in development drifts, as has been the case thus far.

OLD TIMER NO. 1 AND NO. 2 CLAIMS: The possibilities of these claims are not yet known. It is probable that some of the numerous small dumps contain ore that would be of mill grade, though oxidized. These, combined with some mill ore on dumps on the Keystone Claim, will probably furnish four or five thousand tons of additional ore for an initial mill.

There is good reason to believe that there are faces of ore of milling grade now exposed in old shallow workings on these claims that can be recovered without great expense, but the major possibilities should be determined by an exploration program including deeper work with diamond drills. The veins on these claims are of much the same character as the Keystone vein at the surface and there is a good chance that on their downward extensions some such condition as is found in the flat vein on the Keystone may exist. In any event, the ground has great potential possibilities when considered in connection with the Keystone.

ECONOMIC POSSIBILITIES:

KEYSTONE CLAIM: The flat orebody, where exposed at various places on the second level, shows unmistakable evidence of extensive mineralization. There is no condition yet apparent that might tend to limit its extent. In fact, there appears to be a very good chance of present exposures being the forerunners of more important areas of mineralization. It remains to be determined what the real character of the deposit is. The granodiorite in which the ore occurs is similar to intrusives of that material which are closely associated with the tungsten deposits four miles farther south. These tungsten deposits are the most important now being mined in the United States. The

tungsten ores are being mined at depths up to 1200 ft. without change of character or grade, and with little increase of water at depth.

Water has not been encountered in Keystone workings and is not expected until an additional depth of one hundred or more feet is attained. The present flat-lying condition of the vein would permit the possibility of developing a large tonnage of ore above water level. The vein is now in the form of a dome, dipping downward at flat angles to the east, west, south and north. It is reasonable to believe that some point will be found where, on a contact, or under other conditions, the main channel of mineralization will take a steeper dip. It seems to me that under existing conditions of mineralization almost anything may occur, and it will be exceedingly interesting to explore this orebody.

There is sufficient ore in sight, in and near the present workings on the second level of the Keystone Claim to repay the cost of the preliminary development program that is contemplated, plus a profit, if this deeper work, for any reason proves unsatisfactory. A twenty-five ton flotation mill could be installed at the mine for the purpose, and the proposed development openings used in mining the ore. (See appended Sheets 2, vertical section, and 4.)

The most likely outcome of the development program recommended below will probably be to expose the upper portion of a sulphide orebody, carrying lead, zinc, silver and gold, that will be extensive, and that will have an average value, in combined metals, of from $5.00 to $15.00 per ton. The ordinary grano-diorite that is found within the orebody carries fairly coarse disseminated particles of sulphides. One such large chunk of ore selected by me from the surface dump (sample No. 201, appended Sheet No. 6) assayed:

0.03 oz. gold, 3.60 oz. silver, 0.45% lead and 1.90% zinc.

This is the lowest grade of ore I have been able to find in the exposed portion of the orebody. A good deal of ore of this character has been included in shipments, so it is very evident, as I have observed and checked by sampling, that the orebody is, at frequent intervals, enriched by highly mineralized quartz veins and quartz aggregates running through it in various directions. These veins and aggregates of quartz generally carry some high grade ore, so sweetening of the mass can be expected. What will occur when definite and favorable contact zones are

encountered will have to await determination, but there is the possibility of finding large tonnages of ore of excellent grade.

ADAPTABILITY OF THE SULPHIDE ORE FOR RECOVERY BY FLOTATION:

Two preliminary selective flotation tests have been made by Southwestern Engineering Company of Los Angeles, on a six hundred pound composite sample selected by me from broken ore in three different working places on the second level of the KEYSTONE workings. The sample (No. 202, appended Sheet 6) assayed as follows:

0.040 oz. gold, 23.1 oz. silver, 3.20% lead, 3.80% zinc, 0.14% copper and 9.20% iron.

After the second test Mr. Robert Lord, who was in charge of the investigation, submitted the following conclusions and opinions. (The actual details of the test are not presented here, but can be obtained from Mr. H. E. Linden, 4800 Santa Fe Avenue, Los Angeles, Calif.)

"January 19, 1940

Mr. Raymond Brooks
Box 411
Winnemucca, Nevada

Dear Mr. Brooks:

The following are conclusions from two preliminary flotation tests conducted on a sample of your Keystone ore:

Results of two preliminary tests conducted on a sample of Keystone ore indicate that the silver, lead and zinc will be reasonably amenable to selective flotation treatment. In the two tests made separate silver-lead, zinc and iron concentrates were produced with efforts directed particularly to obtaining as much of the silver as possible in the silver-lead concentrate.

Results of these tests indicate that the silver is partially associated with the lead and possibly partially as a silver sulphide mineral. Very little of it seems to be combined with the iron and zinc.

More than fifty percent of the gold appears to be associated with the iron, probably with arsenopyrite.

"Results of the preliminary tests are considered encouraging. As the sample originated from partially oxidized horizons of the mine with consequent superficially oxidized, or tarnished, sulphides present, it is reasonable to anticipate improved selective flotation results as regards silver, lead and zinc with ores from greater depth.

Yours very truly,

SOUTHWESTERN ENGINEERING COMPANY

RL:Z By: Robert Lord"

PRESENT MINE EQUIPMENT:

HOUSING: One rough boarding house with an annexed sleeping room and two tents on wooden frames.

MACHINERY AND TOOLS: A belt driven air compressor capable of running four light drills; a gasoline engine to drive the compressor; two old jackhamers and a little old steel; 600 ft. of 12 lb. rail; a homemade hoist consisting of a "tugger" direct coupled to an old automobile engine; one mine car; a very small incline skip and old cable; 400 ft. of small air line; and an anvil, portable forge and a few worn shovels, picks and hammers.

It should be noted here that the present leasers, the Jones Brothers, have opened the present orebody and shipped twenty-four cars of ore with the equipment listed above. They had no financial resources or financial assistance and have, for two years and a half, been dependent on money derived from shipments of ore to pay the cost of operations and living expenses. Sometimes they could hire an extra man, but had to use the old cramped workings for haulage ways, and have had to follow the ore as best they could in flat and underhand stopes, guessing more or less as to the grade they mined from day to day. Such methods necessitated leaving what low grade ore they could sort out as fill and in winzes. This condition prevents access now to some faces of ore, or limits exposures to a portion of the full width in others. Nevertheless, I have been able to sample a sufficient number of faces to determine that the ore now exposed is of the same general character and grade as the ore they have mined and shipped.

TIME OF INVESTIGATION AND OPTION OBTAINED:

I first heard about and visited the KEYSTONE property in late September, 1939, and returned to it in October for two periods of three days and ten days respectively. Again, in late November, I went back to the property and have devoted three weeks to further sampling and study and a final check up. During these periods, I lived at the mine in my house trailer.

In October, Silver Burro Exploration Company obtained from the Jones Brothers an option, until January 1st, 1940, to take over their lease on the Keystone Claim, together with their entire rights and title to the other contiguous claims they have located; as well as their rights and title to the homestead they had bought. The purchase price was to be paid in the form of ten percent of the fully paid shares that are issued in a company to be formed by Silver Burro Exploration Company for the purpose of developing and operating the property. No guaranty was given as to the length of time or the amount of work to be performed by the company.

The lease and option on the KEYSTONE CLAIM provides for a 15% royalty on all ore shipped or milled, based on the net smelter or mill returns. Royalties of about $1,700 have been paid thus far by the Jones Brothers, leaving a purchase price of $13,300 to be paid on or before April 1st, 1941, to Mrs. Bertha Jackson for full title to the claim.

WATER, POWER AND SUPPLIES:

Water will be found to be quite abundant at shallow depth in the valley of a stream bed crossing the southern portion of this group of claims. Each spring, water flows in this stream, which heads in a canyon in Eugene Mountain and flows in an easterly direction to the Humboldt River, five miles distant. The Humboldt valley has an abundant supply of sub-surface water should it become necessary to drill for it for milling purposes. The Tungsten mines get their water for a 350 ton mill from a similar source.

Power, in the first instance, will be generated at the mine with gasoline or fuel oil. Later, if electric power is required, a line can be built to the Nevada-Massachusetts Tungsten Mine, a distance of four miles, where high voltage power is available from out of state sources. The advance cost of this line would be $4,800, which would be refunded as power is used.

Supplies can be hauled either from Pronto, 8 miles, on the Western Pacific, or Mill City, 15 miles, on the Southern Pacific, over dirt roads. If operations of a permanent character are undertaken, an oiled road should be built, either to Pronto, or to Highway No. 40 running down the Humboldt valley, a distance of about seven miles.

The ore thus far shipped has been hauled by truck to Pronto where the Western Pacific has erected a ramp for the purpose. The cost for this haul has varied from $1.00 to $1.50 per ton, depending on road conditions.

CONCLUSIONS:

My investigations convince me that the KEYSTONE and adjoining claims possess possibilities of an unusual character for the existence of one or more sulphide ore bodies that can be mined profitably. It cannot at present be determined just what the character and combined metal content of the ores will be, but smelter returns on nine hundred tons of ore shipped to the A.S. & R. Company, at Salt Lake City, together with samples taken by the writer, and preliminary tests made by Southwestern Engineering Company, show that they will probably contain silver, lead, zinc and gold in varying amounts, and that the ore can be treated by selective flotation with quite satisfactory recoveries.

The fact that the sulphide ore in the KEYSTONE claim occurs in an intrusive mass of grano-diorite, which undoubtedly emanates from the main granite core of Eugene Mountain; and because of the existence of three other types of formation in close proximity to the orebody, any or all of which would be ideal associates of the grano-diorite in the formation of contact deposits, I conclude, without reservations, that the property justifies an expenditure of $10,000 to determine the true character of the ore occurrence, and, to a preliminary extent, the tonnage that it may contain.

It is impossible to go farther with exploratory work by using the present cramped and inadequate openings, so the following recommendation is made as the cheapest and quickest means of determining the facts. In my opinion it would be inexcusable to neglect to do this work, especially in view of the fact that no purchase price has to be paid for fifteen months, and the assurance that the cost of the program can later be recovered, plus a profit, by installing a very small mill; this in event of finding some unexpected, unfavorable condition that would make continued development unwise.

RECOMMENDATIONS:

I recommend the formation of a Nevada corporation to take over this property, and to finance its exploration development and operation.

When this is done the stockholders of Silver Burro Exploration Company should be invited to subscribe $10,000 as a development fund for the new company. The money thus subscribed should be employed as follows:

To sink a two compartment vertical shaft, 4 ft. x 7 ft. in the clear, timbered with 6 in.x 8 in. Oregon Fir, to a depth of about 95 feet. A location has been selected that will enable a short crossuut, at a depth of 85 feet, to penetrate the present known ore zone at a point twenty-five feet lower, vertically, than the deepest existing workings (the bottom of winze "a") (See appended Sheet 2). This shaft can be sunk quickly and cheaply because there is an old incline shaft from the bottom of which a raise can be put up to the surface 45 ft., leaving only 50 ft. of actual sinking. A 10 ft. sump is allowed for in these figures. So far as can be judged now no timber will be required in drifts and crosscuts.

This shaft can be contracted as to labor and explosives and will cost about $2,500.

To drive four hundred feet of drifts, crosscuts and raises (to connect with present workings), will cost about $2,800.

A suitable hoist and cable will cost $650.

A shop, three tents for miners, track, pipe, drills and other equipment will cost $1,500, making a total for these expenses of $7,450.

Silver Burro Exploration Company should be designated as Manager of the undertaking.

The time required to carry out this work should not exceed four months.

It may be that this fund will be sufficient to permit putting down one or two diamond drill holes on the OLD TIMER CLAIMS to determine what the formations and possible ore conditions are at a depth of three hundred or four hundred feet

in that part of the property. Investigation of the OLD TIMER area should, however, follow the investigation of the KEYSTONE orebody because we are certain of the existence of the latter and can use information obtained in exploring it in work that may be undertaken elsewhere.

In this connection, it should be kept in mind that car No. 20 (see appended Sheet 5) came from old workings on the OLD TIMER No. 1 Claim. The Jones boys had pumped the water down in one of the old shafts to study this vein and to mine the ore, but did not have the equipment to keep it pumped out for further mining.

Respectfully submitted,

Raymond Brooks

January 6, 1940

NOTE:

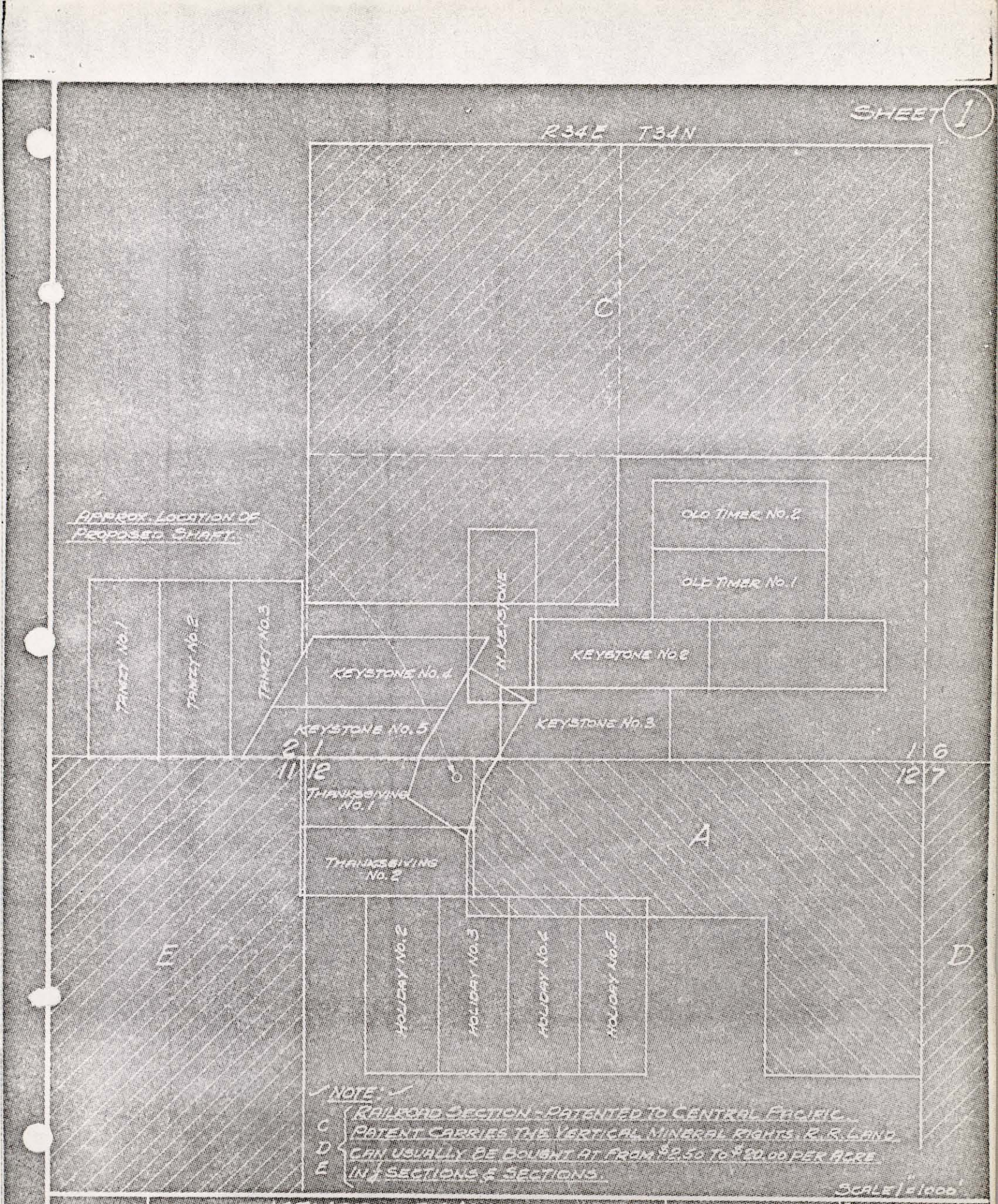
Before completion of the preceding report, my conclusions and recommendations were presented to the Board of Directors of the Silver Burro Exploration Company, who, after full discussion and consideration, approved the immediate formation of a Nevada corporation and proceeded at once with its organization.

Raymond Brooks

Reno, Nevada
January 8, 1940

SHEET 1

R34E T34N



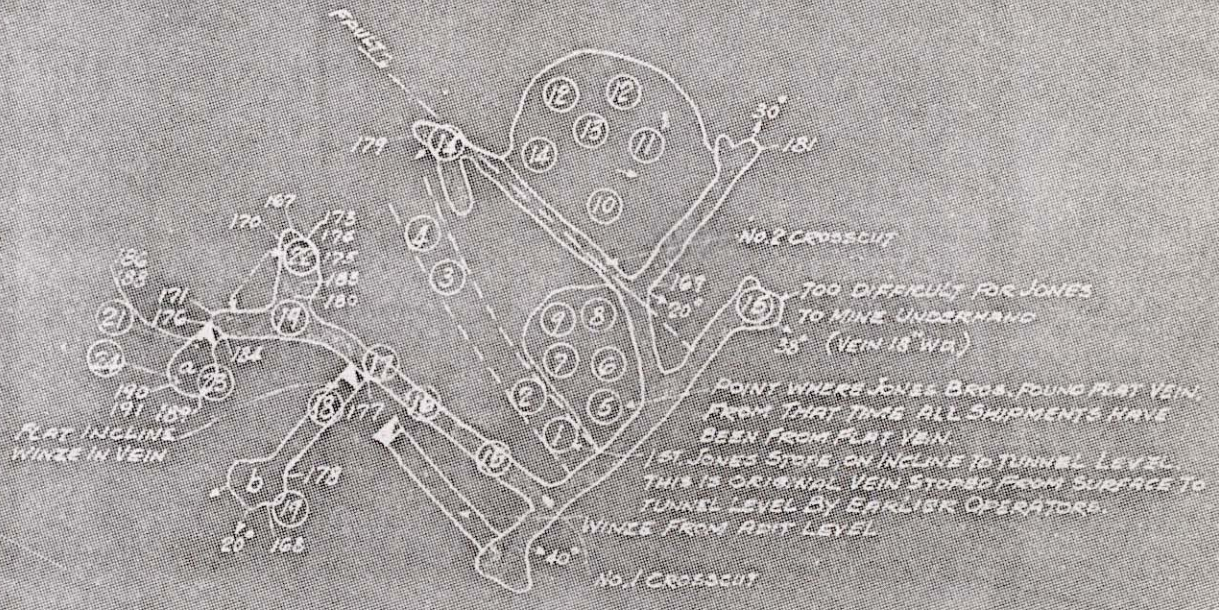
NOTE:

C RAILROAD SECTION - PATENTED TO CENTRAL PACIFIC.
D PATENT CARRIES THE VERTICAL MINERAL RIGHTS. R.R. LAND
E CAN USUALLY BE BOUGHT AT FROM $2.50 TO $10.00 PER ACRE IN ½ SECTIONS & SECTIONS.

