



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

The following file is part of the

Arizona Department of Mines and Mineral Resources Mining Collection

ACCESS STATEMENT

These digitized collections are accessible for purposes of education and research. We have indicated what we know about copyright and rights of privacy, publicity, or trademark. Due to the nature of archival collections, we are not always able to identify this information. We are eager to hear from any rights owners, so that we may obtain accurate information. Upon request, we will remove material from public view while we address a rights issue.

CONSTRAINTS STATEMENT

The Arizona Geological Survey does not claim to control all rights for all materials in its collection. These rights include, but are not limited to: copyright, privacy rights, and cultural protection rights. The User hereby assumes all responsibility for obtaining any rights to use the material in excess of "fair use."

The Survey makes no intellectual property claims to the products created by individual authors in the manuscript collections, except when the author deeded those rights to the Survey or when those authors were employed by the State of Arizona and created intellectual products as a function of their official duties. The Survey does maintain property rights to the physical and digital representations of the works.

QUALITY STATEMENT

The Arizona Geological Survey is not responsible for the accuracy of the records, information, or opinions that may be contained in the files. The Survey collects, catalogs, and archives data on mineral properties regardless of its views of the veracity or accuracy of those data.

AN APPRAISAL OF THE
TOM REED TAILINGS
OATMAN, ARIZONA

FOR

SAWYER PETROLEUM COMPANY
LOS ANGELES, CALIFORNIA

BY

Leonard D. Jarrard

Registered professional engineer

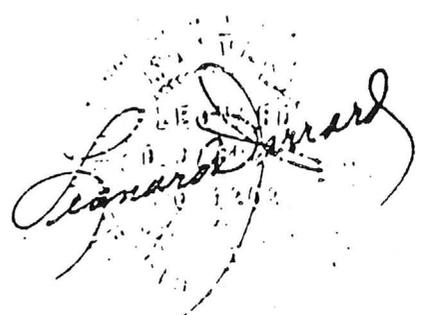
A handwritten signature in cursive script, reading "Leonard D. Jarrard", is written over a circular, faint stamp or seal. The signature is dark and appears to be in ink.

TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
LOCATION OF PROPERTY	1
HISTORY AND DESCRIPTION OF THE PROPERTY	2
LEGAL TITLE TO THE PROPERTY	3
LOCAL GEOLOGY OF THE AREA	4
SAMPLING OF THE TAILING PONDS	5
TONNAGE PRESENT	7
ANNUAL REPORT AND MILL RECORDS	8
CALCULATED TONNAGES	9
TREATMENT METHODS	9
APPENDIX A	11
APPENDIX B	12

Introduction

Early in February, 1959, Mr. E. W. Sawyer, President of the Sawyer Petroleum Company of Los Angeles, California, requested the writer to undertake the task of mapping and sampling the tailings ponds accumulated at the site of the Tom Reed mill near Oatman, Arizona. The period February 20, 1959 through March 7, 1959 was spent examining and mapping and sampling these tailings and making a rough estimate as to quantity and grade of other tailings in the area. The purpose of the work was to assist in determining the feasibility of re-treating the tailings from the Tom Reed mill in a modern plant of comparatively new design, a plant that operates under low cost conditions and permits nearly 100 percent extraction of the gold and silver values.

Location of Property

The tailings with which this report is primarily concerned are located at the site of the Tom Reed mill, now dismantled, at Oatman, Arizona approximately 30 miles southwest of Kingman, Arizona and 35 miles northeast of Needles, California. Oatman is served by an alternate route of US Highway 66. Kingman is on the main line of the Santa Fe Railroad and is the main supply point for the area. Sufficient labor force may be obtained in the immediate locality.

History and Description of the Property

The Tom Reed mine first began operations about the year 1911 and worked almost continuously until 1939. At that time the property closed and the mill was dismantled shortly thereafter. From 1911 until approximately 1916 the mill was operated on Tom Reed ores exclusively. From 1916 until the mill was closed, Tom Reed ores were supplimented by ores from the Black Eagle, Grey Eagle and Aztec mines, all owned by the Tom Reed Company.

The original mill was a ten-stamp installation with amalgamation plates. This was soon supplemented by a cyanide leaching circuit and later by an entirely new plant employing ball mill grinding with a counter-current-decantation cyanide flowsheet. The tailings from the original mill were later run through the new plant so that the tailings now present consist wholly of those from the new mill. During the period 1911 to 1916 while operation was on Tom Reed ores only the tailings were of a distinctive reddish color. These tailings are herein termed " Red Tails". When ores from the other mines came on stream the different characteristics of those ores imparted a white to buff color to the tailings and these later tailings are therefore termed " White Tails". The red tailings are now completely covered by white tailings except at the western edge of the ponds where the present stream erosion has exposed the red tails at the bottom of the main pond. Mine and mill records now available indicate approximately 22,000 tons of

ore treated prior to 1916 and about 1,000,000 tons treated from 1916 to 1939. Some of the records are not available and estimates were made for those blank periods. The table included in a later part of this report shows tons milled by years of operation.

In 1939 the management of the Tom Reed operations considered the advisability of re-treating the red tailings through the mill then in operation. The plan was followed to the extent that the equipment necessary for excavating and hauling was installed and several thousand tons of the tails, mainly the red variety, were run through the mill. The tailings were obtained from an area at the downstream extremity of the ponds where the red tails were most easily obtained. Some 20,000 tons of these tails were treated and the records available on the first 8,556 tons indicate an average value of approximately \$3.32 per ton.

Legal Title to Property

The legal title to the Tom Reed holdings, Tom Reed mine and mill and several other properties in the immediate vicinity, was obtained by the Sawyer Petroleum Company by an outright purchase of the former company holdings. Electric power and water distribution systems are owned and operated by Sawyer Petroleum Company and service is rendered nearly all of the population of Oatman, approximately 100 people.

Local Geology of the Area

The following account of the local geology of the Catman area is taken from the book, " Mineral Deposits " by Waldemar Lindgren.

" Not far east of Needles, on the Colorado River, rises the Black Range, which is built up of a series of tilted flows of andesite-latitude rocks with minor intrusive masses of granite porphyry and quartz-monzonite porphyry. The flows rest on Precambrian rocks and have a great thickness. The gold bearing veins are formed along fault fissures with normal throw, and some of them have been very productive though the shoots are irregular. Most of the ore occurs in the Catman andesite (the chloritic andesite of Schrader). The Tom Reed and the Gold Road veins have been the most productive. The United Eastern mine has been working a shoot with an area of about 800 feet by 800 feet which did not outcrop and which has yielded \$8,000,000. The greatest depth reached is about 1,300 feet. The veins are stringer loads often beautifully crustified and chalcedonic, and the filling consists of calcite, quartz, adularia and fluorite. The earlier calcite has been replaced by the latter two minerals. There is also a later generation of calcite. The gold, generally finely disseminated, is about the only metallic mineral and occurs chiefly in a peculiar honey-yellow quartz. The rock alteration is chloritic and sericitic ".

Sampling of the Tailings Ponds

In order to accurately locate the samples taken and to facilitate calculation of tonnages present, a tape and Brunton map of the entire ponds was made at a scale of one inch equal to fifty feet, (Plate 1). Elevations were obtained by means of an aneroid altimeter.

The tailings consist of two separate ponds, a small one of about 50,000 tons and a larger one of about one million tons. The thickness of the tailings varies from zero feet along the eastern side to more than sixty feet along the western edge where the present drainage has cut laterally into the tailings. Generally the slope from crest to toe is about 40 degrees but in an area about 600 feet along the west side the banks are very steep and often stand vertical to a height of 40 feet or more. In this area the tailings are well exposed and will average more than 20 feet in thickness. An old map found showed the limit of the red tailings and this information was plotted on our map of the present outlines of the tailing ponds. Although no topographic map of the area underlying the dump was found, it was possible to visualize the pre-dump drainage from the slope of the land rimming the ponds. From this information an estimate of the contour of the base of the area was established and these assumed contours later used in the calculation of tonnages present. In order to derive a tonnage factor for the tailing material, a measured amount of excavation was made in the face of the pond and all material removed from this excavation was weighed.

From this evidence a tonnage factor of 22 cubic feet of dry tailing material was obtained.

The ponds were sampled primarily to determine the grade of the red tailings as they are exposed and to determine the grade of the white tailings that must be removed in order to get to the underlying red tails. Channel cuts were employed exclusively, mainly along the perimeter of the ponds and along benches on the surface of the ponds, though a few were taken where streams have cut deep narrow channels into the flat surface of the tailings. Location of all samples are shown on Plate 1. It was hoped that it would be possible to auger bore holes down from the surface of the piles, but it was found that a depth of from 20 feet to 25 feet was about the limit of hole that could be obtained by this method. Below that depth the walls of the holes caved and scraped to such an extent that no additional depth could be made. It is hoped that if results of the samples thus far taken indicate conclusively that the grade of the tailings is good and sufficient, then a program will be planned whereby a power auger of at least six inches diameter will be used to reach the bottom of the ponds and to obtain samples representative of the full depth of the material. It is considered however, that the samples now obtained will be indicative of the grade of the red tails and of the white tails immediately overlying the red. To a large extent they will also indicate the grade of the remaining portions of the white tails that will not have to be moved in order to uncover the red.

The grade of the tailings will probably vary more in vertical extent than in a lateral manner since the tailings as they were deposited spread out and cover comparatively large horizontal areas without much gain in depth. The portion of the ponds sampled will represent a very good cross section of the total material in the larger pond since the section thus sampled represents nearly a longitudinal section of the pond in the area of greatest thickness.

Average samples taken weighed about eight pounds per individual sample. These samples were quartered and one cut sent to Techmanix Corporation of Salt Lake City, Utah. Duplicates of all samples are retained at the mine office in Oatman. Seven samples were picked at random and sent to the Sawyer Petroleum Company in Los Angeles for checking of Techmanix assays.

Tabulation of all sample results and of the tonnage represented are given in Appendix A.

Tonnage Present

The following table shows the tons milled by years for the period 1911 through 1916 for the red tailings and 1917 through 1939 for the white tailings. For certain indicated periods tonnages have been estimated from results of previous years and to some extent by conversation with Oatman residents who were present when the mill was operating. The second table shows a recap of the calculated tonnage present. These calculations are based on the survey of the ponds as they now are and upon the assumed topography of the land underlying the ponds.

Figures concerning volume of the material have been taken from linear measurements on Plate 1. and from cross sections as shown on Plate 2. A tonnage factor of 22 cubic feet of tailings equal to one ton was used to convert cubic feet to tons.

Annual Report and Mill Records Tonnages

<u>Year</u>	<u>Tons Treated</u>	<u>Head Value</u>
1911	14,290	\$41.58
1912	39,447	19.53
1913	43,478	23.22
1914	48,110	24.09
1915	46,895	21.33
<u>1916</u>	<u>29,916</u>	<u>22.12</u>
	222,236	

Total 1911 - 1916 red tailings treated by mill records and from annual report data equal ----- 222,236 tons.

1917	39,308	11.03
1918	81,814	7.60
1919	88,312	9.90
1920	89,557	7.94
1921	93,970	7.81
1922	70,750	5.65
1923 estimated	25,000	----
1924 estimated	25,000	----
1925 to 1928 mill down	-----	----
1929	7,673	15.30
1930 estimated	30,000	----
1931 estimated	20,000	----
1932 estimated	20,000	----
1933 estimated	20,000	----
1934 to 1939	<u>398,622</u>	----
	1,010,006	----

Total 1917 to 1939 white tailings through mill records and annual reports and estimated equal -----1,010,006

Total tailings accumulated during the years 1911 through 1939 equals ----- 1,232,242 tons.

Calculated Tonnages

The following tonnages of red and white tails present in the Tom Reed ponds are taken from cross sections 3650 through 4450. Tonnage in each section represents a block extending from the west to the east as shown on each section and with a width equal to 50 feet both north and south of that respective section. Red tails and white tails overlying the reds are obtained as outlined above. Additional white tailings present are those tailings lying south of section 3650 and north of section 4450 and to both east and west of the white tailings overlying the red tails.

<u>Section</u>	<u>Red tails</u>	<u>White Tails</u>	<u>Ratio (R:W)</u>
3650	4,100	19,322	1:4.73
3750	14,710	44,900	1:3.05
3850	24,421	59,928	1:2.44
3950	21,506	39,398	1:1.83
4050	38,327	42,199	1:1.10
4150	21,556	56,659	1:2.62
4250	32,870	62,243	1:1.89
4350	35,920	51,075	1:1.42
4450	53,581	57,813	1:1.08
	246,991	432,937	

Total Red Tails present equal ----- 246,991 tons
Total White Tails overlying red tails equal -- 432,937 tons

Average ratio of white tails to red tails -- 1.75 : 1.00

Additional white tails present equal ----- 885,092

Ratio total white tails to red tails ----- 3.57 : 1.00

Treatment Methods

The plant proposed for use in re-treating the tails is a simultaneous - counter - current cyanide leach ion - exchange type installation utilizing commercially manufactured resins. The basic design has been developed by " Infilco " and adapted to this specific use by Techmanix Corporation of Salt Lake City, Utah. The ion exchange principal is now used extensively in several different types of mill installations and is used almost exclusively in all of the late uranium mill in this country and abroad. The plant may be installed in nearly any capacity by using a series of 100 ton per day units. The plant now considered would consist of first a 100 ton per day unit and soon after enlarged to a total capacity of 500 tons per operating day.

The basic unit of 100 tons per day capacity will cost in the neighborhood of \$ 35,000.00. Installation and operating costs are in addition to the cost of the plant. The ion exchange principle operates with extreme simplicity and in this contemplated installation the plant is small and compact and will require a minimum of space and housing. Total labor required to operate mill and excavation machinery will probably not exceed two men. The plant will require approximately 75 gallons of water per minute per ton of installed daily capacity. It is planned at this time to utilize the water in the Tom Reed mine and to pump the required amount from the 600 level. Final tailings from the re-treatment of the Tom Reed tails are to be stacked at the lower end of the Tom Reed properties and in such a manner that the water content in the tails as discharged from the new installation will drain back toward the mill and impounded where they can probably be reused. Metallurgical tests and adaptations of the tailings to this process are still being conducted and all of the final answers are not yet available.

Several methods have been proposed for delivery of the tailings to the mill installation. Among these are, (1) pumping of tailing and water mixture to the mill, (2) scraping to a truck loading point and, (3) front end loader dumping into trucks. Most of these methods of attack have been considered and close estimates of cost for the various operations are presented along with amortization of initial costs in the cost breakdown in Appendix B.

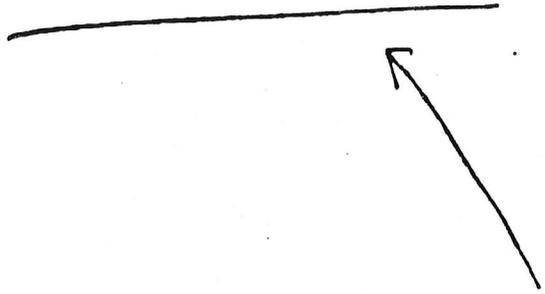
APPENDIX A

The following table represents the total samples taken during the writers visit to the property, the assay of each interval of those samples in gold and silver in ounces per ton of tilings, and the number of tons and type of tailings that each sample, interval of sample or group of intervals that those assays represent. It will be noticed that all of the samples combined do not represent the total tonnage as given in the table on page 9. The tonnage figures given in the following table are those tonnages that can be assigned to the individual samples without exceeding 100 foot intervals between samples. However, as previously stated, it is the writers opinion that the average of those samples indicated as representative of white tails will hold closely for the average of all of the white tails overlying the red tails. The average of those samples as ascribed to the red tails will even more closely approximate the average grade of all of the red tailings that are available. The tailings that have been previously described as not overlying the red tailings have not been closely sampled though it is probable that the average of those additional tailings will not depart far from the average of the white tailings shown in the following listing.

