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July 1941

GEOLOGICAL SURVEY - "Palmetto Mines

ITEM
19

M. Dawes,
619 E. Ocean Ave., Long Beach, Calif.

Herewith find results of geologic reconnaissance survey of area covered by the claims "Palmetto Mines," Esmeraldo County, Nevada, (maps attached)

As per your instructions, my investigation was confined to a consideration of the present commercial possibilities as related to the geologic evidence. You have informed me that you have reports made by several engineers which detail past operation and production and a record of sampling which is satisfactory to you. Therefore, except in specific instances that confirm my observation, i.e., assays, etc., my study of the ground has been restricted to the letter of instruction.

Accompanying field sketches will serve to make more intelligible the data submitted.

(Signed) Clarence S. King.

(Above is certified copy made

by Frances E. Causey, Notary Public)

Mining, Metallurgical & Consulting Engineer.

Laboratory Tests - Kentucky Dump Ore -
Coarse side of screen, better ore from
second level of dump. Made by Tom C. King,
Research Laboratory, University Arizona

Tucson, Arizona
December 11, 1941

Test on your ore made with following results:

The whole sample was crushed to -10 mesh and a 500 g. portion split off. This was wet ground in a ball mill for 40 minutes with 0.1 lb. / Ton of Reagent 208 and the same amt of Reagent 301. Dilution of about 1:3. Resultant pulp was about 95% -100 Mesh. Pulp was then diluted to 4:1 (20% solids) and floated for 15 minutes in a Denver Sub-A lab machine with pine oil for frother. Tails from flotation machine were panned to give "table concentrate.

Wt. Tons	Assay	T. x Assay		Percent Distr.		Ratio of	
Product:		Ag.	Au	Ag	Au	Ag	Au
grams	100						
Heads							
500.00							
F.Conc.							
12.69	2.51	58.70	17.55	148.0	44.3	35.8	75.2%
Ta.Conc.							
8.04	1.59	15.15	3.78	24.1	6.0	5.8	10.1%
Tails							
484.00	95.90	2.51	.09	241.0	8.7	58.4	14.7%
Totals							
504.73	100.00	4.09	.59	413.1	59.0	100.0	100.0%

A gold recovery of 85.3% is not so bad for a starter since this could undoubtedly be improved in a mill, but the silver is rather low, probably being recoverable in a cyanide circuit if the additional recovery warranted it. I should judge from the reducing power of the concentrates that the ore should contain approximately 1% copper and 0.8% lead. This is only a rough guess though.

Unfortunately the inside sack had broken in the scramble, mixing the contents of the two sacks, and since there were no instructions with them, I mixed and sampled the two together. The two samples were of the apparent same type ore. An average of 8 accurately cut samples gave 4.20 oz. Ag and 0.67 oz. Au. Will forward some of the rejects soon.

(Signed) Tom C. King.

(Above is certified copy made
by Frances E. Causey, Notary Public)

REGIONAL GEOLOGY:

Within the Silver Peak quadrangle (U.S.G. Survey), Goldfield "Special quadrangle" and Lida Nevada-California quadrangle.

A granitic uplift which domed and broke through the overlying series of old sedimentaries (limestones, shales, slates, etc.) followed by intrusions and flows, mineralization accompanying the later action. (See sketch No. 1). Except where covered by lava caps the top rocks have been deeply dissected or entirely removed. Porphyry dikes of varying composition, corresponding to the differentiation of the magma have intruded these older rocks along the original fractures, with tongues and sills penetrating later breaks.

LOCAL GEOLOGY.