SCALE 1" = 1000'

P.O.	KEYSTONE MINE SILVER BURRO EXPLORATION CO. - PLAT OF CLAIMS -	AJ-1566I-A	DATE 1-10-40 SCALE

SHEET 3



Note:

Numbers in circle show locations from which cars of ore have been shipped to Salt Lake smelter.

Small arrows show dips at various points.

Numbers not in circle represent samples taken by Mr. Brooks.

Scale: 1"=50'

	KEYSTONE MINE SILVER BURRO EXPLORATION CO. SECOND LEVEL "FLAT" VEIN	AJ-15666	DATE 12-22-51

TONNAGE THAT CAN REASONABLY BE EXPECTED FOR EARLY MILLING OPERATIONS.

Tonnage is calculated on a basis of mining an average width of 4 ft. of ore in this area. My samples indicate that a good mill grade of ore will be found in some places with widths up to 6 or 8 ft.

The value of ore in different blocks is calculated from actual shipments made from the locality under consideration.

To allow for some sorting in past shipments made by the present operators I have used only 75% of the actual value of the ore as determined at the smelter. The operators claim that very little sorting has been done.

My samples are considered to be confirmation of the existence of faces of ore at various accessible points that is of similar grade to the ore that has been shipped.

No consideration has been given to the possibilities of mill ore in the inclined vein.

Block I	1207	Tons	@	$18.15 =	$21,907
Block II	611	"	@	18.16 =	11,089
Block III	462	"	@	15.50 =	7,161
Block IV	851	"	@	13.63 =	11,599
Block V	1097	"	@	21.83 =	23,947
Block VI	2199	"	@	16.36 =	35,975
Block VII	1655	"	@	11.33 =	18,761
	8082	Tons			$130,429

(Av.Val.$16.14)

Scale 1"=50'-0"

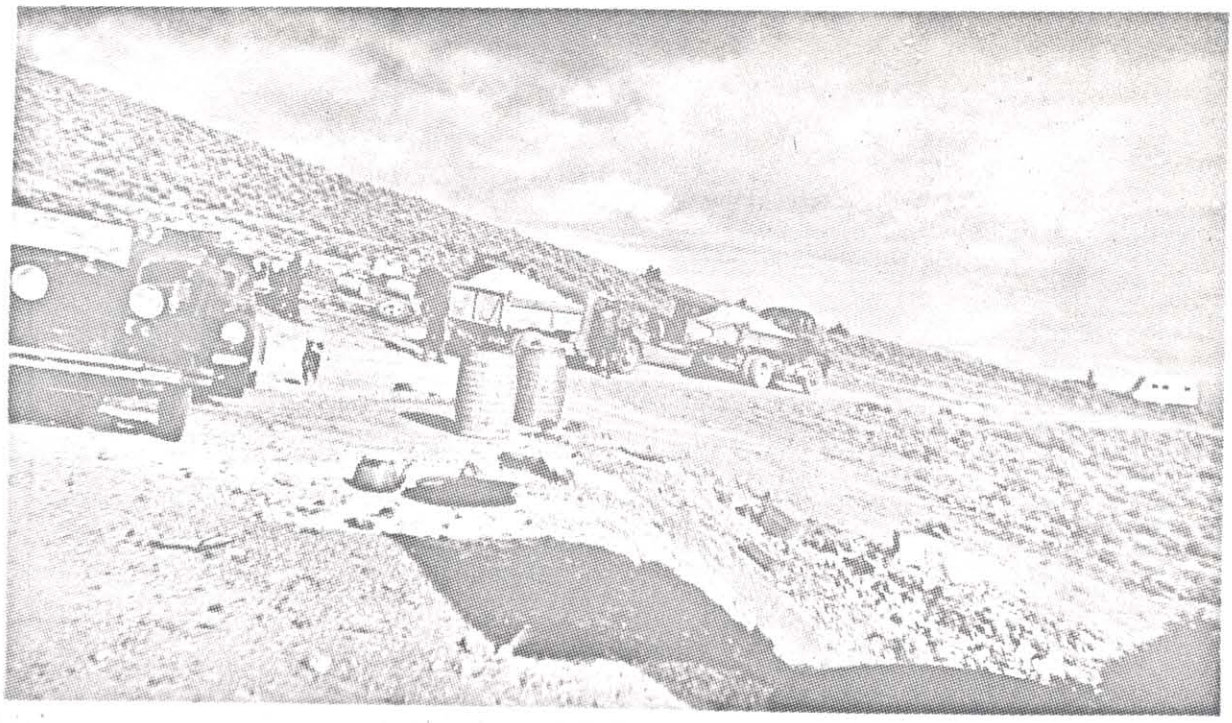
	KEYSTONE MINE SILVER BURRO EXPLORATION CO. SECOND LEVEL-"FLAT" VEIN	AJ-15667	DATE 12-22-39 SCALE

Smelter Val. per Ton	Smelter Deducts	Smelter Pay. per Ton	Total	Freight	Handling	Net Proceeds
$18.88	$3.75	$15.13	$ 622.80	$133.73	$62.68	$ 426.38
16.97	3.75	13.22	518.20	129.31	60.62	328.27
15.12	3.75	11.37	447.02	130.24	61.05	255.73
16.13	3.75	12.38	652.08	170.08	79.75	390.27
18.25	3.75	14.50	621.80	142.30	66.71	403.59
18.37	3.60	15.77	625.19	134.55	63.06	418.60
19.16	3.60	15.56	638.14	176.10	82.55	566.49
19.94	3.60	16.34	765.18	154.72	72.53	526.93
23.47	4.29	19.18	781.76	150.25	64.02	559.51
37.43	5.62	31.81	1,398.88	229.36	57.24	1,103.76
27.37	4.49	22.88	925.82	180.82	55.11	689.89
34.20	4.58	29.62	1,169.66	177.39	52.10	932.17
14.37	3.16	11.21	457.30	144.59	51.69	236.22
7.62	3.16	4.46	195.54	160.78	28.78	195.54
18.83	5.44	13.39	740.48	140.80	59.37	552.31
13.83	3.16	10.67	511.47	175.56	49.88	276.01
11.39	3.16	7.23	514.27	156.72	45.03	102.46
9.60	3.16	6.44	273.64	151.54	43.05	71.05
19.48	3.21	16.27	705.79	155.69	44.25	495.87
13.71	3.16	10.55	249.68	96.17	23.69	120.47
37.40	4.90	32.50	1,586.94	222.59	45.95	1,112.60
28.70	4.03	24.67	867.50	171.60	36.86	651.04
34.00	4.87	29.13	1,556.79	238.82	83.51	1,226.46

KEYSTONE MINE

Shipments by Jones Brothers to
American Smelting and Refining Co.
Salt Lake City, Utah

Lot	Date	Dry Wt.	Gold oz.	Silver oz.	Lead %	Copper %	Zinc %
1	5/5/37	82,626	.03	25.65	2.5		.4
2	7/12/37	78,396	.025	22.10	1.3		
3	8/23/37	78,682	.02	19.80	1.7	.1	
4	10/22/37	105,544	.017	21.40	2.0	.1	
5	11/29/37	85,758	.021	25.55	2.35		
6	1/3/38	79,288	.02	25.60	1.65		
7	2/17/38	107,088	.02	26.75	2.2		
8	3/9/38	93,412	.035	30.40	3.05	.1	
9	5/17/38	81,518	.027	36.54	3.5		
10	6/8/38	87,952	.027	39.69	3.1	.15	
11	7/18/38	80,926	.02	45.25	2.65	.1	1.6
12	8/23/38	78,978	.05	56.00	2.4		
13	9/16/38	78,020	.022	21.90	2.35		
14	11/14/38	87,686	.02	11.45	1.45		
15	4/11/39	76,578	.032	35.25	2.55	.15	1.2
16	6/2/39	96,870	.02	21.1	2.85		
17	6/17/39	86,954	.018	16.55	2.6		
18	8/2/39	84,980	.027	13.00	1.35		
19	8/10/39	88,514	.03	26.80	3.8	.12	
20	Old Timer 8/23/39	47,332	.016	19.90	2.80		No Returns
21	9/25/39	85,550	.04	51.55	7.95	.1	
22	10/16/39	70,528	.025	39.20	5.85	.17	do
23	11/18/39	106,886	.046	46.40	7.30		do
24	Returns Not Received (1/2/40)						



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(report 2 of 4)

NEVADA KEYSTONE MINING COMPANY
MINING OFFICES
BOX NO. 411 WINNEMUCCA, NEVADA

RESIDENT AGENT
WILLIAM M. KEARNEY
GAZETTE BUILDING
RENO, NEVADA

CALIFORNIA OFFICES
4800 SANTA FE AVENUE
LOS ANGELES
JEFFERSON 7131

NEVADA KEYSTONE MINING COMPANY
FIRST QUARTERLY PROGRESS REPORT
PERIOD JANUARY 1st to MARCH 31st, 1940

In the early part of January NEVADA KEYSTONE MINING COMPANY was organized under a Nevada charter. A few days later the three Jones brothers transferred to it all of their rights, title and interest in their lease and option on the KEYSTONE mining claim, the other six claims they had located in close vicinity to the Keystone, and tax sale title to the Molan homestead, receiving compensation in full in the form of ten percent of the capital stock of the company then issued. They will, by the terms of our agreement with them, receive, from time to time, ten percent of all additional stock that is issued (one share for each ten shares issued to other stockholders). Nevada Keystone Mining Company holds a formal first refusal on the Jones Brothers shares if they should desire to sell them.

DEVELOPMENT PROGRESS:

The last week of January and the first half of February were devoted to taking rails, air pipe and other Jones equipment out of their previous workings and installing them in an old incline shaft that was 113 feet deep, which is now called NEVADA KEYSTONE MINING COMPANY SHAFT NO. 1, through which we are doing our first development work.

The Jones underground hoist, consisting of an old Ford engine coupled to a converted "Tugger" hoist was installed in a small hoist house, and a head frame with an eight ton bin erected at the collar of the shaft.

A corrugated iron building was erected over the Jones engine and compressor and the crude "cook house" repaired.

A Chipmunk crusher and electric motor were installed for quartering samples.

Four 12' x 14' tents were erected with wooden frames and wooden floors and a rebuilt Kohler 1500 watt electric light unit bought and installed for lighting the headframe, the camp and for electric blasting. Several heating stoves and a cooking range were also purchased. The result is a comfortable camp and an efficient, very small plant.

In February a mineral surveyor was employed to survey the claims and to assist in locating additional claims, including a possible future town site and a very fine mill site and tailings disposal area against the day when a large mill may be desired. The location of these claims now is done at nominal expense and might easily save the company a large amount of money later if the property proves to be a very important one. The company now has (by right of discovery) thirty-three mineral claims and a patented homestead of 158 acres adjoining the Keystone claim which carries with it fine water rights and all mineral rights.

Shaft sinking started on February 16th and was completed, with an accomplishment of forty-seven feet, on February 29th, having used two shifts of three men each and a seventh surface man at a cost of $15.00 a foot for labor, explosives and fuel for the compressor engine. Water was encountered in the shaft at about 35 feet which necessitated buying a small Cochise air driven pump. Water has given no trouble since.

At forty-seven feet the shaft encountered the hornfels which is the foot wall of the ore bearing granodiorite. The first two weeks of March were used in running a semi-circular drift in the hornfels 50 feet to investigate that formation and to serve as an easy outlet for ore which can now be mined by putting up a short raise.

A westerly drift from a point a few feet above the bottom of the shaft was started in ore on March 15th and has progressed eithty-four feet, all in ore, when the drift was stopped on April 2nd in order to start a flat stope "K". (See accompanying plan and geological section.) This drift followed a quartz band dipping about 10 degs. to the south and having a width of three to four feet. It shows heavy galena, pyrite and sphalerite all the way, sometimes containing these sulphides in massive form. Streaks and bunches of quartz carrying lead, pyrite and zinc occur at intervals above and below the main band. No hornfels has been seen since leaving the shaft.

At sixty feet from the shaft the quartz band started to dip to the southwest and by turning the drift towards the north we were able to keep it in sight in the bottom. This is exactly the same condition that was encountered by the Jones when driving their first drift west from the hornfels contact on the second level of the old workings, 200 feet to the north of our drift. The quartz band and ore conditions are exactly the same in both instances, except that oxidized granodiorite lies immediately over the ore in the former workings, and we have sulphide ore conditions above us in the drift. We cannot yet say whether it is the same quartz band in our drift.

I believe it to be quite probable that quartz and highly mineralized ore bearing zones of this kind will be found at varying intervals as greater depths are investigated. In appearance the ore in the whole drift looks better than it did in the former

Jones workings. The diorite appears to carry more ore mineralization outside of the quartz itself. It all makes a very fine "looking" ore. There is nothing yet evident that could lead one to expect a change of general conditions of mineralization. In fact, the granodiorite intrusive mass has been at some early period under such pressure that seams, innumerable local movement planes and fractures occur wherever it is exposed. It must be a very deep seated action and one that should provide ample possibilities for different periods of mineralization and concentration of ore minerals.

The granodiorite (dike or stock) shows a surprising consistency in the amount of disseminated sulphides that are easily visible in any piece of formation that is broken. Concentrations undoubtedly occurred at later periods when quartz was deposited in fractures and in cavaties and along myriads of seams running in every direction. Sometimes the quartz will be white and apparently barren, but within six inches it will always disclose patches of galena or aggregates of lead, zinc and pyrite six or eight inches in diameter.

The Keystone quartz vein apparently is the filling of a later fracture because it traverses both the diorite and, to the north, the hornfels as well (see accompanying LONGITUDINAL SECTION & PLAN), though the vein apparently dies out in the latter formation as it progresses to the north along its outcrop. Some quartz ore from this portion of the outcrop, piled by old operators, shows assays up to 15 or 20 oz. of silver and some gold.

Our sample No. 227 (see geological section) had a width of 5.0 feet and showed: gold .02 oz., silver 17.9 oz., lead 2.9% and zinc 2.0%. (No molybdenum was present.) The drift was started in this ore. A car sample from the first round in the drift, representing 9 tons hoisted, gave: gold, .05 oz.; silver, 13.05 oz.; lead, .90%; zinc, 1.40%.

From then on regular car samples have been taken on the surface as the ore from the drift was hoisted and dumped. The drift has been carried at an average height of 7.5 feet and a width of 4.0 feet.

Car samples from the following rounds gave results as follows:

		Au	Ag	Pb	Zn
Rounds 2, 3 & 4	(10 ft. of drift)	.02 oz.	6.00 oz.	.89%	.60%
" 5 & 6	(8 " " ")	.02 oz.	6.10 oz.	.86%	.50%
" 7, 8 & 9	(10 " " ")	.01 oz.	5.75 oz.	.84%	.60%
" 10,11, & 12	(11 " " ")	.01 oz.	6.55 oz.	.90%	.35%

Car samples from the remaining rounds have gone for assay but returns are not yet received. (See appended Assay Table). From the appearance of the ore they should carry as good or better

values. Giving full metal values to the samples above, the grade of the whole drift for a distance of 39 feet (after the first round) is about $6.00 per ton. The westerly portion of the drift shows ore above and below the drift.

There is no knowledge of ore conditions in this mine below our present level, but it is believed that the mineralizing agencies that created the present ore horizon will be found to have been active to very considerable depths.

We can now consider that we have reasonable assurance of being able to mine and sort 15,000 tons of ore with a value of $15.00 or more a ton (smelter prices) at the present level, with still unknown possibilities at this horizon and below. The ore crushes easily with ready release of ore minerals to form concentrates so it is being considered whether, after sorting out the high grade ore and screening out the fines for direct shipment to smelters, it would pay to install a small crusher, ball mill, jigs and possibly tables to prepare concentrates from the lower grade ore for shipment to smelters. In this way the entire output from development, augmented by some stoping, could be concentrated for shipment to create revenue.

PLANS FOR CREATING IMMEDIATE REVENUE:

We have, on this date, ten tons of sorted ore and screenings at the surface, and twenty-five tons of sorted ore stored in the west end of the drift, derived from stope "K" (see plan and geological section). Fifteen more tons of ore will be sorted from this stope so that we can ship a car of ore to one of the Utah smelters on April 10th. Assay returns are not yet received on this ore so I cannot state what the grade will be. Judging by the appearance and amount of sulphides contained, and by past experience in shipments from the property, the car should give smelter returns of from $5.00 to $10.00 per ton, after deducting hauling, freight, sampling and smelter charges. It will be ten days after shipment before returns are received.

Three possible plans of procedure are presented herewith:

Plan 1. Continue stoping from the present drift and continue that drift towards the former workings to create stoping areas and to provide ventilation. By this method we can, by the end of April, be in a position to ship one fifty ton car of ore per week, which would practically assure us of a revenue of between $1,500 and $2,000 per month, not enough to cover operating expenses and any development. By this plan we may be able to step up shipments to six cars of ore per month and raise the grade so as to derive a monthly revenue of from $2,500 to $3,000 which would provide for a very moderate program of testing the property at greater depth and doing a little towards investigating other parts of our property, such as the Tamzy No. 2,

and the Old Timer Nos. 1 & 2 claims where evidences of an ore deposit of magnitude are excellent.

