



## **CONTACT INFORMATION**

Mining Records Curator  
Arizona Geological Survey  
1520 West Adams St.  
Phoenix, AZ 85007  
602-771-1601  
<http://www.azgs.az.gov>  
[inquiries@azgs.az.gov](mailto:inquiries@azgs.az.gov)

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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

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. Grem, 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 last 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.

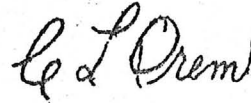
Still further east numerous surface cuts show a large mineral zone to extend for several hundred feet at least. Various assays from these parts showed the cropping all to carry gold; values of from \$1.80 to \$12.00 in gold were secured. This surface is disintegrated in places and considerably broken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

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

The surface showing and underground workings indicate an excellent opportunity to develop a large tonnage of \$7.00 to \$10.00 gold ore 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,

A handwritten signature in cursive script, appearing to read "C. L. Orem".

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

(Note: The following is a copy of a report on the Sande 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 be almost constant at a depth of 10 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

DEPARTMENT OF MINERAL RESOURCES  
STATE OF ARIZONA  
OWNERS MINE REPORT

Date 3/6/44

1. Mine Sanderson
2. Mining District & County Old Hat
3. Former name Gold Mill or Hall
4. Location Below Control Mine
5. Owner R. Jenks
6. Address (Owner) Univ. Sta., Tucson
7. Operator
8. Address (Operator)
9. President
10. Gen. Mgr.
11. Mine Supt.
12. Mill Supt.
13. Principal Metals Au
14. Men Employed
15. Production Rate None
16. Mill: Type & Cap. None
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. 80 ft., 60 ft. and number of holes 25-30 ft.  
Tunnel 600 ft.

23. Geology & Mineralization

Oxidized zone about 50 ft., then pyrite. Ore occurs in vein 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.

24-A Vein Width, Length, Value, etc.

Should plan on milling \$15 heads.

25. Mine, Mill Equipment & Flow Sheet

26. Road Conditions, Route

Control road 600 ft. 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. L. Waters, T. H. Kuhn, C. L. Orem.

30. Remarks

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

Will sell or lease.

32. Signed.....(Signed)..... Pat Jenks

33. Use additional sheets if necessary.

MG-37

DEPARTMENT OF MINERAL RESOURCES  
STATE OF ARIZONA  
OWNERS MINE REPORT

Date 6/13/39

Mine Gold Mill

District (Oracle) Old Hat

Location 22 miles S. of Oracle

Former name

Owner Sanderson Bros.

Address Oracle, Ariz.

Operator "

Address

President

Gen. Mgr.

Mine Supt.

Mill Supt.

Principal Metals Gold, silver & copper

Men Employed 4

Production Rate 3 cars per month

Mill: Type & Cap.

Power: Amt. & Type

Operations: Present Mining and developing

Operations Planned Plan to sink present shaft for deeper development

Number Claims, Title, etc. 8 claims 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  
4,000 tons - milling ore

Mine, Mill Equipment & Flow Sheet

Road Conditions, Route On Mt. Lemmon Highway - 3 miles 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 Bros.  
By R. B. Sanderson

Use additional sheets if necessary.

DEPARTMENT OF MINERAL RESOURCES  
STATE OF ARIZONA  
OWNERS MINE REPORT

MS-105

Date September 1, 1944

1. Mine Sanderson Gold Mine
2. Mining District & County Old Hat District, Pima County, about 55 mi. from both Hayden & Tucson
3. Former name
4. Location On Mt. Lemmon Highway about 22 miles from Oracle and about one mile east of Control Mine and Lower Control.
5. Owner Randolph Jenks
6. Address (Owner) P.O. Box 4084, Univ. Sta., Tucson, Ariz. Telephone 0417-J2
7. Operator None
8. Address (Operator) -
9. President -
10. Gen. Mgr. -
11. Mine Supt. -
12. Mill Supt. -
13. Principal Metals Gold, silver & copper
14. Men Employed None
15. Production Rate Not operating
16. Mill: Type & Cap. None
17. Power: Amt. & Type None
18. Operations: Present None
19. Operations Planned See reports on file 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.

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- 24-A Vein Width, Length, Value, etc. 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.
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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 relocated in 1924 by Ray and John Sanderson and acquired from them by the present owner in 1943.
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32. Signed.....Randolph Jenks.....

33. Use additional sheets if necessary.

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

Date Sept. 1944

DEPT. MINERAL RESOURCES  
RECEIVED  
SEP 29 1944  
PHONE

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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.