Within the width of one mile on the claims examined, there are 5 approximately parallel fissures in the slate, all of the same type, i.e., a quartz-ore cementation of the crushed slate walls of the fissure, the inclosure of the black, angular slate fragments by white vein-quartz, producing a black-white brecciated structure which is characteristic of all the veins. The mineral content (sulphides of copper, iron, and lead, carrying gold and silver) was imported with the vein quartz, and is primary. There is practically no replacement of the slate walls. The veins have been slightly faulted by later movements along the bedding of the slates (see sketch #3). The original breaks in the slate and subsequent intrusive dikes, have determined the strike and dip of the veins, and the relation of the ore deposition to these intrusive masses is obvious. The thrust of movement is across the bedding and dip of the slate and in several instances the dike becomes one wall of the vein. The brecciated fissures offered open channels to the highly silicic solutions emanating from the underlying magma. As before noted, there has been no metasomatic replacement of the slate by the silica, nor any apparent reaction between the metal minerals and their enclosing matrix. These facts support the opinion that the metallic content was deposited simultaneously with the vein-quartz and therefore originated in the same source. The bearing this has upon the commercial aspect of the deposit will appear later in the deductions made therefrom. At such points as the veins are clearly in contact between slate and porphyry, several minerals characterizing contact metamorphism (notably specularite and garnet) were observed. In several localities on the outcrops there is a heavy iron gossan with residual copper minerals (silicate and carbonates), indicating a former concentration of sulphides at that point in the vein, which facilitated oxidation and a possible downward enrichment. This possibility will be considered in conjunction with secondary enrichment at or below water level. The spots referred to are infrequent. For the most part the pay minerals are disseminated in a hard, white, quartz-slate gangue, highly resistant to oxidation. The last intrusive (sketch 5) is a more basic porphyry, and has altered the type of mineralization in such veins as it, or its mineralizing agencies encountered. This is evidenced by the differences between the quartz and mineral content of the highest and most easterly vein on the "Dawes" 16, and "President" claims, and the vein-filling of the lower zone. The last igneous disturbance reopened previous fractures, permitting an influx of enriching solution, and the veins of the higher structure were more affected, due to proximity of the basic dike. A tunnel was driven with the obvious intent of undercutting this higher vein system, but is caved at a point where the strike of a fault (which throws the "Diamond" vein) and that of the dike coincide (sketch 5). This tunnel would open 400 to 500 feet of "backs."

Considering the preceding data, your problem in my opinion is to determine the continuance of the veins from the slate into or on the underlying igneous rocks. Records of workings indicate that none have "bottomed" in the manner suggested in sketch 4, as at points A, B & C. Therefore since above this horizon the production in tonnage and quality was apparently satisfactory to the intermittent operators for many years, undeveloped identical territory may reasonably be expected to duplicate that operation with the great advantage of improved economic situation and metallurgical advance. Values as found at depths attained are indicated by the assay returns quoted from the report by L.J. Pepperberg, made in 1916. Copper and lead content are omitted.

	Gold ozs.				Silver ozs.
Diamond, 75 ft. level - 16 inches ore	-----	2.65	-----	7.15	
Diamond, 75 ft. " 15 " "	-----	4.00	-----	24.00	
Champion, 120 ft. " 14 " "	-----	0.64	-----	6.16	
Champion, 120 ft. " 14 " "	-----	2.03	-----	80.47	
Kentucky, 150 ft. " 14 " " in pillar	-----	0.03	-----	24.77	
Kentucky, 150 ft. " 14 " " " "	-----	0.22	-----	79.60	
Kentucky, 114 ft. " - From old stope	-----	0.30	-----	30.50	

To check these values, samples of the better ore left on the old dumps of the two most easterly veins, assayed \$80.00 and \$55.00. The two upper veins, namely, those on the "Diamond" and the "Dawes 16-17" claims, are about 3000 ft. east of the "Champion-Kentucky" vein.

It is evident that "high-grade" ore was mined from both and if the usual procedure was followed, the "low grade" or what would now be classed as "mill ore," was left in the workings and should be available as such if the old openings were under-cut as suggested in sketch No.5. In this connection attention is called to Photograph No.4, where the vein on the "President" (same as on "Dawes 16-17") was stoped to the surface.

There is, beyond question, a great tonnage of ore still between slate walls in virgin ground, whether or not pay ore extends below the slate beds. I do not think that the possible zone of secondary enrichment has been entered by any of the former workings. There is this to anticipate. Also, there is the reasonable probability that the ore-bodies (or at least some of them) may spread out at the point where the veins in the slate encounter the porphyry base. The solutions and gases came from or through this magma and the question to be answered, as before pointed out, is "Has mineral deposition been confined within the slate?"