To carry out this plan we should provide $5,000 to build an ore bin and trestle (to cost $750) and to provide for expenses while awaiting revenue from shipments. After that the needs for cash will be governed by returns from shipments.

Plan 2. Immediately complete tests to show what kind of concentration of ore minerals can be done inexpensively at the mine and what revenue can be derived from the shipment of such concentrates. I believe we can cheaply concentrate this ore, making a fairly clean and valuable product. The development and stoped ore, after sorting out highgrade and screenings for direct shipment, should average between $4.00 and $6.00 per ton and give a concentrate having a very good value. By this plan the company could expect to derive an income from operations of $2,000 per month from sorted and screened ore, shipped direct to smelters, and from $2,000 to $4,000 per month from concentrates.

To finance this plan steps should be taken at once to provide additional capital in amount $19,000. It is the writer's belief that equipment for making concentrates at the mine can in part be bought from used machinery dealers.

This plan will include sinking a flat incline shaft from a point indicated on the Geological Section. The cost of the shaft would be $25.00 a foot and it would take only 120 feet of shaft to reach the present No. 1 West drift level. Thereafter ore can be brought to the surface in mine cars, two or three to the trip, with a very small hoist. With this shaft deeper development and mining can be done cheaply by extending the shaft.

At the level of the collar of proposed incline, at a distance of 500 feet, there is a hill that would be an ideal site for a small concentrating mill. Five hundred feet from this site, and forty feet below it, is the bed of Mill Canyon where water is obtained at a depth of fifteen feet at all times of the year.

Plan 3. This would be a comprehensive plan of rapid exploration on all parts of the property to determine as quickly as possible the full extent and character of the deposit, or deposits, to a depth of four hundred feet. It is a program I believe to be justified and one I would recommend if a large company were investigating the property. It would require a fund of at least $75,000 to accomplish.

RECOMMENDATIONS:

I prefer and strongly recommend PLAN 2 for immediate adoption. Some variations may be necessary before it is in complete operation, but I believe a further fund of $19,000 will be sufficient to put it in effect and start us on a self-sustaining basis. Since the only capital outlay we shall have to make for purchase of our mining properties is a payment of $13,200 a year hence to

the owner of the KEYSTONE Claim, and since Plan 2 will provide the money for this through royalties, I request and strongly recommend that ten of our members subscribe $1900 each, or twenty members subscribe a further $950 each to put Plan 2 in effect at once.

Funds for the first budget of $10,000 were subscribed quickly and I hope the same interest and confidence will be shown in providing funds for our second budget.

We have accomplished a rather noteworthy thing in acquiring a property of great interest and merit and doing a considerable amount of exploration work in a short time and for an expenditure of $10,000.

We have, with the work we have done at a new point in the Keystone orebody, greatly extended the area of probable and assured ore in the uppermost horizon and have much more than doubled the value of the Keystone claim alone.

We shall need this second development fund to include sampling of the old workings on the Old Timer Nos. 1 and 2 claims where there is every prospect of finding exposed ore that can be shipped in conjunction with shipments from the Keystone deposit, and where there is as good a chance for the existence of a large sulphide orebody as we have on the Keystone.

With a small concentrating mill at the Keystone Mine we can probably get leasers to do development on other parts of the property to assist in gaining full knowledge of its possibilities.

Respectfully submitted,

Raymond Brooks

President
NEVADA KEYSTONE MINING COMPANY

Keystone Mine
April 6th, 1940

NEVADA KEYSTONE MINING COMPANY

(To be appended to first quarterly progress report)

It has been suggested to me that a few of the stockholders in Nevada Keystone Mining Company are not experienced mining men and that for this reason a further explanation of the present possibilities of the mine might be helpful.

The First Quarterly Report, to which this will be attached, indicates the extremely interesting possibilities of the property, but leaves to the individual his own interpretation of the possible extent of the ore reserves, based on the work that has been done and the formations in which we are working.

To clarify this point, I will say that the No. 1 West Drift where we are now exposing the ore should be thought of as a crosscut being run to investigate and sample all of the granodiorite between the hornfels foot wall on the east side and the hornfels hanging wall on the west side in the uppermost part of the sulphide ore horizon. The whole mass appears to be highly mineralized with sulphides of lead, silver, zinc and iron, one or all of which carry some gold.

In my report on this property, dated January 6th, 1940, I estimated the indicated sulphide ore that could be easily mined to be 8,000 tons, of an average vertical height of four feet, having an average recoverable value of $16.00 per ton.

Our new No. 1 West Drift proves that we can mine a vertical height of eight feet of sulphide ore having a recoverable value of $8.00 a ton in the portion of the ore mass lying 180 feet farther south than any previous ore exposures, and that, if the ore is continuous at this horizon between our No. 1 West Drift and the previous workings, which it is almost certain to be, we shall, by this small program, have increased the probable ore reserves in the uppermost portion of the orebody to 30,000 tons of $8.00 to $10.00 ore instead of the 8,000 tons of $16.00 I originally estimated to be in sight. This increase has been accomplished with an expenditure for underground work of approximately $5,000.

In the plainest possible language I wish to say that I believe we have an extensive intrusive mass of ore-bearing granodiorite of irregular shape and extent that is very deep seated and that will probably carry payable values in silver, lead and gold to a considerable depth. The metal content may vary relatively but there is every indication that we can expect to have a $5.00 to $10.00 per ton grade of sulphide ore or better as deeper work is undertaken. It is also very probable that the westerly continuation of our work at the present and deeper levels will disclose the fact that all of the granodiorite mass

is ore-bearing all the way to the west hornfels contact shown on the geological section accompanying this report. I have justification for these beliefs because everything we have so far been able to prove confirms our original expectations.

The ore we are now investigating is probably almost entirely primary, as contrasted to the upper horizons of many of our porphyrey copper deposits in which the upper, mineable ore horizons are due to secondary enrichment. Because of this, we have reasonable assurance that conditions we are finding will continue to depth.

It is the writer's opinion that we shall be able, under PLAN 2, to quickly prove a vertical depth of ore of at least twenty-five feet which would give us a reserve of 100,000 tons as the basis for the erection of a selective flotation mill of one hundred tons daily capacity, and that the cost of development to assure this tonnage can be derived from ore and concentrates to be shipped under this plan.

PLAN 2 would also provide enough money to do exploratory work on the Old Timer claims and at other places on the property so that by the time a flotation mill is built there will be additional proved or indicated tonnages in other orebodies that would justify the erection of a larger mill.

All of the material from the No. 1 West Drift has been dumped separately at the surface, the dump totaling about 250 tons. A shovel cut of about 25 tons for sampling has been made into one side of this dump and the higher grade ore sorted out into one pile and the coarse, low grade ore sorted into another pile, while everything under four inches in size was shoveled onto a 1½ in. screen standing at a steep angle.

Two sets of careful grab samples were taken from these three piles; one set averaging 85 lbs. per sample taken by the writer, and one set averaging 28 lbs. per sample taken by H. A. Jones, who did most of the sampling for the Jones brothers for their previous shipments.

The weighted average of these assays for these three classes of ore were as follows:

Coarse highgrade ore (about 20% of whole by weight):

Gold, 0.057 oz; Silver, 33.11 oz; Lead, 6.25%; zinc, 0.62%.

Screenings (about 30% of whole by weight):

Gold, 0.029 oz; Silver, 10.90 oz; Lead, 2.16%; Zinc, 0.36%.

Coarse low grade (about 50% of whole by weight):

Gold, 0.017 oz; Silver, 4.62 oz; Lead, 1.22%; Zinc, 0.31%.

Our first shipment of ore was sent to the Utah Ore Sampling Company, Murray, Utah, on April 10th. The car contained about 42 tons (estimated weight). The coarse ore and screenings from the dump sampling above were included and the balance made up mainly of coarse ore sorted from stope "K" (see plan and geological section).

Raymond Brooks

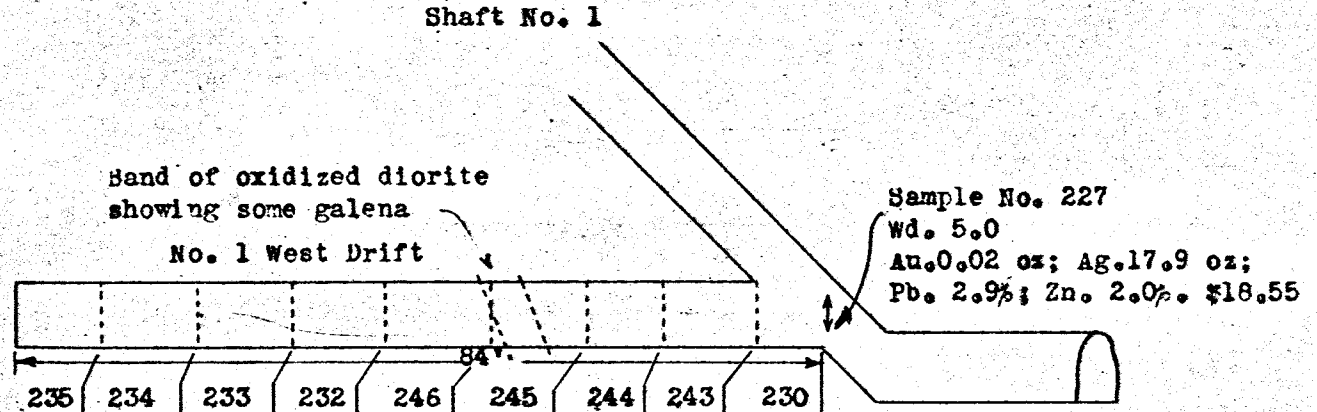
April 16th, 1940

ASSAY SECTION OF NO. 1 WEST DRIFT FROM SHAFT NO. 1

(To be appended to first quarterly progress report)

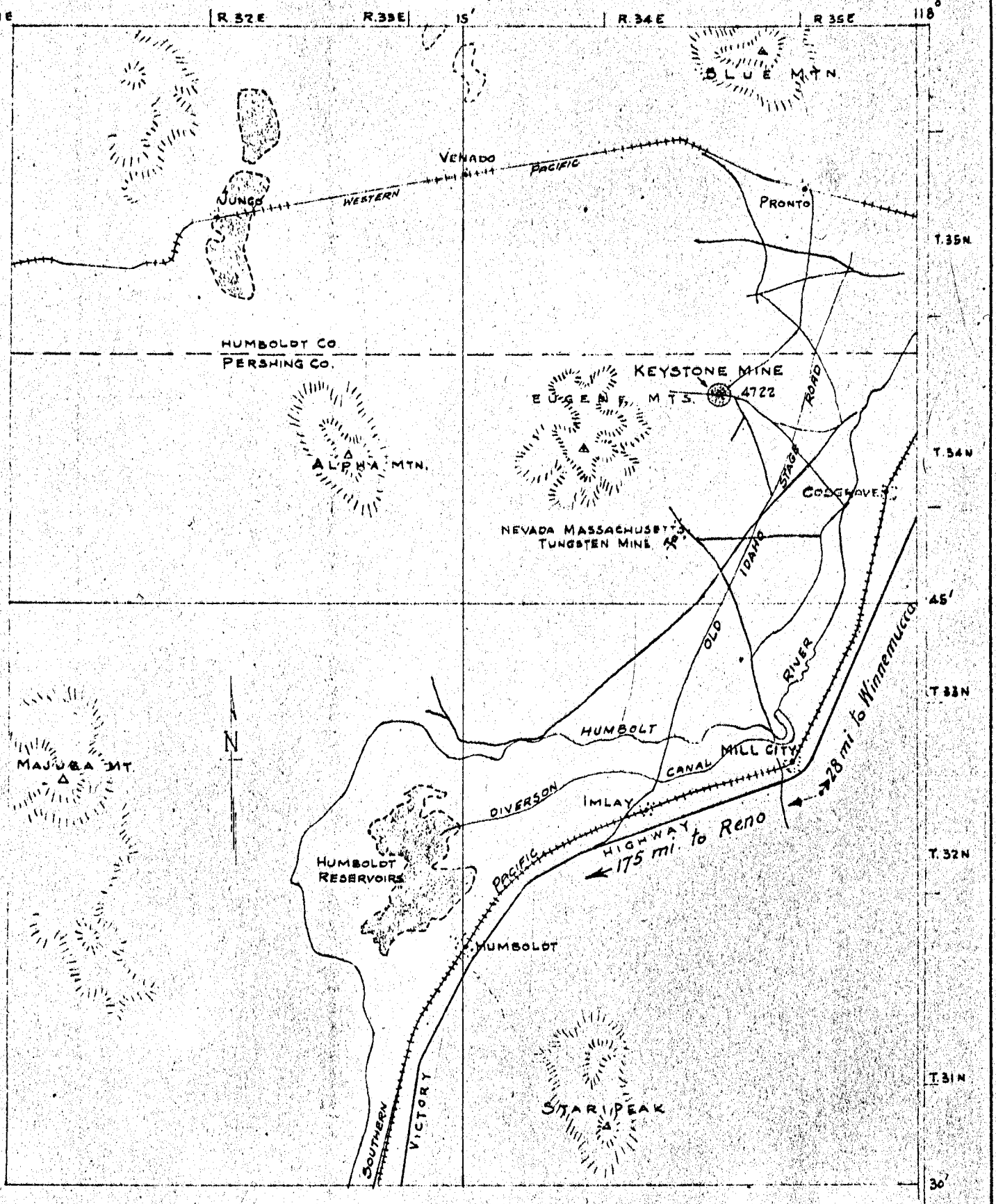
Assay returns from the last 39 feet of this drift were not received when my report was mailed, so this complete list of Sample results is appended to the report.

R.B.



Sample No.	235	234	233	232	246	245	244	243	230
Assay Val.(per ton)									
Gold. Oz.	0.05	0.045	0.045	0.04	0.01	0.01	0.02	0.02	0.05
Silver Oz.	10.20	10.00	9.40	8.80	6.55	5.75	6.10	6.00	13.05
Lead %	2.70	1.80	1.80	1.20	0.90	0.84	0.86	0.89	0.90
Zinc %	0.60	0.60	0.70	0.50	0.35	0.60	0.50	0.60	1.40
Total Metal Value $	12.29	11.08	10.75	9.34	6.25	5.87	6.20	6.39	13.31

CAR SAMPLES
(of all the material broken in drift)



PLAT SHOWING LOCATION OF KEYSTONE MINE

TAKEN FROM U.S. GEOLOGICAL SURVEY MAP.

Drg: A-15604-2

Scale: 1/4" = 1-mile
or: 1/250,000

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(report 3 of 4)

SUMMARY OF REPORT

on the

KEYSTONE MINE

J. H. Farrell
Reno, Nevada
September 16, 1942

SUMMARY OF REPORT
on the
KEYSTONE MINE

This report is intended to outline briefly the results of the writer's examination of the Keystone mine covering a period of three weeks. It will be followed by a detailed report including a map showing locations and values of samples. It was not possible to cover the entire property nor to make a geological survey of it in the limited time authorized.

LOCATION AND SIZE OF PROPERTY. The holding of the Nevada Keystone Mining Company, now leased to the Old Central Mining Company, is in the Central Mining District in western Pershing County, Nevada. It is seven and a half miles south of Pronto, a station on the Western Pacific Railroad, and fifteen miles by road northerly from Mill City on the Southern Pacific Railroad and U. S. Highway No. 40.

There are sixteen lode mining claims in the group held by possessory right, five of which areless than full size. One patented claim and 158 acres of patented land are held under lease and option to purchase.

GENERAL CONDITIONS. Situated on the lower east slope of the Eugene mountains at an elevation of about 5000 feet above sea level, the property is easily reached from either railroad by roads with no steep grades which could be put into very good condition by gravel surfacing.

The climate permits all year operation with little difficulty from cold weather.

An adequate water supply is available by pumping from a well close to the proposed mill site, or by gravity flow at a distance of a mile and a quarter or less.

A line of the Sierra Pacific Power Company is six miles distant at the Nevada Massachusetts tungsten mine.

Labor and supplies are easily obtainable locally in normal times but are now subject to wartime regulations.

Housing at the camp is barely adequate for a small operation and there may be difficulty in providing additional accomodations.

GEOLOGICAL CONDITIONS. No general geological survey of the district has ever been made, nor has the writer made any detailed study of conditions.

A thin-bedded, rather flat lying sedimentary series mostly shale with occasional limestone beds, has been lifted and shattered by an intrusive mass of granodiorite. Mineralization appears to have originated in the latter formation and the veins have been found either within it or in the shale close to contacts with it.

The vine are of two types, those carrying considerable quartz in definite continuous bands probably with minor amounts of sulphide ore minerals which have been almost completely destroyed by oxidation in workings now accessible. Such veins had fairly prominent outcrops and were discovered in early days and worked to the bottom of the oxidized zone, 150 feet or less along the dip of the vein, usually 35 to 40 degrees.

The second type of vein, much more promising than the other, was discovered in 1937 in the footwall, that is, below and to the westof the old Keystone vein. These veins show good primary ore, the sulphides commonly are pyrite, silver bearing galena, and possibly silver minerals in small amounts. These ore minerals with some associated quartz are found as veinlets and irregular masses in highly altered granodiorite over widths of 2 to 5 feet or more. Two ore shoots have been mined over 100 feet on the dip and 10 to 20 feet or more laterally. Exploration would doubtless extend these dimensions as stope faces still show good ore and might be expected to come into material of shipping grade again.

Because exploration has been limited by water level and by the necessities of the leaser's work, it is impossible to say definitely that greater vein widths and more extensive ore shoots do exist in this formation, but the character of the mineralization suggests that under conditions favoring concentration of the ore minerals much larger ore bodies may occur. Such conditions, for example, would be found at intersections of fracture zones and beneath flat shale masses or impervious clay seams.