(over)

23. **Geology & Mineralization** Highly altered sedimentary series of schistose shales and sandstones overlain by intensely marbled limestone. General dip of series  $20^{\circ}$  to  $60^{\circ}$  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 relocated 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, Ariz. & 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.
32. **Signature** Randolph Jenks
33. Use additional sheets if necessary.

# DEPARTMENT OF MINERAL RESOURCES

State of Arizona

## MINE OWNER'S REPORT



Date February 12, 1958

1. Mine: ☒ Sanderson Mine
2. Location: Sec. 15 Twp. 11S Range 16E Nearest Town Oracle Distance 18 miles  
 Direction Southerly Nearest R.R. San Manuel Distance 25 miles  
 Road Conditions Good
3. Mining District and County: Old Hat, Pima County
4. Former Name of Mine:
5. Owner: ☒ Randolph Jenks  
 Address: ☒ 2116 E. 4th St., Tucson, Arizona
6. Operator: Not presently operating  
 Address:
7. Principal Minerals: ☒ Copper and Gold
8. Number of Claims: Lode 1 Patented 1 Unpatented  
 Placer Patented Unpatented
9. Type of Surrounding Terrain: Rolling Oak Grasslands
10. Geology and Mineralization: Large lenses of ore in schist and diorite
11. Dimension and Value of Ore Body: Large

Please give as complete information as possible and attach copies of engineer's reports, shipment returns, maps, etc. if you wish to have them available in this Department's files for inspection by prospective leasors or buyers.

(over)

12. Ore "Blocked Out" or "In Sight": .....

Ore Probable: Considerable .....

13. Mine Workings—Amount and Condition: .....

No.	Feet	Condition
Shafts. #1 & #2	85 & 95	Need unwatering and timbering
Raises.....		
Tunnels.....		
Crosscuts.....		
Stopes.....		

14. Water Supply: Good .....

15. Brief History: Ore shipped to Hayden Smelter in years 1936 - 1939 .....

16. Remarks: Very good chance to open up a probably large and extensive ore body. ....

17. If Property for Sale, List Approximate Price and Terms: ? .....

18. Signature: .....

*Randolph Jenkins*

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

DEPARTMENT OF MINERAL RESOURCES  
STATE OF ARIZONA

MS-105

OWNERS MINE REPORT

Date September 1, 1944

1. Mine ✓ Sanderson Gold Mine
2. Mining District & County Old Hat District, Pima County, about 55 mi. from both Hayden & Tucson
3. Former name
4. Location On Mt. Lemmon Highway about 22 miles from Oracle and about one mile east of Control Mine and Lower Control.
5. Owner ✓ Randolph Jenks
6. Address (Owner) P.O. Box 4084, Univ. Sta., Tucson, Ariz. Telephone 0417-J2
7. Operator None
8. Address (Operator) -
9. President -
10. Gen. Mgr. -
11. Mine Supt. -
12. Mill Supt. -
13. Principal Metals Gold, silver & copper
14. Men Employed None
15. Production Rate Not operating
16. Mill: Type & Cap. None
17. Power: Amt. & Type None
18. Operations: Present None
19. Operations Planned See reports on file 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.
- 24-A Vein Width, Length, Value, etc. 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 relocated 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, Asst. Prof. of Mining Geology at the Colorado School of Mines; C. L. Orem, Mining & Metallurgical Engineer at Phoenix, Ariz.; 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.
32. Signed..... Randolph Jenks.....
33. Use additional sheets if necessary.

C O P Y

(The following is a copy of a report on the 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. 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 an ounce, whereas the price was only \$20 an 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 oxidised 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' x 20' and one 5' x 5'. A ten ton ore bin challenge feeder, five stamps and plates 4' x 10' with discharge about two feet above the bottom of the arroyo. The mill is driven by a 8" x 24" 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.

C O P Y

219 So. Vermont Ave.  
Glendora, Calif.  
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 sulfides are more common on the 100 foot level than any other place in the mine. If the gold is associated with the sulfide, there is possible an increased value in the vein with depth due to a change in sulfide 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 N80°E-60°S and the other N50°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 north west of the intersection. This can be proved by exploring the region north west 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 and 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

Data taken from settlement sheets for Mr. Hendrickson on ore shipped to the Hayden smelter. This ore was taken from No. 3 Stope, and shows ore values decreasing as the stope was worked out to the surface.