<u>Sample No.</u>	<u>Interval feet</u>	<u>Oz. Gold/Ton</u>	<u>Oz. Silver/Ton</u>	<u>Tons Represented</u> (White TAILS)
14	0 to 5½	.01	.17	21,000 NT
	5½ to 11	.015	.11	
	11 to 16	.015	.23	
	16 to 22	.015	.29	
	22 to 30	.025	.22	
	30 to 36	.025	.31	
	36 to 42	.03	.38	
	42 to 48	.03	.25	
	48 to 56	.02	.17	
	56 t 0	.02	.22	
		<u>.205</u>	<u>2.45</u>	
		<u>.0205</u>	<u>.245</u>	

Sample No.	Interval feet	Oz. Gold/Ton	Oz. Silver/Ton	Tons Represented (WHITE TAILS)	
6-2	0 to 8 8 to 16	.02 } .02 .02 }	.16 } .17 .18 }	8,000 WT	
7-2	0 to 8 8 to 16	.015 } .0125 .01 }	.14 } .135 .13 }	10,100 WT	
8-2	0 to 8 8 to 16	.015 } .0125 .01 }	.14 } .14 .14 }	14,200 WT	
9-2	0 to 6 6 to 12	.01 } .015 .02 }	.10 } .11 .12 }	15,800 WT	
0-3	0 to 7 7 to 13 13 to 19 19 to 26 26 to 33 33 to 40 40 to 47 47 to 53 53 to 58	.015 } .015 } .02 } .01 } .02 } .02 } .01 } .02 } .035 }	.35 } .32 } .45 } .42 } .39 } .16 } .18 } .18 } .16 }	.29 } .29 } .29 } .29 } .29 } .29 } .29 } .29 } .29 }	11,800 WT
1-3	0 to 11 11 to 20 20 to 27 27 to 33 33 to 38 38 to 46 46 to 54	.025 } .02 } .035 } .02 }	.08 } .25 } .11 } .12 }	.14 } .14 } .14 } .14 }	18,100 WT
Prev. Sample	(1) Tunnel Composite 100 th Bulk	.04	.05	13,600 RT	
J.C.B.	(1) FACE SAMPLE 100 th Bulk	.04	.05	27,000 WT	
3-3	0 to 11 11 to 20 20 to 28 28 to 36 36 to 45 45 to 54	.055 } .03 } .03 } .025 } .04 } .055 }	.10 } .09 } .13 } .09 } .18 } .29 }	.147 } .147 } .147 } .147 } .147 } .147 }	34,500 WT
2-4	0 to 12 12 to 21 21 to 29 29 to 37 37 to 46 46 to 54	.04 } .02 } .03 } .03 } .065 } .065 }	.12 } .17 } .21 } .15 } .23 } .32 }	.20 } .20 } .20 } .20 } .20 } .20 }	13,400 WT
12-3	0 to 8	.05 .05	.10 .10	3,900 WT	

SAMPLE NO.	INTL. FEET	OZ. GOLD / Ton	Oz. S. / Ton	Tons REP-resented
11 - 3	0 to 6	.065 . 081	.15 . 22	5,700 WT
10 - 3	0 to 5	.045 . 066	.123 . 42	7,500 WT
9 - 3	0 to 6	.025	.09	4,100 WT
7 - 4	0 to 5	.04	.12	6,600 WT
				<u>201,700 TONS W.T.</u>



(Red TAILS)

PREV. SAMPLE	TUNNEL COMPOSITE 100' BULK.	OZ. GOLD / Ton	Oz. S. / Ton	Tons RT
JCB		.13	.25	13,000 RT
2 - 6	0 to 10 10 to 15 15 to 20	.02 } .035 } .025 }	.18 } .22 } .17 }	4,100 RT
4 - 6	0 to 4 4 to 12	.025 } .06 }	.08 } .30 }	5,500 RT
1 - 4	0 to 8 8 to 15 15 to 20 20 to 26	.03 } .025 } .025 } .04 }	.15 } .08 } .08 } .21 }	12,500 RT
8 - 3	0 to 8 8 to 16	.08 } .06 } .025 }	.34 } .24 } .29 }	11,000 RT
7 - 3	0 to 8 8 to 15 15 to 24	.071 } .048 } .015 }	.33 } .22 } .16 }	20,000 RT
6 - 3	0 to 10 10 to 19	.085 } .065 } .09 }	.33 } .46 } .31 }	11,000 RT
1 - 3	33 to 38 38 to 46 46 to 54	.07 } .035 } .03 }	.35 } .15 } .19 }	11,000 RT
6 - 6	0 to 4	.166 . 178	.377 . 38	3,000 RT
				<u>91,100 TONS RT</u>

Total white tailings represented in foregoing table

199,500 tons of average assay of Oz. Gold per ton
 201,700 Oz. Silver per ton

Total red tailings represented in foregoing table

91,100 tons of average assay of Oz. Gold per ton
 Oz. Silver per ton

VALUES IN DOLLARS BASED ON GOLD AT \$50 PER OZ. AND SILVER AT \$90 PER OZ.

Average value of white tailings per ton	-----	\$ 1.16	(1.36)
Average value of red tailings per ton	-----	\$ 2.41	(3.22)
Average value of white and red tailings per ton	-----	\$ 1.55	(1.94)
Gross value of white tailings (201,700 TONS)		\$ 235,182.00	273,860.
Gross Value of Red tilings (91,100 TONS)		\$ 219,550.00	293,842.
Gross value of white and red tailings (292,800 TONS)		\$ 454,732.00	566,702.

TON REEF TAILINGS
Assays

Sample Designation	Interval Feet	Assayer	Oz. Gold/Ton	Oz. Silver/Ton	Average		Values/Ton		Total Value/Ton
					Oz. Gold/Ton	Oz. Silver/Ton	Gold	Silver	
4 - 6	0 to 4	C.M.	.025	.08			.87	.07	.94
	4 to 12	C.M.	.06	.30			2.10	.27	2.37
1 - 4	0 to 8	C.M.	.03	.15			1.05	.13	1.18
	8 to 15	C.M.	.025	.08			.87	.07	.94
	15 to 20	C.M.	.025	.08			.87	.07	.94
	20 to 26	C.M.	.04	.21			1.40	.19	1.59
8 - 3	0 to 8								
	8 to 16	A.H.	.065	.23	.0633	.24	2.22	.22	2.44
		S.E.	.08 (out)	.58 (out)	.066	.35	2.31	.31	2.62
		C.M.	.55055	.24					
		C.N.	.07	.25					
7 - 3	0 to 8	A.H.	.08	.32	.071	.333	2.48	.30	2.78
	"	S.E.	.12 (out)	.44 (out)	.088	.36	3.08	.32	3.40
	"	C.M.	.065	.33					
	"	C.N.	.075	.35					
	8 to 16	C.M.	.015	.16			.53	.14	.67
15 to 24	C.M.	.015	.14			.53	.12	.65	
6 - 3	0 to 10	A.H.	.09	.41	.083	.287	2.90	.27	3.17
	"	S.E.	.08	.78 (out)	.065	.46	2.28	.41	2.69
	"	C.M.	.025 (out)	.20					
	"	C.N.	.08	.25					
	10 to 19	C.N.	.09	.31			3.15	.28	3.43
1 - 3	33 to 38	C.M.	.07	.38			2.45	.34	2.79
	38 to 46	C.M.	.035	.15			1.22	.13	1.35
	46 to 54	C.M.	.03	.19			1.05	.16	1.21
6 - 6	0 to 4	A.H.	.16	.40	.166	.377	5.81	.35	6.16
	"	S.E.	.20 (out)	.40	.178	.38	6.23	.33	6.56
	"	C.N.	.175	.36					
	"	C.N.	.165	.35					

ASSAYER'S KEY

A.H. - Abbott A. Hawks, Inc.
 S.E. - Smith Emery
 C.M. - Combined Metals
 C.N. - Christman & Nicols

TOM REED TAILINGS
Assays

Sample Designation	Interval Feet	Assayer	Assays		Average		Values/Ton		Total Value/
			Oz. Gold/Ton	Oz. Silver/Ton	Oz. Gold/Ton	Oz. Silver/Ton	Gold	Silver	
Previous J.C.B. Sample									4.71
2 - 50# Tunnel Composite		C.M.	.13	.25			4.55	.13	
2 - 50# Surface Cuts <small>100# FINE SAMPLE</small>		C.M.	.04	.05			1.40	.05	1.40
3 - 3	0 to 11	C.M.	.055	.10			1.92	.09	2.01
	11 to 20	C.N.	.03	.09			1.05	.08	1.13
	20 to 28	C.N.	.03	.13			1.05	.12	1.17
	28 to 36	C.N.	.025	.09			.87	.08	.95
	36 to 45	C.M.	.04	.18			1.40	.16	1.56
	45 to 54	C.N.	.055	.29			1.92	.26	2.18
2 - 4	0 to 12	C.M.	.04	.12			1.40	.11	1.51
	12 to 21	C.N.	.02	.17			.70	.15	.85
	21 to 29	C.M.	.03	.21			1.05	.19	1.24
	29 to 37	C.N.	.03	.15			1.05	.13	1.18
	37 to 46	C.M.	.065	.23			2.27	.20	2.47
	46 to 54	C.N.	.065	.32			2.27	.29	2.56
12 - 3	0 to 8	C.M.	.05	.10			1.75	.09	1.84
11 - 3	0 to 6	A.H.	.07	.12	.065	.13	2.27	.12	2.39
		S.E.	.12 (out.)	.66 (out.)	.081	.30	2.83	.27	2.16
		C.M.	.055	.12					
		C.N.	.07	.15					
10 - 3	0 to 5	A.H.	.045	.12	.045	.123	1.57	.11	1.68
		S.E.	.12 (out.)	.28 (out.)	.066	.18	2.31	.16	2.47
		C.M.	.035	.15					
		C.N.	.055	.10					
9 - 3	0 to 6	C.M.	.025	.09			.87	.08	.95
7 - 4	0 to 5	C.M.	.04	.12			1.40	.11	1.51
2 - 6	0 to 10	C.M.	.02	.18					
	10 to 15	C.M.	.035	.22	.026	.19	.91	.17	1.08
	15 to 20	C.M.	.025	.17					

Sample Designation	Interval Feet	Assayer	Oz. Gold/Ton	Oz. Silver/Ton	Oz. Gold/Ton	Oz. Silver/Ton	GOIU	SILVER	GOIU/SILVER
#14	0 to 5½	C.M.	.01	.17			.35	.15	.50
	5½ to 11	C.M.	.015	.11			.53	.09	.62
	11 to 16	C.M.	.015	.23			.53	.20	.73
	16 to 22	C.M.	.015	.29			.53	.26	.79
	22 to 30	C.M.	.025	.22			.87	.20	1.07
	30 to 36	C.M.	.025	.31			.87	.28	1.15
	36 to 42	C.M.	.03	.38			1.05	.35	1.40
	42 to 48	C.M.	.03	.25			1.05	.22	1.27
	48 to 56	C.M.	.02	.17			.70	.15	.85
	56 to 60	C.M.	.02	.22			.70	.20	.90
6 - 2	0 to 8	C.M.	.02	.16			.70	.14	.84
	8 to 16	C.M.	.02	.18			.70	.16	.86
7 - 2	0 to 8	C.M.	.015	.14			.53	.12	.65
	8 to 16	C.M.	.01	.13			.35	.12	.47
8 - 2	0 to 8	C.M.	.015	.14			.53	.12	.65
	8 to 16	C.M.	.01	.14			.35	.12	.47
9 - 2	0 to 6	C.M.	.01	.10			.35	.09	.44
	6 to 12	C.M.	.02	.12			.70	.11	.81
0 - 3	0 to 7	C.M.	.015	.35			.53	.31	.84
	7 to 13	C.M.	.015	.32			.53	.29	.82
	13 to 19	C.M.	.02	.45			.70	.40	1.10
	19 to 26	C.M.	.01	.42			.35	.38	.73
	26 to 33	C.M.	.02	.39			.70	.35	1.05
	33 to 40	C.M.	.02	.16			.70	.14	.84
	40 to 47	C.M.	.01	.18			.35	.16	.51
	47 to 53	C.M.	.02	.18			.70	.16	.86
	53 to 58	C.M.	.035	.16			1.22	.14	1.36
	1 - 3	0 to 11	C.M.	.025	.08			.87	.07
11 to 20		C.M.	.02	.25			.70	.22	.92
20 to 27		C.M.	.035	.11			1.22	.09	1.31
27 to 33		C.M.	.02	.12			.70	.10	.80
4 - 3	0 - 4'	C.M.	.02	.16	.025	.15	.87	.13	1.00
		C.M.	.03	.15					
5 - 6	18' - 26'	C.M.	.025	.20	.0275	.175	.96	.15	1.11
		C.M.	.03	.15					

.23
.20

1.05 + .19 = 1.24
1.05 + .18 = 1.23

TOM REED GOLD MINES

MOHAVE COUNTY
OATMAN DIST.

At Oatman visited Tom Reed office, mine and mill. Except for a few bugs the mill section for tailings was ready to go. The section for mined ore has quite some work to be done.

E.G. WILLIAMS - Weekly Report - 5-10-63

VISITED AMERICANA office and mill, they are resampling the tailings. All other work has stopped.

E. G. Williams, Weekly Report July 17, 1963

Visited Tom Reed office and interviewed Joe Brandenburg, he is taking care of Americana Investment Co. affairs. He doesn't know for sure what the company is going to do, but thinks they are going to try and reorganize.

E. G. Williams - Weekly Report Sept. 17, 1963

Do Not Reproduce

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine Tom Reed, Jr. (has been known as King Midas mine) Date September 22, 1978
District San Francisco Engineer Glenn Miller - Cliff Hicks
Subject: Surface examination of facilities

Sec. 23, T19N, R20W.

Interview at mine collar with Ed Jones, Foreman, P.O. Box 34, Oatman, AZ, phone 758-2623 and Quincy Crane, owner. The mine was down because of compressor malfunction. Leasing company, Petrochem, P.O. Box 2542, Billings, Montana.

Shaft is being retimbered and ladders installed to 400'. One station at 300'. Engineering is being done by Mineral Services, Inc., 54550. 2155 W., Salt Lake City, Utah 84104 (801) 533-0545, Eldred M. Garrick.

Shaft being sampled as it went down vein. Dip 70°S0. 4'X6' single compartment. The hoist is a 12hp., Fairbanks-Morse, compressed air. Hoisting by ½ ton bucket. Some water problems. Miners preparing to pump through 4" line. Future plans under study.

Engineers have been invited to return and go underground.