MINE DEVELOPMENT. Early work on the Old Keystone vein did not greatly exceed 1000 linear feet. Since the discovery of shipping ore in the footwall the leasers have done about 1300 linear feet on two levels 30 feet apart vertically, including the length of the two stopes between these levels, the Second and Third. The workings followed ore on the levels for the most part as well as in the stope area, very little "dead work" was done, and little is known about the vertical distribution of veins owing to the lack of raises and winzes. The veins so far discovered have dips ranging from 20 to 40 degrees from horizontal and there are known to be others above and below those mined to date. How extensive this parallel occurence of veins may be, can only be told by systematic exploration which has been lacking in the past.

SAMPLING. The writer took 55 channel samples covering most of the accessible later workings at intervals of 10 feet. This was the only quick and cheap way to get an idea as to the distribution and value of ore under present conditions. It is far from satisfactory becaus the ore is quite "spotty" or erratic in value and sampling ought to be at closer interval. Good showings of ore in the drifts were "gouged out" or mined by the leasers and waste was piled along the walls and in the stopes, so that not even the remains of the original showings can be sampled without doing a lot of cleaning out work. Faces in the stopes in most places are those left by leasers because they were not shipping grade, or rather, would not yield a sufficient proportion of shipping ore. Under these circumstances the results of sampling are sure to be much lower than they would have been in the same workings before extraction was started.

The following is a summary of sample results within ore limits:

The average of 14 samples in "G" and "F" drifts on Third Level: Width 4.5 ft., gold 0.019 oz/ton; silver 7.22 oz/ton; lead 0.90%; zinc 0.39%.

The west face of the principal stope area for a length of 150 feet, between Third and Second Levels, 11 samples averaged:

Width 4.16 ft; gold 0.02 oz/ton; silver 14.4 oz/ton; lead 2.07%; zinc negligible.

The general average of 37 samples from the ore area is:

Width 4.1 ft; gold 0.019 oz/ton; silver 10.43 oz/ton; lead 1.33%; zinc 0.37%.

The gross value and pay value on the last assay:

Gold at $35/oz	$ 0.654	$ 0.60
Silver 70 cents/oz	7.301	6.27
Lead 9 cents/lb	2.394)	1.50
Zinc 11 cents /lb	0.814)	
	$11.16	$ 8.37

The amount to be realized from the lead and zinc is, of course, much below the combined gross value of $3.21, and it cannot be calculated without metallurgical data as to recovery and grade of concentrates, and market information.

PRODUCTION. The production from leaser's operations since 1937 according to figures given by Mr. Raymond Brooks for shipments 1 to 38, is as follows:

Tons	Gold Oz/Ton	Silver Oz/Ton	Lead %	Zinc %
1,674	0.0386	32.22	4.08	0.14

This ore had a smelter value of $39,699.86 or $23.79 per ton. Charges for hauling, freight, and treatment amounted to $9.57, leaving a net return of $14.22 per ton.

On the basis of the metal prices used by the writer in calculating the gross value of $11.16 per ton for the sample average given above, the corresponding gross value per ton for the shipments would be $31.24, exclusive of the zinc. The difference between this and the smelter value of $23.79 per ton, is partly due to the bonus included in the $0.09 lead price, and partlyto the very low payment by the smelter for small amounts of lead.

ORE POSSIBILITIES. It is impossible to estimate ore tonnage and value by standard engineering methods because of the irregular character of the workings, and the fact that sampling present ore exposures does not give results which would apply to new ground for reasons previously explained.

As to tonnage, the leasers have taken most of their ore from an area 200 feet long (N-S), by 100 feet wide, which is well opened by their workings. For a vein width of 4 feet such an area would yield approximately 6,600 tons, of which it is estimated about 2,000 tons have been mined and approimxately half of it shipped. (Other shipments came from north and south of the area under consideration.)

This would leave 4,600 tons in this central area. Extension of known ore to the north will be partly in the oxidized zone, but it would perhaps be permissible to expect 1,000 tons of additional ore in this direction in the upper zone, aside from possible discoveries beneath the present work.

Extension of known ore to the southwest appears most probable. A small amount of good ore has been shipped from Shaft No. 2, 400 feet away, in a fault-vein cutting shale. Little is known of this section because to follow ore southwest from the No. 1 Shaft workings would require pumping water under rather difficult conditions, with present equipment. However, the ore showing is very promising and it is entirely possible that production in the next 200 feet to the southwest will equal or exceed that in the area which has been mined.

Operations to date have explored only a very limited zone of 30 to 50 feet vertically in the sulphide zone. There is reason to believe that other veins like those already mined will be found at lower levels in the granodiorite formation since it shows general sheeting or fracturing parallel to known veins and many of these show similar fractures more or less mineralized in hanging and footwall.

As to ore value in new ground, it will probably be found to be somewhere between the writer's average for the west face of the stope area -- gold 0.02 oz/ton, silver 14.4 oz/ton, lead 2.07% -- and the shipping average to date which is approximately twice that grade.

It is easy to sort this ore on a screen or belt and mill heads could be kept at any desired grade between these limits.

It appears probable that ten to fifteen thousand tons of milling ore having an average gross value of $15 per ton, or better, may be mined within reasonable reach of the present workings. This is the writer's opinion based upon the facts outlined above, but it is not to be taken as an estimate of proved ore.

If the writer's interpretation of geological fact is correct several times that tonnage may be realized within a depth of 500 feet in this partly explored Keystone formation. The ore consists of primary sulphides of good

grade likely to continue at depth, the granodiorite shows widespread evidence of mineralization and alteration, appears to be an "ore carrier" because of its original mineral content. Segregation of ore minerals has reached a stage in which ore bodies of importance may be formed.

THE OLD TIMER claim located about half a mile northeasterly from the Keystone, shows two veins one of which was worked in early days over a stope length of more than 300 feet for widths of 3 to 5 feet or more. Nothing is known of this vein now as the old workings have never been pumped out. From material on the dump it is thought that there may be good lead-zinc ore carrying silver left in the lower levels. The mine should be unwatered.

OUTLYING CLAIMS, particularly the Tamzy group, show other veins which have produced shipping ore and could doubtless be counted upon for mill ore. A prospect recently opened on one of these claims was showing good ore in the initial stage of development.

EQUIPMENT on the property is sufficient for a small operation, with some minor additions.

A MILL on theproperty would greatly assist development, and the erection of a small plant is justified by the past record and present ore showing.

Respectfully submitted,

(SGD) J. H. Farrell

Reno, Nevada.
September 16, 1942.

REPORT ON THE KEYSTONE MINE

Pershing County, Nevada

by

J. H. Farrell

Reno, Nevada
Sept. 28, 1942

SUMMARY

The Old Central Mining Company has under lease and option thirteen unpatented lode mining claims and 158 acres of patented land carrying mineral rights; it also holds four unpatented lode claims by location. This property is in the Central District close to the eastern line of Pershing County, Nevada, seven and one half miles south of Pronto, the nearest railroad station, on the Western Pacific Railroad, and twenty six miles southwesterly from Winnemucca.

The property is easily reached by fairly good roads with no steep grades, the climate favors all-year operation, the elevation is about 5,000 feet above sea level. Water and electric power are readily available, and in normal times there is no difficulty in obtaining labor and supplies.

No geological survey has been made of this locality. Shales with occasional thin limestone strata cover most of the surface, overlying a medium textured granitic rock classed as a granodiorite which appears as dikes or larger masses where the relatively thin sedimentary capping has been eroded. The granodiorite formation is closely connected with the ore which is found either within it or in shale close to contacts with it.

Two productive veins were mined on this property in early days but practically nothing is known of the results. These are the Keystone and the Old Timer South Vein; the former has a general direction N. 20° E. dips 40 to 50 degrees east, the latter strikes N. 82° W., dips 35 to 40 degrees north. They are about half a mile apart. Very little is known of the Old Timer vein as the lower workings have not been unwatered. Probably all of the early production came from oxidized ore at depths of less than 150 feet on both veins.

In 1937 sulphide ore of shipping grade was found in the footwall of the old Keystone Vein and since that time leasing operations have produced 1,674 tons of ore shipped to the smelters having an average smelter settlement value of $23.79 per ton, with a net return of $14.22. The gross value at present metal prices including the bonus on lead, would be $31.24.

The block of ground from which this ore was mined still contains about 6,000 tons which may average $15 per ton gross value and it seems probable that two or three times that tonnage may be produced within reasonable reach of the present workings, particularly from extensions of known ore at depth.

The writer's channel samples in the ore area averaged $11.16 per ton, somewhat below the $15 figure given above. This is due to the fact that the leasers have mined the higher grade ore exposed by the drifts, filling the openings with waste or low grade material. In the stopes, faces are left which could no longer be worked profitably for ore of shipping grade. Because of these facts it is not fair to take the results of samples on present exposures

as representing new ground, and the $15 per ton figure is considered more nearly correct. In either case, mill heads could be kept at a safisfactory level by sorting, which has permitted maintenance of the average shipping grade of $31.24 gross value.

Chances of finding other ore bodies, possibly much more important than those so far mined, are very promising both at the Keystone and the Old Timer.

Equipment now on the property needs only a few additions to meet the requirements of further development. With a small mill it would be possible to handle lower grade ore which must now be left in the stopes as "job", or put on the dump. Also a much larger percentage of the lead and zinc value would be realized. At present no payment is made for zinc, and smelter payments for lead in small amount are considerably less than half the quoted price.

Although more ore should be "blocked out" to justify a mill from the conservative engineering standpoint, the writer believes that practical considerations make it advisable to put a plant on the property now. This would cut development cost and reduce the capital outlay required to build up a larger operation.

REPORT ON THE KEYSTONE MINE

Pershing County, Nevada

This report is based upon an examination covering a period of three weeks during which the writer took fifty five samples in all accessible parts of the new Keystone workings where sulphide ore is exposed, made a topographic sketch map of the vicinity of the mine, and ran a plane table traverse to the proposed source of water supply. Outlying claims, including the Old Timer group, were visited but no detailed study was made of them. No detailed geological mapping was done as a complete survey of the property was not authorized.

LOCATION AND GENERAL CONDITIONS.

The property is situated in Pershing County, Nevada, on the east slope of the Eugene Mountains, a typical desert ridge rising to an elevation of 7500 feet above sea level. The valley of the Humboldt River is about 4200 feet and at the mine the elevation was assumed to be 5000 feet above sea level.

There are seventeen lode mining claims in the group held by possessory right, five of which are less than full size, and 158 acres of patented land carrying mineral rights are included in the property. Four of the lode claims, the Tamzy Nos. 1, 2 and 3 and Keystone No. 4, are held by the Old Central Mining Company. The other unpatented claims, the Keystone, Keystone Nos. 1, 2, 3, 5, and 6, North Keystone, Old Timer Nos. 1, 2, and 4, Thanksgiving Nos. 1 and 2, and Birthday, along with the patented land, are under lease and option by Old Central. No investigation of title nor of the lease and option agreements, was made by the writer. The relative locations of these claims are shown on the accompanying map, Sheet No. 1.

The nearest railroad station is Pronto on the Western Pacific Railroad distant about seven and one half miles to the north. Mill City, on the Southern Pacific Railroad and U. S. Highway No. 40, is fifteen miles by road south of the mine, nine miles of this distance is oil surfaced road to the Nevada Massachusetts Tungsten Mine, the nearest operating property. It is 26 miles to Winnemucca, county seat of Humboldt county, via Pronto. The road to the latter point is desert trail unimproved except for clearing with a scraper, very dusty in dry weather, deep in mud during the rains. From near Pronto to Winnemucca the road has been graded and graveled, is kept in fair condition by occasional scraping. There are no steep grades.

WATER SUPPLY can be pumped from a shallow well on the property, or would come by gravity flow from a distance of about a mile and a quarter with a static head of some 200 feet.

ELECTRIC POWER is supplied locally by the Sierra Pacific Power Company which serves the tungsten mine. It would probably be possible to get power from their line, provided any surplus is available.

LABOR. There is normally an adequate supply of mine labor in this locality at wages ranging from $5 to $6 a day but at present, due to war conditions, miners are scrace and wages high.

SUPPLIES. Winnemucca, Reno, Salt Lake, and San Francisco are the main supply points. For small operations the local merchants usually sell food, lumber, and explosives at prices somewhat higher than they may be had by operators able to buy in large lots. Now lumber is scarce in the local market and along with machinery and other supplies, is subject to priority control.

HOUSING at the camp consists of a few tent-houses and a cook house. It is barely sufficient for a small operation and there may be difficulty in providing additional accommodations.

GEOLOGICAL CONDITIONS. No geological survey has ever been made of this area. It shows shale and thin bedded limestone generally flat lying but locally much crumpled and distorted by faulting and intrusion of granodiorite dikes and larger masses. The latter in the vicinity of the Keystone mine is a rock of medium granitic texture varying considerably in mineralogical content within short distances. The shale appears to be a rather thin capping in much of the area overlying the granodiorite which is apparently closely connected with the genesis of the ore deposits, a fact which is quite important from a practical standpoint.

In the Keystone mine workings veinlets of quartz and sulphide ore minerals are found traversing the partly altered granodiorite along the main lines of fracturing, and the mineralization is of the type in which definite veins have begun to form in an igneous rock mass which has a generally disseminated metallic content. This suggests that large bodies of ore may occur where conditions are favorable and further exploration may result in important discoveries, since where er the sulphide minerals tend to segregate, or "bunch up", ore of good grade has been mined. Conditions favoring ore deposition are found in zones of intersecting fractures, beneath impervious clay seams, and at or near contacts between granodiorite and shale.

A few veins are found in the shale but they are close to masses of granodiorite and the hard silicified shale or "hornstone" appears to have been unfavorable to ore deposition. The old Keystone vein, for example, was found to flatten and finger out where it went into shale at depth, was given up by the early miners. However, it is possible that below the shale it may be found to be productive again.

As muchof the surface is covered by shale, it is very important to prospect the main lines of mineralization even where there is little or no surface showing because ore may be found in the underlying granodiorite.

The limestone members of the sedimentary series are not very thick and are not found near the Keystone vein, but possibly they have more importance on the Old Timer claim where enlargements of the vein may be due to replacement of limestone beds.

FAULTING seems to be of little importance in the Keystone area, a few minor slips with a few inches or feet displacement have not seriously affected continuity of the ore.

THE VEINS of this locality follow certain general trends, north to N. 30° E. and east-westerly. The former set are more or less parallel to the main axes of folding in the mountain ranges of the region, the latter may he connected with the local intrusions of granodiorite.

The old Keystone vein has a general strike N. 20°E. dips 40 to 50 degrees east and consists of several parallel fractures within a width of 4 to 6 feet. The wall rock at the south end of the outcrop is granodiorite, further north shale caps the hilltop and the vein is difficult to trace. At an average depth of 100 feet vertically or 150 feet on the dip, the vein runs into shale and little work was done below. It seems probable that this vein was formed by "feeders from the footwall and the recently discovered sulphide veins in that section may be the only downward continuation of the old Keystone vein. However, the mineralization of the two types is somewhat different and they may belong to different periods. There is a large mass of granodiorite east of the old Keystone and the shale in the lower workings is perhaps an irregular V-shaped mass through which the vein will pass at slightly greater depth. If this proves so, other important ore bodies may be found below.

THE KEYSTONE FOOTWALL VEINS.

In 1937 sulphide ore of shipping grade was found west of and below the old Keystone vein. Later work resulted in the development of an entirely new vein system which may or may not be closely related to the old Keystone. The most important of the new veins is the one mined above the Third Level in the "E" stope and its branches "Ee" and "Ew", see map Sheet No. 3. It strikes N. 40° to 45° E. dips 20 to 30 degrees S.E. and appears to be the same vein opened in the "F" drift on Third Level with a strike of N. 65°E. dip 35 degrees south, or it may turn out to be above the latter, still further south on the level. The next most important of the known Footwall veins is the one opened by the "G" drift striking N-S, dip 30 degrees west, flatter to the east. It was mined above Third Level in stopes "K" and "B", perhaps with a parallel hanging wall vein not seen on the level. The intersection of these two veins makes a flat-dipping trough extending southerly below Third Level where it has not been explored.

Owing to limited development the identity of the veins is uncertain even in places quite close together. This is due to the fact that mineralization has proceeded from one line of fracturing to another both along the strike and on the dip. Sometimes parallel veinlets with flat dips are connected by cross veinlets and mining has proceeded from a lower to a higher "band" leaving the former in the floor of the stope. For this reason even the mined area must be regarded as only partly developed and exploration by raises and crosscuts is quite important in addition to following ore, as has been the method in past work.

The higher grade sulphide ore shoots in these footwall veins have been mined for lengths of 20 feet or more horizontally or along the strike, with stope widths at right angles to the vein of 2 to 5 feet, and in depth on the dip for 20 to 60 feet or more. The last dimension is limited at present by water in the lower workings, and little exploration has been done upward into the oxidized zone.

By "high grade ore" the writer means the shipping ore mined by leasing operations which to date have had an average smelter value of about $23 a ton, or a gross value at present metal prices of close to $30, chiefly in silver with a small gold content and lead which appears to be increasing with depth. The narrow widths of ore and apparently erratic occurence as shown in these workings, are apt to mislead the casual observer and establish the belief that there is little strength or continuity to the mineralization. An entirely different condition would be apparent had the ore shoots been mined for an average milling grade of, say, $15 per ton with more attention to ore streaks in the hanging or footwall of those stoped. There has been little exploration of such parallel "bands" of ore because of the disinclination or inability of the leasers to do any work not directly productive of shipping ore.

The ore minerals in the Footwall Veins recognizable in hand specimens are pyrite, galena, and sphalerite. The ratio of silver to lead, averaging about 6 oz to 1%, suggests the presence of some richer silver-bearing mineral in small quantity.

THE OLD TIMER VEINS.

Although the writer's authorization did not include an examination of the Old Timer claims, the showing there is so important as to make some mention of it necessary. The claim on which most work has been done, Old Timer No. 1, is about half a mile northeasterly from the Keystone and covers an entirely different zone of mineralization consisting of two parallel veins nearly east-west in strike dipping 35 to 50 degrees north and about 300 feet apart. The south vein has had considerable work done on it, mostly in early days, showing an ore shoot over 300 feet in length which was stoped to water level, 60 feet on the dip, and possibly deeper. Stope widths are from 3 to 5 feet in the limited section of the workings now accessible, with greater width indicated at the east end where there is an intersection with a cross vein.

