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ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: SANDERSON MINE

ALTERNATE NAMES:

HALL
HALL AND HAIGHT
GOLD HILL
GOLD CAMP

PIMA COUNTY MILS NUMBER: 591

LOCATION: TOWNSHIP 11 S RANGE 16 E SECTION 15 QUARTER SW
LATITUDE: N 32DEG 28MIN 45SEC LONGITUDE: W 110DEG 42MIN 07SEC
TOPO MAP NAME: BELLOTA RANCH - 15 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:

GOLD LODE
COPPER

BIBLIOGRAPHY:

ADMMR SANDERSON MINE FILE

GENERAL REPORT

on

THE MINING PROPERTY COVERED BY
MINERAL SURVEY NUMBER 4274

Formerly known as the
Sanderson or Hall & Haight Group

Old Hat District, Pima County, Arizona

by

James B. Tenney, E. M.
Mining Engineer and Geologist
Tucson, Arizona

July 21, 1943

GENERAL REPORT
on
THE MINING PROPERTY COVERED BY
MINERAL SURVEY NUMBER 4274

Formerly known as the
Sanderson or Hall & Haight Group

Old Hat District, Pima County, Arizona
One to three miles east of Camp Apache

GENERAL GEOLOGY AND ORE OCCURRENCE

These fifteen mining claims cover a highly altered sedimentary series intruded by dikes and sills of diorite porphyry and diabase. They consist of schistosed shales and sandstones overlain by intensely marbelized limestone. The general dip of the series is southwest at angles varying from 20 to 45 degrees.

Cutting the aforesaid sediments are northeast fracture zones accompanied by quartz, limonite and a little manganese oxide.

Where the fracture zones cross favorable beds, bedded replacements of ore are found, varying in thickness from a few inches to four or more feet. The predominant valuable metals deposited in the shales and sandstones are gold and silver, with minor copper. In the limestone, copper carbonates and silicates outcrop, the oxidation products of copper-iron sulphides. Minor gold and silver is found with the copper minerals.

The bedded deposits are extremely irregular in size and are therefore hard to follow in their outcrops. It is also highly probable that many bedded ore lenses occur in depths which do not outcrop.

In going over the ground with Mr. Randolph Jenks, Junly 13 to 19 inclusive, 1943, I found enough evidence of ore on every claim to more than justify the patent. The shale and sandstone are intensely altered by the introduction of iron oxides, and many northeast fracture zones outcrop. In the limestone, copper stain together with some quartz and iron oxide accompany the fractures and are evidence of probable bedded replacements at depth of copper ore. Two large ore bodies outcrop and have been extensively stoped, one at the Sanderson shaft, and the other at the long tunnel off of Geeseman Wash, both replacements of the bedding. The first is of high grade gold ore and the second of rich copper ore. Due to the complex nature of the deposits, their successful exploitation has been slow.

Presented by:

/s/ James B. Tenney, E. M.
Mining Engineer & Geologist

July 21, 1943

Date	Smelter Lot No.	Smelter	Dry Tons	Assays			Total Metal Payment per ton	Net Smelter Returns -- freight not deducted
				Ozs. per ton Au.	Ozs. per ton Ag.	% Cu.		
7/15/39	482	Hayden	30.732	0.42	0.41	0.54	\$ 13.60	\$ 310.39
7/22/39	531	Hayden	39.973	0.39	0.29	0.08	12.60	363.75
8/21/39	595	Hayden	47.181	0.27	0.13	0.14	8.73	270.34
10/ 9/39	709	Hayden	42.348	0.29	0.25	0.66	9.76	307.44
11/14/39	820	Hayden	9.671	0.24	0.32	-	7.76	33.75
1/ 9/40	11	Hayden	2.168	1.52	1.80	-	50.02	95.91
1/19/40	39	Hayden	4.976	0.75	0.18	-	24.08	95.88
1/11/40	27	Hayden	36.541	0.27	0.05	-	8.56	221.44
2/13/40	139	Hayden	41.869	0.32	0.14	0.24	10.34	328.25
2/22/40	172	Hayden	5.420	1.08	1.00	0.36	35.25	163.56
3/13/40	250	Hayden	39.930	0.33	0.20	0.24	10.67	326.22
4/ 3/40	474	Hayden	3.287	0.80	1.00	-	26.20	68.72
4/ 9/40	355	Hayden	45.143	0.18	0.05	0.16	5.82	149.87
4/11/40	373	Hayden	11.019	0.13	-	0.18	4.20	18.73
5/23/40	566	Hayden	43.478	0.24	0.15	0.42	7.66	224.35
7/18/40	742	Hayden	3.475	0.42	0.34	-	13.57	32.80
8/ 5/40	801	Hayden	5.634	0.88	0.25	1.24	29.66	135.94
9/ 1/41	770	Hayden	13.884	0.01	2.36	4.60	8.53	62.89
9/ 7/40	913	Hayden	10.952	0.20	6.25	0.80	10.88	80.83
10/21/40	1058	Hayden	5.009	1.49	0.10	-	48.15	207.55
10/22/40	1061	Hayden	14.194	0.32	8.50	-	15.81	163.23
11/19/40	1142	Hayden	41.303	0.16	5.50	0.16	8.63	193.71
12/23/40	1235	Hayden	10.009	0.27	7.83	0.78	14.29	107.99
1/20/41	43	Hayden	15.656	0.17	4.90	-	8.53	67.32
1/30/41	75	Hayden	10.570	0.18	5.10	-	9.00	50.42
4/19/41	316	Hayden	12.535	1.02	0.50	0.42	32.96	350.46
Totals			2,006.190	0.40#	0.65#	0.46#	\$13.84#	\$19,784.22

Assays for gold, silver, copper, and the Total metal payment per ton are accurate weighted averages - not merely numerical averages.

Gold and Silver Values

0.40 oz. gold at \$35.00 per ounce	\$14.00
0.65 oz. silver at \$0.70 per ounce	0.46
Total	\$14.46