For the proving and operation of this property, I recommend that the "Kentucky" shaft be reopened and sunk to water level at least. Should development to this point prove satisfactory (I have little doubt that it will) the next vein easterly could be attacked and worked through the "Kentucky," as indicated in the cross-section sketch No.5, with confidence that ore-bodies of like nature would be opened in this second vein with the advantage of greater depth. It is on the cropping of this second vein, I think on the "Catherwood" claim, where a 30 ft. shaft and an open cut has exposed an especially heavy body of "gossan." A sample cut from the roof at the bottom of this 30 ft. shaft was sent to the International Smelter at Salt Lake. The Smelter offered \$10.00 per ton for ore of like character. The values in this body (and those of the same nature on this and other veins) are of course residual from oxidation of the sulphide concentrations before referred to and are indicative of what may be encountered when the unaltered ore is reached.

I suggest also that the caved tunnel (sketch 5) be continued to interception with the 2 upper veins. The most easterly of these veins has been surfaced and stoped for several hundred feet. There is no ore left on the several dumps. The inference is that it was all handled profitably. Under such workings there should be a downward and longitudinal extension of these bodies. On the "Sumner" claim there are exposures of very large bodies of sulphide-impregnated quartz, and these certainly justify exploration. Basing the judgment upon the many samplings & assays you have shown me & upon your mill-test of large quantities of "Kentucky" ore, there seems to be available an ample tonnage of about \$15 ore (present prices of metals). This is rated as "good" mill ore under average working conditions. There should be no difficulty in the treatment of this material in a properly adapted plant at the millsite (see photographs Nos.1 & 2) below the mines, where there is ample water. The great difference between the economic conditions governing past operations & those of today, as well as the advance in metallurgical knowledge should guarantee a margin of profit not obtainable on ores of grade mentioned by the earlier operators.

There are no especially difficult factors to consider in planning a campaign of development of this ground and its future, in my opinion, rests upon the geologic conduct of the ore depositions when they reach the igneous base rocks. This behavior cannot be foreseen with certainty, but can be ascertained by prosecuting to the determinative point one development, preferably that on the "Kentucky." The location of the shaft & the depth already reached as well as general conditions, indicate this as the spot most favorable to a resumption of operation. (Photos. # 3 & 5 show the field of operation under winter conditions). (NOTE: Owing to the good values in copper, lead & zinc of the Palmetto ores, this will give us the priority for supplies & equipment, to operate.)

ASSAYS TAKEN FROM OLD (ENGINEERS') REPORTS

From President Mine: (Palmetto Group of Mines). February 24, 1908
 Pinemarket sample vein, 9 ft. down on President claim Nos. 2-9,
 Feb. 21, 1908 contained-

Gold 2.30 ounces \$47.73 per ton
 Silver 32.81 " \$42.42 " "
 \$90.15 " " of 2,000 pounds

(Signed) C. Luckhardt & Co.

	Silver - oz.	Gold - Value
No. 27	24.30	6.00
28	8.50	5.00
29	14.00	514.82
30	19.00	4.00
31	6.00	12.50
32	2.50	100.00
33	2.43	3.00
34	16.00	53.00
Gold price -	35	19.00
\$20.67 per oz.	36	8.00
	37	10.00
(Gold price - \$20.67 per oz.)		

Location of sample	RESULT OF ASSAYS FROM PALMETTO MINES		Lead %	Copper %	Total. Val.
	Gold-oz.	Silvr.-oz.			
#1 Diamond, 75 ft. level, 16" ore in floor	2.65	7.15	1.5	1.3	\$67.37
A Diamond, 75 ft. level 18" ore in floor	4.00	24.00			94.40
2 Diamond, 75 ft. level 15" ore, 25' NW of shaft	.06	.36			1.45
B Diamond, 75 ft. level, 15" ore, 25' NW of shaft	1.36	2.10			28.46
3 Diamond, 75 ft. level 15" ore, 50 ft. NW from shaft	.52	5.68	4.3	0.4	22.88
4 Diamond, 75 ft. level 8" ore, 110' NW of shaft	.59	.81	0.3		13.04
6 Champion 120' level 14" ore, 150' SE of main shaft, specimen ore	2.03	80.47	13.6	5.4	164.72
7 Champion, 200 ft. level 8" ore, 50' SE shaft	.33	21.87			19.84
C Champion, 200 ft. level 8" ore, 50' SE shaft	.58	37.02		1.85	43.06
8 Kentucky, 150 ft. level 11' ore at shaft	Trace	Trace			
9 Kentucky, 150 ft. level 27" ore at shaft	Trace	4.40			2.64
D Kentucky, includes #8 & #9 4' ore	Trace	.90			.54
10 Kentucky, 20' above #8 #14" ore in pillar	.03	24.77			14.86
E Kentucky, same as #10	.22	79.60		1.75	59.81
11 Kentucky, 114, ' level 40' SE OF SHAFT, in stope 4" ore	.30	30.50			24.50
* 5 Champ. 120' level, 14" ore, 100' SE of shaft	.64	3.02	6.16		19.92