The vein material is quartz with some oxidized minerals and galena, zinc-blende and probably small amounts of high grade silver minerals, judging from what may be seen on the old dumps. A sample of this material taken by Mr. Raymond Brooks returned:

Gold 0.02 oz; Silver 41.9 oz; Lead 2.5%; Zinc 4.8%.

Regarding this sample he says, "It was not an average of the dump, and not indicative of actual values that will be found underground. I tried to take fragments and pieces that showed some zinc, and particularly wanted to know the relationship between zinc, lead and silver in the ore from the lower portion of the vein". He also reports a sample "from the west drift,

1st level, 21 feet from the center of the shaft, across a width of 18 inches" which gave:

Gold trace; Silver 19.2 oz; Lead 2.6%; Zinc 12.5%.

From these samples and inspection of the dumps, it seems likely that there was a secondary concentration of silver in the upper parts of the vein mined in early days, and that below water level the ore was found to be too "base", or heavy in lead and zinc sulphides, for profitable mining, as there was no way to treat it satisfactorily at the time.

These workings should be unwatered and cleaned out, as they may show a valuable body of lead-zinc-silver ore partly developed. In the writer's opinion, this ought to be done before a final decision is made as to location of a mill, because a site on the Old Timer claim could be reached easily by a downhill haul from the Keystone, and an adequate water supply could be had with a line not much longer than the one proposed for the Keystone.

THE NORTH VEIN on the Old Timer No. 1 is larger than the South vein but was not so extensively mined. It can be traced for 1000 feet or more with widths ranging from 2 to 8 feet carrying considerable quartz. It shows little evidence of productive character except in the east hundred feet or so, where irregular workings, now caved, probably produced small lots of ore. The dip is steeper than that of the South Vein, so that they tend to come together at depth. A crosscut from the lower workings of the latter would presumably be less than 300 feet to the North Vein, might follow a cross vein at least part of that distance. To the east, or below the junction of the two veins, an important ore body may exist. The development chance appears a good one.

MINE DEVELOPMENT dates back to sometime prior to 1870, the district having been organized a few years earlier according to an old record book. That was a period when silver was priced at $1.29 an ounce, but little progress had been made in the concentration of sulphide ores in the West, so it is quite possible that a vein showing rich oxidized ore at surface would receive little attention once that material had been exhausted.

Little is known of the early operations and only brief and indefinite paragraphs in State and Federal government publications refer to the district. Evidently the Keystone and Old Timer veins were considered worked out or of small value, as they received little attention for many years.

THE KEYSTONE VEIN was opened by tunnels on the upper levels with shafts or winzes in the ore shoot which was stoped for a length of 300 feet and a maximum distance on the dip of 35 to 40 degrees of perhaps 150 feet. Stope widths range from 3 to 5 feet and included considerable granodiorite with bands of quartz from 2 inches to 2 feet in thickness. The ore to that depth was nearly all oxidized and little was left, nothing is known of its average grade. It probably consisted of quartz with a little lead carbonate carrying silver, chloride and bromide of silver, with a little gold. As stated above, when the vein went into the shale formation at depth it tended to flatten and pinch and mining was abandoned.

The mine could not be considered very promising on the showing of the old workings. The total linear footage of early work probably did not greatly exceed 1000 feet.

The later history of the Keystone began with the discovery of good grade sulphide ore in the granodiorite footwall formation of the old Keystone Vein, early in 1937. Since then leasing operations have partly explored a block of ground approximately 360 feet in length north and south, 100 feet wide, and 30 feet in depth. This work was assisted to some extent by funds advanced by the Nevada Keystone Mining Company, it was not systematic nor was it planned to develop the possibilities of the block as a whole. It consisted of about 300 linear feet on the Second Level, 450 feet on the Third Level, and a little over 100 feet on sublevels below the Third. The No. 1 Shaft was sunk about 60 feet. Stopes on the veins between Second and Third Levels are equivalent to perhaps 250 additional linear feet. Much of this work was following ore according to the requirements of the leasing operation, from which standpoint it was quite successful and cannot be criticized, but it leaves unanswered many questions as to parallel veins above or below those which have been worked, and the probable recurrence of similar veins at still greater depth.

SAMPLING. Ore of milling grade is exposed along most of the drifts and in stope faces. The writer took 55 channel or cut samples, usually at 10 foot intervals, covering the more important exposures. Sample locations are given on the accompanying map, Sheet No. 3, with a tabulation of assay results. There are several objections to such sampling in the present condition of the workings. The ore is "spotty" or "bunchy", varies considerably in value at points close together, so that samples ought to be cut at shorter intervals than 10 feet. Perhaps the fairest method would be to take cuts 1 foot apart and combine five such cuts in one sample.

Another unfavorable fact is that wherever ore of shipping grade was exposed along a drift it was broken, sorted, and the barren material was "gobbed", piled back into the opening, making the ore face inaccessible. For example, the writer's samples on Third Level from No. 1 Shaft northwest for 80 feet (Nos. 1 to 7 inclusive) show no ore, yet carsamples from this drift taken in the course of the work showed: Gold 0.03 oz; Silver 8.43 oz; Lead 1.32%. This would have a gross value of $9.27 at present prices (gold $35 an ounce, silver $0.70, lead $0.09 a pound including bonus). The writer does not know what proportion of the material broken is represented in the car samples, as some of it was doubtless left in the "gob" along the sides of drift.

Two carload lots shipped from this drift and adjacent stopes gave the following returns:

No. 25 -- Gold 0.04 oz; silver 21.2 oz; lead 2.5%

No. 26 -- " 0.04 " " 49.46 " " 7.25%

In this section of drift there are narrow " bands" or veinlets of ore which locally form small high grade masses or "pockets", most of which were dug out in the course of the work, and when more extensive were stoped to make up the carload lots listed above.

One other point should be noted in this discussion of apparent discrepancy between the results of car sampling and cut sampling; in taking grab samples from mine cars a double handful of material is taken from each car before it is dumped into the ore pocket, and there is a tendency to get more fines than coarse fragments. Since the ore from small stringers goes into the fines this method of sampling usually gives results more nearly like those from sorted ore than may be expected from channel samples.

The writer cannot estimate any ore in the ground opened by this section of drift and the "J" sublevel below, from which part of carload lot No. 26 was taken. Yet it is certain that in opening such ground a small tonnage of ore may be sorted and shipped or sent to a mill on the property. In this case the net proceeds from shipments were over $1200.00, or about $10 per foot of drift from which the ore came, counting that from the adjacent stopes. The gross value was approximately $2,000.00 or $16.60 per foot of drift. Assuming 2 tons of material per foot of drift gives 240 tons to which must be added about 100 tons for that mined from the stopes. Dividing 340 into $2,000 gives approximately $6 per ton as the average value of this ground, not counting what is left in low grade ore not shipped. Whether it could be mined at a profit is doubtful, certainly it is "marginal ore".

From the foregoing, it appears that channel sampling the drifts in ore under present conditions is likely to give results that are too low, and this must be kept in mind in considering the samples taken to the north and west in "F" and "G" drifts on the Third Level. These are Nos. 10 to 24, leaving out No. 18, and not including No. 55, as both the latter samples were taken well in the footwall of the vein to see if certain steep dipping cross fracture zones carry ore good enough to follow in future development. The average of this set of samples (Nos. 10 to 24) weighed according to width is:

Width 4.5 ft. Gold 0.019 oz; Silver 7.22 oz; Lead 0.90%; Zinc 0.39%.

The gross value is $8.19 per ton of 2,000 lbs., with gold at $35.00 an ounce, silver at $0.70 an ounce, lead $0.09 per lb., zinc $0.11 per lb., the lead and zinc prices including the bonus now paid for new production.

Comparison of this value with carload lots shipped to the smelter from this section of the mine is impossible because they included ore from the drifts and stopes above and below in unknown proportions. It is certain, however, that the ground as opened by the drift had much higher value, because the best showings were mined and are now represented by "gob" (waste or low grade ore) piled along the sides of the drifts or in the stopes.

When it comes to consideration of the samples taken in the stope faces, it must be remembered that in the leasing operations the stopes were usually worked until they were out of ore of shipping grade. In only one

place above the Third Level did the writer see shipping ore left because of difficulty of extraction. The stope samples, therefore, do not represent the value of new ground in advance of the stope faces as it would appear if opened by drifts in advance of extraction.

Samples Nos. 25 to 35 cover the west face of the stoped area between Second and Third Levels, a distance along the vein of about 150 feet, with a weighted average for a width of 4.16 ft:

Gold 0.02 oz; Silver 14.4 oz; Lead 2.07%; Zinc negligible.

The general average of 37 samples from the ore area is:

Width 4.1 ft; Gold 0.019; Silver 10.43 oz; Lead 1.33%; Zinc 0.37%.

The gross value and pay value on the last assay are:

Gold at $35/oz	$ 0.654	$ 0.60
Silver $0.70/oz	7.301	6.27
Lead $0.09/lb	2.394)	1.50
Zinc $0.11/lb	0.914)	
	$11.16	$ 8.37

The amount to be realized from the lead and zinc is, of course, much below the combined gross value of $3.21, and it cannot be calculated without metallurgical data as to recovery and grade of concentrates, and market information.

PRODUCTION. The figures given by Mr. Raymond Brooks covering shipments 1 to 38, since 1937, are as follows:

Tons	Gold Oz/Ton	Silver Oz/Ton	Lead %	Copper %
1,674	0.0386	32.22	4.08	0.14

This ore had a smelter value of $39,699.86 or $23.79 per ton. Charges for hauling, freight and treatment amounted to $9.57, leaving a net return of $14.22 per ton. On the basis of the metal prices used in calculating the gross value of $11.16 per ton for the sample average given above, the corresponding gross value per ton for the shipping average would be $31.24 for the gold silver and lead content. The difference between this and the smelter value of $23.79 per ton, is partly due to the bonus included in the lead price of $0.09 per pound, andpartly to the very low payment by the smelter for small amounts of lead. A much better settlement price for lead could be had on concentrates.

ORE POSSIBILITIES.

It is impossible to estimate ore tonnage and value by standard engineering methods because of the irregular character of the workings and the fact that sampling present ore exposures does not give results which would apply to new ground for reasons previously explained.

As to tonnage, the leasers have taken most of their ore from an area 200 feet long (N-S) by 100 feet wide, which is well opened by their workings. This ground is covered by the writer's samples Nos. 10 to 42 inclusive, see map Sheet No. 3. For a vein width of 4 feet such an area would yield approximately 6,600 tons, of which it is estimated about 2,000 tons have been mined and perhaps half of it shipped. Other shipments came from north and south of the area under consideration. This would leave 4,600 tons in this central area. Extensions of known ore to the north will be partly in the oxidized zone, but it perhaps would be permissible to expect 1,000 tons of additional ore in this direction in the upper extensions, aside from the possible discoveries below the present work.

The extension of known ore to the southwest appears most probable. A small amount of good ore has been shipped from Shaft No. 2, 400 feet away, in a fault-vein cutting shale. Little is known of this section because to follow ore southwest from the No. 1 Shaft workings would require pumping water under rather difficult conditions, with present equipment. However, the ore showing is very promising and it is entirely possible that production in the next 200 feet to the southwest will equal or exceed that in the area which has been mined.

Operations to date have explored only a very limited zone of 30 to 50 feet vertically in the sulphides. There is reason to believe that other veins like those already mined will be found at lower levels in the granodiorite formation since it shows general sheeting or fracturing paralld to known veins and many of these fractures in hanging and footwall of the veins are mineralized.

As to ore value in new ground, it will probably be found to be somewhere between the writer's average for the west face of the stope area - gold 0.02 oz/ton, silver 14.4 oz/ton, lead 2.07% - and the shipping average to date which is approximately twice that grade. The zinc content of the ore, along with lead, appears to be increasing with depth, it is probably more important than the assays from the Third Level indicate because these samples included few of the more massive sulphide occurences which were stoped as the work progressed. The smelter assays only report zinc occasionally as the only reason to determine it is to see if it is above the penalty limit. It is probable that if zinc determinations had been made on all carload lots, the percentage would have been much higher than shown by the writer's samples.

One point to be emphasized as to the probable grade of mill heads, is that the ore is very easy to sort. As broken it includes large chunks of granodiorite which can be discarded in the stopes or over a screen at the headframe. In fact, it would not be a matter of great difficulty to keep mill heads close to the present shipping grade if it were desirable to do so.

ORE TONNAGE AND GRADE.

It appears probable that ten to fifteen thousand tons of milling ore having an average gross value of $15 per ton, or better, may be mined within reasonable reach of the present workings. This is the writer's opinion based upon the facts outlined above, but it is not to be taken as an estimate of proved ore.

If the writer's interpretation of geological fact is correct, several times that tonnage may be realized within a depth of 500 feet in this partly explored Keystone formation. The ore consists of primary sulphides of good grade likely to continue at depth, the granodiorite shows widespread evidence of mineralization and alteration, appears to be an "ore carrier" because of an original mineral content. Segregation of ore minerals has reached a stage in which ore bodies of importance may be formed.

Development chances are very good, there is a large unexplored area which may prove productive on a large scale.

MINING METHODS AND COSTS.

At present only a small operation is planned, partly because of war-time labor and supply conditions, partly because of the difficulty of getting money for the development of a mine just beyond the prospect stage. It is hoped that with a small mill and a limited amount of working capital the mine may pay its way.

Flat dipping veins, in which the ore will not slide to the chutes, are relatively costly to open and mine because they require special methods and equipment to lower costs. The use of air hoists and scrapers has greatly reduced costs in working flat ore bodies, but scraper operations are usually on a much larger scale than is planned for this mine and costs obtained in such cases cannot be applied here to a small daily tonnage extraction.

Another factor often underestimated for small scale mining is that of "overhead" which mounts rapidly against a few tons per day. For example, the manager's salary, wages of mine and mill foremen, mechanic, blacksmith, and truck expense are the same, or nearly so, for a 30 ton or a 150 ton per day operation, under ordinary circumstances. To keep unit costs down on the smaller tonnage, it is necessary to have a very willing and versatile crew. A group of leasers who know their business and work hard can usually make costs on a small tonnage basis that it is difficult, if not impossible, for a company operation to equal.

Assuming in this case that it will be necessary to break and handle between two and three tons of material for one ton milled, on a 30 ton daily basis, it seems probable that the cost per ton, exclusive of State and Federal taxes and return of investment in property and mill, will be somewhere in the neighborhood of $8.00 for mining and milling. This may sound high, but it is based on figures which may be too optimistic for the existing conditions, assuming a crew of twenty men, manager and bookkeeper, wages at $5 to $7. It also assumes that supplies will cost about as much as labor, and that the crew will be good men at their jobs.

EQUIPMENT. There is equipment on theproperty sufficient for a small operation, it includes the following principal items:

One 60 H.P. Western gasoline engine belted to a Nagle-Corliss air compresser, 12" x 12", rated at 420 cubic feet of free air per minute (sea level capacity); one single drum hoist (at Shaft No. 2), driven by a 40 H.P. Gasoline engine, 250 feet of 5/8" steel cable, a 30" sheave wheel with boxes, a 500 lb. bucket; one 20 H.P. gasoline hoist with 300 feet of 5/16" cable and skip in operating condition at Shaft No. 1; air drills: 1 Cochise Drifter, new, with 6' bar, arm, and shell, water tank, hose connections, and line oiler; 1 Cochise jackhammer, nearly new; 1 Ingersoll Jackhammer in fair condition; 2 short bars; 300 lbs. machine steel, 100 bitts; 2 mine cars, several hundred feet of light rail; 1 Kohler 1500 watt lighting unit; 1 Cochise sump pump, 100 gal/min.

The principal needs for further work are a small double drum hoist of the "Tugger" type, cable and scraper, more track, mining supplies, and probably a larger compressor.

A MILL is also required if the maximum return is to be realized from the ore. The conservative procedure would be to use perhaps fifteen to twenty thousand dollars for systematic development, part of which would be repaid by shipping ore as in the past, and delay the erection of the mill until enough ore has been put in sight to repay cost and a reasonable profit. It is probable that such a development program, if directed to the best advantage, would ultimately call for the installation of a larger plant than is now being considered.

The practical step would be to go ahead with the building of a flotation mill unit designed to treat 15 to 20 tons of ore in an eight hour shift and run it on ore from development and such stoping as could be economically done in connection with it, This would result in the lowest possible development cost. Such a plant would not be entirely dependent on ore from the Keystone workings as it could also be supplied from the Old Timer and other veins on the property.

The principal reason for this examination was to enable the writer to form an opinion as to whether or not a small mill should be put on the property at this time. From the facts set forth in the foregoing pages it is evident that no properly supported estimates can be presented showing a net profit sufficient to cover the cost of the plant and the work necessary to provide it with a regular supply of ore. The decision in the matter must rest rather upon a willingness to take a promising mining chance with the expectation that it will return a mining profit.

The writer can recommend the property either for more preliminary development, or for the small milling operation above suggested.

Respectfully submitted,

(SGD) J. H. Farrell

Reno, Nevada
September 28, 1942

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Item 59
(report 4 of 4)

REPORT ON KEYSTONE MINE

LOCATION:

Situated on eastern edge of Eugene mountains near the northeastern corner of Pershing County, Nevada, in Central Mining and Eugene Mountain Mining District. Eight miles southwest of Pronto, a station on the Western Pacific R.R., and fifteen miles north of Mill City (by road), a station on the Southern Pacific R.R. The mine is in what was known in early days as the Central District. It is four miles north and a little east of the tungsten mines of the Nevada-Massachusetts Company.

OWNERSHIP:

The Keystone claim is owned, under location, by Mrs. Bertha Jackson of Winnemucca, Nevada, and is now operated under a lease and option by two brothers, H. A. Jones and R. M. Jones, who live at the mine.