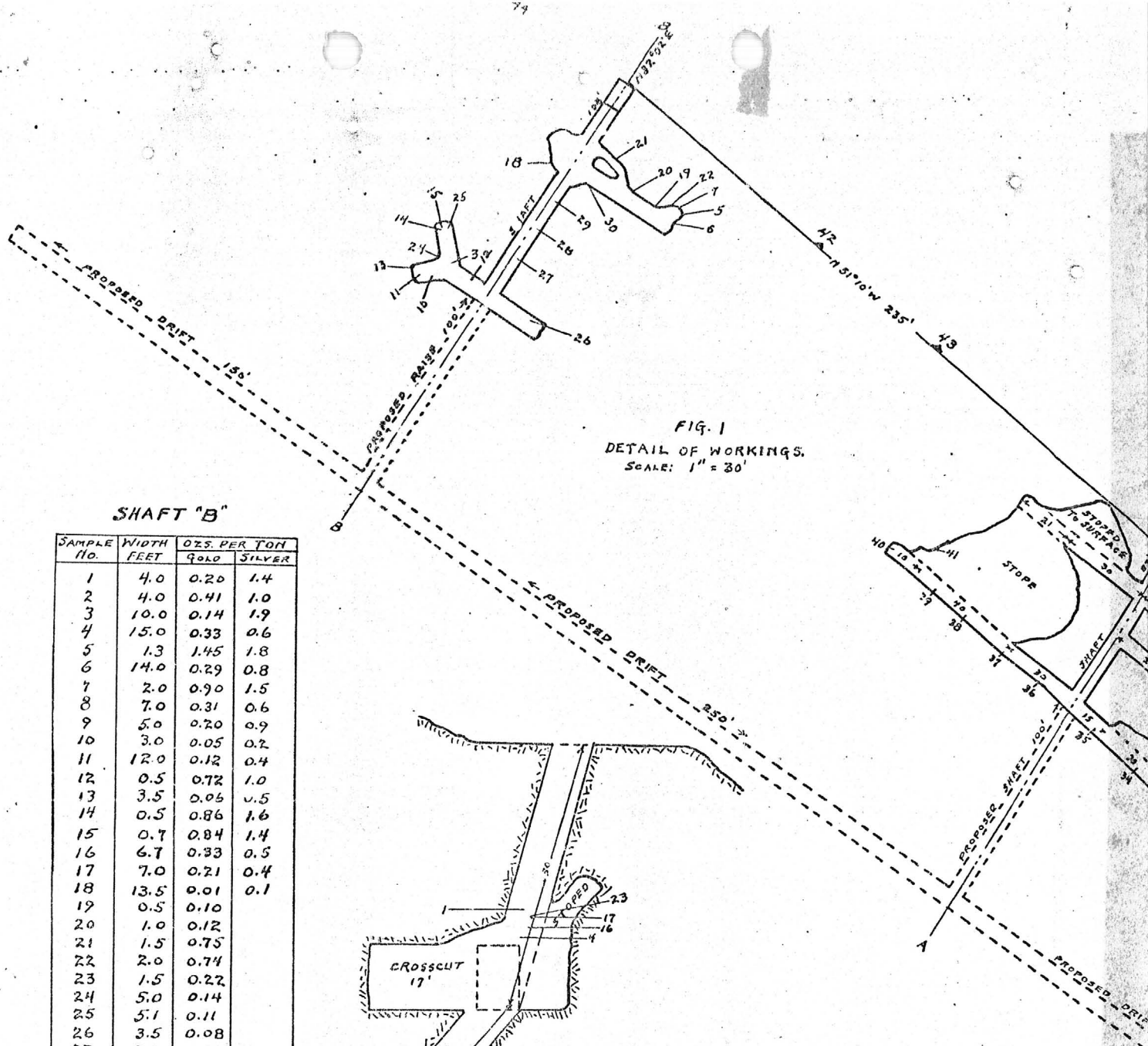
A numerical average of the analysis of the above shipments gave the following results:

<u>Insoluble</u>	<u>Silica</u>	<u>Iron</u>	<u>Alumina</u>	<u>Sulphur</u>	<u>Lime</u>
82.0%	73.6%	7.0%	6.6%	6.4%	2.1%

SANDERSON GOLD MINE

Summary of smelter return data
on shipments made to the Hayden and Miami Smelters

Date	Smelter Lot No.	Smelter	Dry Tons	Assays		%	Total Metal Payment per ton	Net Smelter Returns -- freight not deducted
				Ozs. per ton Au.	Ozs. per ton Ag.			
11/ 5/36	8810	Miami	10.523	1.21	1.05	2.77	\$ 43.03	\$ 389.65
11/30/36	8868	Miami	10.740	1.36	1.04	0.25	44.55	414.03
12/23/36	8934	Miami	10.094	1.68	0.93	0.33	54.10	485.50
3/ 4/37	9136	Miami	11.626	1.18	0.68	0.11	38.00	374.34
5/24/37	126	Hayden	38.474	0.41	0.35	0.60	14.10	402.82
6/15/37	155	Hayden	51.431	0.47	0.68	1.88	18.47	769.91
6/23/37	173	Hayden	49.034	0.45	0.49	1.40	16.66	645.28
7/ 2/37	187	Hayden	42.150	0.47	0.30	0.60	15.61	510.44
7/31/37	252	Hayden	38.809	0.53	0.42	0.96	18.32	575.15
8/10/37	334	Hayden	46.959	0.53	0.41	0.49	17.13	640.04
8/19/37	289	Hayden	40.931	0.75	0.50	0.90	25.30	891.07
8/19/37	303	Hayden	41.353	0.63	0.17	0.55	20.68	710.52
9/ 8/37	355	Hayden	39.700	0.49	0.25	0.32	15.84	482.75
9/20/37	373	Hayden	46.146	0.50	0.30	0.18	16.16	561.60
9/23/37	390	Hayden	46.186	0.34	0.56	0.20	11.04	327.46
10/ 6/37	408	Hayden	44.143	0.27	0.33	0.27	8.73	218.95
10/13/37	435	Hayden	44.733	0.30	0.30	0.16	9.70	256.77
10/27/37	448	Hayden	30.780	0.25	0.08	-	8.08	116.50
11/ 1/37	496	Hayden	46.712	0.30	0.22	0.18	9.70	270.93
11/ 1/37	504	Hayden	59.097	0.27	0.23	0.15	8.73	281.69
11/ 2/37	448-A	Hayden	12.500	0.20	0.08	0.15	6.46	31.25
11/19/37	556	Hayden	47.908	0.32	0.26	0.22	10.34	313.79
12/30/37	688	Hayden	21.898	0.43	0.27	0.32	13.90	276.47
1/22/38	51	Hayden	35.827	0.55	0.35	-	17.78	488.68
2/ 5/38	88	Hayden	36.832	0.41	0.40	-	13.25	337.38
3/28/38	210	Hayden	34.289	0.35	0.45	0.08	11.31	252.02
4/21/38	249	Hayden	46.035	0.45	0.39	0.26	14.54	499.02
5/26/38	311	Hayden	48.255	0.16	0.10	-	5.17	53.08
7/19/38	402	Hayden	23.766	0.19	0.22	0.85	6.72	76.52
8/23/38	426	Hayden	9.540	0.41	0.35	0.35	13.25	87.00
9/ 7/38	445	Hayden	18.039	0.18	0.14	-	5.82	18.62
12/16/38	555	Hayden	9.083	0.62	0.66	0.60	20.46	154.13
12/20/38	560	Hayden	11.738	1.61	0.17	-	52.03	523.40
3/13/39	172	Hayden	9.149	0.005	5.30	8.15	15.27	107.41
3/13/39	173	Hayden	15.997	0.35	0.87	-	11.54	117.90
3/14/39	182	Hayden	38.161	0.38	0.32	0.55	12.47	342.30
3/18/39	194	Hayden	15.293	1.01	0.06	0.43	32.64	400.51
3/28/39	217	Hayden	15.979	0.02	-	4.61	6.66	24.93
4/12/39	267	Hayden	31.478	0.37	0.48	0.20	11.96	256.55
4/19/39	287	Hayden	42.627	0.32	0.25	-	10.18	258.32
5/ 3/39	314	Hayden	49.733	0.29	0.23	0.16	9.37	291.93
5/ 6/39	316	Hayden	0.541	6.80	0.70	-	219.89	115.50
5/ 6/39	317	Hayden	7.157	1.59	0.07	-	51.39	318.89
5/20/39	356	Hayden	40.827	0.16	0.13	0.17	5.17	53.08
5/27/39	381	Hayden	46.120	0.18	0.18	0.20	5.82	107.00
6/14/39	421	Hayden	32.880	0.28	0.20	0.28	9.05	182.48
6/30/39	464	Hayden	7.900	0.71	0.11	-	22.95	129.17