									<u>Net</u>
May, 1937	Shippers	Lot No. 1	76947	lbs. at	\$14.10	per ton	-	\$402.82	
June, 1937	Shippers	Lot No. 2	102862	lbs. at	\$18.47	per ton	-	769.91	
June, 1937	Shippers	Lot No. 3	98067	lbs. at	\$16.66	per ton	-	645.28	
July, 1937	Shippers	Lot No. 4	84300	lbs. at	\$15.61	per ton	-	510.44	
July, 1937	Shippers	Lot No. 5	77618	lbs. at	\$18.32	per ton	-	575.15	
Aug., 1937	Shippers	Lot No. 6	81862	lbs. at	\$25.30	per ton	-	891.07	
Aug., 1937	Shippers	Lot No. 7	82715	lbs. at	\$20.68	per ton	-	710.52	
Aug., 1937	Shippers	Lot No. 8	93917	lbs. at	\$17.13	per ton	-	640.04	
Sept. 1937	Shippers	Lot No. 9	78399	lbs. at	\$15.84	per ton	-	482.75	
Sept. 1937	Shippers	Lot No. 10	92292	lbs. at	\$16.16	per ton	-	561.60	
Sept. 1937	Shippers	Lot No. 11	92371	lbs. at	\$11.04	per ton	-	327.46	
Oct., 1937	Shippers	Lot No. 12	88286	lbs. at	\$ 8.73	per ton	-	218.25	
Oct., 1937	Shippers	Lot No. 13	89466	lbs. at	\$ 9.70	per ton	-	256.77	
Oct., 1937	Shippers	Lot No. 14	61560	lbs. at	\$ 8.08	per ton	-	118.50	
Nov., 1937	Shippers	Lot No. 15	25000	lbs. at	\$ 6.46	per ton	-	31.25	
Nov., 1937	Shippers	Lot No. 16	118193	lbs. at	\$ 8.73	per ton	-	281.89	
Nov., 1937	Shippers	Lot No. 17	95815	lbs. at	\$10.34	per ton	-	313.79	
Nov., 1937	Shippers	Lot No. 14A	93424	lbs. at	\$ 9.70	per ton	-	270.93	

The mine closed down shortly after these last dates of shipment to the smelter because Mr. Hendrickson died and Mrs. Hendrickson did not care to carry on the operation of the mine single-handed.

P. O. Box #1035  
Tucson, Arizona  
April 29, 1929

Mr. C. E. McCool,  
P. O. Box 1296,  
Midland, Texas.

Dear Sir:

At your request I am enclosing a short outline of the Gold property in the Catalinas.

The property is composed of six contiguous unpatented mining claims situated in the Old Hat Mining District, 25 miles air-line distance, directly north of Tucson, Arizona. It is reached by approximately 55 miles of good state and county highway from either Tucson or Hayden, where the copper smelter of the A. S. & R. Company is located. The county road extends through the center of the group near the camp and main workings.

The formations on the property are 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 resembles a vein breccia, including silicified and altered wall rock, and in other parts it appears distinctly porphyritic and may be very acid quartz porphyry intrusions.

The surface is in many places covered with debris and the veins have been opened with many shallow pits, trenches, cuts, tunnels, etc. The main mineral zones have also been opened by one 90 foot, one 60 foot, and one 40 foot incline shaft sunk in the veins with a couple of hundred feet of drifts and crosscuts on several levels in them.

The croppings are most prominent for about a thousand feet along them near the center of the group, (which is three claims long) but extends nearly the full length of the group. The veins vary in width and the ore although practically continuous occurs mainly in large lenses apparently formed by

magnetic wedging during the disturbances caused by the porphyry intrusions.

On these croppings near the center of the group the 90 foot incline shaft has been sunk on the vein. This shaft was later sunk to a depth of 100 feet. This old shaft is mostly inaccessible, the old stopes being caved and nearly filled with debris and water from surface wash.

A. L. Waters, Mining Engineer, of Los Angeles, California, reporting on the property July 6, 1916, states that this shaft was inaccessible at the time of his visit and the watchman who at that time had been on the property for 25 years told him the shaft was 90 feet deep and that sulfides started to appear in the vein near the surface and became almost constant at a depth of forty 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 \$400.00 in bullion. Some of the old tailings remain and a careful sample showed a gold value remaining of \$9.20."

"A sample of a pile of sulfide ore lying under the track a few feet north of the shaft gave \$11.00 gold, 3/10 ozs. silver, and 0.07% copper. An assay certificate was shown bearing date of December 12, 1914. Samples were taken by the owners at the bottom of the 90 foot shaft and gave quite startling results. Shaft is said to be six feet wide. Two feet on the footwall gave \$47.20 in gold and 0.3% copper. Two feet on the hanging wall side gave \$135.00 in gold and 0.8% copper. It is claimed there is a drift at 35 feet running east 35 feet and all in good ore. It is also claimed that a cross-cut was driven at 50 feet depth, 17 feet all in ore which averaged \$9.00 gold. This vein dips 45 degrees to the south."