The Jones brothers also hold, under location, six claims joining the Keystone on the north and covering the possible northern extension of the Keystone vein on its strike for a distance of four thousand feet. These are known as Old Timer No. 1, No. 2, No. 3, No. 4, No. 5 and No. 6. They also hold by location three claims to the west of the Keystone, located at right angles to it, on which work has been done on other veins.

The Jones brothers also hold a homestead with water rights on a stream that flows in the spring of the year and on which a well with a good flow of water is located. This homestead covers the southern part of the Keystone claim, the ground to the south and east of that claim and sufficient ground for a mill site, dumps and tailings.

EQUIPMENT:

Housing consists of one rough living shack and a blacksmith shed.

Machinery and Tools consist of a small belt driven air compressor capable of running one air drill; a gasoline engine to drive the compressor; one or two old jack hammers and some steel; six hundred feet of 12 lb. rails; a home made hoist consisting of a "tugger" direct coupled to an automobile engine; one mine car; a few old shovels, picks and tools; four hundred feet of air line; a small skip and very light steel cable.

MINE DEVELOPMENT:

Keystone Claim: Surface cuts, shallow adits and stoping for a distance of five hundred feet along the Keystone vein.

Main adit level on original outcropping vein, 380 ft. long.

Second level, 170 ft. of drifting and 290 ft. of cross cutting (practically drifting in flat formation).

Inclined winzes, 250 ft.

Total underground development work 1090 ft. (exclusive of stopes).

Old Timer No. 1 and No. 2 Claims: A great deal of old surface trenching, stoping and several small inclined shafts on a number of veins. These workings have been tied in by a Brunton survey, but the workings have not yet been explored or sampled. Many have caved but in the aggregate they show unmistakable evidence of the mining of payable ore at some unknown period in the past. No records are available, though there is evidence of ore having been milled by some method in the general vicinity. Two of the shafts were equipped with windlass.

Apparently the water level in this section is not far below the outcrops and mining was probably governed by this condition. There is no evidence of any deep shaft that would have explored the ground much below water level. On one or two of the veins it is known that stoping at shallow depth was continuous along the vein for a considerable distance.

GEOLOGY:

Keystone Claim: The Keystone vein occurs in a gray granitic rock which, until determinations are made, will be called a granodiorite. This formation outcrops over quite an area in the vicinity of the Keystone Claim. It is probably connected with the main granite mass of the Eugene range. The strike of the Keystone vein is a little east of north, varying considerably along its course towards the Old Timer No. 1 and No. 2 claims. There is no vein outcrop thus far found in the intervening ground between the Keystone workings and those on the Old Timer No. 1 Claim, the surface being rather flat and having few rock outcrops.

Along the eastern side of the Keystone Claim a belt of bluish white limestone outcrops prominently. Whether the granodiorite is in contact with this limestone has not yet been determined.

Gray, laminated and folded shales with steep dip, and striking more or less at right angles to the Keystone vein, are seen crossing the southern end of the claim and on hills to the west of it.

All of the earlier work on the Keystone Claim was in that vein and on its downward extension at a dip averaging about 30 degs. to the east. The vein, consisting of quartz, gouge and oxidized granodiorite varying apparently from 6 inches to 3 feet in width, was entirely in granodiorite. Former operators took out the ore from the adit level to the surface and sank two winzes in the vein from the adit. At about twenty-five feet below the level the vein flattened out and at a depth of seventy feet in the second winze became almost flat and values dropped. A drift north at this depth disclosed another formation on the east side and in the bottom which will be called a hornfels for the present, because of its similarity to the hornfels associated with the tungsten veins four miles south, on the strike of the formations.

At this level the present operators (the Jones Brothers) first found the flat lying ore deposit which is now being developed to the west of the drift.

There is some widence that payable ore may be found in veins in the hornfels, but at present the important developments are in granodiorite, at or near its contact with the underlying hornfels. This granitic rock is mineralized with parallel bands and aggregates of quarts with which occur heavy sulphides, principally galena and pyrite. Sulphides are probably disseminated in the granodiorite between the more heavily mineralized quarts bands. There seems to be no sharp upper limit to mineralization, though the granodiorite shows a good deal of iron oxide staining and alteration near the upper limit of ore deposition. We have not yet made tests to determine the silver minerals in the ore or its mode of occurrence. Chunks of almost solid galena are found that are six inches and more in diameter. Silver is undoubtedly associated with the lead.

ORE IN SIGHT:

Keystone Claim: The accompanying plan of the second level (Sheet 2) shows areas that in my opinion can logically be expected to contain extensions of the ore body which is now being developed in the flat vein and from which over seven hundred tons of ore have been shipped to smelters. It should be quick tonnage for a possible small initial mill.

The true character and extent of the ore deposit, or deposits, in the Keystone Claim must be determined by development work. From the character of this flat ore body, I conclude that there is an excellent possibility of proving very considerable tonnages of milling ore that may vary in mining widths

from three feet to ten feet or more. It is probable that some ore of shipping grade will be produced in development drifts, as has been the case thus far.

Old Timer No. 1 and No. 2 Claims: The possibilities of these claims are not yet known. It is probable that some of the numerous small dumps contain ore thatwould be of mill grade. These, combined with some mill ore on dumps on the Keystone Claim, might furnish four or five thousand tons of additional ore for an initial mill.

There is good reason to believe that there are faces of ore of milling grade now exposed in old shallow workings on these claims that can be recovered without great expense, but the major possibilities would lie in an exploration program including deeper work at one or more points. The veins on these claims are of the same character as the Keystone vein at the surface and there is a good chance that on their downward extensions some such condition as is found in the flat vein on the Keystone may exist. In any event, the ground has great potential possibilities when considered in connection with the Keystone.

ECONOMIC POSSIBILITIES:

Keystone Mine: The flat ore body, where exposed at various places on the second level, shows unmistakable evidence of extensive silver and lead mineralization. There is no condition yet apparent that might tend to limit its extent. In fact, there appears to be a very good chance of present exposures being the forerunners of more important areas of mineralization. It remains to be determined what the real character of the deposit is. The granodiorite in which the ore occurs is similar to intrusives of that material which are closely associated with the tungsten deposits four miles further south. These tungsten deposits are the most important now being mined in the United States. The tungsten ores are being mined at depths up to 1200 ft. without change of character or grade, showing deep seated origin of the mineralizing agencies of this belt of country.

Water has not been encountered in Keystone workings and is not expected until an additional depth of one hundred or more feet is attained. The present flat-lying condition of the vein would permit the possibility of developing a large tonnage of ore above water level, and therefore expected to be of the same character as the ore now exposed and being mined. The vein is now in the form of a dome, dipping downward at flat angles to the west, south and north. It is reasonable to believe that some point will be found where, on a contact, or under other conditions, the main channel of mineralization will take a steeper dip. It seems to me that under existing conditions of mineralization almost anything may occur, and it will be exceedingly interesting to explore this ore body along whatever lines initial development suggests.

RECOMMENDATIONS:

Exploration of the deposit can, at present horizons, be done very easily and cheaply. The Jones brothers are, and have been, completely handicapped by lack of money. All of their work has been accomplished with money derived from ore they have shipped during the past two and a half years. They employ two men when possible, but have the crudest imagionable equipment to do the work. Ore mined in the flat vein has to be mucked into a wooden box on wheels, trammed to the foot of the incline, dumped into a tiny skip, hoisted with what is little more than a clothes line and then trammed to a rickety ore bin where it has to be scraped and mucked into automobile trucks for shipment. $10.00 per ton comes out of the ore before they get anything for mining costs, labor or themselves. These handicaps have resulted in leaving all waste possible in drifts, stopes and winzes which condition interferes with seeing exposures of full vein widths at more than a few places.

A two compartment shaft should be sunk at once to a depth of about 125 ft. somewhere to the east or southeast of present workings so that one or two drifts can be run out under the ore body and exploration done from them. This would permit cheap and easy mining of present ore above that level, while drifting in the ore to explore its extent and character.

This shaft could be sunk and timbered in thirty days at a cost (for labor, timber and explosives) not exceeding $3,000.00.

The only equipment required would be a portable compressor capable of operating two jackhammers.

Two drills with steel. (Sharpening could be arranged for at the Tungsten Mine in the beginning).

A light hoist and cable (gasoline driven).

Two mine cars and a self dumping bucket.

The usual mining tools.

Two or three tent houses for miners.

Some improvement of road to mine at cost of $350.

Altogether this preliminary work should be done for a cost not exceeding $6,000.00.

To provide for 500 ft. of drifting and raising (at $8.00 a foot) on this first level, $4,000. additional should be provided.

From that point on the majority of the work at that horizon should be in ore which would, with a small mill, pay its own way for mining and development.

While $10,000.00 should be sufficient to determine the character of and, to some extent, the tonnage in the upper portion of the flat orebody, it would be wise to provide for a total of $25,000.00, the balance to be on call if conditions and possibilities justify its use.

The question of a small mill to treat the ore at the mine should await the results of this first development and exploration work, and some work to explore the possibilities on the Old Timer Claims.

The present option held by Silver Burro Exploration Company, from Messrs. H. A. and R. M. Jones, should bekept in full force, and steps taken to plan a syndicate within the Silver Burro company to finance early exploration and development of the Keystone Mine.

The ore should be easily concentrated with a good recovery, even in a very small mill. A lead-silver concentrate carrying gold would be the shipping product.

I shall return to the Keystone Mine by the end of the first week in November and shall remain there, making further study of the property. If the recommended syndicate is formed at once, I plan to remain at the mine for the first two or three months at least to supervise the work and study results.

CONCLUSIONS:

It is too early to go into a detailed study of milling and mining costs for an ore of this class, but it can be assumed that if a sufficient tonnage of $15.00 ore is considered to be in sight to justify the erection of a 25 to 50 ton a day mill, the mining and milling costs will not exceed $5.00 to $8.00 per ton, depending on the tonnage mined and the equipment and workings provided.

There are other prospects and properties in the district which I believe might furnish a moderate amount of silver-lead and some gold ore if a mill is available. Amongst these there may be properties that the Silver Burro company would be justified in acquiring later. We would have first call because no attention whatever has been paid to the Keystone developments or to the district in recent years by any important mining interests, so far as I can learn.

It is probable that electric power can be secured by building a line to the Tungsten Mine, a distance of four miles.

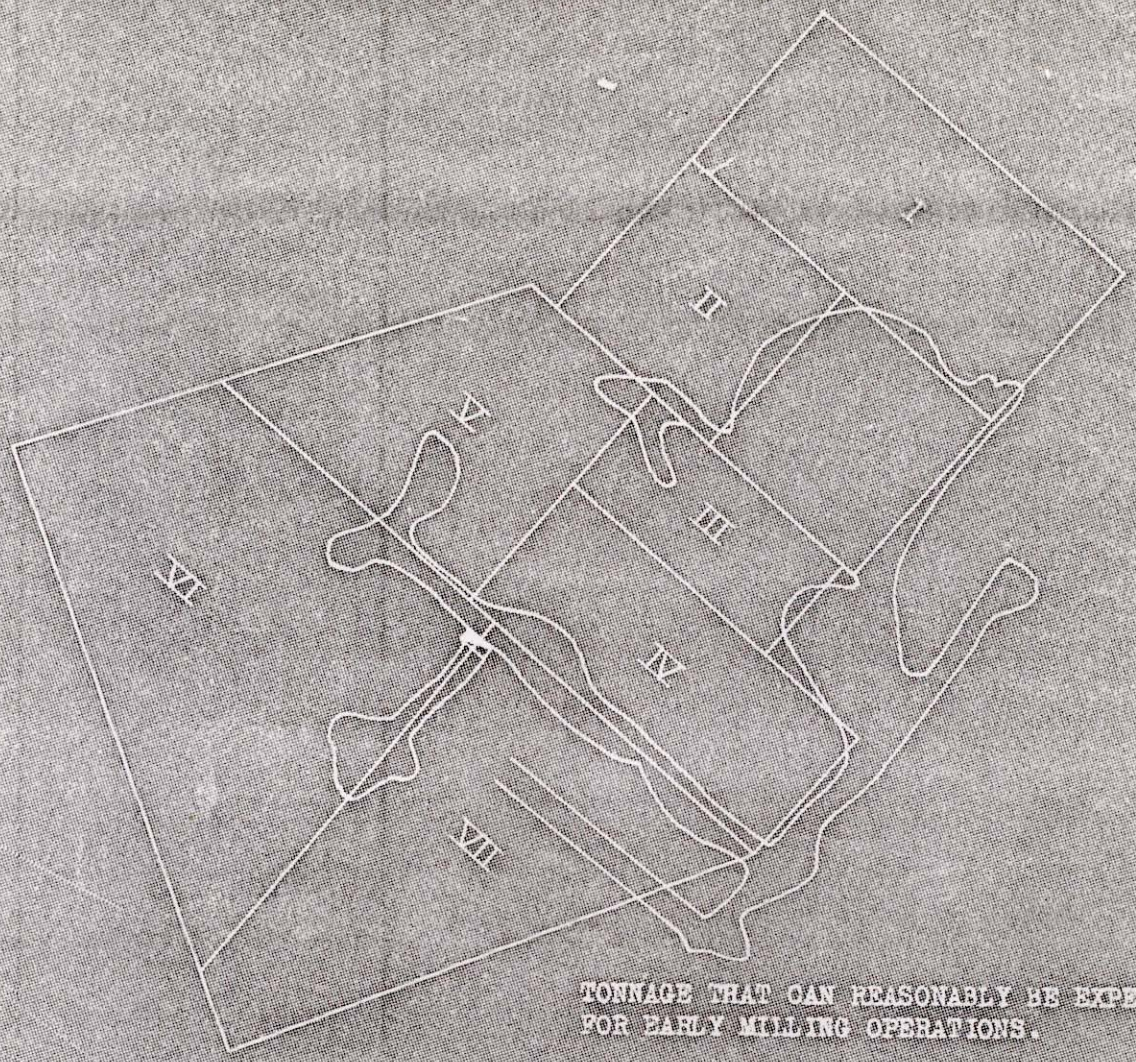
Barring only some unexpected and unfavorable developments at the mine during my present absence, I strongly recommend the formation of a syndicate or company to carry out further exploration of this property so that the present option held by Silver Burro Exploration Company can be exercised.

The elevation of the mine is about 7,000 ft. and it is apt to snow in that locality anytime after Dec. 1st on. For this reason it is advisable to install whatever equipment is decided on and get started with the work as soon as possible. There is no likelihood of any interruptions after work is started.

It is very probable that the terms of the Jones lease and option from Mrs. Bertha Jackson can be reduced as to royalties once a program of work is assured.

Signed RAYMOND BROOKS

Dated: Oct. 19, 1939



TONNAGE THAT CAN REASONABLY BE EXPECTED FOR EARLY MILLING OPERATIONS.

Tonnage is calculated on a basis of mining an average width of 4 ft. of ore in this area. My samples indicate that a good mill grade of ore will be found in some places with widths up to 6 or 8 ft.

The value of ore in different blocks is calculated from actual shipments made from the locality under consideration.

To allow for some sorting in past shipments made by the present operators I have used only 75% of the actual value of the ore as determined at the smelter. The operators claim that very little sorting has been done.

My samples are considered to be confirmation of the existence of faces of ore at various accessible points that is of similar grade to the ore that has beenshipped.

No consideration has been given to the possibilities of mill ore in the inclined vein.

Block I	1207	Tons	@	18.15	= $21,907
Block II	611	"	@	18.15	= 11,089
Block III	462	"	@	15.50	= 7,161
Block IV	851	"	@	13.63	= 11,599
Block V	1097	"	@	21.83	= 23,947
Block VI	2199	"	@	15.36	= 35,975
Block VII	1655	"	@	11.35	= 16,761
	8082	Tons	(Av.Val.$16.14)		$130,429

SCALE 1"=40'-0"

	KEYSTONE MINE		DATE 10-25-39
	SILVER BURRO EXPLORATION Co	AJ-15604	
	SECOND LEVEL-FLAT VEIN		

Lot	Date	Drw Wt.	Gold oz.	Silver oz.	Lead %	Copper %	Zinc %
1	5-5-37	82,326	.03	23.65	2.5		.4
2	7-12-37	78,596	.025	22.10	1.3		
3	8-23-37	78,652	.02	19.80	1.7	.1	
4	10-22-37	105,344	.017	21.40	?.0	.1	
5	11-29-37	85,738	.021	23.55	2.35		
6	1-3-38	79,288	.02	25.60	1.65		
7	2-17-38	107,088	.02	26.75	2.2		
8	3-9-38	95,412	.035	30.40	3.05	.1	
9	6-17-38	81,518	.027	36.54	5.5		
10	6-8-38	87,952	.027	59.69	3.1	.15	
11	7-18-38	80,988	.02	43.25	2.65	.1	1.5
12	8-23-38	78,978	.05	55.00	2.4		
13	9-16-38	78,020	.022	21.90	2.35		
14	11-14-38	87,686	.02	11.45	1.45		
15	4-11-39	76,378	.032	35.25	2.55	.15	1.2
16	6-2-39	96,870	.03	21.1	2.85		
17	6-17-39	86,934	.018	16.55	2.6		
18	8-2-39	84,980	.027	15.00	1.85		
19	8-10-39	86,514	.03	26.80	3.8	.12	
20	Old Timer Claim						
21	9-25-39	85,350	.04	61.55	7.95	.1	
22	Preliminary assays from car samples at mine	(a)	.03	41.00			
		(b)	.03	42.00			

KEYSTONE MINE

Shipments by Jones Brothers to
American Smelting and Refining Co.
Salt Lake City, Utah