SHAFT "B"

SAMPLE NO.	WIDTH FEET	OZS. PER TON	
		GOLD	SILVER
1	4.0	0.20	1.4
2	4.0	0.41	1.0
3	10.0	0.14	1.9
4	15.0	0.33	0.6
5	1.3	1.45	1.8
6	14.0	0.29	0.8
7	2.0	0.90	1.5
8	7.0	0.31	0.6
9	5.0	0.20	0.9
10	3.0	0.05	0.2
11	12.0	0.12	0.4
12	0.5	0.72	1.0
13	3.5	0.06	0.5
14	0.5	0.86	1.6
15	0.7	0.84	1.4
16	6.7	0.33	0.5
17	7.0	0.21	0.4
18	13.5	0.01	0.1
19	0.5	0.10	
20	1.0	0.12	
21	1.5	0.75	
22	2.0	0.74	
23	1.5	0.22	
24	5.0	0.14	
25	5.1	0.11	
26	3.5	0.08	
27	8.0	0.19	
28	5.6	0.28	
29	4.9	0.18	
30	3.0	0.41	
WEIGHTED AVERAGE	5.0	0.24	0.6

FIG. 3
SECTION B-B, FIG. 1
SCALE — 1 INCH = 10 FEET

Retraced from original
OCT. 7, 1944
By Ralph L. Moß
Registered Engineer.

ARIZONA.

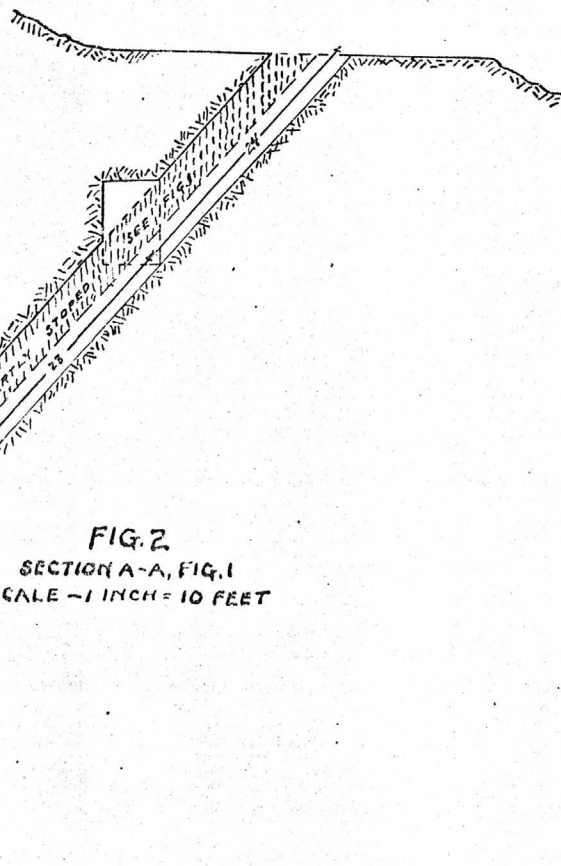
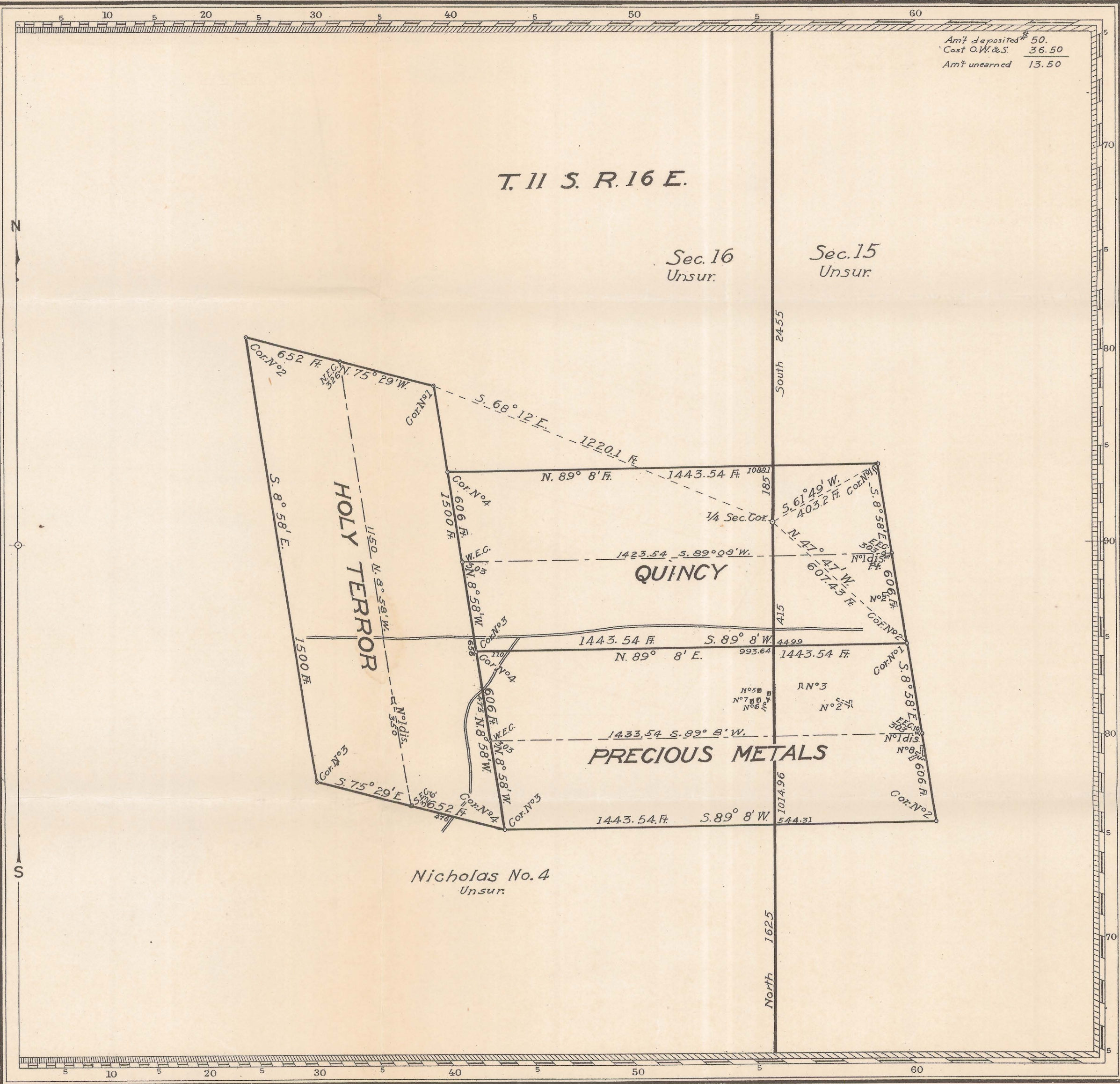


FIG. 2
SECTION A-A, FIG. 1
SCALE - 1 INCH = 10 FEET



Claims Located Am'd Nov. 22 1917

Mineral Survey No. 3501

Lot No. _____
Arizona Land District.