John and Ray Sanderson, unwatered part of this shaft, several years ago, down nearly to this crosscut and obtained two samples, one assaying \$9.00 gold and the other \$6.00 gold and a sample at the water level gave \$11.00. Their sample of the oxidized ore on the dump assayed \$9.00.

These factors on this property amply justify in my opinion the expenditure of at least \$25,000 to \$30,000 to do this additional development work and shape up the mine to produce its ores the most economically.

This can be done by installing only a limited amount of equipment and additional camp facilities and will permit of detailed estimates of mining, milling costs and grades of ore and margins of profit available.

Trusting this will answer the questions you desired to know satisfactorily, I am

Very truly yours,

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

### SHORT DESCRIPTION OF OLD GOLD MINE IN CATALINAS

The property is composed of six contiguous unpatented mining claims situated in the Old Hat Mining District, 20 miles south-east of Oracle, Arizona, by the Mount Lemmon 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 foot, one 60 foot, and one 40 foot 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 foot 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 feet west of this shaft a 40 foot incline has been sunk in the last few years. This shaft is all in the vein and on about the 25 foot level a cross-cut of the vein shows it 15 feet 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 sulfides 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 foot drift that averaged \$28.00 in gold, 15 inches in the roof assayed \$29.00 in gold with 1.8 oz. silver and 2 feet 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 feet or better eastward of the 90 foot shaft considerable high grade gold ore was mined in surface cuts many years ago and milled in the old stamp mill. A 60 foot incline shaft shows the vein nearly 8 feet wide in the bottom and still widening. Some \$50.00 gold ore was milled from this section. Four feet near the bottom assays \$3.20 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 ore 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  
Registered Mining & Metallurgical  
Engineer and Geologist

Some 200 feet north of the 90 foot shaft, considerable high grade ore was mined in surface cuts many years ago and milled by plating, in the old 5 stamp mill on the property.

"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 degrees to the east. Five feet of ore slightly copper stained next to the hanging wall assayed \$3.20 gold, 1-2/10 ounces silver and 0.86% copper. The next two feet of red oxidized ore gave \$5.00 gold, 5/10 ounces silver and 0.54% copper. The lowest one foot assayed only \$1.00 in gold and may be the tale 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."

Since the time of Waters' report, the owners have done considerable work and have sunk a 60 foot incline shaft on the ore in this open cut. This shaft showed ore all the way down, which appears to be widening in the bottom. The present owners milled some of the ore taken from the short drift at the bottom of the shaft. They only handled the higher grades in the old dilapidated stamp mill and handled ore than ran \$25.00 to \$50.00 per ton. The ore in the bottom is wider and an assay near the bottom across 4 feet gave \$3.20 in gold, 1 ounce silver, 4 feet width near the bottom on this side assayed \$6.20 gold and 0.60 silver. This shaft is all in oxidized ore and a sample of oxidized ore on the dump averaged \$3.20 gold.

Still farther east numerous surface cuts show a large mineral zone to extend for several hundred feet at least. Widths of 50 feet and better are visible. Various assays from these parts show the croppings all to carry gold, values of from \$1.60 to \$12.00 were received. This surface is partially covered, weathered and disintegrated in places.

Northwest of the old 90 foot shaft some 300 feet a new 40 foot incline shaft has been sunk since Waters made his report.

From this surface croppings he reported \$2.80 to \$3.80 in gold. In this shaft sunk on these croppings since then, a 30 foot cross-cut was driven on about the 30 foot level and shows the vein to be 15 feet wide at this point. The shaft is all in ore and various samples taken by us across the full width of the vein gave the following results: \$6.60 gold, \$7.50 gold, \$5.80 gold, \$8.20 gold, and 0.8 oz silver, and 0.49% copper. From a short drift on the foot wall several tons were milled that ran \$28.00 per ton. In the drift 15 inches assayed \$29.00 gold, 1.3 oz. silver, 2 feet farther along ran \$13.00 gold, 1.4 oz. silver and at another point 2 feet ran \$13.00 gold and 1.5 oz. silver. The vein appears still leached, only small amounts of copper sulfide showing. It is very silicious and well fractured.

Northwestward along the vein from this shaft, short cuts on the surface indicate the vein to be much wider.

The owners have mined ore from many small rich sections in the vein in doing assessment work, working such ore through the old stamp mill, and shipping small lenses of very high grade gold ore that carried considerable copper. They have told me some of the lenses ran very high in gold especially where considerable copper showed. One assay showed \$213.00 gold on high grade copper ore and another \$75.00 in gold.

The main ore showings exposed at present are on two veins lying nearly at right angles to each other and apparently intersecting southeast of the 90 foot shaft. Waters thinks this intersection should be a point of enlargement as well as enrichment. This may be, but I see nothing on the surface or in the workings to indicate it so far.