Smelter Val. per Ton	Smelter Deducts	Smelter Pay. per Ton	Total	Freight	Hauling	Net Proceeds
$18.88	$3.75	$15.13	$ 622.80	$133.73	$62.59	$ 426.58
16.97	3.75	13.22	518.20	129.31	60.62	328.27
15.12	3.75	11.37	447.08	130.24	61.05	255.73
16.13	3.75	12.38	652.08	170.08	79.73	390.27
18.25	3.75	14.50	621.60	142.30	66.71	403.59
19.37	3.80	15.77	625.19	134.56	63.06	418.60
19.16	3.60	15.56	833.14	176.10	82.55	566.49
19.94	3.60	16.34	763.18	154.72	72.53	536.93
23.47	4.29	19.18	781.76	150.25	64.02	559.51
37.43	5.62	31.81	1,598.58	229.88	57.24	1,103.76
27.37	4.49	22.88	925.82	130.32	53.11	688.89
34.20	4.58	29.62	1,169.66	177.39	52.10	932.17
14.37	3.16	11.21	437.30	144.39	51.69	253.22
7.62	3.16	4.46	195.54	160.76	26.78	195.54
22.83	3.44	19.39	740.48	140.80	39.37	562.31
13.53	3.16	10.67	511.47	175.58	49.88	278.01
10.39	3.16	7.23	314.27	158.72	45.09	102.46
9.60	3.16	6.44	273.64	151.54	43.05	71.05
19.48	3.21	16.27	703.79	155.69	44.23	495.87
37.40	4.90	32.50	1,386.94	222.39	46.95	1,112.60

(map 3 of 4)

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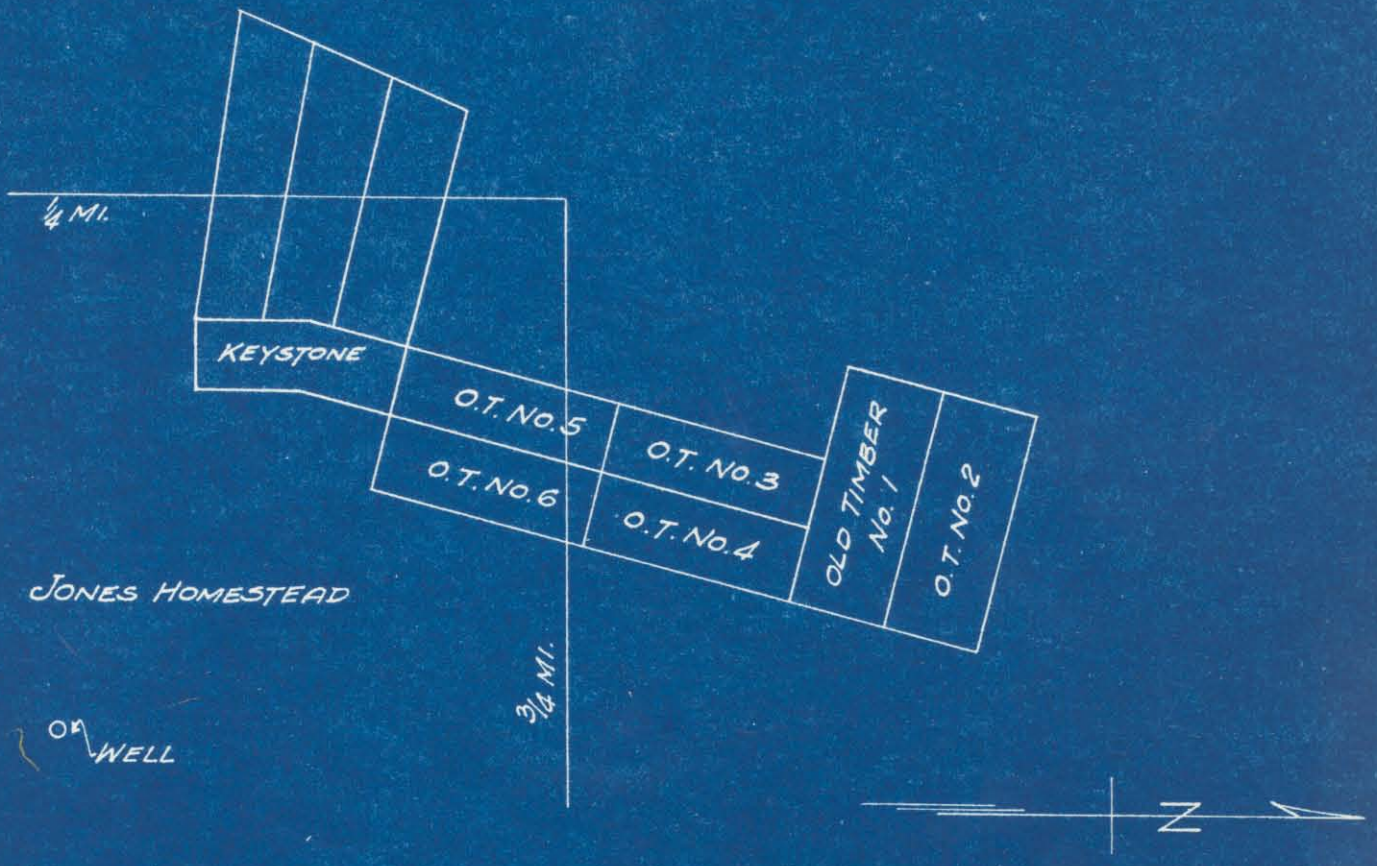
map



S. O.	KEYSTONE MINE SILVER BURRO EXPLORATION CO. SKETCH MAP OF CLAIMS	AJ-15609	DATE 11-1-39 BY AP

N

18°

5050

Drill Hole No.3

Proposed Mill Site

Keystone Vein

Adit Level

5000

Trench

No.1 Shaft

Main Raise

3rd Level

Drill Hole No.2

No.2 Shaft

S.W. Corner Keystone Claim

Road

4950

4950

Road

TOPOGRAPHIC SKETCH MAP
OF THE
KEYSTONE CLAIM AREA
SOUTH END
SCALE 1 IN.=100 FT.
CONTOUR INTERVAL 10 FT.
To Accompany Report by J.H. Farrell.

September 1942

30700056

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Item 59
(map 1 of 4)

C.-P. R.R. CO.
N ½ SEC. 1
391.16 ACRES

N

N ½ OF SW ¼
SEC. 1

OLD TIMER NO 4

OLD TIMER NO 2

OLD TIMER NO 1 VEIN

PROSPECTIVE VEIN

KEYSTONE NO 6

KEYSTONE NO 4

NORTH KEYSTONE

KEYSTONE NO. 2

BIRTHDAY

TAMIY NO. 1

TAMIY NO. 2

TAMIY NO 3

KEYSTONE NO 5

8° INCLINE SHAFT NO 1

KEYSTONE

KEYSTONE NO 3

KEYSTONE NO 1

THANKSGIVING NO 1

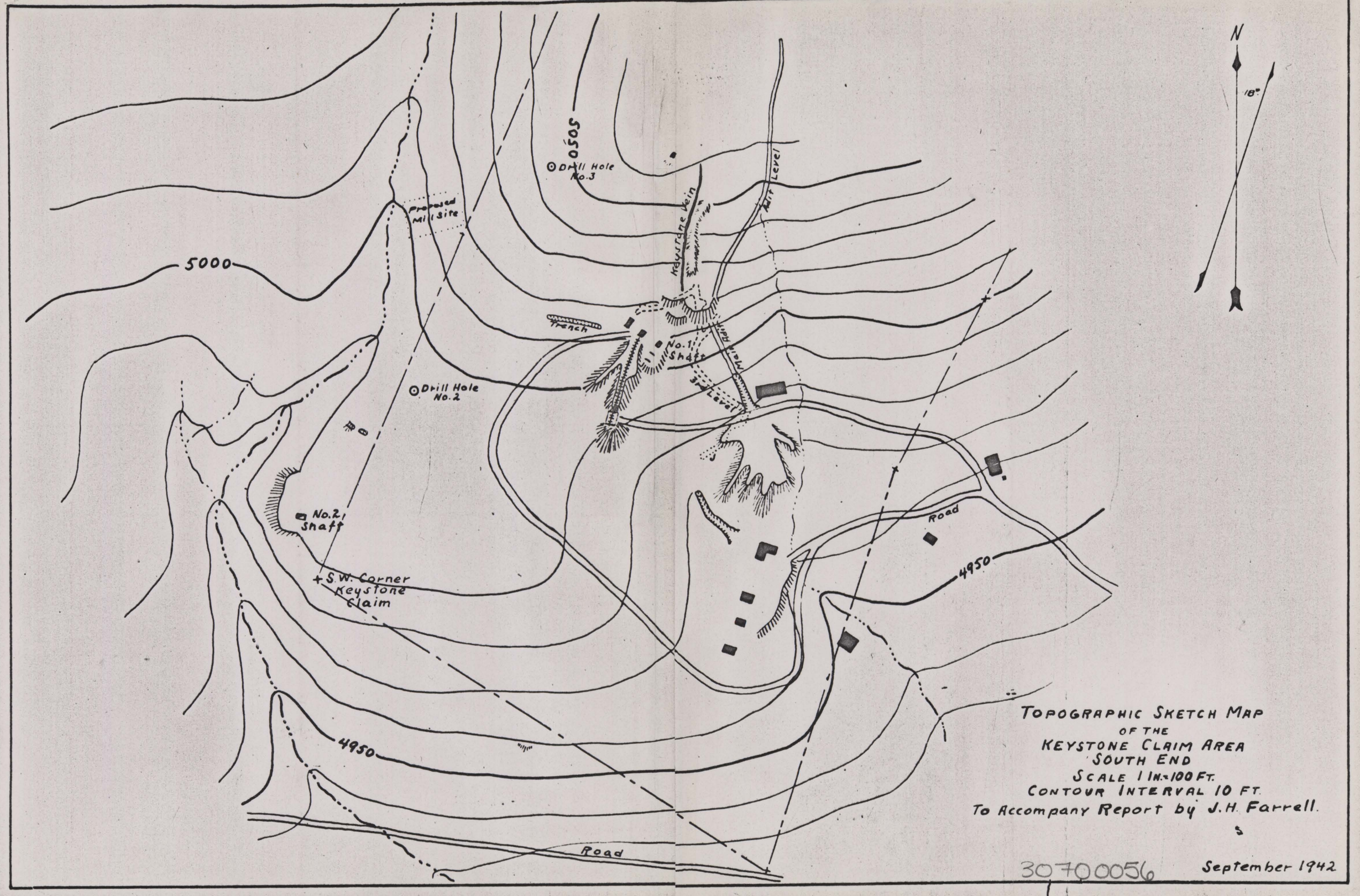
THANKSGIVING NO. 2

HOMESTEAD
(patented)
158 Acres

C. P. R. R. Co.
SEC. 7

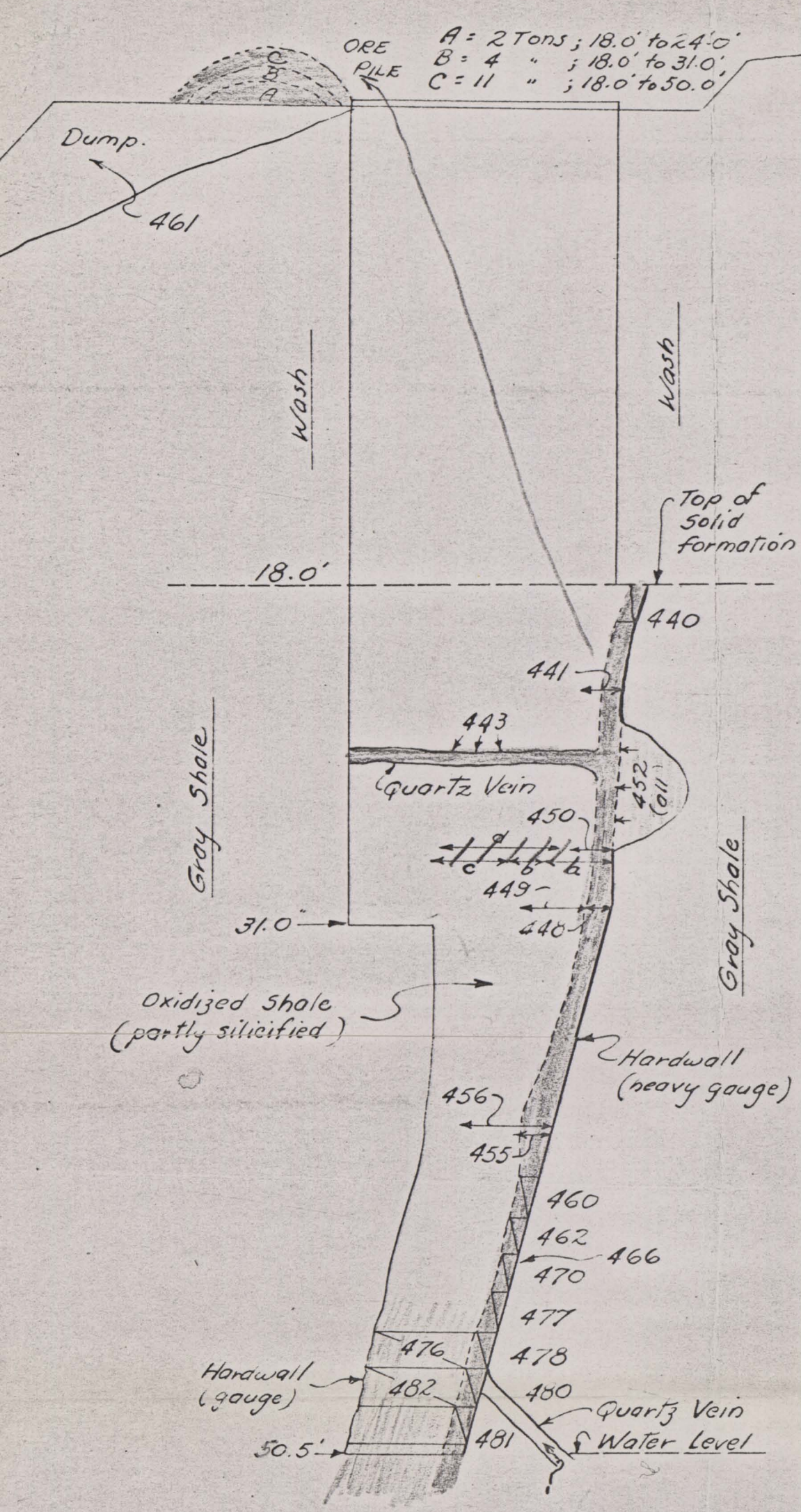
C. P. R. R. CO.
SEC. 11

NEVADA KEYSTONE MINING COMPANY.
CLAIM MAP
CENTRAL MINING DISTRICT
PERSHING COUNTY, NEVADA.
To Accompany Report by J. H. Farrell
SCALE 1 IN. = 800 FT.
ORIGINAL MAP BY RAYMOND BROOKS.
March, 1942.



TOPOGRAPHIC SKETCH MAP
OF THE
KEYSTONE CLAIM AREA
SOUTH END
SCALE 1 IN.=100 FT.
CONTOUR INTERVAL 10 FT.
To Accompany Report by J.H. Farrell.

September 1942



NEVADA KEYSTONE MINE

No. 2 SHAFT

LOOKING NORTH

Scale: 1" = 5' (R.B) Oct. 23, 1941.

SAMPLE RECORD

No.	Description	Gold (oz.)	Silver (oz.)	Lead (%)	Value
440	At depth 20.0 Grab	0.03	20.3	12.3	$ 37.93
441	15"	0.25	37.3	2.4	37.96
442	Ore Pile "A" Grab	0.12	35.2	6.2	36.25
443	4 chunks of quartz	0.11	272.3	0.9	198.20
445	Ore Pile B" R.B. Grab	0.65	72.5	2.1	51.47
448	7"	0.10	58.1	3.9	48.65
449	2'-7"	0.01	3.1	0.6	3.15
450	1'-10"	0.06	100.2	1.4	74.64
451	ore pile "B" R.M.J. Grab	0.065	117.0	1.6	86.87
452	3 Tons from Ft. Wall	0.02	10.5	none	8.15
455	S. Side 2'-0"	0.05	7.7	0.4	7.22
456	N. Side 4'-0"	0.03	8.6	1.40	8.55
460	Barrow Sample 1000#	0.055	44.2	5.7	39.00
461	All around dump Grab.	0.01	4.4	none	3.50
462	1,020#	0.045	80.8	7.75	66.68
466	Picked Sulphide Ore at 43'	0.10	145.2	29.6	136.19
467	Picked for Variety of minerals	0.08	56.1	11.7	54.33
470	1,225#	0.08	32.9	4.4	30.56
476	7,500#	0.02	1.6		1.93
477	1,050#	0.04	21.6	3.3	20.03
478	1,400#	0.26	19.4	3.2	26.07
480	875#	0.10	39.0	9.1	40.29
481	550#	0.08	49.0	13.9	51.49
482	8,100#	0.02	2.9		2.75

3070 0056

SEC. 2

SEC. 1

SEC. 6

SEC. 11

SEC. 12
T34N. R34E.

SEC. 7
T34N. R35E.

PAMPAS NO. 6

PAMPAS NO. 5

PAMPAS NO. 4

PAMPAS NO. 3

PAMPAS NO. 2

PAMPAS NO. 1

PAMPAS NO. 7

PAMPAS NO. 8

PAMPAS NO. 9

PAMPAS NO. 10

PAMPAS NO. 11

PAMPAS NO. 12

OLD TIMER NO. 6

OLD TIMER NO. 5

OLD TIMER NO. 4

OLD TIMER NO. 2

OLD TIMER NO. 1

OLD TIMER NO. 3

KEYSTONE NO. 6

KEYSTONE NO. 4

KEYSTONE NO. 2

KEYSTONE NO. 5

KEYSTONE NO. 3

KEYSTONE NO. 1

TAMZY NO. 4

TAMZY NO. 3

TAMZY NO. 2

TAMZY NO. 1

TAMZY NO. 5

THANKSGIVING NO. 1

THANKSGIVING NO. 2

NORTH KEYSTONE

KEYSTONE

HOMESTEAD

Green shaded area only

30700056

NEVADA KEYSTONE MINING COMPANY

CENTRAL MINING DISTRICT,
PERSHING COUNTY, NEVADA

SCALE - 1 IN. = 400 FT.

March, 1940

Clyde V. Taylor,
Min Surveyor

Probable position of Contact on Section "Q"-"R"

Contact at surface on line "M"-"N"

Keystone Vein mined in early days of district.

Shaft № 1

Strike S 50° N
Dip 85° NW.