GM:CH:gg

cc: Tucson office.

Americana Buys Mine, Plans Multi-Purpose Mill.

Americana Investments, Inc. has purchased the former Tom Reed Gold Mining Co. properties in the Gatman Mining District of Mohave County from the Sawyer Petroleum Co. Included are 900 acres of rugged mountain country, several former producing mines and other assets.

Americana program calls for immediate construction of a unique 1000 ton multi-purpose cyanide mill to process the estimated 1,250,000 tons of tailings in the huge dump deposited during operations of the Tom Reed mill from 1904 to 1939. Sawyer retains an interest in the tailings.

Americana president Leland M. Wiscombe said the new mill, which he helped to design, will handle 1000 tpd tailings, 300 tpd raw ore, or both tailings and ore together. He said it will be the largest gold and silver concentrating mill in northern Arizona.

Charles M. Dunning will be the consulting engineer on mining projects. The first project will be the White Chief mine, scheduled for development during the next year. Tailings only will be milled until the mine goes on stream. The White Chief is owned by the Triumph Mining Co. which recently signed a five-year lease-purchase contract with Americana.

W.J. Nault of the Techmanix Corp., Newburgh, N.Y. co-designer of the mill, is serving as consulting metallurgist and mill technician.

The group decided to put up the mill after three months of extensive tests and studies, including drill sampling of the tailing dump. Wiscombe said mill records and assays indicate about \$3 million in gold may remain in the dump, much of it in solution and cyanided.

The purchase covers 49 patented claims, including some well known mines which produced millions in gold but which have been under water since the federal mine closing order of 1942. In addition to the Tom Reed mine, Americana now owns the Black Eagle, Gray Eagle, Astac, Olla Gatman, Big Jim and Gold Ore mines. Wiscombe said some may still contain profitable ore, but no plans for de-watering are in view at present.

Taken from E & M J - Dec. 1962

FOURTH EDITION

THE NEW GOLD FIELDS

THE TOM REED-GOLD ROAD MINING DISTRICT

Mohave County Arizona

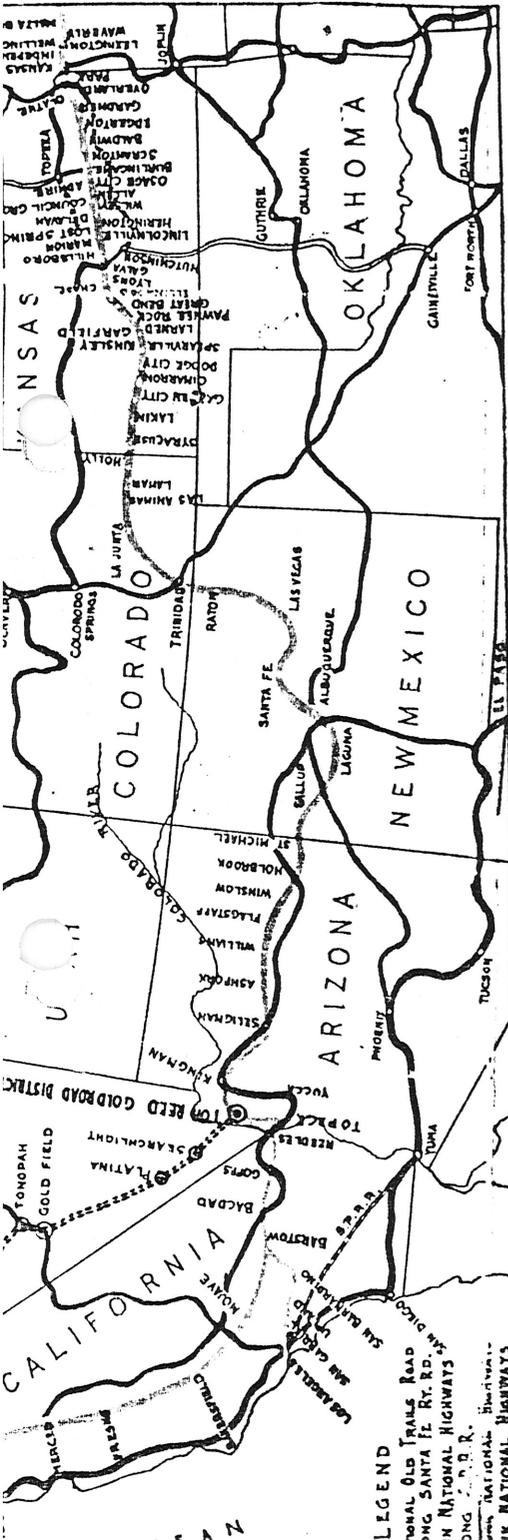
OPERATING COMPANIES
AND
PRINCIPAL MINING GROUPS
WITH
PRELIMINARY MAP

COMPLIMENTS OF

F. W. REESE & CO.
638-639 H. W. HELLMAN BLDG.

LOS ANGELES, CALIFORNIA

THE SCENIC GOLD CAMP



HITTING THE GOLDEN TRAIL

THE TOM REED-GOLD ROAD MINING DISTRICT

Is reached by Auto lines direct from Kingman, the trip of 27 miles taking 2½ hours into any part of the camp; also via Needles, Cal., where passengers are conveyed by ferry across the Colorado River, thence by Auto stage to the district in 2 hours, the distance being 20 miles. A new road has been built from Topock, Ariz., (east end of Colorado river bridge) distance 27 miles.

SANTA FE RAILWAY TIME CARD

East Bound		
No. 10	Arrives Needles	8:10 a.m.
No. 10	Arrives Kingman	11:20 a.m.
No. 2	Arrives Needles	6:35 p.m.
No. 2	Arrives Kingman	9:20 p.m.
No. 8	Arrives Needles	8:00 p.m.
No. 8	Arrives Kingman	11:05 p.m.
No. 22	Arrives Needles	3:30 p.m.
No. 22	Arrives Kingman	6:00 a.m.

West Bound

No. 9	Arrives Kingman	4:21 p.m.
No. 9	Arrives Needles	5:50 p.m.
No. 1	Arrives Kingman	3:50 p.m.
No. 1	Arrives Needles	5:40 p.m.
No. 21	Arrives Kingman	7:30 a.m.
No. 21	Arrives Needles	8:55 a.m.
No. 7	Arrives Kingman	12:55 p.m.
No. 7	Arrives Needles	2:30 a.m.

AUTO LINE TIME CARD

Oatman and Gold Road

Kingman

Leave Kingman for Oatman	1:00 p.m.
Arrive Oatman	3:30 p.m.
Leave Oatman for Kingman	7:00 a.m.
Arrive Kingman	9:30 a.m.

Needles

Leave Needles for Oatman	9:15 a.m.
Arrive Oatman	11:30 a.m.
Leave Oatman for Needles	1:00 p.m.
Arrive Needles	3:30 p.m.

THE SCENIC GOLD CAMP

OF AMERICA

Is Reached by Auto over the National Old Trails Highway from Kingman or Topock, Arizona.

VIA THE SANTA FE

TOM REED-GOLD ROAD DISTRICT

This gold producing area in which a number of new and important strikes have been made, is situated in the Black Mountains, a range trending northwest to southeast, the extreme height of the same being 5000 feet with an average distance of 14 miles east from the Colorado River.

The field is one of tertiary volcanic lavas. U. S. Geological Bulletin 397, page 34, says: "The rocks consist of andesites, trachytes, rhyolites, latites, and basalts lying in broad super-imposed sheets or flows with intercalated beds of ash tuff and breccia. THEY ARE BEST DEVELOPED IN THE BLACK MOUNTAINS, PARTICULARLY IN THE SOUTHERN PART, CONTAIN MOST OF THE MINERAL DEPOSITS OF THE RANGE, and probably played an important part in the genesis of these deposits."

In extent the district measures 7 by 10 miles lying upon the west flank of the Black Range, with all drainage into the Colorado River.

The mineralized zones are traversed by rhyolite dykes, in connection with which nearly all of the development has proceeded, the veins in a majority of the mines opened thus far, being found in close proximity to the dykes, although recent discoveries seem to indicate the existence of paying fissures, distant from any dyke material. Characteristic of the dykes and veins are their great width and length, some being from 10 to 50 feet in width, their outcrops extending over hill and valley like a veritable Chinese wall. The vein filling is largely quartz and spar, large masses of oxydized material, crushed quartz and pebbles, akin to the conglomerate of the South African reef "blanket" or "banquet" coming in with depth, the oxidization apparently becoming more marked as depth is gained. Nearly all of the dykes and veins are capped and it is necessary to carry the working below the capping to reach ore of the best grade.

The deepest shaft is that of the Tom Reed Gold Mines Company—1000 feet, the greatest depth attained being at the Gold Road mine by shaft and drift 1100 feet, the oxidized ores with depth still predominating. The production of the former is round \$1,000,000 per annum, with an average value of about \$22.00 per ton—while the Gold Road mine produces 300 tons per day of a commercial mill grade.

Sixty stamps are now dropping on District ores

FACTS AND FIGURES

For 1914, the production of gold in Arizona was \$4,500,000. The TOM REED-GOLD ROAD DISTRICT contributed, in gold bullion, FORTY PER CENT of the above sum.

During 1914, the dividends paid by the Tom Reed alone amounted to

\$627,592.95

or SIXTY-NINE PER CENT upon its issued capital, a record not exceeded nor equaled by any other gold mine in the United States.

Within a brief period it is freely predicted that the TOM REED-GOLD ROAD DISTRICT will increase Arizona's total to \$10,000,000.00 per annum, the district alone to contribute an amount equal to present state production of gold.

To the Mine Operator:

**The
District
Has**

- Daily Auto Service
- Daily Mail Service
- Express and Freight
- Telephone
- Telegraph
- Electric Light
- Electric Power
- Water---Domestic and Milling
- All-Year-'Round Mining Altitude
- Wide Ledges of Great Continuity
- And Lastly

*Tom Reed-Gold Road District Ores
are Absolutely*

FREE MILLING

FIGURES

Arizona was \$4,500,000.
STRICT contributed, in
of the above sum.
by the Tom Reed alone

15
its issued capital, a re-
any other gold mine in

redicted that the TOM
will increase Arizona's
he district alone to con-
state production of gold.

Service

Service

and Freight

ight

ower

omestic and
illing

Round Mining
litude

res of Great Con-
nunity

ly

1 District Ores
tely

LLING

with other mills in contemplation. The ores are easily crushed, averaging 7 tons per diem to the stamp.

Fully a dozen more properties are being opened which give promise of becoming dividend payers. The district is large, is interlaced with veins and ultimately should have the largest output of gold of any similar area in the West.

Kingman, on the main line of the Santa Fe, is the county seat of Mohave county, and the principal entrepot for the district, daily auto lines carrying freight and passengers over a well-built county road to the foot of the range, the only mountain climb being encountered going over Gold Road Pass into the town of Gold Road, a place of some 400 people built around the Gold Road Mine. A further ride of some three miles brings into view the town of Oatman with 600 inhabitants, the total population of the district including outlying points being 1200. Both towns have general merchandise stores, with a weekly newspaper at Oatman.

One mile south of Oatman is the new townsite of Oldtrails, adjacent to the Orion, Boundary One and Lexington properties.

To Needles, Cal., the road from Oldtrails is down grade, dropping from an elevation of 2500 feet to 43 feet at the Colorado river, Needles being the rarest railroad point, where is also located the smelting works of the Needles Mining & Smelting Company.

Through the efforts of the Tom Reed G. M. Company a new auto truck and passenger road has recently been completed to Topock, a Santa Fe Railway point, at the east end of the Colorado River bridge. The new route has been adopted by the National Old Trails Road Association as the main thoroughfare from New York to Los Angeles.

In his report upon the district regarding climate, F. C. Schrader, U. S. Geologist, says: "The climate of the region is arid; with hot summers and mild winters, but the intensity of the heat is modified by the dryness of the atmosphere, a more or less constant breeze and cool nights. The climate ranks among the most healthful in the United States.

The contract has been let for the construction of a new bridge for passenger and freight service, spanning the Colorado River at Topock, connecting Arizona with California. It is being built by Federal and State aid, and should be completed early in 1916.

TOM REED-GOLD ROAD DISTRICT

CORPORATIONS

ARGO MINES COMPANY—Incorporated under Arizona laws. S. S. Jones, president; J. M. Francis, Vice President; J. Shank, Secretary-Treasurer.

1,000,000 shares par value \$1.00 each. Treasury 600,000 shares. Owns the LITTLE JACK, LITTLE JACK NO. 1, and HOOSIER, 60 acres, adjoining the Tom Reed on the East.

ARIZONA-TOM REED GOLD MINES COMPANY—Incorporated under Arizona laws. George F. Moser, president; Charles S. Seeley, vice-president; C. L. Moser, secretary-treasurer; George F. Moser, general manager.

1,000,000 shares, par value, \$1.00 each; non-assessable. Treasury 500,000 shares.

Owns the TRIO and LILAH, 28.9 acres patented; U. S. Mine No. 2870, and the HEALTH and WEALTH, 24.6 acres patented, a compact group of 53.4 acres adjoining the Pioneer on the east, the Orion upon the west, and one and one-half miles westerly from Tom Reed Mine.

Development consists of several shafts from 10 to 100 feet in depth. Property will be developed by a deep working shaft. The TRIO of this group has shipped very high-grade ore.

ARIZONA WHITE CHIEF MINING COMPANY—Incorporated under Arizona laws; T. W. Wampler, president; A. E. Glenn, secretary-treasurer, Oatman, Arizona.

1,000,000 shares, par value \$1.00 each. Treasury 650,000 shares. Owns the BOUNDARY CONE EXTENSION NO. 1, BOUNDARY CONE EXTENSION NO. 2, BOUNDARY CONE EXTENSION NO. 4, UNION LEADER NO. 4, POINT NO. 1, POINT NO. 2, HANDY, and other properties a total of over 200 acres, adjoining the Lexington on the South. Approximately 500 feet of development.

BIG JIM GOLD MINING COMPANY—Incorporated under the laws of Arizona. C. C. Spicer, president; E. H. Newland, vice-president; S. M. Warmbath, secretary and general manager; N. D'Arcy, treasurer; A. G. Keating, superintendent. Board of Directors; C. C. Spicer, E. H. Newland, S. M. Warmbath, N. D'Arcy and H. E. Woods. 561 I. W. Hellman Building, Los Angeles, California.

1,000,000 shares, par value 10 cents each. Treasury 370,000 shares. Owns the BIG JIM, MONARCH, LITTLE ALICE, MOHAWK and MOHAWK EXTENSION, adjoining the properties of the Tom Reed Gold Mines Company and the United Eastern Mining Company; also the OCTOPUS, OCTOPUS NO. 2 and OCTOPUS NO. 3, the extension of the Pioneer Consolidated upon the north, a total of 110 acres.

Development upon these properties includes a number of shafts and cuts sufficient for patenting the same, and a main working shaft upon the Big Jim which is being sunk to a depth of 300 feet. A 25-H. P. Fairbanks-Morse Hoist, together with a 25 H. P. White & Middleton Engine and 10x10 Ingersoll Rand compressor, have been installed and mine buildings, blacksmith etc., erected. The stock of the Big Jim Gold Mining Company is listed upon the Los Angeles and San Francisco Stock Exchanges.