NOTE: Silver figured at 60¢ per oz; lead at 6¢ per pound. Copper at 25¢ per lb; gold at \$20.67 per oz. Assays made by Emery Smith Co., San Francisco, Cal., and C.H. Ellsworth, Goldfield, Nev. Apr. 21, 1916.

ASSAYS MADE BY MR. S. D. WOODHULL (Late Mgr. President Mine)
 (About Feb. 1906)

No.	Silver	Gold Value
1	3.80	\$ 90.43
2	14.00	9.00
3q	4.50	36.17
4	3.40	39.99
5	5.83	27.00
6	5.83	45.00
7	24.79	60.00
8	5.62	10.32
9 (av. 13 assays)	8.74	19.40
10	33.54	33.00
11	5.83	50.00

((Assays by S.D.Woodhull ---cont'd))

No.		Silver	Gold-Value
12		7.29	\$ 49.71
13	(Av. 4 Assays)	6.50	45.22
14		8.74	120.50
15	(Av. 6 Assays)	9.25	37.16
16	(Av. 4 Assays)	8.00	75.00
17		1.45	10.00
18		8.74	331.60
19		7.00	96.71
20		19.00	12.00
22		6.00	12.00
23		6.00	8.50
25		17.00	31.00
26		15.00	42.00

Assay values are quoted at \$20.67 gold per oz.

Samples of ore taken from the lodes at points underground and assayed by Mr. Fred Claudet of London, Assayer to the Bank of England.

ASSAYS TAKEN BY W.D.O'BRIEN, E.& M., January 10, 1917

No.		Gold %	Silver %	Copper %	Lead %	Total Value
No. 1	Diamond Tunnel 24" ore	.68	.60			14.50
No. 2	Diamond Tunnel 18" quartz in wall	.02	.40			.71
No. 3	Diamond Shaft 37' level - 30" ore	.03	.62			1.07
No. 4	Kentucky shaft 5' ore	.75	2.90	.08		17.67
No. 5	Kentucky Shaft 20" ore	.04	16.	11.8		71.82
No. 6	Kentucky Shaft Lower Level - 8" ore	5.68	7.50	3.1		138.53
No. 7	Kentucky Shaft, Lower Level - 12" ore	.04	69.60	2.5	12.4	82.88
	Silver @ 75¢			Copper @ 25¢		Lead @ 7¢
						Gold Value - \$20.67 per oz.

ASSAY CERTIFICATEED. EISENHAUER, Jr.,
534-36 Phillips Bldg.,
Los Angeles, CaliforniaPhone Vandyke 9328
Los Angeles, Calif. May 29.34

I hereby certify that the samples described below, received from F. Desch, assay as follows:

Owner's Mark and Sample	GOLD Ozs. per ton	Value per ton	SILVER Ozs. per ton	Value per ton	TOTAL VALUE PER TON
Palmetto #1	.28	\$9.80	38.40	\$17.28	\$27.08
" #2	.04	1.40	trace		1.40
" #3	1.16	40.60	1.90	.85	41.45
# #4	.035	1.23	trace		1.23
" #5	1.08	37.80	3.30	1.40	39.29
" #6	.025	.88	trace		.88
" #7	.01	.35	.08	.04	.39

Gold @ \$35.00 per oz.

Silver @ 45¢ per oz.

Lead @ C

Copper @ C

Ed Eisenhauer, Jr.
Assayer