Highly leached and iron stained Granodiorite both east and west of shaft.

Contact at surface on line "M"-"N"

A similar contact to this, dipping 80° S.E. (but having Granodiorite on the West-side), 2500 ft. west of this point on our TAMZY № 2 Claim, in an old shaft 20' deep, shows 2'-8" assaying Au: 011 oz; Ag: 16.4 oz; Pb: 3.8%; Cu: 0.15%
To the west of that the float is the same leached and iron stained Granodiorite as occurs on the surface over the Keystone Sulphide ore-body.
Between the Keystone and TAMZY № 2 there is a third hill with the same kind of float and outcroppings.
This is on our KEYSTONE No. 5 Claim.

East contact not exposed on surface on Section "Q"-"R"

500 ft. to excellent mill-site which is 500 ft. from permanent water-supply on N.K.M. Co. property.

Location for inexpensive shaft for cheap mining and early development.

Nevada Keystone Mg. Co. started sinking 2/16/40.

Probable upper limit of sulphides

Water level encountered in sinking

West drift № 1

Sample № 227

Sample № 212
The quartz will probably die out quickly as it has elsewhere in the hornfels in this mine.
R.B.

Suggested by dip of quartz

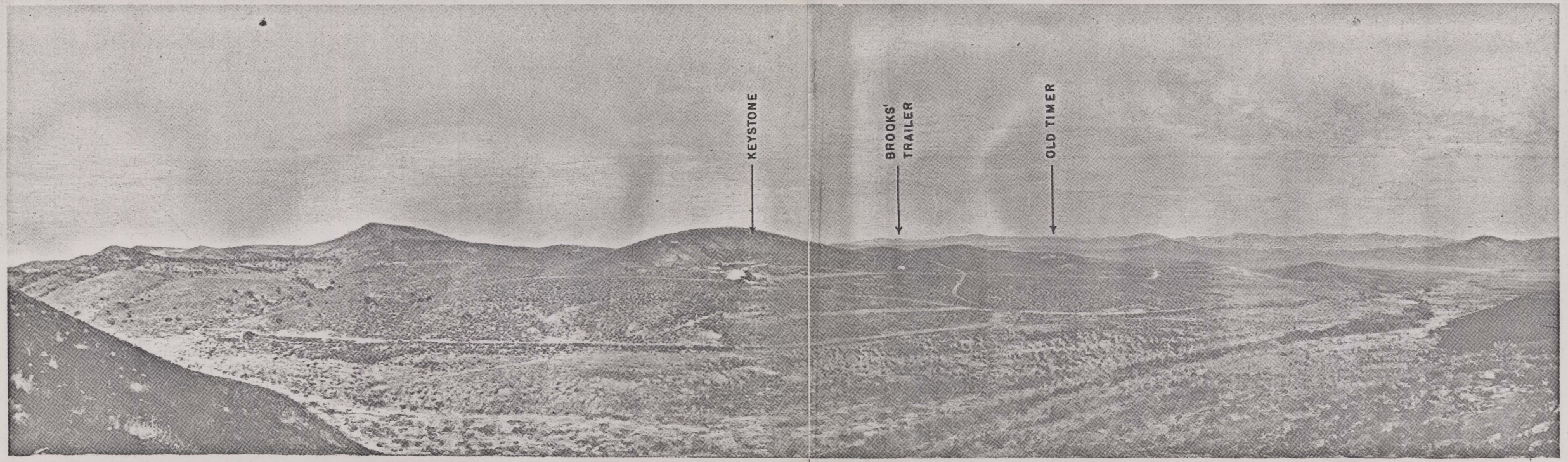
Flat quartz band followed in W. drift No. 1
This, with parallel bands and spurs intersecting with it, carries abundant Galena and a good deal of Sphalerite and Pyrite.
For the first 40 ft. the values appeared largely in quartz. West of that the Diorite above and below the quartz-band is showing a decided increase of ore mineralisation in seams, bunches of quartz and in innumerable planes of movement running in all directions.
Blocks of solid Diorite show abundant disseminated sulphides, the character of which is not yet accurately determined. This condition and the dipping of the quartz-bands to the southwest, is exactly the same as was found 200 ft. north of this point, when the Jones Bros. drifted westerly on a quartz-band from the hornfels contact on the 2d level. (see plan)

LEGEND

Granodiorite | Hornfels | Quartz

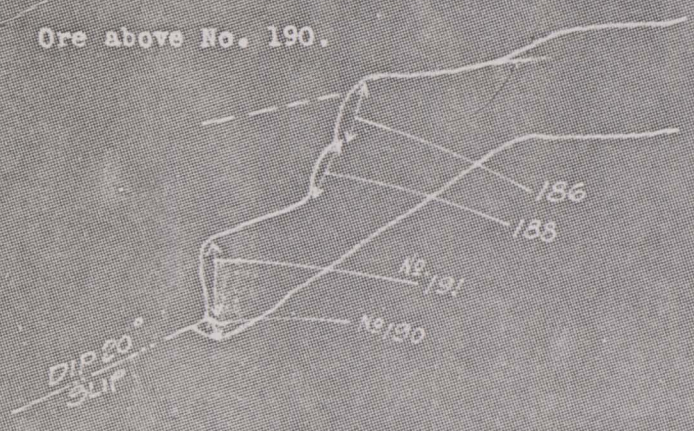
NEVADA KEYSTONE MINE
Geological Section "Q"-"R"
(through Shaft № 1)

R.B.	
4-1-40	
	SILVER BURRO EXPLORATION CO.
1"-30 Ft.	
B-15757	30700056



Properties
NEVADA KEYSTONE MINING CO.
Looking North

No.	Description	Width	Gold Oz.	Silver Oz.	Lead %	Copper %
167	Vertical, exposed portion of vein in face on 9/15/39	4.5 ft.	.03	22.50	4.45	Nil
168	Vertical, exposed portion of vein in face on 9/15/39 Ore still above and below sample	2.5 "	.02	31.25	2.80	.10
169	Upper 4' of Hornfels exposed in this drift. Showing coarse pyrite cubes.	4.0 "	.005	.75	---	Nil
170	Box sample, Handfull from each car of ore mucked from round of 9/14/39. Represents 4 tons	---	.025	37.45	6.65	Tr.
171	Box sample. Handfull from each car of ore mucked from round of 9/14/39. Represents 2 tons	---	.03	21.10	3.55	Tr.
173	Portion of vein exposed in face on 9/25/39.	4.5 "	.02	18.50	0.20	---
174	Portion of vein for next 6 in. below No. 173	0.5 "	.03	60.20	6.80	---
175	Portion of vein for next 12 in. above No. 173 (oxidized material)	1.0 "	.02	6.90	2.90	---
173) 174) 175)	Weighted average of Nos. 173,174 and 175	6.0 "	.02	20.04	1.20	---
176	Full height of face exposed on 9/25/39.	9.5 "	.03	9.35	2.00	---
177	Exposed portion of vein. There may be more ore in bottom.	7.25 "	.04	26.15	2.60	---
178	Full width of vein exposed. Includes an 18" band of pyritized hornfels near bottom of sample. Below this are quartz bands with ore. Main ore appears to be grand-diorite just above contact. Full width of ore probably not exposed.	3.5 "	.03	11.35	0.40	---
179	Full vertical width exposed in drift.	6.0 "	.03	26.15	2.60	---
180	Chunk of soft grand-diorite from floor of stope.	---	.01	0.95	Tr.	Nil
181	Face of drift, taken vertically, Dip 30°N.	2.20 "	.04	30.20	0.35	Nil
183	Box sample from blast of 9/26/39 in digging up bottom of stope to permit track laying. Soft Grand-Diorite. All went on waste dump. Sample No. 180 from same material. This sample represents 8 tons	---	.05	12.35	0.75	Nil
184	Box sample(6.5 tons) round in bottom. Same sort of material as No. 183	---	.02	8.80	0.50	Nil
185	Grab sample from surface of ore bin on 12/4/39. Zinc sulphide showing in specimens. This is a part of shipment No. 24.	---	.05	10.10	0.08	---
186	Top of winze(a) ,upper portion of stope at level of drift bottom.	3.0 "	.04	20.10	0.09	---
188	Face of ore exposed below No. 186 and joining that sample	4.7 "	.06	5.15	0.09	---
186) 188)	Combined	7.7 "	.05	13.31	0.09	---
189	Winze (a) 12 ft. S.E. of No's 186-188. There is evidently ore above and below this sample	4.0 "	.05	11.25	0.09	---
190	Deepest ore exposed 12/5/39 in bottom of winze (a). A band of quartz showing zinc sulphide.	3.0 "	.05	7.55	0.04	Zinc % Nickle % Tr. 2.80 None
191	Ore above No. 190.	4.0 "	.03	6.90	0.04	---



No.	Description	Width	Gold Oz.	Silver Oz.	Lead %	Copper %	Zinc %
192	Tamsy No. 2 Claim. Sample across vein exposed in an old shaft 20 ft.deep from which ore has been stoped some time in the past. This vein is parallel to the outcrop of the Keystone Vein but 2,300 ft. to the west. Strike of vein N-S,Dip 60°E.	2.7 "	.11	16.4	3.80	0.15	
193	Composite ore sample representing 7 tons of ore hoisted 12/7 and 12/8/39 from Winze (a). This ore was shipped in Lot No. 24	---	.03	7.30	1.18	--	4.10
194	Old Timer No. 1 Claim. Pieces of quartz from a small pile beside an old pit near other pits and shafts on a quartz vein 10 ft.wide running E-W on top pt.ridge	---	.03	10.50	---	---	
196	Keystone No.3 Claim. Discovery cut.at or near limestone contact.Heavily oxidized material.	4.0 "	.02	0.60	0.30	---	
198	Old Timer No. 1 Claim, an old incline shaft on southerly vein which was developed and stoped extensively many years ago. Sample at incline depth of about 50 ft.just above water level.Across unstoped vein exposed in shaft.	2.0 "	.025	14.40	1.10	---	
199	Do. A pillar on opposite side of shaft	3.25 "	.01	9.30	0.90	---	
200	Do. A pillar of 100 tons, 100 ft. W.of shaft at foot of area which has been stopedin the past to the surface	---	.005	8.20	0.95	---	
201	Large chunk of granodiorite picked up at foot of dump probably from vicinity of winze (a)showed disseminated sulphides throughout.	---	.03	3.6	0.45	---	1.90
202	600 lb.sample composed of broken ore in winze (a) Winze (b) and flat stope N.E.of winze (a) Sent to Southwestern Eng.Co.of A. for flotation tests. Sample cut for assay after crushing.	---	.045	23.1	3.20	0.14	Iron % 3.80 9.20

KEYSTONE MINE
• SECOND LEVEL •

DRWN. BY: C.S.L.
DATE: 1-11-40
APPR:
SCALE:

SILVER BURRO EXPLORATION CO.

NO. 15603-A

30700056

SHEET 2

PARALLEL VEIN

ON OUTCROP

OLD WORKINGS

OLD

PROPOSED SHAFT

A

B

N

OLD FILLED STOPES CONTINUOUS FOR 350' IN LENGTH.

APPARENT DIP & WIDTH OF VEIN FORMATION WHERE NOW WORKING.

ADIT LEVEL

WINZE IN VEIN

VIRGIN GROUND. FIRST STOPE FILLED.

SECOND LEVEL

STOPING BY JONES.

SECTION "A-B"
SHOWING FLAT & INCLINED VEINS.

OLD STOPED AREA

STOPE

STOPE

ADIT LEVEL

OLD ADIT

35'-0"

SECOND LEVEL

FAULT

VERTICAL SECTION AT RIGHT ANGLES TO "A-B"

KEYSTONE MINE
LONGITUDINAL SECTION

DRWN. BY: C.S.L.
DATE: 12-18-37
APPR.
SCALE: 1" = 50'
NO. BJ-15662

SILVER BURRO EXPLORATION CO.

30700056

No.	Description	Width	Gold Oz.	Silver Oz.	Lead %	Copper %
167	Vertical, exposed portion of vein in face on 9/15/39	4.5 ft.	.03	22.50	4.45	Nil
168	Vertical, exposed portion of vein in face on 9/15/39 Ore still above and below sample	2.5 "	.02	31.25	2.80	.10
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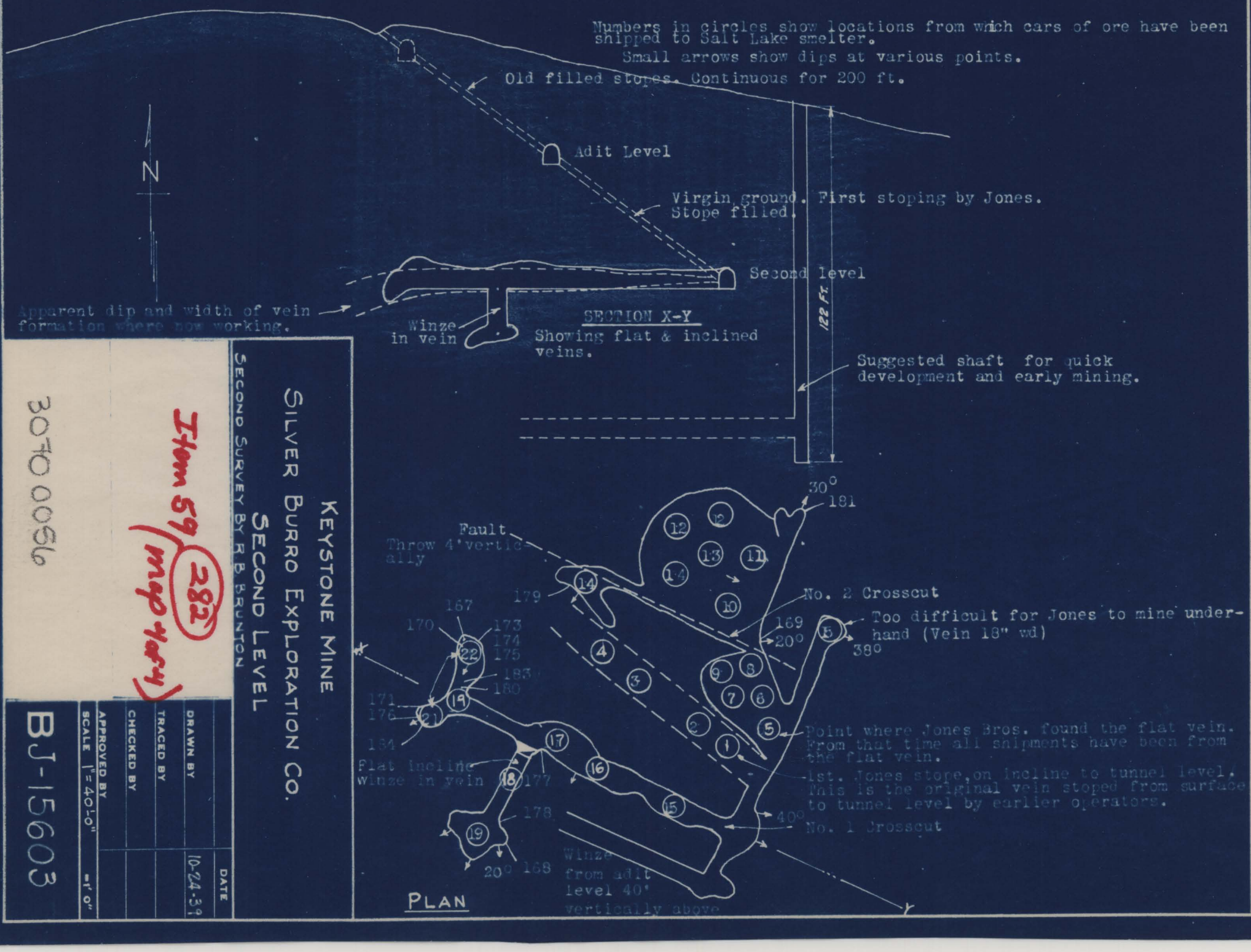
170	Box sample. Handfull from each car of ore mucked from round of 9/14/39. Represents 4 tons.	---	.025	37.45	6.65	Tr.
171	Box sample. Handfull from each car of ore mucked from round of 9/14/39. Represents 2 tons.	---	.03	21.10	3.55	Tr.
173	Portion of vein exposed in face on 9/25/39.	4.5 "	.02	18.50	0.20	---
174	Portion of vein for next 6 in. Below No.173.	0.5 "	.03	60.20	6.80	---
175	Portion of vein for next 12 in. above No.173 (oxidized material)	1.0 "	.02	6.90	2.90	---
173) 174) 175)	Weighted average of Nos. 173,174 and 175.	6.0 "	.02	20.04	1.20	---
176	Full height of face exposed on 9/25/39.	9.5 "	.03	9.35	2.00	---
177	Exposed portion of vein. There may be more ore in bottom.	7.25"	.04	26.15	2.60	---
178	Full width of vein exposed. Includes an 18" band of pyritized hornfels near bottom of sample. Below this are quartz bands with ore. Main ore appears to be grand-diorite just above contact. Full width of ore probably not exposed.	3.5 "	.03	11.35	0.40	---
179	Full vertical width exposed in drift.	6.0 "	.03	26.15	2.60	---
180	Chunk of soft grano-diorite from floor of stope.	---	.01	0.95	Tr.	Nil
181	Face of drift, taken vertically, Dip 30°N.	2.20 "	.04	30.20	0.35	Nil
183	Box sample from blast of 9/26/39 in digging up bottom of stope to permit track laying. Soft Grano-Diorite. All went on waste dump. Sample No. 180 from same material. This sample represents 8 tons	---	.05	12.35	0.75	Nil
184	Box sample (6.5 tons) round in bottom. Same sort of material as No. 183	---	.02	8.80	0.50	Nil



KEYSTONE MINE
SILVER BURRO EXPLORATION CO.
SECOND LEVEL
SECOND SURVEY BY R.B. BRUNTON

DRAWN BY
DATE 10-24-39
TRACED BY
CHECKED BY
APPROVED BY
SCALE 1" = 40'-0" = 1'-0"

BJ-15603

3070 0056

Ihm 59 282 map-work