BLACK RANGE MINING COMPANY—Incorporated under the laws of Arizona. D. P. Wright, president; Del Sherer, vice-president; J. S. Withers, secretary-treasurer, Oatman, Arizona. 1,000,000 shares, par value, \$1.00 each. Treasury, 500,000 shares. Owns the L. & K., and GOLDEN ERA, 40 acres, patented, U. S. Mineral Survey No. 2512; also owns the LADYSMITH, LADY SMITH NO. 2 SAINT PATRICK, SAINT PATRICK NO. 1, NETTIE and NETTIE NO. 2, 120 acres, unpatented, a total of 160 acres. Development consists of three main shafts, No. 1 being 200 feet, No. 2 150 feet and No. 3, 70 feet in depth, together with numerous smaller shafts, cuts and tunnels, all upon the easterly extension of the Nellie vein. Distant, 5 miles south of Oatman. Equipped with 10-H. P. Hoist, mine buildings and boarding house.

BOUNDARY CONE GOLD MINES COMPANY—Incorporated under Arizona laws. F. H. Biles, president; I. D. L. Williams, secretary; Calvin Hartwell, treasurer; W. F. Ball, Dr. S. M. Barnes, Charles Grimes, T. C. Job, Calvin Hartwell, F. H. Biles and I. D. L. Williams, directors. Frank Dryden, superintendent. Address of secretary, Rex Arms, Los Angeles, Cal. 1,600,000 shares, par value, \$1.00 each. Treasury 600,000 shares. Owns SURPRISE, SURPRISE EAST EXTENSION, SURPRISE WEST EXTENSION, GREAT EASTERN, GREAT EASTERN EXTENSION, BOER and APEX, a total of 82 acres patented, U. S. Mineral Survey No. 2822. Located one mile southwest of Oatman, Arizona. Development: Main working shaft 550 feet, with over 4000 feet of crosscutting and drifting. Property has a 15 H. P. Fairbanks-Morse hoist, engine house, blacksmith shop, together with complete mining equipment.

CARTER GOLD MINING AND MILLING COMPANY—Incorporated under Arizona laws. E. A. Shaw, president; Henry Lovin, vice-president; W. K. Ridenour, secretary; H. E. Watkins, treasurer, Kingman, Arizona.

1,000,000 shares, par value, \$1.00 each. Treasury 300,000 shares. Owns the NEW YORK, GIANT and GOLD CROSS, 50,869 acres patented, U. S. Mineral Survey No. 2704, also adjoining fractions a total of 55 acres. Principal development consists of a main working shaft 250 feet in depth with 100 feet of cross-cutting, also 200 feet of drifting on the 250 foot level, together with considerable other work, both underground and surface. Equipped with 25-H. P. Witte engine, blacksmith shop.

CASEY JONES MINING COMPANY—Incorporated under Arizona laws. H. M. Caswell, President; V. S. Rowley, Vice-President; J. E. Shank, Secretary-Treasurer; J. J. Casey and George Z. Mellen.

1,000,000.00. One Million shares, par value 10 cents each. Treasury, 600,000 shares. Owns the SWALLOW GROUP of approximately 120 acres adjoining the Oatman Gold Group upon the east.

CLARISSA MINING AND MILLING COMPANY—Organized under Arizona laws. Edward M. Rabb, president; A. W. Sydnor, vice-president and treasurer; Fred T. Bragonier, secretary. Gold Road and Globe, Arizona.

1,000,000 shares, par value, \$1.00 each, non-assessable. Treasury, 550,000 shares. Owns the GOLD OF OPHIR, COLORADO, MASCOTT, NEW YEAR, TRILBY, BOUQUET, and MIDGET FRACTION, 80 acres. Adjoins the United Western on the north and the Crown City on the east.

CONE MINING & MILLING COMPANY—Incorporated under Arizona laws. J. P. Eaton, president; M. J. Walsh, vice-president; Hugh Sparkman, secretary-treasurer; 131-132 Edgerly building, Fresno, California.

1,600,000 shares, par value, \$1.00 each. Treasury 750,000 shares. Owns the EASY MONEY, EASY MONEY No. 1, OPPORTUNITY, WEST VIEW, NEEDLES, CONE No. 3, CONE No. 4, CONE No. 5, CONE No. 6, and CONE No. 7, comprising 200 acres located on and about the base of Boundary Cone Peak 1-2 miles southwest of Oatman. Development consists of one shaft 200 feet and a shaft 40 feet deep, together with several cross-cuts, all on the large rhyolite dyke, which traverses the property from east to west.

Equipment consists of a 15-H. P. Fairbanks-Morse engine and hoist, blacksmith shop, four houses, tools, etc., fully equipped for 500 feet depth.

CROWN CITY GOLD MINES COMPANY—Incorporated under California laws. Alex Miller, president; A. A. Weymouth, vice-president; W. M. Eason, secretary-treasurer; John C. Dalton, assistant secretary, 6 Union Savings Bank building, Pasadena, California.

1,000,000 shares, par value, \$1.00 each. Treasury, 366,952 shares. Owns the BANKER, LORELY, LOHENGRIN, RHEINGOLD, HIGH POINT, MORNING STAR, EVENING STAR, SIDE-SPUR and MILLER QUARTZITE lode mining claims and the INDEPENDENT MILLSITE, a total of 185 acres. The lode claims adjoining the westerly portion of the Tom Reed Company's group upon the north, and the Pittsburgh Group upon the east.

Development includes three main shafts, 360, 300 and 168 feet respectively with over 500 feet of drifting together with 300 feet of other development. Equipped with a 15 H. P., a 6 H. P. gas-line, and a 50 H. P. steam driven hoist, engine houses, boarding house and assay office. Company owns the PASADENA

SPRINGS, (Independent Milling) together with pipe-line conveying water into the district.

FEDERAL DEVELOPMENT COMPANY—W. A. Cary, 405 Foxcroft building, 85 Post Street, San Francisco. Owns the ROSEBURY and CLAYTON, 40-42 acres. U. S. Mineral Survey No. 2712. Located 1/2 mile west of Oatman. Equipped with complete mining equipment.

HESSENDEN-GOLD-MINE COMPANY—Incorporated under Arizona laws. M. A. Hensenden, president; B. W. President; J. E. Shank, secretary; Dan Armitage, Carter, Oatman, Arizona. 1,000,000 shares, par value, \$1.00 each. Treasury, 600,000 shares. Owns the SUNLIGHT and MOONLIGHT, 40 acres, adjoining the Pioneer upon the east. Machinery will be from the ground.

GOLD CHIEF EXPLORATION COMPANY—Incorporated under Arizona laws. H. B. Harmon, president. The assets of this company are under the control of the State of Arizona. Treasury 1,000,000 shares, par value, \$1.00 each. Owns the TRIO, HEALTH and WEALTH, LILAH, and LITTLE JACK, 60 acres, adjoining the Pioneer on the east, the Orion upon the west, and one and one-half miles westerly from Tom Reed Mine.

JOHN A. O'NEILL MINING COMPANY—Incorporated under Arizona laws. John A. O'Neill, president; J. E. Shank, secretary; J. J. Casey and George Z. Mellen. 1,000,000 shares, par value, \$1.00 each. Treasury, 600,000 shares. Owns the SWALLOW GROUP of approximately 120 acres adjoining the Oatman Gold Group upon the east.

MILLSITE MINING AND MILLING COMPANY—Incorporated under Arizona laws. J. E. Shank, president; J. J. Casey and George Z. Mellen. 1,000,000 shares, par value, \$1.00 each. Treasury, 600,000 shares. Owns the GOLD OF OPHIR, COLORADO, MASCOTT, NEW YEAR, TRILBY, BOUQUET, and MIDGET FRACTION, 80 acres. Adjoins the United Western on the north and the Crown City on the east.

GOLD CHIEF MINING & MILLING COMPANY—Incorporated under Arizona laws. W. E. Clune, president. Treasury 1,000,000 shares, par value, \$1.00 each. Owns the TRIO, HEALTH and WEALTH, LILAH, and LITTLE JACK, 60 acres, adjoining the Pioneer on the east, the Orion upon the west, and one and one-half miles westerly from Tom Reed Mine.

MILLSITE MINING AND MILLING COMPANY—Incorporated under Arizona laws. J. E. Shank, president; J. J. Casey and George Z. Mellen. 1,000,000 shares, par value, \$1.00 each. Treasury, 600,000 shares. Owns the GOLD OF OPHIR, COLORADO, MASCOTT, NEW YEAR, TRILBY, BOUQUET, and MIDGET FRACTION, 80 acres. Adjoins the United Western on the north and the Crown City on the east.

GOLD CHIEF MINING & MILLING COMPANY—Incorporated under Arizona laws. W. E. Clune, president. Treasury 1,000,000 shares, par value, \$1.00 each. Owns the TRIO, HEALTH and WEALTH, LILAH, and LITTLE JACK, 60 acres, adjoining the Pioneer on the east, the Orion upon the west, and one and one-half miles westerly from Tom Reed Mine.

GOLD CHIEF MINING & MILLING COMPANY—Incorporated under Arizona laws. W. E. Clune, president. Treasury 1,000,000 shares, par value, \$1.00 each. Owns the TRIO, HEALTH and WEALTH, LILAH, and LITTLE JACK, 60 acres, adjoining the Pioneer on the east, the Orion upon the west, and one and one-half miles westerly from Tom Reed Mine.

GOLD CHIEF MINING & MILLING COMPANY—Incorporated under Arizona laws. W. E. Clune, president. Treasury 1,000,000 shares, par value, \$1.00 each. Owns the TRIO, HEALTH and WEALTH, LILAH, and LITTLE JACK, 60 acres, adjoining the Pioneer on the east, the Orion upon the west, and one and one-half miles westerly from Tom Reed Mine.

GOLD CHIEF MINING & MILLING COMPANY—Incorporated under Arizona laws. W. E. Clune, president. Treasury 1,000,000 shares, par value, \$1.00 each. Owns the TRIO, HEALTH and WEALTH, LILAH, and LITTLE JACK, 60 acres, adjoining the Pioneer on the east, the Orion upon the west, and one and one-half miles westerly from Tom Reed Mine.

GOLD CHIEF MINING & MILLING COMPANY—Incorporated under Arizona laws. W. E. Clune, president. Treasury 1,000,000 shares, par value, \$1.00 each. Owns the TRIO, HEALTH and WEALTH, LILAH, and LITTLE JACK, 60 acres, adjoining the Pioneer on the east, the Orion upon the west, and one and one-half miles westerly from Tom Reed Mine.

GOLD CHIEF MINING & MILLING COMPANY—Incorporated under Arizona laws. W. E. Clune, president. Treasury 1,000,000 shares, par value, \$1.00 each. Owns the TRIO, HEALTH and WEALTH, LILAH, and LITTLE JACK, 60 acres, adjoining the Pioneer on the east, the Orion upon the west, and one and one-half miles westerly from Tom Reed Mine.

GOLD CHIEF MINING & MILLING COMPANY—Incorporated under Arizona laws. W. E. Clune, president. Treasury 1,000,000 shares, par value, \$1.00 each. Owns the TRIO, HEALTH and WEALTH, LILAH, and LITTLE JACK, 60 acres, adjoining the Pioneer on the east, the Orion upon the west, and one and one-half miles westerly from Tom Reed Mine.

GOLD CHIEF MINING & MILLING COMPANY—Incorporated under Arizona laws. W. E. Clune, president. Treasury 1,000,000 shares, par value, \$1.00 each. Owns the TRIO, HEALTH and WEALTH, LILAH, and LITTLE JACK, 60 acres, adjoining the Pioneer on the east, the Orion upon the west, and one and one-half miles westerly from Tom Reed Mine.

SPRINGS' (Independent Millsite) together with 3 1-3 miles of pipe-line conveying water into the District.

FEDERAL DEVELOPMENT COMPANY—W. P. Henry, secretary, 406 Foxcraft building, 68 Post street, San Francisco, Cal. Owns the ROOSEVELT and CLIMAX, 39.11 acres, patented, U. S. Mineral Survey No. 2749. Located 2 1-2 miles west of Oatman. Equipped with small hoist.

FESSENDEN GOLD MINES COMPANY—Incorporated under Arizona laws. M. A. Fessenden, president; F. W. Crosley, vice-president; J. E. Shank, secretary; Dan Anglus, treasurer; J. O. A. Carper, Oatman, Arizona.
\$1,000,000. One Million shares, par value, ten cents each. Treasury, 600,000 shares. Owns the SUNLIGHT and MOONLIGHT, 40 acres adjoining the Long & Melver group upon the east. Machinery will soon be placed upon the ground.

GOLD CLIFF EXPLORATION COMPANY—Incorporated under Arizona laws. Stephen E. Barron, president; Thomas Devine, secretary-treasurer. Board of Control: Stephen E. Barron, Wm. B. Stephens and S. O. Fry.
1,000,000 shares, par value, \$1.00 each. Treasury, 490,000 shares. Owns the CRYSTAL CONE, CRYSTAL CONE No. 1, PICTURE OF WEALTH, GOLD VAULT No. 2, ATLANTIC ATLANTIC No. 1, ATLANTIC No. 2, CLIFF, OKANOGAN, QUEEN BEE, MIRABLE VISU, HELENE, LATITE, PROTECTOR, PRUDENCE, and GOLD SPRING, 320 acres adjoining the n Reed Mine upon the south. Also the GOLD CLIFF, PASADENA, SOUTH PASADENA and HINSBURGH, 80 acres in the Wallapai Mining District, 16 miles north of Kingman. The total holdings of the company aggregate 400 acres. Over 16,000 cubic feet of development has been performed upon the properties in the Tom Reed-Gold Road district, and 350 feet upon the group in the Wallapai district including an adit tunnel of 175 feet and a shaft of 65 feet.

GOLD GIANT MINING & MILLING COMPANY—Incorporated under Arizona laws. W. H. Clune, president; C. E. Blosson, Monrovia, Cal., secretary.
1,000,000 shares, par value, \$1.00 each. Treasury, 160,000 shares. Owns the COLUMBINE, BOXER, BLIND BOY and MILLSITE, which includes the old MOSS MINE, 85 acres. Adjoins California Moss upon the west and is four miles northwest from Gold Road. Main shaft, 220 feet deep. Has produced about \$250,000.00.

GOLD ORE MINING COMPANY—Incorporated under Arizona laws. C. E. Speer, president; J. T. Mitchell, secretary; A. F. Pollock, treasurer; A. C. Werden, general manager, Gold Road, Arizona.

1,000,000 shares, par value, \$1.00 each.
Owns the MIDNIGHT, RED CREEK No. 1, RED CREEK No. 2, LIZZIE LEMEN, B. C. C. and ZOROASTER, 120 acres, 2000 feet north of U. S. L. M. 1699 Gold Road Mine. Two shafts, 215 and 550 feet respectively; also 800 feet drifting and additional work. Equipped with 15-H. P. Fairbanks-Morse hoist. Body of commercial milling ore on 550-foot level and now being developed on the 550 level. Some ore has been shipped.

GOLD RANGE MINING & MILLING COMPANY—Incorporated under the laws of Arizona. J. Irving McKenna, president; Edmund Snow, vice-president; J. E. Nelson, secretary-treasurer. Principal office, Oatman, Arizona; Branch office, 56 Wilcox Building, Los Angeles, California.