His idea that the vein be developed at least 300 feet deep and the ore outlined on the 100 foot level is good.

His estimates that the present ore shoots indicated on the surface should yield 100,000 tons of concentrating gold

ore that will average \$8.00 to \$15.00 per ton above the 300 foot level with working costs not exceeding \$5.00 per ton with a saving of 35% of the values, are conservative. Shafts, cuts, and other workings opened since then show widths which if maintained with depth should result in much larger tonnages in this area.

All the openings accomplished in late years has been done as annual assessment work. Such work was on the higher grade sections and lenses, each place being stopped as soon as the high grade part pinched or became lower grade, with the results that most of the openings available show lower grade sections of the vein or poorer results than could be expected as a conservative average.

All the assays and data shown in Waters' report and all the data and assays I have taken and been able to get, indicate the croppings in general to be low grade with richer lenses here and there as indicated by assays showing \$1.00 to \$12.00 gold taken from them. The assessable workings indicate and the reports of the unaccessible portions bear out the fact that these gold values in general have improved from the surface. Assays of from \$4.00 to \$8.00 up to \$20.00 to \$30.00 being general from the ore exposures underground. The surface croppings in general on these veins show no copper values. In the deeper present workings, the copper content shows an average of nearly 1/2%. Just where this increase in gold and copper content will reach a maximum is not known as the workings available are not deep enough to show. These points will be determined by the outlined development work.

Several other veins and showings on the property look good and some of them have produced rich ore and are worthy of further development work.

Water for milling could be developed and piped in by gravity from sources not far above the mine. The present openings could be shaped up and the shafts equipped to furnish at least a 50 ton mill with ore at the present time.

I consider it better to sink at least 200 feet and outline the ore bodies on at least one or more levels by drifts, crosscuts and raises first for the following reasons:

Such work will probably result in developing all the water needed for milling right at the plant without any additional development of present springs or purchasing of pipe lines.

It will outline the present ore bodies permitting an ultimate much cheaper mining cost by more economical stoping methods. By mining on several levels at one time, the waste from the various development openings can be used as filling in the mined-out stopes below each level, and save hoisting and handling charges and much expensive timbering in such areas. It will open up the ore beyond the leached sections and permit of the designing and installation of a plant to handle all the ore of the mine the most economically from the start, should deeper work show a change in character of the ore.

If the grade and size of the present ore lenses exposed be at least maintained with greater depth they will be productive of a much larger tonnage than Waters estimated, amply justifying a much larger plant than 50 tons per day.

Other factors remaining constant, the larger the plant the more cheaply an ore can be milled, as the labor, supervision, and other costs per ton decrease as the capacity increases, and the initial plant and installation costs are less per ton daily capacity on the larger plant. For instance, a 50 ton per day modern flotation plant installed will cost approximately \$50,000. A 100 ton plant of the same class and quality could be installed for \$65,000.

Also, with a larger plant and corresponding lower mining and milling costs, lower grades of ore could be worked at a profit, and sections of the vein that could not be mined and milled at a profit in a 50 ton plant could be realized on with a larger plant allowing of less development openings per ton of material handled and enabling you to realize on a larger tonnage of ore not available to you otherwise.

REPORT: NINING PROPERTIES OF THE OLD GOLD CAMP  
Compiled from various old reports

LOCATION:

On the eastern slope of the Catalina Mountains, 55 miles from Tucson, Arizona, on an excellent highway. Also 55 miles from the smelter of the A. S. & R. Company at Hayden, Arizona.

PROPERTIES:

Six unpatented mining claims on the Coronado National Forest. Title perfect.

ORE:

Principal value is gold with small amounts of silver and copper. The gold occurs both free and in combination with iron and copper sulphides.

ECONOMIC INTEREST:

Centers in two wide gold bearing quartz veins which cross the property almost at right angles to each other. The veins are fissures in monzonite and contacts between monzonite porphyry and granite. The old gold vein has a width of from 15 to 50 feet and the ontario vein has a width where exposed of 75 feet. Both veins can be traced for several thousand feet and both dip at an angle of 45 degrees.

DEVELOPMENT:

Two ninety foot shafts, 300 feet apart on the old gold vein and some 200 feet of crosscutting and drifting, and numerous open cuts across the vein. The ontario vein has a 50 foot shaft on the foot wall, one open cut across its width and a number of cuts and trenches.

SAMPLING:

The underground workings in August, 1931, gave an average gold value of \$8.86 per ton. A forty ton sample of mine run ore trucked to the smelter at Hayden ran \$8.97 per ton in gold in July, 1932. Sample map is attached.