PLAT
OF THE CLAIM OF

Daily-Arizona Consolidated Copper Company
KNOWN AS THE

Holy Terror, Precious Metal, Quincy Lodes

IN Old Hat MINING DISTRICT,
Pima COUNTY, Arizona

Containing an Area of _____ Acres.
Scale of 300 Feet to the inch.
Variation 13° 30' E.

SURVEYED April 21-24 1918 BY
T. N. Stevens
U. S. Deputy Mineral Surveyor,

The Original Field Notes of the Survey of the Mining Claims of
Daily-Arizona Consolidated Copper Company
known as the
Holy Terror, Precious Metals, Quincy Lodes

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

I further certify that Five Hundred Dollars worth of labor has
been expended or improvements made upon ^{or for each of} said Mining Claims
by claimant _____ or its _____ grantors and that
said improvements consist of 5 Cuts, 4 Shafts and
3 Tunnels, total value \$2765.

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

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

U.S. Surveyor General's Office. Frank R. Frost
Phoenix, Arizona U.S. Surveyor General for
February 26, 1919 Arizona

SANDERSON GOLD MINE

OLD HAT MINING DISTRICT

PIMA COUNTY

ARIZONA.

FIG. 1
DETAIL OF WORKINGS.
SCALE: 1" = 30'

SHAFT "A"

SAMPLE No.	WIDTH FEET	OZS. PER TON GOLD
31	6.0	0.28
32	3.0	0.20
33	3.0	0.41
34	4.1	0.12
35	3.0	0.22
36	2.3	0.46
37	4.0	0.41
38	3.0	1.02
39	6.3	0.51
40	4.0	0.32
41	3.2	0.15
WEIGHTED AVERAGE	3.8	0.37

SURFACE OUTCROPS		
42		0.40
43		0.19
44		0.14
45		0.46
AVERAGE		0.30

SHAFT "B"

SAMPLE No.	WIDTH FEET	OZS. PER TON GOLD	SILVER
1	4.0	0.20	1.4
2	4.0	0.41	1.0
3	10.0	0.14	1.9
4	15.0	0.33	0.6
5	1.3	1.45	1.8
6	14.0	0.29	0.8
7	2.0	0.90	1.5
8	7.0	0.31	0.6
9	5.0	0.20	0.9
10	3.0	0.05	0.2
11	12.0	0.12	0.4
12	0.5	0.72	1.0
13	3.5	0.06	0.5
14	0.5	0.86	1.6
15	0.7	0.84	1.4
16	6.7	0.33	0.5
17	7.0	0.21	0.4
18	13.5	0.01	0.1
19	0.5	0.10	
20	1.0	0.12	
21	1.5	0.75	
22	2.0	0.74	
23	1.5	0.22	
24	5.0	0.14	
25	5.1	0.11	
26	3.5	0.08	
27	8.0	0.19	
28	5.6	0.28	
29	4.9	0.18	
30	3.0	0.41	
WEIGHTED AVERAGE	5.0	0.24	0.6

FIG. 3
SECTION B-B, FIG. 1
SCALE - 1 INCH = 10 FEET

FIG. 2
SECTION A-A, FIG. 1
SCALE - 1 INCH = 10 FEET

Retraced from original
OCT. 7, 1944
By *Ralph L. Mox*
Registered Engineer.

Summary Of Data On

SANDERSON GOLD MINE

Date Sept. 1, 1944

1. Mine: Sanderson Gold Mine
2. Location: On Mt. Lemmon Highway about 22 miles from Oracle and about one mile east of Control Mine and Lower control.
3. Mining District & County: Old Hat District, Pima County. About 55 miles from both Hayden and Tucson.
4. Former name: Hall; Hall & Haight; Gold Mill; Gold Camp.
5. Owner: Randolph Jenks
6. Address (Owner): P. O. Box 4084, University Sta. Tucson, Arizona Telephone 0417-J2
7. Operator: None
8. Address (Operator): -
9. President, Owning Co.: -
- 9A. President, Operating Co.: -
10. Gen. Mgr.: -
14. Principal Minerals: Gold, silver & copper.
11. Mine Supt.: -
15. Production Rate: Not operating.
12. Mill Supt.: -
16. Mill: Type & Cap.: None
13. Men Employed: None
17. Power: Amt. & Type: None
18. Operations: Present: None
19. Operations: Planned: See attached reports for suggested development plans.
20. Number Claims, Title, etc.: 20 claims. 14 being patented and 6 unpatented.
21. Description: Topography & Geography: Located north slopes of Santa Catalina Mountains at elevation of 4,760 feet. Rolling country with plenty of oak timber.
22. Mine Workings: Amt. & Condition: Three inclined shafts 108 ft., 87 ft. and 40 ft. deep. Two levels in the two deepest shafts. Few hundred feet of drifting. Stopes. Maximum extent of drifting about 100 ft. east and 80 ft. west of the 87' shaft. Workings now filled with water but timbers and all workings believed to be in good condition.
23. Geology & Mineralization: Highly altered sedimentary series of schistosed shales and sandstones overlain by intensely marbledized limestone. General dip of series 20° to 60° S.W. Bedded replacements of ore occur where northeast fracture zones cut favorable beds of the sedimentaries. Free gold near surface in oxidized zone. Sulphides beginning about 25' below surface with gold in the pyrite.
24. Ore: Positive & Probable, Ore Dumps, Tailings: 2,000 tons of probable ore can be mined from present workings without further development work. The vein exposed in the lower level of the main (A) shaft averages 3.8 feet wide and assays 0.37 ozs. gold per ton. Ore exposed in the 108' (B) shaft averages 5.0 ft. wide and assays 0.24 oz. gold and 0.6 oz. silver per ton.