1,000,000 shares, par value, \$1.00 each, non-assessable. Treasury, 400,000 shares. Owns the ESMERALDA, LITTLE ALICE, GOLD PRINCE, SIR JOHN, COLORADO, SAINT JOSEPH, COLUMBUS and FRACTION, about 130 acres. Adjoins the Ivanhoe Consolidated on the east and the Tom Reed property upon the west.

GOLD REED MINING COMPANY—Incorporated under the laws of Arizona. Charles H. Burlock, president; Reginald Fenton, treasurer, and L. A. Burlock, secretary, 154 21st street, San Diego, Cal. 1,000,000 shares, par value, \$1.00 each.

Owns the MOSSBACK, MOSSBACK EXTENSION, IDA, GLADYS, and ALICE B., COTTONWOOD MILLSITE and Water right, 96.809 acres patented U. S. Mineral Survey No. 3006. 3 1-2 miles northwest of Gold Road.

Development: Main shaft 300 feet with cross-cut of 217 feet with other work, totalling 1,100 feet. Water is conveyed by pipe line 2 1-2 miles to the mine.

GOLD REED MINING & MILLING COMPANY—Organized under Arizona laws. R. A. Sasse, president; H. H. Shuck, vice-president; O. A. Rhodes, secretary; W. T. Grubb, treasurer; L. L. Moore, superintendent, Bisbee, Arizona.

1,000,000 shares, par value, \$1.00 each. Treasury, 510,000 shares. Owns the MAYFLOWER and JUPITER groups. The Mayflower group includes the MAYFLOWER No. 1, MAYFLOWER Nos. 2, 3, and 4, and the FAIRVIEW, one and three-quarter miles west of Oatman, 175 acres. The JUPITER group includes the JUPITER, JUPITER FRACTION, JUPITER EAST EXTENSION, and JUPITER ANNEX, one mile south of Oatman. Total holdings of the company, 210 acres. Development; Mayflower group shaft 376 feet, with 80 feet of drifting on 200-foot level, and 100 feet of drifting on 100-foot level. Equipped with 15-H. P. Fairbanks-Morse hoist and 40-H. P. engine, together with 200 cubic feet Sullivan Compressor. The main shaft upon the JUPITER group has a depth of 235 feet, with 100 feet of cross-cuts.

GOLD ROAD MINES COMPANY—Incorporated under the laws of Maine.

400,000 shares, par value, \$5.00 each. Entire capitalization owned by the United States Smelting, Refining and Mining Company. W. G. Sharp, president; Charles G. Rice, S. J. Jennings and Frederick Lyon, vice-presidents; and F. W. Batchelor, secretary-treasurer; D. R. Muir, resident manager, Gold Road, Arizona; A. P. Anderson, general manager, 1504 Hobart St., San Francisco, California. General offices, 55 Congress Boston, Mass., and Salt Lake, Utah.

Two working shafts, 1100 and 800 feet respectively; the shaft drift upon the 700-foot level attaining a depth of 900 feet. The mine contains over five miles of workings. Forty-stamp mill is 100,000 tons of ore per annum. Mine is well equipped, power being electric, furnished by the Desert Light & Power Company, from its Kingman plant. Production for 1914, was \$667,375.48.

Also owns and operates pumping plant at Little Meadows, three miles east of Gold Road, together with pipe line through which water is brought to the mine over Sitgreaves (Gold Road) Pass.

Owns the GOLD ROAD, LINE ROAD, SILVER DOLLAR, GOLD DOLLAR, GOLD DOLLAR EXTENSION, CLIMAX GAMBLER, HOUGHTON, A. ROBBIE, GOLD ROAD MILLSITE, and LINE ROAD MILLSITE, 152.85 acres patented, U. S. Mineral Survey No. 1699; also the TIP TOP and TIP TOP MILLSITE, 25 acres patented, U. S. Mineral Survey No. 2710; the RAILROAD and LAST CHANCE, 30.65 acres patented, U. S. Mineral Survey No. 2440, and the BILLY BRYAN and BILLY BRYAN MILLSITE, 24.95 acres, a total holding of 233.54 acres.

GOLD ROAD BONANZA MINING COMPANY—Incorporated under Arizona laws. Frank T. Torpey, president and treasurer; W. B. Russ, vice-president; W. P. DeWolf, secretary, Oatman, Arizona.

1,000,000 shares, par value, \$1.00 each. Treasury 500,000 shares. Owns the WILD GOOSE FRACTION, GOLD ROAD VIEW, GOLD ROAD VIEW No. 2, CLARA and FRANK JR., 90 acres immediately south of and adjoining Gold Road Mines Company.

GOLD ROAD EXTENSION MINING AND MILLING COMPANY—Owns the Gold Road Extension Group of 40 acres, adjoining the West Gold Road, U. S. Mineral Survey No. 2240, upon the west, and the Monte Vista Group of 40 acres adjoining the Hardy Group, a total of 80 acres. In process of organization. F. W. Reese & Co., 638-639 H. W. Hellman Bldg., Los Angeles, Cal.

GOLD ROAD RED TOP MINING COMPANY—Organized under Arizona laws. Caspar Taylor, president; George Taylor, secretary; Brant, New York.

1,000,000 shares, par value, \$1.00 each. Treasury, 250,000 shares. Owns the RED TOP, RED TOP No. 1, and RED TOP No. 2. Development: about 200 feet of tunnel, cross-cutting to ledge. Is an extension of Gold Road Mine.

HERCULES MINING & MILLING COMPANY—Incorporated under Arizona laws. O. P. Brown, president; James Nelson, vice-president; Wm. Elsberg, treasurer, 806 New York Life building, Minneapolis, Minn.

1,500,000 shares, par value, \$1.00 each. Treasury, 800,000 shares. Owns the THELMA, VULCAN, ATLAS, URANIA, SCANDIA, HERCULES, DUPLEX, COMBINATION, O. P. B., PEPPER, HAMLET, THISTLE, SPES BONA EXTENSION SPES-BONA and ALPHA; 280 acres patented U. S. Mineral Survey No. 2737, 2 1/2 miles west of Gold Road. Development consists of main shaft 205 feet deep on the Hercules vein with

cross-cut of 12 feet at 160; a shaft 110 feet on the Spes-Bona with 150 feet of drifting at cross-cut; also a large amount of other work upon the group. Equipment: One Westinghouse 50-H. P. type F Motor, one Ingersoll-Rand air compressor, one 30-H. P. Westinghouse direct connected hoist, one Triple Gould station pump, blacksmith shop, houses, transformer house, etc.

IVANHOE CONSOLIDATED MINES COMPANY—Incorporated under the laws of Arizona. E. A. Carter, president; Fred Fox, vice-president; F. B. Farrow, secretary; F. P. McClain, Treasurer. 1,000,000 shares par value \$1.00 each, non-assessable. Treasury 600,000 shares.

Owns the IVANHOE No. 1, IVANHOE No. 2, IVANHOE No. 3, NANCY LEE No. 1, NANCY LEE No. 2, comprising 100 acres adjoining the Pittsburgh mines on the southwest and the Hercules upon the south, two miles northwest of Oatman. Development consists of main working shaft of 225 feet together with crosscuts therefrom and over 300 feet of additional work. Property equipped with 25 H. P. Fairbanks Morse Hoist, 145 foot Ingersoll Rand compressor, hoist room, blacksmith shop, boarding house and bunk house.

JEROME-OATMAN MINING COMPANY—Incorporated under Arizona laws. Walter C. Miller, President; D. J. Shea, Vice-President; Hon. S. F. Dennison, secretary; Henry D. Lewis, treasurer; James P. Rice, supt., Oatman, Arizona. Main office, Jerome, Arizona.

150,000.00. One Million five hundred thousand shares, par value ten cents each. Treasury 458,701 shares (September 13th, 1915). Owns the BIG WONDER NO. 1, BIG WONDER NO. 2, HAWK, BALDWIN, CANANEA, COMPTON, and COMPTON EXTENSION together with an option upon the SUNSET NO. 1, and SUNSET NO. 2, and an option upon the WARNER GROUP comprising the HE, SHE, IT, BUTT NO. 1, BUTT NO. 2, WEDGE, JOULIA, and SILVER CITY. Located two and one half miles west of Gold Road Mine, and adjoining the Hercules, and the Neglected group of the Tom Reed Company. Development consists of over 400 feet of shafts and tunnels, a 300 cu. ft. air compressor of the Diesel type and hoist capable of sinking 800 feet, drill sharpener, etc., is being placed upon the property.

LEXINGTON-ARIZONA MINING COMPANY—Incorporated under Arizona laws, with \$1,000,000.00 capitalization. Dr. C. H. Phinney, president; J. A. Small, secretary; C. Durkee, treasurer; H. E. Woods, general manager; J. C. Denton, superintendent, 538 Merchants National Bank Bldg., Los Angeles, Cal.

Owns the LEXINGTON, HAPPY NEW YEAR, BOSTON, ALICE, ONLY CHANCE, BIG JOHNNIE, U. S. Patent Survey No. 2775, and a portion of the SURPRISE EAST EXTENSION, U. S. Mineral Survey No. 2822, comprising 94,304 acres patented; also the YORK, YORK ANNEX and BUNKER HILL, U. S. Mineral Survey No. 3190; the BIG ANDY and ANDY, U. S. Mineral Survey No. 3191, 51.18 acres, patent pending, and the SOUTH ANNEX, 10 acres, unpatented, a total of 155,484 acres. Located one mile south of the Tom Reed Mine. Owns the LEXINGTON SPRINGS and Mill Site, six miles north of the Lexington properties. Owns the Townsite of OLDTRAILS, Rowley & Blakeslee, general agents, platted upon the westerly portion of the LEXINGTON estate, in sections 22 and 27, township 19 N. R. 20 West.

Development, other than numerous shallow shafts, cuts and trenches, has been confined to four shafts; No. 1 upon the LEXINGTON, depth 225 feet, with 54 feet of cross-cutting at the 200-foot level; No. 2, HAPPY NEW YEAR shaft of 75 feet with 50 feet of cross-cutting; No. 3, BIG JOHNNIE shaft 100 feet with 15 feet of cross-cutting; No. 4, YORK, shaft of 50 feet with 35 feet of cross-cutting. The total development approximates 750 feet. The property is equipped with a 16-H. P. Charter hoist, pumping plant, mine buildings, etc., and the company has installed a steel reservoir upon the Bunker Hill, from which point water is conducted to the new main working shaft and from thence to OLDTRAILS townsite.

LAZY BOY GOLD MINES COMPANY—Incorporated under Arizona laws. James L. McIver, President; W. K. Ridenour, Vice-President; Geo. W. Long, Secretary-Treasurer; Wallace Keith and H. C. Hamlin.

100,000.00. One Million shares, par value, ten cents each, 600,000 Treasury.

Owns the LAZY BOY, RED BIRD, NEVER REST, JUMBO and COMBINATION, 100 acres, 13-4 miles south of Oldtrails Townsite. Over 200 feet of development.

LUCKY BOY MINING & MILLING COMPANY—Incorporated under Arizona laws. George E. Fairhead, President; D. Arcy, Vice-President; W. S. Tarbell, Secy.-Treasurer; Arizona, and 677 I. W. Hellman Building, Los Angeles, Cal.

1,000,000 shares, par value ten cents each. Treasury 500,000 shares. Owns the LUCKY BOY, FRIDAY, HAWKSHAW No's 1, 2, 3, 4, 5, 6, and FRAC; controlling interest in the TOM REED ANNEX COMPANY, owning the ROSE and INDIANA, a group of acres situated adjoining the Tom Reed Mine on the south, and the Telluride upon the south. Development and the Telluride upon the south. Development 50 foot shaft and other workings, a total of 250 f

LUCKY SAM MINING COMPANY—Incorporated under Arizona laws. W. S. Tarbell, President; G. M. Gilbert, Secy.-Treasurer; George E. Fairhead, Secy.-Treasurer; 678 I. building, Los Angeles, Cal.

1,000,000.00. One Million shares, par value ten cents each, 600,000 shares.

Owns the LUCKY SAM, LUCKY SAM No. 1, NO. 2, LUCKY SAM ANNEX and other properties 200 acres adjoining the Cone M. & M. Co. on t Crown Head upon the south and 2000 feet sout Pioneer Group. Two shafts, main working being other development.

MAZONA MINING COMPANY—Incorporated under Arizona laws. James Conlin, president; E. P. McConno, treasurer; R. C. Taber, Ass't. treasurer; H. C. president and consulting engineer; R. N. T. 404 Van Nuys Building, Los Angeles, Cal.

1,000,000 shares, par value \$1.00 each, non-assessable 600,000 shares. Owns the GOLD CROSS, HORN No. 1, HORN No. 2, HORN No. 3, LITTLE LITTLE ANNIE No. 2, LITTLE ANNIE No. 3, a 152 acres. Adjoins the Cone View of the Tom Reed Mines Company on the west and the Carter on the east. H. P. Fairbanks-Morse hoist and complete equipment installed.

NAVY GROUP MINING & MILLING COMPANY—Incorporated under Arizona laws. Dr. Geo. P. Waller, president; Townsend, secretary, 1029 Higgins building, Los Angeles, Cal. R. E. Zuver, Agent, Gold Road, Arizona.

1,000,000 shares, par value, \$1.00 each. Owns OREGON and TEXAS, 48.26 acres patented, U. S. Mineral Survey No. 2667. Has 750 feet of tunnel and other work.

NELLIE MINING COMPANY—Incorporated under Arizona laws. F. M. Woods, president; R. C. Wilson, vice-president; E. T. Walmsley, secretary; W. F. Vansant, treasurer (Oatman P. O.) Arizona; Colorado Springs, Colorado Merchants National Bank Building, Los Angeles, Cal.

1,000,000 shares, par value, \$1.00 each, full paid, 600,000 shares. Owns the NELLIE, NELLIE NO. 2, NELLIE GOLD, BILL RUSH and BILL RUSH FRACTION. Development comprises 250 feet of shafts at Oatman. Owns the L. & R.-Golden Era of the Black Company on the west, five miles south of Oatman are being made to equip the property with other development.

ORION MINING & MILLING COMPANY—Incorporated under Arizona laws. J. L. Humble, president; George E. Fairhead, vice-president; Wm. H. Wise, secretary-treasurer; Simons, Legal Counsel; Richard Lloyd, superintendent; F. Brush, consulting engineer; C. J. Rhodes, 733 Central Building, Los Angeles, Cal.

1,250,000 shares, par value, \$1.00 each. Treasury 600,000 shares. Owns the OVERSIGHT, 8.08 acres, patent pending, Sur. No. 2122, and the HIDDEN TREASURE, 19.44 acres, patented, U. S. Min. Sur. No. 2716; also the VICTOR, VIRGIN, HIDDEN TREASURE FRACTION, HIDDEN TREASURE ANNEX, LA VETA, NIGHT OWL, LONESOME, 162.48 acres, patent pending, a total of 4000 acres. Development amounts to 4000 feet and 1 working shaft of 530 feet upon the Victor, with 332 feet of cross-cutting. A second shaft of 332 feet upon the Victor with 100 feet of cross-cutting.