#### MINING:

Costs will be low as the vein filling is fractured and shattered and the wall rock solid.

#### TREATMENT:

A simple flotation yields a high recovery of the values in a high grade concentrate.

#### WATER:

Unlimited quantities have been piped to the mine by gravity from 2-1/2 miles higher in the mountains. The mine makes a little water. A well furnishes an abundance of good water for camp use.

#### LABOR:

A sufficient quantity can be had in the district at reasonable wages.

#### ORE:

Definitely outlined ore on the old gold vein will yield more than forty thousand tons for each hundred feet of depth. A similar block on the ontario vein would yield 200,000 tons for each hundred feet of depth.

#### POSSIBILITIES:

Experienced operators of mines will recognize the possibilities of millions of tons of profitable milling ore at shallow depths. It is the opinion of reputable geologists that these veins will persist to a considerable depth with undiminished values.

#### CLIMATE:

Ideal throughout the year. The mine is located in a beautiful setting at an elevation of 5,000 feet with Mt. Lemmon rising to an elevation of 9,000 feet a few miles away and the San Pedro River valley spread out before it. The mountains are timbered with oak, pine, and cedar.

# DEPARTMENT OF MINERAL RESOURCES

## REPORT TO OPA ON ACTIVE MINING PROJECT

Date 3/22/45

Name of Mine Sanderson

Owner or Operator R. Jenkins

Address Box 1084 University Tucson

Mine Location Catalina Mts

**Filing Information**

File System.....

File No.....

This chart to be used for gallons of gasoline required per month.

### PRESENT OPERATIONS: (check X)

Production.....; Development ☒; Financing.....; Sale of mine.....;

Experimental (sampling).....; Owner's occasional trip.....;

Other (specify).....

### PRODUCTION: Past and Future.

Tons

Approx. tons last 3 months .....

Approx. present rate per 3 months .....

Anticipated rate next 3 months .....

If in distant future check (X) here .....

### EQUIPMENT OPERATED:

Type	Quantity or Horse Power	Miles or Hours Per Month	Gallons Required Per Month
Personal Cars	1939 Chev	750	7.5
Light or Service Trucks			
Ore Hauling Trucks			
Compressors			
Other Mine or Mill Eqpt.			

### PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

### REMARKS:

Recommend 750 miles per mo

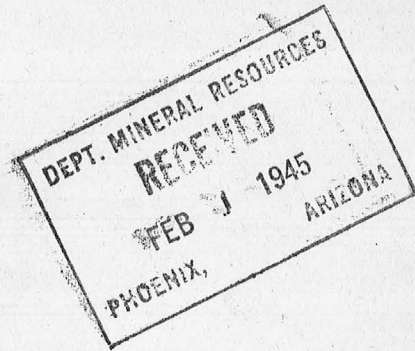
ARIZONA DEPARTMENT OF MINERAL RESOURCES

By

*George A. Ballam*

RANDOLPH JENKS  
BOX 4084 UNIVERSITY STATION  
TUCSON, ARIZONA

January 31 1945



Mr. Charles H. Dunning,  
Director Department of Mineral Resources,  
304 Home Builders Bldg. Phoenix, Arizona.

Dear Mr. Dunning:

Thank you very much for the quick results, in obtaining Patent for me on the Sanderson Gold Mine, which arrived in Tucson day before yesterday. Your letters to Mr. Broadgate and Senator Hayden took almost immediate effect. In fact, the results were so rapid that I am left in wonderment over your extraordinary accomplishment on my behalf.

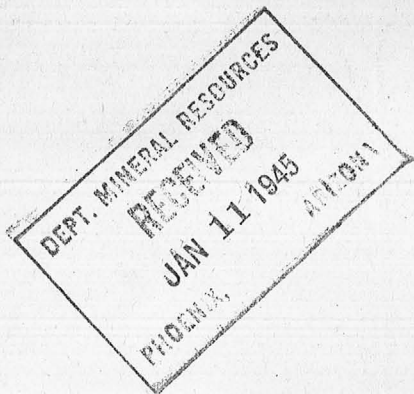
I am enclosing herewith a set of data on the Sanderson Gold Mine with the hope of obtaining a sale of the property in the near future. Would appreciate greatly anything that you can do in helping along the sale of this property, which I have decided not to work myself because I just don't know enough about mining to tackle the job.

I have been advised by experts that it is an excellent little property, and worth a great deal more than what I am asking for it, which is indicated on page 2. If you need addition copies of the data, please let me know.

With kindest personal regards,

Sincerely

*Randolph Jenks*  
Randolph Jenks.