- 24A. Dimensions and Value of Ore body: It has been estimated that by sinking the old or main shaft (now 108' deep) an additional 100', and drifting a total of about 500 feet, and connecting by a raise with the new shaft (now 87' deep), that 21,000 tons of ore will be developed that will average 0.30 ozs. per ton in gold. A. L. Waters, mining engineer, in his report on the property states that 100,000 tons of ore can be developed above a 300' level which should average not less than 0.40 ozs. gold per ton.
25. Mine, Mill Equipment & Flow-Sheet: Equipment on the property consists of 1 two room cabin, 1 three room cabin, 2 headframes in good condition with sheave wheels, 1 ore bin at the main shaft, 1 galvanized iron roofed shed for housing the hoist and tools, 1 jack pump, pipe in shaft, 1 gasoline motor, ladders and skidway in main shaft and one ore bucket.
26. Road Conditions, Route: Excellent. Well graded dirt road from the property to Oracle, and from there to the smelter at Hayden and to Tucson on paved state highways.
27. Water Supply: There is ample water for domestic and mining purposes. The mine makes about 1,000 gallons per 24 hours but it is believed that with depth it will make sufficient water for a mill.
28. Brief History: Located in early 80's by Hall & Haight. About 1908 or earlier a 5 stamp mill was erected on the property and used to amalgamate free gold ores from near the surface for several years. It was not satisfactory for treating the sulphide ores that came in at a depth of about 25'. In later years shipments of ore were made to the Hayden and Miami smelters. The property was re-located in 1924 by Ray and John Sanderson and acquired from them by the present owner in 1943.
29. Special Problems, Reports Filed: See the attached reports on the property by Truman H. Kuhn, Ass't. Prof. of Mining Geology at the Colorado School of Mines; C. L. Orem, Mining & Metallurgical Engineer at Phoenix, Arizona and A. L. Waters, E.M. There is also attached a map of the workings, showing ore widths and assay values, and also a surface map of the 14 claims being patented.
30. Remarks: Attached is a summary of data from smelter returns showing total shipments of 2,006.190 dry tons to the Hayden and Miami smelters with a weighted average assay of 0.40 oz. gold and 0.65 oz. silver per ton, which at prices of \$35.00 and \$0.70 per ounce respectively, gives a value on present prices of \$14.46 per ton.
31. If property for sale: Price, terms and address to negotiate: Price \$35,000.00 *
on very reasonable terms. Price subject to change however, in view of possibility of gold being increased in value.

(On April 29, 1929, Mr. C. L. Orem, Mining Engineer, Phoenix, Arizona, made a report on the Sanderson Gold Mine. The following is a brief description of the property which he prepared from the data contained in his longer report. It should be noted that whereas the property consisted of only six unpatented claims at the time the report was made in 1929, it now consists of 20 claims, 14 of which are being patented.)

SHORT DESCRIPTION OF SANDERSON GOLD MINE IN CATALINAS

The property is composed of six contiguous unpatented mining claims situated in the Old Hat Mining District, 20 miles southeast of Oracle, Arizona, by the Mount Lemon Highway and approximately 50 miles by good county highway from the American Smelting and Refining Company's plant at Hayden, Arizona.

The formation on the property shows limestone, schist, granite, diorite and various porphyries. The largest mineral showings occur as large veins between granite walls or between granite and porphyry or granite and schist. In places this vein matter is nearly pure quartz, while in other sections it is porphyritic and may be very acid quartz porphyry intrusions.

The surface is in most places covered with debris and the vein has been opened by several shallow pits, trenches, and cuts. This mineral zone is also opened by one 90 ft., one 60 ft., and one 40 ft. incline shaft sunk in the vein with a couple of hundred feet of drifts and cross-cuts.

The remains of an old 5 stamp mill is on the property and considerable of the higher grade croppings and ore in the old workings was milled in this mill many years ago.

The croppings are most prominent for about a thousand feet near the center of the group which is 3 claims long, but extends nearly the full length of the claims. On the croppings near the center of this group the 90 ft. incline shaft has been sunk on the vein. This shaft is practically inaccessible, the old stopes being caved and filled with debris and water from surface wash. 300 ft. west of this shaft a 40 ft. incline has been sunk in the last few years. This shaft is all in the vein and on about the 25 ft. level a cross-cut of the vein shows it 15 ft. wide, which gave values of \$6.60, \$7.50, and \$8.20 in gold, 0.8 oz. silver and 0.49% copper from different assays taken over the full width. The vein is very leached yet and shows only very small amounts of sulphides of copper coming in. It is silicious and very well fractured. From the foot wall at the point several tons were milled from a 20 ft. drift that averaged \$28.00 in gold. 15 inches in the roof assayed \$29.00 in gold with 1.8 oz. silver and 2 ft. assayed \$13.00 gold and 1.4 oz. silver.

Westward along this vein from the collar of this shaft, short cuts on the surface indicate the vein to be over a hundred feet wide.

Some 200 ft. or better eastward of the 90 ft. shaft considerable high grade gold ore was mined in surface cuts many years ago and milled in the old stamp mill. A 60 ft. incline shaft shows the vein nearly 8 ft. wide in the bottom and still widening. Some \$50.00 gold ore was milled from this section. 4 feet near the bottom assays \$8.20 gold, 1.0 oz. silver and \$4.00 gold and 1.4 oz. silver on the opposite side further up the shaft. Ore on the dump gave \$8.20 gold values.

Still further east numerous surface cuts show a large mineral zone to extend for several hundred feet at least. Various assays from these parts showed the cropping all to carry gold; values of from \$1.80 to \$12.00 in gold were secured. This surface is disintegrated in places and considerably broken up and weathered.

In the shafts the vein appears to dip about 45 degrees from the vertical.

The surface showings and underground workings indicate an excellent opportunity to develop a large tonnage of \$7.00 to \$10.00 gold carrying small amounts of silver and increasing amounts of copper with depth.

Several other veins and showings on the property are also worthy of being developed.

Respectively submitted,

C. L. Orem

C. L. Orem
Registered Mining & Metallurgical
Engineer and Geologist

(Note: The following is a copy of a report on the Sander Gold Mine, formerly known as Hall Mines, from a signed copy by A. L. Waters. Attention is called to the fact that the figure of 78 acres in paragraph two is probably erroneous and should be greater. Also, the property now consists of 20 claims, 14 of which are being patented. Throughout the report there are shown in parenthesis the present value of the gold in the samples inasmuch as the price of gold is now \$35.00 per ounce, whereas the price was only \$20.00 per ounce when the report was written in 1916.

REPORT ON THE HALL MINES

BY

A. L. Waters, E. M.

July 6, 1916.

146 So. Van Ness Ave., Los Angeles, Cal.

LOCATION: Properties are 75 miles from Tucson over very good roads most of the way, the last ten miles are rather hilly. The road leads to Oracle thence straight ahead toward the river to Peppersauce Canyon and the road to the right marked "Stratton Mine." From this point there is twenty miles of fair mountain road. In a direct easterly line from Tucson the mine would not be over 30 miles.

AREA and TITLES: There are six full claims and one with a small corner cut off, probably 78 acres in all. Property is held by location and is properly recorded and all assessment work done to date.