(Corporations Continued on Insert)

D MINING & MILLING COMPANY—Organized under laws of R. A. Sasse, president; H. H. Shuck, vice-president; A. Rhodes, secretary; W. T. Grubb, treasurer; superintendent Blisbee, Arizona. Shares, par value, \$1.00 each. Treasury, 510,000 shares; the MAYFLOWER and JUPITER groups. The group includes the MAYFLOWER No. 1, MAYFLOWER No. 2, 3, and 4, and the FAIRVIEW, one and three-quarters miles west of Oatman, 175 acres. The JUPITER group includes the JUPITER FRACTION, JUPITER ANNEX, and JUPITER ANNEX, one mile south of Oatman, 210 acres. Development group shaft 376 feet, with 80 feet of drifting level, and 100 feet of drifting on 100-foot level. 15-H. P. Fairbanks-Morse hoist and 40-H. P. Fairbanks-Morse hoist with 200 cubic feet Sullivan Compressor. The JUPITER group has a depth of 235 feet of cross-cuts.

AD MINES COMPANY—Incorporated under Arizona laws. Shares, par value, \$5.00 each. Entire capitalization under United States Smelting, Refining and Mining Company. President; Charles G. Rice, Supt.; F. W. Lyon, vice-presidents; and F. W. Bator, secretary; D. R. Muir, resident manager, General Manager; A. P. Anderson, general manager, 1504 Hobart Street, San Francisco, California. General offices, 55 Congress Street, Boston, Mass., and Salt Lake, Utah. Working shafts, 1100 and 800 feet respectively; on the 700-foot level attaining a depth of 900 feet. Over five miles of workings. Forty-stamp mill, 10 tons of ore per annum. Mine is well equipped, being electric, furnished by the Desert Light Company, from its Kingman plant. Production for 1914, 48,000 tons.

and operates pumping plant at Little Meadow east of Gold Road, together with pipe line through which is brought to the mine over Sitgreaves (Gold Road).

GOLD ROAD, LINE ROAD, SILVER DOLLAR, GOLD DOLLAR EXTENSION, CLIMB, HOUGHTON, A. ROBBIE, GOLD ROAD MILL, LINE ROAD MILLSITE, 152.85 acres patented, U. S. Mineral Survey No. 1699; also the TIP TOP and TIP TOP 25 acres patented, U. S. Mineral Survey No. 2770; and LAST CHANCE, 30.65 acres patented, U. S. Mineral Survey No. 2440, and the BILLY BRYAN and BILLY BILLSITE, 24.95 acres, a total holding of 233.54 acres.

BONANZA MINING COMPANY—Incorporated under Arizona laws. President and treasurer, Frank T. Torpey; secretary, W. P. DeWolf, Oatman.

Shares, par value, \$1.00 each. Treasury 500,000 shares. Includes the ROOSE FRACTION, GOLD ROAD VIEW, and W. No. 2, CLARA and FRANK JR., 90 acres, and adjoining Gold Road Mines Company.

AD EXTENSION MINING AND MILLING COMPANY—Owns the Gold Road Extension Group of 40 acres, West Gold Road, U. S. Mineral Survey No. 2770, and the Monte Vista Group of 40 acres, 2000-foot level, a total of 80 acres. In process of organization. W. R. Coe & Co., 638-639 H. W. Hellman Bldg., Salt Lake.

AD RED TOP MINING COMPANY—Organized under Arizona laws. Caspar Taylor, president; George Taylor, vice-president; Brant, New York.

Shares, par value, \$1.00 each. Treasury, 250,000 shares. Owns the RED TOP, RED TOP No. 1, and RED TOP No. 2. Development: about 200 feet of tunnel, cross-cutting the east extension of Gold Road Mine.

ES MINING & MILLING COMPANY—Incorporated under Arizona laws. O. P. Brown, president; James Nelson, vice-president; Wm. Elsberg, treasurer, 806 New York Building, Minneapolis, Minn.

Shares, par value, \$1.00 each. Treasury, 300,000 shares. Owns the THELMA, VULCAN, ATLAS, URANIUM, HERCULES, DUPLEX, COMBINATION, O. P. HAMLET, THISTLE, SPES BONA EXTENSION, and ALPHA; 280 acres patented U. S. Mineral Survey No. 2737, 2.1-2 miles west of Gold Road. Development: main shaft 205 feet deep on the Hercules vein.

cross-cut of 12 feet at 160; a shaft 110 feet on the Spes-Bona with 150 feet of drifting at cross-cut; also a large amount of other work upon the group. Equipment: One Westinghouse 50-horsepower motor, one Ingersoll-Rand air compressor, one H. P. type F Motor, one Ingersoll-Rand air compressor, one 30-H. P. Westinghouse direct connected hoist, one Triple Gould station pump, blacksmith shop, houses, transformer house, etc.

IVANHOE CONSOLIDATED MINES COMPANY—Incorporated under the laws of Arizona. E. A. Carter, president; Fred Fox, vice-president; F. B. Farrow, secretary; F. P. McClain, Treasurer. 1,000,000 shares par value \$1.00 each, non-assessable. Treasury 600,000 shares.

Owns the IVANHOE No. 1, IVANHOE No. 2, IVANHOE No. 3, NANCY LEE No. 1, NANCY LEE No. 2, comprising 100 acres adjoining the Pittsburgh mines on the southwest and the Hercules upon the south, two miles northwest of Oatman. Development consists of main working shaft of 225 feet together with crosscuts therefrom and over 300 feet of additional work. Property equipped with 25 H. P. Fairbanks Morse Hoist, 145 foot Ingersoll Rand compressor, hoist room, blacksmith shop, boarding house and bunk house.

JEROME-OATMAN MINING COMPANY—Incorporated under Arizona laws. Walter C. Miller, President; D. J. Shea, Vice-President; Hon. S. F. Dennison, secretary; Henry D. Lewis, treasurer; James P. Rice, supt., Oatman, Arizona. Main office, Jerome, Arizona.

Shares, par value, \$1.00 each. Treasury 468,701 shares (September 13th, 1915). Owns the BIG WONDER No. 1, BIG WONDER No. 2, HAWK, BALDWIN, CANANEA, COMPTON, and COMPTON EXTENSION together with an option upon the SUNSET No. 1, and SUNSET No. 2, and an option upon the WARNER GROUP comprising the HE, SHE, IT, BUTT No. 1, BUTT No. 2, WEDGE, JOULIA, and SILVER CITY. Located two and one-half miles west of Gold Road Mine, and adjoining the Hercules, and the Neglected group of the Tom Reed Company. Development consists of over 400 feet of shafts and tunnels. A 300 cu. ft. air compressor of the Diesel type and hoist capable of sinking 800 feet, drill sharpener, etc., is being placed upon the property.

LEXINGTON-ARIZONA MINING COMPANY—Incorporated under Arizona laws, with \$1,000,000.00 capitalization. Dr. C. H. Phinney, president; J. A. Small, secretary; C. Durkee, treasurer; H. E. Woods, general manager; J. C. Denton, superintendent, 538 Merchants National Bank Bldg., Los Angeles, California. Owns the LEXINGTON, HAPPY NEW YEAR, BOSTON, ALICE, ONLY CHANCE, BIG JOHNNIE, U. S. Patent Survey No. 2775, and a portion of the SURPRISE EAST EXTENSION, U. S. Mineral Survey No. 2822, comprising 94,304 acres patented; also the YORK, YORK ANNEX and BUNKER HILL, U. S. Mineral Survey No. 3190; the BIG ANDY and ANDY, U. S. Mineral Survey No. 3191, 51.18 acres, patent pending, and the SOUTH ANNEX, 10 acres, unpatented, a total of 155,484 acres. Located one mile south of the Tom Reed Mine. Owns the LEXINGTON SPRINGS and Mill Site, six miles north of the Lexington properties. Owns the Townsite of OLDTRAILS, Rowley & Blakeslee, general agents, platted upon the westerly portion of the LEXINGTON estate, in sections 22 and 27, township 19 N., R. 20 West.

Development, other than numerous shallow shafts, cuts and trenches, has been confined to four shafts; No. 1 upon the LEXINGTON, depth 225 feet, with 54 feet of cross-cutting at the 200-foot level; No. 2, HAPPY NEW YEAR shaft of 75 feet with 50 feet of cross-cutting; No. 3, BIG JOHNNIE shaft 100 feet with 15 feet of cross-cutting; No. 4, YORK, shaft of 50 feet with 35 feet of cross-cutting. The total development approximates 750 feet. The property is equipped with a 16-H. P. Charter hoist, pumping plant, mine buildings, etc., and the company has installed a steel reservoir upon the Bunker Hill, from which point water is conducted to the new main working shaft and from thence to OLDTRAILS townsite.

LAZY BOY GOLD MINES COMPANY—Incorporated under Arizona laws. James L. McIver, President; W. K. Ridenour, Vice-President; Geo. W. Long, Secretary-Treasurer; Wallace Keith and H. C. Hamlin. Treasury, \$1,000,000.00. One Million shares, par value, ten cents each, 500,000 Treasury.

Owns the LAZY BOY, RED BIRD, NEVER REST, JUMBO and COMBINATION, 100 acres, 1.3-4 miles south of Oldtrails townsite. Over 200 feet of development.

LUCKY BOY MINING & MILLING COMPANY—Incorporated under Arizona laws. George E. Fairhead, President; N. D. Arcy, Vice-President; W. S. Tarbell, Secy.-Treas., Oatman, Arizona, and 677 I. W. Hellman Building, Los Angeles, California.

1,000,000 shares, par value ten cents each. Treasury 500,000 shares. Owns the LUCKY BOY, FRIDAY, HAWKSHAW, HAWKSHAW NO's 1, 2, 3, 4, 5, 6, and FRACTION, also a controlling interest in the TOM REED ANNEX GOLD MINE COMPANY, owning the ROSE and INDIANA, a total of 200 acres situated adjoining the Tom Reed Mine on the southeast and the Telluride upon the south. Development consists of a 50 foot shaft and other workings, a total of 250 feet.

LUCKY SAM MINING COMPANY—Incorporated under Arizona laws. W. S. Tarbell, President; G. M. Gilbert, Vice-President; George E. Fairhead, Secy.-Treasurer; 678 I. W. Hellman Building, Los Angeles, Cal.

Shares, par value, \$1.00 each. Treasury, 600,000 shares. Owns the LUCKY SAM, LUCKY SAM NO. 1, LUCKY SAM NO. 2, LUCKY SAM ANNEX and other properties totaling over 200 acres adjoining the Cone M. & M. Co. on the north, the Crown Head upon the south and 2000 feet southwest of the Pioneer Group. Two shafts, main working being 90 feet, other development.

MAZONA MINING COMPANY—Incorporated under Arizona laws. James Conlin, president; E. P. McConnell, secretary-treasurer; R. C. Taber, Ass't. treasurer; H. C. Taber, vice-president and consulting engineer; R. N. Taber, superintendent; 404 Van Nuys Building, Los Angeles, Cal.

1,000,000 shares, par value \$1.00 each, non-assessable. Treasury 600,000 shares. Owns the GOLD CROSS, HOMESTEAD, HORN No. 1, HORN No. 2, HORN No. 3, LITTLE ANNIE, LITTLE ANNIE No. 2, LITTLE ANNIE No. 3, and LA VETA, 152 acres. Adjoins the Cone View of the Tom Reed Gold Mines Company on the west and the Carter on the north. A 25 H. P. Fairbanks-Morse hoist and complete equipment is installed.

NAVY GROUP MINING & MILLING COMPANY—Incorporated under Arizona laws. Dr. Geo. P. Waller, president; F. M. Townsend, secretary, 1029 Higgins building, Los Angeles, Cal. R. E. Zuver, Agent, Gold Road, Arizona.

1,000,000 shares, par value, \$1.00 each. Owns the INDIANA, OREGON and TEXAS, 48.26 acres patented, U. S. Mineral Survey No. 2667. Has 750 feet of tunnel and about 75 feet of other work.

NELLIE MINING COMPANY—Incorporated under Arizona laws. F. M. Woods, president; R. C. Wilson, vice-president; E. T. Wainwright, secretary; W. F. Vansant, treasurer; Oldtrails, (Oatman P. O.) Arizona; Colorado Springs, Colorado, and 538 Merchants National Bank Building, Los Angeles, California.

1,000,000 shares, par value, \$1.00 each, full paid, non-assessable. Owns the NELLIE, NELLIE NO. 2, NELLIE NO. 3, and GOLD, BILL RUSH and BILL RUSH FRACTION, 110 acres. Development comprises 250 feet of shafts and cuts. Adjoins the L. & R. Golden Era of the Black Range Mining Company on the west, five miles south of Oatman. Preparations are being made to equip the property with a hoist for extended development.

ORION MINING & MILLING COMPANY—Incorporated under Arizona laws. J. L. Humble, president; George Edwin Burnell vice-president; Wm. H. Wise, secretary-treasurer; Seward A. Simons, Legal Counsel; Richard Lloyd, superintendent; Frederick F. Brush, consulting engineer; C. J. Rhodes, general manager, 733 Central Building, Los Angeles, Cal.

1,250,000 shares, par value, \$1.00 each. Treasury, 500,000 shares. Owns the OVERSIGHT, 8.08 acres, patented U. S. Mineral Survey No. 2122, and the HIDDEN TREASURE EXTENSION 19.44 acres, patented, U. S. Mineral Survey No. 2716; a total of 27.52 acres, patented; also the VICTOR, VIRGIN, HIDDEN TREASURE, HIDDEN TREASURE FRACTION, HIDDEN TREASURE ANNEX, LA VETA, NIGHT OWL, LONESOME, and TREASURE, 162.48 acres, patent pending, a total ownership of 199.08 acres. Development amounts to 4000 feet and includes a main working shaft of 530 feet upon the Victor, with 1530 feet of drifting and 332 feet of cross-cutting. A second shaft of 20 feet depth upon the Victor with 100 feet of cross-cutting, to

May 27, 1957

This property idle.

MARK GEMMILL

1-15-58

Corporation Commission advises that Tom Reed Gold Mines changed their name 5-21-57 to Sawyer Petroleum Corporation and their statutory agent is listed as W. B. Phelps at Oatman, Arizona

Tom Reed Mine
1956 Mine Register gives L & M Mining Co., c/o Gordon Smith, Gabb, Nev. as lessees who were drilling.
Sawyer Petroleum Company acquired control of the property in 1957. Phelps is their statutory agent at Oatman.

ARIZONA DEPARTMENT OF MINERAL RESOURCES
Mineral Building, Fairgrounds
Phoenix, Arizona

1. Information from: Joe Brandenburg + Richard Harless
Address: _____
2. Mine: Tom Reed (tailings) 3. No. of Claims - Patented _____
Unpatented _____
4. Location: Oatman Ariz
5. Sec _____ Tp _____ Range _____ 6. Mining District Oatman
7. Owner: Sawyer Resources Corp.
8. Address: _____
9. Operating Co.: Placer Mines Incorporated
10. Address: ? Pasadena, Calif
11. President: Richard Harless (Temporary) 2. Gen. Mgr.: _____
13. Principal Metals: _____ 14. No. Employed: _____
15. Mill, Type & Capacity: _____
16. Present Operations: (a) Down (b) Assessment work (c) Exploration
(d) Production (e) Rate _____ tpd.
17. New Work Planned: _____

18. Misc. Notes: _____
Plan to work the tailings - reported to assay \$2.65
in Au. The process is secret but employs deioniz-
ation process. Should be operating by mid-November.