CHP

RANDOLPH JENKS  
BOX 4084 UNIVERSITY STATON  
TUCSON, ARIZONA

January 10, 1945

Mr. Chas H. Dunning,  
Arizona Dept. Mineral Resources  
Homebuilders Bldg. Phoenix.

Dear Mr. Dunning:

I received today the following letter from Senator Hayden, bearing upon my case as to the patent of the Sanderson Gold Mine, Mineral Entry 081043, and since you asked me to keep you informed up to date upon this subject, I quote his letter of January 5, 1945 as follows:

"My dear Mr. Jenks:

Mr. William C. Broadgate has just talked to me on the telephone with regard to your letter to him with further reference to your Mineral Entry 081043. Mr. Broadgate has been called out of town due to the death of his father, and has asked me to contact the General Land Office in your behalf in an effort to expedite issuance of the patent, as well as the \$100. refund you have coming to you because of the over-payment to the General Land Office. Please let me say that I am writing a letter today to Commissioner Fred W. Johnson of the Land Office urging that immediate attention be given to this matter. As soon as I receive a reply from Mr. Johnson I shall let you know.

With every good wish, I am,

Yours very sincerely,

CARL HAYDEN."

Thanking you for your interest in helping to see me through in this patent matter,

Sincerely,

*Randolph Jenks*

*Sanderson  
sold mine*

January 10, 1945

Mr. Randolph Jenks  
Box 4084, University Station  
Tucson, Arizona

Dear Mr. Jenks:

On receipt of your letter of December 27 we had a copy made for Bill Broadgate and forwarded to him with the following notation to him:

"Herewith is copy of letter from Mr. Randolph Jenks of Oracle and Tucson, which explains itself.

"It looks like a friendly 'call' on someone should be right up your alley.

"I would particularly like to see Mr. Jenks get some snappy action."

Unfortunately almost at that same moment Bill received word in Washington that his father had died here in Arizona and very soon thereafter he left for Arizona.

We have not seen him yet but expect him in the office Friday, and he plans to return to Washington about Sunday.

He probably cannot do anything about your matter until he gets back but we will let you know as soon as we know anything.

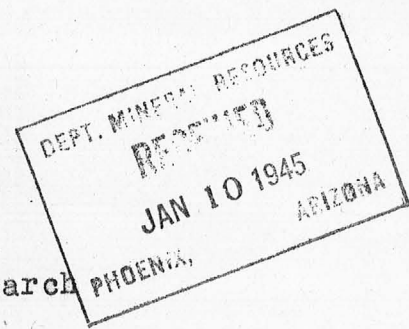
Yours very truly,

Chas. H. Dunning  
Director

CHD:LP

RANDOLPH JENKS  
BOX 4084 UNIVERSITY STATON  
TUCSON, ARIZONA

January 8 1945



Mr. Chas Dunning,  
Arizona Department of Mineral Research  
Homebuilders Building, Phoenix.

Dear Mr. Dunning:

About ten days ago I wrote you  
as to my concern about the patent of the Sanderson  
Gold Mine. I wonder if that letter ever reached  
you? Please let me know, and if it did not I  
will write you the full details again.

With every good wish for 1945,

Sincerely,

*Randolph Jenks.*  
Randolph Jenks.

(Dictated over telephone  
1/8/45. I.M.Lauder.)

*I.M.Lauder*

December 28, 1944

MEMORANDUM

TO: W. C. Broadgate  
FROM: Chas. H. Dunning

Herewith is copy of letter from Mr. Randolph Jenks of Oracle and Tucson, which explains itself.

It looks like a friendly "call" on someone should be right up your alley.

I would particularly like to see Mr. Jenks get some snappy action.

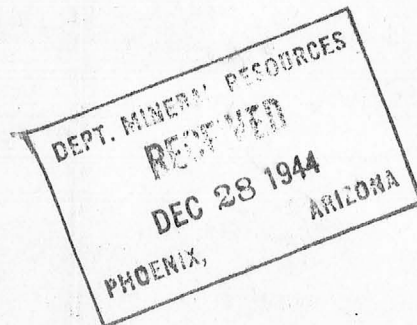
CHD:LP  
Enc.

CHM

RANDOLPH JENKS  
BOX 4084 UNIVERSITY STATION  
TUCSON, ARIZONA

December 27 1944

Mr. Charles H. Dunning, Director,  
Department of Mineral Resources  
Home Builders' Building,  
Phoenix, Arizona.



Dear Mr. Dunning:

In pursuance of our conversation yesterday evening at Oracle, I am writing you the full details as regards patent proceedings on my mine.

On September 22 1944, Mr. Fred W. Johnson, Commissioner General Land Office, U.S.D.I., wrote that 14 out of 15 claims applied for under Mineral Entry No. 081043, Mineral Survey #4274, were approved for patent. His words were as follows:

"The entry has been approved for patent as to the remaining 14 claims involved."