NATURAL RESOURCES: There is much live oak timber in the district around the mines and pines on the mountains of the South Catalina Range which lie three miles away to the west. Water for domestic purposes is obtained from a well near the shaft. A strong spring rises from the limestones in the Canyon which runs through the Superior claim. It is probable that ample water for milling purposes could be secured on these properties.

GEOLOGY: The gold veins appear to be fissures in monzonite porphyry. The copper deposits are irregular deposits in the limestones probably depending on their contact with some igneous rock although the contact near the ore outcrops is between limestones and quartz-mica-schist. The gold veins are quartz filling with iron pyrite with traces only of copper. No tests have been made to prove how the gold occurs but it probably is carried mainly in the pyrite and the pyrite concentrates from milling operations would be expected to carry very high values. There are few surface outcrops to show just how the veins lie. The "Old Gold" vein appears to be the most important fracture while the Ontario veins seem to start from the Old Gold nearly at right angles. Their point of union should be a point of enlargement as well as enrichment of the ore bodies.

DEVELOPMENT: Consists mainly of a number of shallow pits and open cuts none of which add any real information regarding the value of the property. The 90 foot shaft on the Ontario is a valuable piece of work so far as it goes but it was filled with water up to 15 feet from its top at the time of my visit and all that was visible was the ore taken out and lying around the shaft and under the track.

Near the west end of the "Old Gold" claim is a shaft down 30 feet on a quartz outcrop 15 feet wide, striking nearly east and west and dipping 45° to the south. The vein at this point is in Rhyolite Porphyry and appears to be cut off 300 feet to the east by an intrusion of diorite. Aneroid reading here gave an altitude of 4760 feet above sea level. A sample of about six tons of ore which came out of this working gave \$3.60 (\$6.30) in gold.

Passing eastward across two arroyos with no outcrop showing one comes, in about 800 feet, to strong iron stained quartz outcrop, ten feet wide, a sample from which gave \$3.80 (\$6.65) in gold. One hundred feet further east is a still bolder outcrop of similar rock showing ten feet wide, a sample from this outcrop gave \$2.80 (\$4.90) in gold. Three hundred feet further east is the Ontario shaft on the same vein.

I was advised by the watchman, who has been on the property 25 years that

the shaft is 90 feet deep and that sulphides started to appear in the vein near the surface and became almost constant at a depth of 40 feet. Forty tons of selected oxidized ore which came from this shaft and the open cut on the side vein 100 feet to the north were milled and yielded \$400 in bullion. Some of the old tailings remain and a careful sample showed a gold value remaining of \$9.20 (\$16.10).

A sample of a pile of sulphide ore lying under the track a few feet north of the shaft gave \$11.00 (\$19.25) gold 3/10 ounce silver and 0.07% copper. An assay certificate was shown bearing date of December 12, 1914. Samples were taken by owners at bottom of the 90 foot shaft and gave quite startling results. Shaft is said to be 6 feet wide. Two feet on the footwall gave \$47.20 (\$82.60) in gold and 0.3% copper. Two feet on the hanging wall side gave \$135.20 (\$236.60) in gold and 0.8% copper. It is claimed that there is a drift at 35 feet deep running east 35 feet and all good mill ore. It is also claimed that a cross cut was driven at 50 feet deep 17 feet all in ore which averages \$9.00 (\$15.75) in gold. The vein dips 45° to the south.

One hundred feet to the north along the mill track is an open cut on the Ontario side vein which shows 8 feet of ore between good walls, this vein dips 45° to the east. Five feet of ore slightly copper stained next to the hanging wall assayed \$8.20 (\$14.35) gold, 1-2/10 ounces silver and 0.86% copper. The next two feet of red oxidized ore gave \$5.00 (\$8.75) gold, 5/10 ounce silver and 0.54% copper. The lowest one foot assayed only \$1.00 (\$1.75) in gold and may be the talc casing of the vein when depth is attained. There are indications of two other cross veins still further east but the work has been done in such a way that nothing has been proven in regard to these veins.

On the Superior Claim some very high grade copper ore has been mined in the limestones and shipped. Under present freight conditions this could be done only at times of abnormal prices and I do not regard the copper deposits of any commercial importance at this time.

WORK PROPOSED: It appears to be clearly indicated that the shaft should be equipped to go down at least 300 feet and as permanent sulphides are found above 100 feet in depth, a drift should be taken off at that level and pushed both west as far as the ore shoot extends and east to the junction with the "Ontario cross vein" and continued on under the hill as far as values appear. This hill is 200 feet higher than the shaft collar. Drifting should also be pushed along the "Ontario" or any other cross veins met on the main drift. Cross cuts in all veins should be made from wall to wall at hundred foot intervals and in the shaft at 50 foot intervals. The one hundred foot level drifts will prove the lateral extent of the shoot and the shaft continued on down will indicate its probable action as greater depth is attained. Upon these findings a suitable milling plant can be planned and put into operation.

EQUIPMENT: Consists only of a small five stamp mill with galvanized iron storage tanks one 7'x20' and one 5'x5'. A ten ton ore bin challenge feeder, five stamps and plates 4'x10' with discharge about two feet above the bottom of the arroyo. The mill is driven by a 8"x24" Corliss engine and a 12 ft. x 22 in. return tubular boiler rusty but seemingly in good condition. The mill frame is covered with iron rusted until it has little value.

CONCLUSIONS: The property is hardly past the prospect stage but gives strong indications of developing into a mine of good value with a concentrating gold ore running between \$8 and \$15 per ton (\$14.00 and \$26.25 per ton). The present ore shoots, indicated on the surface, should develop 100,000 tons above the 300 foot level and the working cost should not exceed \$5.00 per ton with a saving of 85% of the value. \$2500 should be enough to unwater the shaft and drift to the intersection of the veins and somewhat beyond to demonstrate beyond question whether farther work would be justified or not.

Respectfully submitted.

(Signed) A. L. Waters
Mining Engineer
146 So. Van Ness Ave.
Los Angeles, California

(copy of report on the Sanderson Gold Mine made by Mr. Truman H. Kuhn, Assistant Professor of Mining Geology at the Colorado School of Mines, Golden, Colorado.)

219 So. Vermont Ave.
Glendora, California
December 25, 1939

Mr. B. H. Martin
Copper Creek, Arizona

Dear Sir:

In response to your request, I am submitting a short report on the Sanderson property that we visited on December 17, 1939

The property is located on the north slope of the Santa Catalina Mountains about one mile east of the Daly Mine.

The workings visited consisted of a 100 foot inclined shaft with several hundred feet of drifting from that level. The major portion of the ore above the 100 foot level has been removed, most of which was from the west side of the shaft. One other inclined shaft is on the same break, but it was not examined.

There are two possibilities that should be investigated before a final answer on the downward increase in gold values could be given.

A steady increase in gold value from the surface to the 100 foot level has been reported. If this is true, there is the possibility of further increase in value with continued depth. This, I believe, could be brought about only by a change in primary mineralization. The tight appearance of the vein on the 100 foot level did not indicate leaching, nor did I see any evidence of secondary enrichment by other means. However, copper and iron sulphides are more common on the 100 foot level than any other place in the mine. If the gold is associated with the sulphide, there is possible an increased value in the vein with depth due to a change in sulphide content. Any such change should be evident within 50 feet of the present bottom of the mine.