Date: Nov. 13 1967

(Signature) F. T. Johnson (Field Engineer)

Americana Buys Mine, Plans Multi-Purpose Mill.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Taken from E & M J - Dec. 1962

MEMO

Do Not Reproduce

June 11, 1962

TOM REED

SAN FRANCISCO DIST., MOHAVE CO.

Visited the mine office in Oatman on May 17, 1962. The Sawyer brothers principals in Sawyer Petroleum Corp. owner of the Tom Reed mine have consolidated the Company with a number of other companies - Capitol Seaboard, Seaboard Oil and Gas, etc. The new Company name is Sawyer Resources Corp. Address: Oatman, Arizona. Mrs. Hittson, resident in Oatman, is the transfer agent for the corporation. E.W. Sawyer, Jr., 650 So. Grand Ave., Los Angeles 17, Calif. is President.

Joe Brandenburg former Supt. of Tom Reed affairs in Oatman has retired but will live on the property and will advise when called upon. W.O. Vincent has been hired to carry on some of his former duties.

TPL

Capital Resources
Sawyer Resources Corporation } of Denver
SAWYER RESOURCES CORPORATION

650 SOUTH GRAND AVENUE
LOS ANGELES 17, CALIFORNIA

Suite 610

E. W. Sawyer Jr. Pres.

Sawyer Resources Parent Co.

Fileyton Recd.



11

Interviewed Mrs. Brandenburg in Oatman concerning the Sawyer Brother's plans re the Tom Reed tails. They recently sampled the tails systematically and reportedly obtained sufficiently good results to warrant consideration of installing a treatment plant.

TRAVIS P. LANE
6-20-59 - WR

Jan. 18, 1962 - Visited the Tom Reed mine at Oatman. Joe Brandenburg in charge advised that the owner, Sawyer Petroleum Co. has taken on an additional petroleum company and would continue the Oatman office as the main office for the oil and mining properties. No new developments regarding prospective activity at the Tom Reed.

TRAVIS P. LANE - Weekly Report - 1-20-62

Sawyer Petroleum Corp., 650 S. Grand Ave., Los Angeles 17, Calif.
MINING WORLD Directory 4-1962

MEMO

June 11, 1962

TOM REED

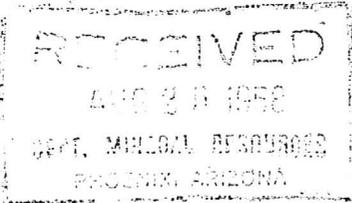
SAN FRANCISCO DIST., MOHAVE CO.

Visited the mine office in Oatman on May 17, 1962. The Sawyer brothers principals in Sawyer Petroleum Corp. owner of the Tom Reed mine have consolidated the Company with a number of other companies - Capitol Seaboard, Seaboard Oil and Gas, etc. The new Company name is Sawyer Resources Corp. Address: Oatman, Arizona. Mrs. Hittson, resident in Oatman, is the transfer agent for the corporation. E.W. Sawyer, Jr., 650 So. Grand Ave., Los Angeles 17, Calif. is President.

Joe Brandenburg former Supt. of Tom Reed affairs in Oatman has retired but will live on the property and will advise when called upon. W.C. Vincent has been hired to carry on some of his former duties.

TPL

Do Not Reproduce



DEPARTMENT OF MINERAL RESOURCES

State of Arizona

MINE OWNER'S REPORT

Mineral Building, Phoenix, Ariz.
Fairgrounds, Phoenix, Ariz.
Date August 18, 1958

- 1. Mine: Sawyer Petroleum Company, Arizona
2. Location: Sec. --- Twp. --- Range 19-20 West Nearest Town Oatman/ Distance ---
Direction --- Nearest R.R. Kingman, Arizona Distance 29 miles
Road Conditions Good
3. Mining District and County: San Francisco Mining District, Mohave County
4. Former Name of Mine: Tom Reed Gold Mines Company
5. Owner: Tom Reed Gold Mines Company - Now SAWYER PETROLEUM COMPANY
Address: Oatman, Mohave County, Arizona
6. Operator: ---
Address: ---
7. Principal Minerals: Gold & Silver
8. Number of Claims: Lode 28 Patented 28 Unpatented ---
Placer --- Patented --- Unpatented ---
9. Type of Surrounding Terrain: Rhyolite, Andesite and Porphyry
10. Geology and Mineralization:
11. Dimension and Value of Ore Body: Distance of two miles averaging
twenty feet in width.

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 lessors or buyers.

12. Ore "Blocked Out" or "In Sight":..... Ore blocked out of undetermined quantity.

Ore Probable:.....

13. Mine Workings—Amount and Condition:..... Not operating

No.	Feet	Condition
Shafts 10	6550	Fair to good
Raises **		
Tunnels **		
Crosscuts **		
Stopes **		

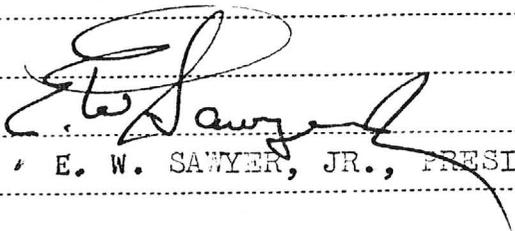
** Too numerous to mention.

14. Water Supply:..... Good - Company owns Utilities - Water & Electric

15. Brief History:..... Previous production between thirty to forty million dollars.

16. Remarks:..... --

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

18. Signature:  E. W. SAWYER, JR., PRESIDENT.

TOM REED GOLD MINES

MOHAVE COUNTY
SAN FRANCISCO DIST.

Interviewed Mrs. Bradenburg in Oatman concerning the Sawyer Brother's plans re the Tom Reed tails. They recently sampled the tails systematically and reportedly obtained sufficiently good results to warrant consideration of installing a treatment plant.

TRAVIS P. LANE
6-20-59 - WR

Jan. 18, 1962 - Visited the Tom Reed mine at Oatman. Joe Brandenburg in charge advised that the owner, Sawyer Petroleum Co. has taken on an additional petroleum company and would continue the Oatman office as the main office for the oil and mining properties. No new developments regarding prospective activity at the Tom Reed.

TRAVIS P. LANE - Weekly Report - 1-20-62

Sawyer Petroleum Corp., 650 S. Grand Ave., Los Angeles 17, Calif.
MINING WORLD Directory 4-1962

See Mining World 1/1958

July 10, 1945

Mr. Robert E. Heineman
Durand & Company
P. O. Box 1148
Tucson, Arizona

Dear Mr. Heineman:

I have just returned from a trip in the Oatman district and while in Oatman I made inquiries concerning the Tom Reed Gold Mine Company. I found it the opinion of the old timers in Oatman that the Tom Reed Gold Mines have a large tonnage of old tailings that have been covered by the most recent tailings of the late operations and that in these old tailings there are many thousands of tons of high grade production. This lower strata of tailings was worked by the last operators but due to the fact that the operations were expensive and it was difficult to handle them by reason of the overlying tailings pond, the operation ceased and the mine has been idle since that time.

At the present time there is only one watchman on the property who is looking after the town water and electric power that the company is furnishing to the residents of the town.

It is the opinion of the ones I contacted that the Tom Reed Gold Mine Company will not start operating under the present management. All these old timers, whom I have reason to believe are well informed on the conditions of the mine and company, believe that should a new management be formed and efficient methods used in the operations, money could still be made in operating the Tom Reed Gold Mines.

As far as our office is concerned, we have no recent information as to proposed plans of this operation.

Yours very truly,

A. C. Nebeker
Field Engineer

ACN:LP

DURAND & COMPANY

INVESTMENT SECURITIES

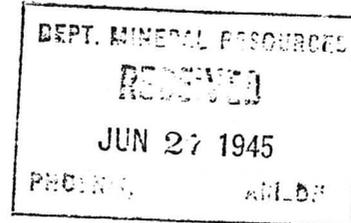
17 EAST PENNINGTON St. - P.O. Box 1148

TUCSON, ARIZONA

June 26, 1945

EUGENE F. DURAND
ROBERT E. HEINEMAN

PHONE: 2582
TELETYPE: TSN 14



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

Dear Mr. Dunning:

One of our clients is the owner of shares of stock in the Tom Reed Gold Mines and is interested in learning something about the present status of the company. The most recent information which is available to us is dated in 1939. This dates that the company was about to rework their dump. Since that time I do not know what has happened at the property. I presume that because of the gold mining restrictions they have been entirely idle.

Could you give me any information as to any possible future operations of the company? Do they have any reserves of ore in place or is the dump their only asset?

Any information which you may be able to pass on to us will be greatly appreciated.

Yours very truly,

DURAND & COMPANY

By

Robert E. Heineman

REH:kk

Milling - October 1923

Total Ore Milled Oct. 3458.015 Tons	Total Ore Milled in 7 Months, 25643.4261 Tons			
Tom Reed Ore " " 3183. Tons	Tom Reed Ore " " " "	" " " "	" " " "	24428. Tons
	Oct. Cost	Oct. C.P.F.	7 Months Cost	7 Months C.P.F.
Crushing	148.82 ✓	.0430	1081.25	.0482
Battery	.68 ✓	.0002	139.99	.0055
Large Ball Mill	1613.02 ✓	.4664	9232.03	.3600
Conveyors	113.82 ✓	.0327	746.36	.0291
Small Ball Mills	2562.02 ✓	.7698	8341.96	.7152
Classification	105.72 ✓	.0306	757.43	.0295
Thickening	216.32 ✓	.0626	1636.65	.0638
Agitation	724.43 ✓	.2095	5276.08	.2057
Filtering	123.61 ✓	.0357	1138.83	.0445
Precipitation	463.50 ✓	.1340	4650.72	.1813
Melting	535.82 ✓	.1544	5682.27	.2216
General Charges	20.00 ✓	.0058	277.37	.0108
General Mill Supplies	133.04 ✓	.0385	330.95	.0129
Cyanide	495.79 ✓	.1434	3511.14	.1369
Lime	279.06 ✓	.0807	2201.03	.0858
Pumping	598.49 ✓	.1731	4213.21	.1643
Lighting	69.10 ✓	.0200	428.17	.0167
Water	7.85 ✓	.0023	780.03	.0305
Equipment Repair	514.09 ✓	.1486	3502.24	.1366
Building Repair			63.47	.0025
Assaying	236.91 ✓	.0685	1774.85	.0692
Sampling	38.00 ✓	.0111	305.80	.0119
Burden	402.21 ✓	.1165	3074.47	.1199
Experimental			17.60	.0007
Trucking	6.25 ✓	.0018	72.37	.0028
Tools	.73 ✓	.0002	2.39	.0001
Compressors	172.97 ✓	.0500	1151.29	.0449
Tailing Upkeep.	155.00 ✓	.0448	1075.34	.0420
	<u>9835.15</u>	<u>2.8442</u>	<u>71465.29</u>	<u>2.7869</u>
Bullion Marketing	379.14 ✓	.1096	2573.54	.1003
Slag Marketing	42.75 ✓	.0124	1646.96	.0642
	<u>10257.34</u>	<u>2.9662</u>	<u>75685.79</u>	<u>2.9614</u>
Less Credits from Custom Ore Milled	825.04		3646.27	
Tom Reed Cost based on T.R.Tonnage	<u>9432.30</u>	<u>2.9634</u>	<u>72039.52</u>	<u>2.9491</u>

ARIZONA DEPT. OF MINES & MINERAL RESOURCES
 STATE OFFICE BUILDING
 416 W. CONGRESS, ROOM 161
 TUCSON, ARIZONA 85701

Tom Reed
Mohave Co.

Milling--- November 1923

Total Ore Milled in Nov.	4059.35	Total Ore Milled in 8 Months	29702.7761
Tom Reed Ore " " "	3534.00	Total Tom Reed " " "	27962.0000
	Nov. Cost	Nov. C.P.T.	8 Months Cost C.P.T.
Crushing	146.09	.0360	1227.34 .0413
Battery	13.29	.0033	153.28 .0051
Large Ball Mill	1639.69	.4040	10871.72 .3660
Conveyors	102.70	.0253	849.06 .0286
Small Ball Mills	2654.71	.6540	20996.67 .7070
Classification	106.65	.0263	864.08 .0291
Thickening	265.55	.0654	1902.20 .0640
Agitation	663.29	.1634	5939.37 .2000
Filtering	96.23	.0237	1235.06 .0416
Precipitation	402.02	.0990	5052.74 .1701
Melting	354.62	.0873	6036.89 .2032
General Charges	1.25	.0003	278.62 .0094
General Supplies	55.84	.0133	384.79 .0130
Cyanide	524.76	.1293	4035.90 .1358
Lime	289.00	.0712	2490.03 .0838
Pumping	658.88	.1623	4872.09 .1640
Lighting	65.48	.0161	493.65 .0166
Mill Water	40.75	.0100	820.78 .0276
Equipment Repair	459.96	.1133	3962.20 .1335
Building Repair			63.47 .0021
Assaying	218.20	.0537	1993.05 .0671
Sampling	87.20	.0092	343.00 .0116
Burden	407.58	.1004	3482.15 .1172
Experimental			17.60 .0006
Trucking	9.50	.0023	81.87 .0028
Tools	1.97	.0005	4.36 .0001
Compressors	187.93	.0463	1339.22 .0451
Tailing Upkeep	150.00	.0370	1225.34 .0413
	9551.24	2.3529	81016.53 2.7276
Bullion Marketing	355.46	.0876	2929.00 .0986
Slag Marketing	49.50	.0122	1696.46 .0571
Total -----	9956.20	2.4527	85641.99 2.8833
Less Credits from Custom Milling	674.38		4320.65
Tom Reed Cost based on T.R.Tonnage	9281.82	2.6264	81321.34 2.9083

ARIZONA DEPT. OF MINES & MINERAL RESOURCES
STATE OFFICE BUILDING
416 W. CONGRESS, ROOM 161
TUCSON, ARIZONA 85701

GOLD REED MINING & MILLING COMPANY—Organized under Arizona laws. R. A. Sasse, president; H. H. Shuck, vice-president; O. A. Rhodes, secretary; W. T. Grubb, treasurer; L. L. Moore, superintendent, Bisbee, Arizona.

1,000,000 shares, par value, \$1.00 each. Treasury, 510,000 shares. Owns the MAYFLOWER and JUPITER groups. The Mayflower group includes the MAYFLOWER No. 1, MAYFLOWER Nos. 2, 3, and 4, and the FAIRVIEW, one and three-quarter miles west of Oatman, 175 acres. The JUPITER group includes the JUPITER, JUPITER FRACTION, JUPITER EAST EXTENSION, and JUPITER ANNEX, one mile south of Oatman. Total holdings of the company, 210 acres. Development; Mayflower group shaft 376 feet, with 80 feet of drifting on 200-foot level, and 100 feet of drifting on 100-foot level. Equipped with 15-H. P. Fairbanks-Morse hoist and 40-H. P. engine, together with 200 cubic feet Sullivan Compressor. The main shaft upon the JUPITER group has a depth of 235 feet, with 100 feet of cross-cuts.

GOLD ROAD MINES COMPANY—Incorporated under the laws of Maine.