The explanation of the word "remaining" is due to the fact that I dropped the 15th claim called the Quincy, after it had been protested by the National Forest.

A month ago I wrote a special delivery airmail letter to Mr. Fred W. Johnson, Commissioner, General Land Office, stating that in September I had had from his office official approval for patent on 14 out of the 15 claims; that I had paid about \$100.00 too much to the Land Office for the 15th claim, the Quincy, and that I should appreciate an early reply as to when I might normally expect the \$100. refund, and when I might normally expect to obtain the Patent of the other 14 claims in hand. It has been more than a month since I wrote Mr. Johnson by airmail special delivery, and I have neither had an answer, nor any acknowledgement that my letter was received by the Land Commissioner.

I should greatly appreciate anything that the Department of Mineral Resources or the A. S. M. O. A., or both, could do for me to find out and speed up two things:

1. To obtain a refund of the over-payment to the government as explained above, and
2. To obtain as rapidly as possible Patent in hand on the 14 claims under Mineral Entry No. 081043, which were approved for patent the end of last summer.

RANDOLPH JENKS  
BOX 4084 UNIVERSITY STATON  
TUCSON, ARIZONA

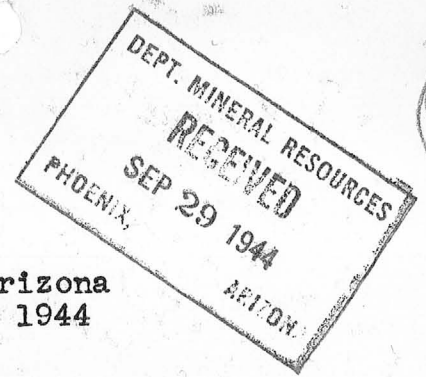
You mentioned that it might be better if you wrote personally to Bill Broadgate because your Departmental letter might pack more weight than my personal one, and we agreed yesterday evening that this would be the case. I therefore leave the matter in your hands and wish to thank you ever so much for being willing to carry my burden for me.

With kindest personal regards and best wishes for a happy and prosperous 1945,

Sincerely,

*Randolph Jenks*

Randolph Jenks.



Tucson, Arizona  
Sept. 28, 1944

Mr. Chas. H. Dunning, Director  
Department of Mineral Resources  
State of Arizona  
Phoenix, Arizona

Dear Mr. Dunning:

At the request of Mr. Randolph Jenks, I am sending you herewith a Mine Owner's Report on his property in the Old Hat Mining District of Pima County, known as the "Sanderson Gold Mine."

Mr. Jenks is having some maps made of the surface and underground workings which will be sent to you at a later date.

Yours very truly

v:  
enc.

*Venice I. Barker*

Mr. Randolph Jenks  
P.O. Box 4084, Univ. Sta.  
Tucson, Arizona

File under  
Sanderson

- COPY -

CM

P O Box 4084 U of A Sta  
Tucson, Arizona.  
September 28 1944.

Mr. William C. Broadgate,  
Senator Carl M. Hayden,  
Senate Office Building  
Washington, D.C.

Dear Bill:

About three weeks ago I wrote to Senator Hayden in regard to the approval and issuance of Patent for Mineral Survey No. 4274, Mineral Entry No. 081043.

Briefly, my story is as follows: I applied for patent to a group of fifteen mining claims. The Land Department early last spring sent Mr. Cutter from Albuquerque, who made examination of the group, disallowing one claim, the Quincy by name. The Forest Service early last summer sent their Engineer, Mr. Sievers, to make examination of the property, and as a result the Forest Service protested this same claim, the Quincy. Immediately Mr. Verity, my attorney, sent acknowledgment, which stated that I was willing to have this claim, the Quincy, withdrawn from the group of fifteen claims which were to have been patented, thus leaving a group of fourteen claims. After hearing nothing from Phoenix, or from Washington, D.C., and having spent many thousands of dollars in acquiring this mine, and preparing it for patenting, I became anxious and wrote to Senator Hayden about three weeks ago, as stated above. His reply was that he would have his office look into the matter and inform me as to whether my Patent could be speeded up. This morning I telephoned George Ballam, and he suggested that I write you this letter, particularly in view of the fact that Senator Hayden is extremely busy just at present, and that probably the matter would be turned over to you anyhow, which I had not previously realized.

Hoping that you can give me shortly a reassuring reply, and with best wishes and kindest personal regards,

Sincerely,

Randolph Jenks,  
Oracle Council  
A. S. M. O. A.

c c to Mr. Victor H. Verity  
Mr. Geo. A. Ballam.