On the east end of the drift on the 100 foot level there is an intersection of two fault zones, one N 80° E-60° S and the other N 50° E-80° S. The N80°E zone is the direction of the stoped vein. Near the intersection, the N80°E break does not carry mineable values. However, there is a definite change along this break as the N50°E zone is approached. Fair values are reported at the intersection of these two zones. There is the possibility that solutions came up the N50°E fracture and spread out under the N80°E zone, forming an enriched shoot northwest of the intersection. This can be proved by exploring the region northwest of the intersection of the 100 foot level.

Thus, there are two possibilities for finding more ore. One is by exploring intersection of two breaks on east end of 100 foot level. Other is to sink shaft approximately 50 feet and determine whether or not there is any change in mineralization with increased depth.

Respectfully yours,

TRUMAN H. KUHN

✓ SANDERSON GOLD MINE

Summary of smelter return data
on shipments made to the Hayden and Miami Smelters

Date	Smelter Lot No.	Smelter	Dry Tons	Assays		%	Total Metal Payment per ton	Net Smelter Returns -- freight not deducted
				Ozs. per ton Au.	Ozs. per ton Ag.			
11/ 5/36	8810	Miami	10.523	1.21	1.05	2.77	\$ 43.03	\$ 389.65
11/30/36	8868	Miami	10.740	1.36	1.04	0.25	44.55	414.03
12/23/36	8934	Miami	10.094	1.68	0.93	0.33	54.10	485.50
3/ 4/37	9136	Miami	11.626	1.18	0.68	0.11	38.00	374.34
5/24/37	126	Hayden	38.474	0.41	0.35	0.80	14.10	402.82
6/15/37	155	Hayden	51.431	0.47	0.68	1.88	18.47	769.91
6/23/37	173	Hayden	49.034	0.45	0.49	1.40	16.66	645.28
7/ 2/37	187	Hayden	42.150	0.47	0.30	0.60	15.61	510.44
7/31/37	252	Hayden	38.809	0.53	0.42	0.96	18.32	575.15
8/10/37	334	Hayden	46.959	0.53	0.41	0.49	17.13	640.04
8/19/37	289	Hayden	40.931	0.75	0.50	0.90	25.30	891.07
8/19/37	303	Hayden	41.358	0.63	0.17	0.55	20.68	710.52
9/ 8/37	355	Hayden	39.700	0.49	0.25	0.32	15.84	482.75
9/20/37	373	Hayden	46.146	0.50	0.30	0.18	16.16	561.60
9/23/37	390	Hayden	46.186	0.34	0.56	0.20	11.04	327.46
10/ 6/37	408	Hayden	44.143	0.27	0.33	0.27	8.73	218.95
10/13/37	435	Hayden	44.733	0.30	0.30	0.16	9.70	256.77
10/27/37	448	Hayden	30.780	0.25	0.08	-	8.08	118.50
11/ 1/37	496	Hayden	46.712	0.30	0.22	0.18	9.70	270.93
11/ 1/37	504	Hayden	59.097	0.27	0.23	0.15	8.73	281.89
11/ 2/37	448-A	Hayden	12.500	0.20	0.08	0.15	6.46	31.25
11/19/37	556	Hayden	47.908	0.32	0.26	0.22	10.34	313.79
12/30/37	688	Hayden	21.898	0.43	0.27	0.32	13.90	276.47
1/22/38	51	Hayden	35.827	0.55	0.35	-	17.78	488.68
2/ 5/38	88	Hayden	36.832	0.41	0.40	-	13.25	337.38
3/28/38	210	Hayden	34.289	0.35	0.45	0.08	11.31	252.02
4/21/38	249	Hayden	46.035	0.45	0.39	0.26	14.54	499.02
5/26/38	311	Hayden	48.255	0.16	0.10	-	5.17	53.08
7/19/38	402	Hayden	23.766	0.19	0.22	0.85	6.72	76.52
8/23/38	426	Hayden	9.540	0.41	0.35	0.35	13.25	87.00
9/ 7/38	445	Hayden	18.089	0.18	0.14	-	5.82	18.62
12/16/38	555	Hayden	9.088	0.62	0.66	0.60	20.46	154.13
12/20/38	560	Hayden	11.738	1.61	0.17	-	52.03	523.40
3/13/39	172	Hayden	9.149	0.005	5.30	8.15	15.27	107.41
3/13/39	173	Hayden	15.997	0.35	0.87	-	11.54	117.90
3/14/39	182	Hayden	38.161	0.38	0.32	0.55	12.47	342.30
3/18/39	194	Hayden	15.293	1.01	0.06	0.43	32.64	400.51
3/28/39	217	Hayden	15.979	0.02	-	4.61	6.66	24.93
4/12/39	267	Hayden	31.478	0.37	0.48	0.20	11.96	256.55
4/19/39	287	Hayden	42.627	0.32	0.25	-	10.18	258.32
5/ 3/39	314	Hayden	49.733	0.29	0.23	0.16	9.37	291.93
5/ 6/39	316	Hayden	0.541	6.80	0.70	-	219.89	115.50
5/ 6/39	317	Hayden	7.157	1.59	0.07	-	51.39	318.89
5/20/39	356	Hayden	40.827	0.16	0.13	0.17	5.17	53.08
5/27/39	381	Hayden	46.120	0.18	0.18	0.20	5.82	107.00
6/14/39	421	Hayden	32.880	0.28	0.20	0.28	9.05	182.48
6/30/39	464	Hayden	7.900	0.71	0.11	-	22.95	129.17

Date	Smelter Lot No.	Smelter	Dry Tons	Assays			Total Metal Payment per ton	Net Smelter Returns -- freight not deducted
				Ozs. per ton Au.	Ozs. per ton Ag.	% Cu.		
7/15/39	482	Hayden	30.732	0.42	0.41	0.54	\$ 13.60	\$ 310.39
7/22/39	531	Hayden	39.973	0.39	0.29	0.08	12.60	363.75
8/21/39	595	Hayden	47.181	0.27	0.13	0.14	8.73	270.34
10/ 9/39	709	Hayden	42.348	0.29	0.25	0.66	9.76	307.44
11/14/39	820	Hayden	9.671	0.24	0.32	-	7.76	33.75
1/ 9/40	11	Hayden	2.168	1.52	1.80	-	50.02	95.91
1/19/40	39	Hayden	4.976	0.75	0.18	-	24.08	95.88
1/11/40	27	Hayden	36.541	0.27	0.05	-	8.56	221.44
2/13/40	139	Hayden	41.869	0.32	0.14	0.24	10.34	328.25
2/22/40	172	Hayden	5.420	1.08	1.00	0.36	35.25	163.56
3/13/40	250	Hayden	39.930	0.33	0.20	0.24	10.67	326.22
4/ 3/40	474	Hayden	3.287	0.80	1.00	-	26.20	68.72
4/ 9/40	355	Hayden	45.143	0.18	0.05	0.16	5.82	149.87
4/11/40	373	Hayden	11.019	0.13	-	0.18	4.20	18.73
5/23/40	566	Hayden	43.478	0.24	0.15	0.42	7.66	224.35
7/18/40	742	Hayden	3.475	0.42	0.34	-	13.57	32.80
8/ 5/40	801	Hayden	5.634	0.88	0.25	1.24	29.66	135.94
9/ 1/41	770	Hayden	13.884	0.01	2.36	4.60	8.53	62.89
9/ 7/40	913	Hayden	10.952	0.20	6.25	0.80	10.88	80.83
10/21/40	1058	Hayden	5.009	1.49	0.10	-	48.15	207.55
10/22/40	1061	Hayden	14.194	0.32	8.50	-	15.81	163.23
11/19/40	1142	Hayden	41.303	0.16	5.50	0.16	8.63	193.71
12/23/40	1235	Hayden	10.009	0.27	7.83	0.78	14.29	107.99
1/20/41	43	Hayden	15.656	0.17	4.90	-	8.53	67.32
1/30/41	75	Hayden	10.570	0.18	5.10	-	9.00	50.42
4/19/41	316	Hayden	12.535	1.02	0.50	0.42	32.96	350.46
Totals			2,006.190	0.40#	0.65#	0.46#	\$13.84#	\$19,784.22

Assays for gold, silver, copper, and the Total metal payment per ton are accurate weighted averages - not merely numerical averages.

Gold and Silver Values

0.40 oz. gold at \$35.00 per ounce	\$14.00
0.65 oz. silver at \$0.70 per ounce	0.46
Total	\$14.46

A numerical average of the analysis of the above shipments gave the following results:

<u>Insoluble</u>	<u>Silica</u>	<u>Iron</u>	<u>Alumina</u>	<u>Sulphur</u>	<u>Lime</u>
82.0%	73.6%	7.0%	6.6%	6.4%	2.1%

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
MINE OWNER'S REPORT

- MS-105
1. Mine *Sanderson* ✓
2. Location *Below Control Mine*
3. Mining District & County *Old Hat Pinal Co.*
4. Former name *Gold Mill or Hall*
5. Owner *R. Jenks* ✓
6. Address (Owner) *Uni. Sta. Tucson*
7. Operator
8. Address (Operator)
9. President, Owning Co.
- 9A. President, Operating Co.
10. Gen. Mgr.
14. Principal Minerals *Ag* ✓
11. Mine Supt.
15. Production Rate *none*
12. Mill Supt.
16. Mill: Type & Cap. - *None*
13. Men Employed
17. Power: Amt. & Type - *None at present.*
18. Operations: Present
Patenting
19. Operations: Planned
20. Number Claims, Title, etc.
15 claims - up for patent
21. Description: Topography & Geography
*On flank of Catalina Mts. Rough country.
In Rhyolite porphyry.*
22. Mine Workings: Amt. & Condition
*3 shafts - incline. 80ft, 60ft and number of
holes 25-30ft. Tunnel 600ft.*

(over)

23. Geology & Mineralization

Oxidized zone about 50 ft, then pyrite.
Ore occurs in veins 5-12 ft wide - quartz.

24. Ore: Positive & Probable, Ore Dumps, Tailings

Has been mined about 60 yrs but little development done. Should sink new shaft on east end to properly develop.

24A. Dimensions and Value of Ore body

Should plan on milling 15 heads

25. Mine, Mill Equipment & Flow-Sheet

26. Road Conditions, Route

Control road 600' from shaft.

27. Water Supply

Must be developed for milling

28. Brief History

In 1937 - 16 cars shipped to Hayden averaging \$15, by Hendrickson, and upon his death operations ceased.

29. Special Problems, Reports Filed

Reports by A.H. Waters, T.H. Kuhn, C.H. Orem.

30. Remarks

31. If property for sale: Price, terms and address to negotiate.

Will sell or lease

32. Signature

Signed (Pat Jinks)

33. Use additional sheets if necessary.

MG-37

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OWNERS MINE REPORT

Date

6/13

Mine

Gold mill

District

(Oracle) Old Hat

Location

22 Mi. S. of Oracle

Former name

Owner

R. B. Sanderson Bros.

Address

Oracle

Operator

Address

President

Gen. Mgr.

Mine Supt.

Mill Supt.

Principal Metals

Gold, silver, copper

Men Employed

4

Production Rate

3 Cars month

Mill: Type & Cap.

Power: Amt. & Type

Operations: Present

Mining + Developing

Operations Planned

Plan to sink present shaft for deeper development

Number Claims, Title, etc.

8 Unpatented

Description: Topog. & Geog.

Mountainous

Mine Workings: Amt. & Condition

2 - 100 ft. shafts

Approx. 225 ft. of drifts on vein

(over)

Geology & Mineralization

Vein in porphyry. Values associated with copper and iron sulphides.

Ore: Positive & Probable, Ore Dumps, Tailings

4000 Tons - Milling ore

Mine, Mill Equipment & Flow Sheet

Road Conditions, Route

On Mt. Lemon Hwy - 3 Mi. East of 1st Control

Water Supply

Domestic supply being hauled. Water for milling and domestic use easily developed.

Brief History

Special Problems, Reports Filed

Remarks

If property for sale: Price, terms and address to negotiate.

For Sale, see owners for terms

Signed

Sanderson Rags

Use additional sheets if necessary.

By R B Sanderson

DEPARTMENT OF MINERAL RESOURCES.

News Items

Date 6/13/39

Mine Gold Mill Property.

Location Same as Gold Mill

Owner Sanderson Bros.

Address Oracle.

Leased to Willie Pierson of Oracle.

Operating Co.

Address

Pres.

Genl. Mgr.

Mine Supt.

Mill Supt.

Principal Metals Gold, silver.

Men Employed Pierson working alone at present,

Production Rate trying to develop ore on an

Mill, Type & Capacity extension of the faulted

Gold Mill vein.

Power, Amt. & Type

Signed

(Over)

DEPARTMENT OF MINERAL SOURCES.

News Items

Date 6/13/39

Mine Gold Mill

Location 22 Mi. East of Oracle on Mt. Lemon Road.

Owner Sanderson Bros.

Address Oracle

Operating Co. Same

Address

Pres.

Genl. Mgr.

Mine Supt.

Mill Supt.

Principal Metals Gold, silver, copper.

Men Employed 5 (Co-partnership)

Production Rate 3 Cars per month

Mill, Type & Capacity

Power, Amt. & Type

Signed

(Over)

Present Operation

Stopping on vein

New Work Planned

Misc. Notes Steady shippers. Have just bought new dump-truck for own use. Getting ready to transfer mining operations to original Gold Mill shaft where they have a better grade of shipping ore.

Present Operation

New Work Planned

Misc. Notes