400,000 shares, par value, \$5.00 each. Entire capitalization owned by the United States Smelting, Refining and Mining Company. W. G. Sharp, president; Charles G. Rice, S. J. Jennings and Frederick Lyon, vice-presidents; and F. W. Batchelor, secretary-treasurer; D. R. Muir, resident manager, Gold Road, Arizona; A. P. Anderson, general manager, 1504 Hobart Building, San Francisco, California. General offices, 55 Congress Street, Boston, Mass., and Salt Lake, Utah.

Owns two working shafts, 1100 and 800 feet respectively; the east drift upon the 700-foot level attaining a depth of 900 feet. The mine contains over five miles of workings. Forty-stamp mill capable of 100,000 tons of ore per annum. Mine is well equipped, power being electric, furnished by the Desert Light & Power Company, from its Kingman plant. Production for 1914, was \$667,375.48.

Also owns and operates pumping plant at Little Meadows, three miles east of Gold Road, together with pipe line through which water is brought to the mine over Sitgreaves (Gold Road) Pass.

Owns the GOLD ROAD, LINE ROAD, SILVER DOLLAR, GOLD DOLLAR, GOLD DOLLAR EXTENSION, CLIMAX GAMBLER, HOUGHTON, A. ROBBIE, GOLD ROAD MILL-SITE, and LINE ROAD MILL-SITE, 152.85 acres patented, U. S. Mineral Survey No. 1699; also the TIP TOP and TIP TOP MILL-SITE, 25 acres patented, U. S. Mineral Survey No. 2710; the RAILROAD and LAST CHANCE, 30.65 acres patented, U. S. Mineral Survey No. 2440, and the BILLY BRYAN and BILLY BRYAN MILL-SITE, 24.95 acres, a total holding of 233.54 acres.

GOLD ROAD BONANZA MINING COMPANY—Incorporated under Arizona laws. Frank T. Torpey, president and treasurer; W. B. Ross, vice-president; W. P. DeWolf, secretary, Oatman, Arizona.

1,000,000 shares, par value, \$1.00 each. Treasury 500,000 shares. Owns the WILD GOOSE FRACTION, GOLD ROAD VIEW, GOLD ROAD VIEW No. 2, CLARA and FRANK JR., 90 acres immediately south of and adjoining Gold Road Mines Company.

GOLD ROAD EXTENSION MINING AND MILLING COMPANY—Owns the Gold Road Extension Group of 40 acres, adjoining the West Gold Road, U. S. Mineral Survey No. 2240, upon the west, and the Monte Vista Group of 40 acres adjoining the Hardy Group, a total of 80 acres. In process of organization. F. W. Reese & Co., 638-639 H. W. Hellman Bldg., Los Angeles, Cal.

GOLD ROAD RED TOP MINING COMPANY—Organized under Arizona laws. Caspar Taylor, president; George Taylor, secretary; Brant, New York.

1,000,000 shares, par value, \$1.00 each. Treasury, 250,000 shares. Owns the RED TOP, RED TOP No. 1, and RED TOP No. 2. Development: about 200 feet of tunnel, cross-cutting to ledge. Is an extension of Gold Road Mine.

HERCULES MINING & MILLING COMPANY—Incorporated under Arizona laws. O. P. Brown, president; James Nelson, vice-president; Wm. Elsborg, treasurer, 806 New York Life Building, Minneapolis, Minn.

1,500,000 shares, par value, \$1.00 each. Treasury, 800,000 shares. Owns the THELMA, VULCAN, ATLAS, URANIA, SCYTHIA, HERCULES, DUPLEX, COMBINATION, O. P. B., PRINCE HAMLET, THISTLE, SPES BONA EXTENSION SPES-BONA and ALPHA; 280 acres patented U. S. Mineral Survey No. 2737, 2 1/2 miles west of Gold Road. Development consists of main shaft 205 feet deep on the Hercules vein with

cross-cut of 12 feet at 160; a shaft 110 feet on the Spes-Bona with 150 feet of drifting at cross-cut; also a large amount of other work upon the group. Equipment: One Westinghouse 50-H. P. type F Motor, one Ingersoll-Rand air compressor, one 30-H. P. Westinghouse direct connected hoist, one Triple Gould station pump, blacksmith shop, houses, transformer house, etc.

IVANHOE CONSOLIDATED MINES COMPANY—Incorporated under the laws of Arizona. E. A. Carter, president; Fred Fox, vice-president; F. B. Farrow, secretary; F. P. McClain, Treasurer. 1,000,000 shares par value \$1.00 each, non-assessable. Treasury 600,000 shares.

Owns the IVANHOE No. 1, IVANHOE No. 2, IVANHOE No. 3, NANCY LEE No. 1, NANCY LEE No. 2, comprising 100 acres adjoining the Pittsburgh mines on the southwest and the Hercules upon the south, two miles northwest of Oatman. Development consists of main working shaft of 225 feet together with crosscuts therefrom and over 300 feet of additional work. Property equipped with 25 H. P. Fairbanks Morse Hoist, 145 foot Ingersoll Rand compressor, hoist room, blacksmith shop, boarding house and bunk house.

JEROME-OATMAN MINING COMPANY—Incorporated under Arizona laws. Walter C. Miller, President; D. J. Shea, Vice-President; Hon. S. F. Dennison, secretary; Henry D. Lewis, treasurer; James P. Rice, supt., Oatman, Arizona. Main office, Jerome, Arizona.

\$150,000.00. One Million five hundred thousand shares, par value ten cents each. Treasury 458,701 shares (September 13th, 1915). Owns the BIG WONDER NO. 1, BIG WONDER NO. 2, HAWK, BALDWIN, CANANEA, COMPTON, and COMPTON EXTENSION together with an option upon the SUNSET NO. 1, and SUNSET NO. 2, and an option upon the WARNER GROUP comprising the HE, SHE, IT, BUTT NO. 1, BUTT NO. 2, WEDGE, JOULIA, and SILVER CITY. Located two and one half miles west of Gold Road Mine, and adjoining the Hercules, and the Neglected group of the Tom Reed Company. Development consists of over 400 feet of shafts and tunnels, a 300 cu. ft. air compressor of the Diesel type and hoist capable of sinking 800 feet, drill sharpener, etc., is being placed upon the property.

LEXINGTON-ARIZONA MINING COMPANY—Incorporated under Arizona laws, with \$1,000,000.00 capitalization. Dr. C. H. Phinney, president; J. A. Small, secretary; C. Durkee, treasurer; H. E. Woods, general manager; J. C. Denton, superintendent, 538 Merchants National Bank Bldg., Los Angeles, Cal.

Owns the LEXINGTON, HAPPY NEW YEAR, BOSTON, ALICE, ONLY CHANCE, BIG JOHNNIE, U. S. Patent Survey No. 2775, and a portion of the SURPRISE EAST EXTENSION, U. S. Mineral Survey No. 2822, comprising 94,304 acres patented; also the YORK, YORK ANNEX and BUNKER HILL, U. S. Mineral Survey No. 3190; the BIG ANDY and ANDY, U. S. Mineral Survey No. 3191, 51.18 acres, patent pending, and the SOUTH ANNEX, 10 acres, unpatented, a total of 155,484 acres. Located one mile south of the Tom Reed Mine. Owns the LEXINGTON SPRINGS and Mill Site, six miles north of the Lexington properties. Owns the Townsite of OLDTRAILS, Rowley & Blakeslee, general agents, platted upon the westerly portion of the LEXINGTON estate, in sections 22 and 27, township 19 N. R. 20 West.

Development, other than numerous shallow shafts, cuts and trenches, has been confined to four shafts; No. 1 upon the LEXINGTON, depth 225 feet, with 54 feet of cross-cutting at the 200-foot level; No. 2, HAPPY NEW YEAR shaft of 75 feet with 50 feet of cross-cutting; No. 3, BIG JOHNNIE shaft 100 feet with 15 feet of cross-cutting; No. 4, YORK, shaft of 50 feet with 35 feet of cross-cutting. The total development approximates 750 feet. The property is equipped with a 16-H. P. Charter hoist, pumping plant, mine buildings, etc., and the company has installed a steel reservoir upon the Bunker Hill, from which point water is conducted to the new main working shaft and from thence to OLDTRAILS townsite.

LAZY BOY GOLD MINES COMPANY—Incorporated under Arizona laws. James L. McIver, President; W. K. Ridenour, Vice-President; Geo. W. Long, Secretary-Treasurer; Wallace Keith and H. C. Hamlin.

\$100,000.00. One Million shares, par value, ten cents each, 600,000 Treasury.

Owns the LAZY BOY, RED BIRD, NEVER REST, JUMBO and COMBINATION, 100 acres, 13-4 miles south of Oldtrails Townsite. Over 200 feet of development.

LUCKY BOY MINING & MILLING COMPANY—Incorporated under Arizona laws. George E. Fairhead, President; D. Arcey, Vice-President; W. S. Tarbell, Secy.-Treasurer, Los Angeles, and 677 I. W. Hellman Building, Los Angeles, Cal.

1,000,000 shares, par value ten cents each. Treasury 500,000 shares. Owns the LUCKY BOY, FRIDAY, HAWKSHAW NO'S 1, 2, 3, 4, 5, 6, and PRACTICALLY controlling interest in the TOM REED ANNEX GO COMPANY, owning the ROSE and INDIANA, a total of 100 acres situated adjoining the Tom Reed Mine on the north and the Telluride upon the south. Development consists of 50 foot shaft and other workings, a total of 250 feet.

LUCKY SAM MINING COMPANY—Incorporated under Arizona laws. W. S. Tarbell, President; G. M. Gilbert, Vice-President; George E. Fairhead, Secy.-Treasurer; 678 I. W. Hellman Building, Los Angeles, Cal.

\$100,000.00. One Million shares, par value ten cents each. Treasury, 600,000 shares.

Owns the LUCKY SAM, LUCKY SAM NO. 1, LUCKY SAM NO. 2, LUCKY SAM ANNEX and other properties on 200 acres adjoining the Cone M. & M. Co. on the Crown Head upon the south and 2000 feet south of Pioneer Group. Two shafts, main working being on the Crown Head.

MAZONA MINING COMPANY—Incorporated under Arizona laws. James Conlin, president; E. P. McConnell, treasurer; R. C. Taber, Asst. treasurer; H. C. Taber, president and consulting engineer; R. N. Taber, superintendent, 404 Van Nuys Building, Los Angeles, Cal.

1,000,000 shares, par value \$1.00 each, non-assessable. Treasury 600,000 shares. Owns the GOLD CROSS, HORN No. 1, HORN No. 2, HORN No. 3, LITTLE ANNIE No. 2, LITTLE ANNIE No. 3, and 152 acres. Adjoins the Cone View of the Tom Reed Mines Company on the west and the Carter on the east. 25 H. P. Fairbanks-Morse hoist and complete equipment installed.

NAVY GROUP MINING & MILLING COMPANY—Incorporated under Arizona laws. Dr. Geo. P. Waller, president; Townsend, secretary, 1029 Higgins building, Los Angeles, Cal. R. E. Zuver, Agent, Gold Road, Arizona.

1,000,000 shares, par value, \$1.00 each. Owns the OREGON and TEXAS, 48.26 acres patented, U. S. Mineral Survey No. 2667. Has 750 feet of tunnel and about 1000 feet of drift.

NELLIE MINING COMPANY—Incorporated under Arizona laws. F. M. Woods, president; R. C. Wilson, vice-president; E. T. Walmsley, secretary; W. F. Vansant, treasurer (Oatman P. O.) Arizona; Colorado Springs, Colorado; Merchants National Bank Building, Los Angeles, Cal. 1,000,000 shares, par value, \$1.00 each, full paid, non-assessable. Owns the NELLIE, NELLIE No. 2, NELLIE No. 3, GOLD, BILL RUSH and BILL RUSH FRACTION. Development comprises 250 feet of shafts and 1000 feet of drift. Joins the L. & R. Golden Era of the Black Rock Company on the west, five miles south of Oatman. Plans are being made to equip the property with a hoist.

ORION MINING & MILLING COMPANY—Incorporated under Arizona laws. J. L. Humble, president; George E. Fairhead, vice-president; Wm. H. Wise, secretary-treasurer; Simons, Legal Counsel; Richard Lloyd, superintendent; Rick F. Brush, consulting engineer; C. J. Rhodes, agent, 733 Central Building, Los Angeles, Cal.

1,250,000 shares, par value, \$1.00 each. Treasury 1,250,000 shares. Owns the OVERSIGHT, 8.08 acres, patented U. S. Min. Sur. No. 2122, and the HIDDEN TREASURE, 19.44 acres, patented, U. S. Min. Sur. No. 2716; also the VICTOR, VIRGIN, HIDDEN VICTOR, HIDDEN TREASURE FRACTION, HIDDEN VICTOR ANNEX, LA VETA, NIGHT OWL, LONESOME, HIDDEN VICTOR, URE, 162.48 acres, patent pending, a total owned of 200 acres. Development amounts to 4000 feet and includes a working shaft of 530 feet upon the Victor, with 332 feet of cross-cutting. A second shaft of 332 feet depth upon the Victor with 100 feet of cross-cutting.

(Corporations Continued on Insert)

ED MINING & MILLING COMPANY—Organized under Arizona laws. R. A. Sasse, president; H. H. Shuck, vice-president; J. A. Rhodes, secretary; W. T. Grubb, treasurer; Superintendent, Bisbee, Arizona. Shares, par value, \$1.00 each. Treasury, 510,000 shares. Owns the MAYFLOWER and JUPITER groups. The group includes the MAYFLOWER No. 1, MAYFLOWER No. 2, 3, and 4, and the FAIRVIEW, one and three-eighths west of Oatman, 175 acres. The JUPITER group includes the JUPITER, JUPITER FRACTION, JUPITER EXTENSION, and JUPITER ANNEX, one mile south of Oatman, 210 acres. Development consists of a main shaft 376 feet, with 80 feet of drifting level, and 100 feet of drifting on 100-foot level. Equipped with 15-H. P. Fairbanks-Morse hoist and 40-H. P. Sullivan Compressor. Development consists of a main shaft 376 feet, with 80 feet of drifting level, and 100 feet of drifting on 100-foot level. Equipped with 15-H. P. Fairbanks-Morse hoist and 40-H. P. Sullivan Compressor. Development consists of a main shaft 376 feet, with 80 feet of drifting level, and 100 feet of drifting on 100-foot level. Equipped with 15-H. P. Fairbanks-Morse hoist and 40-H. P. Sullivan Compressor.

AD MINES COMPANY—Incorporated under the laws of the United States Smelting, Refining and Mining Company. W. C. Sharp, president; Charles G. Rice, Secretary; J. C. Lyon, vice-presidents; and F. W. Batcher, Treasurer; D. R. Muir, resident manager, Gold Road, A. P. Anderson, general manager, 1504 Hobart Street, San Francisco, California. General offices, 55 Congress Street, Boston, Mass., and Salt Lake, Utah. Development consists of a main shaft 376 feet, with 80 feet of drifting level, and 100 feet of drifting on 100-foot level. Equipped with 15-H. P. Fairbanks-Morse hoist and 40-H. P. Sullivan Compressor. Development consists of a main shaft 376 feet, with 80 feet of drifting level, and 100 feet of drifting on 100-foot level. Equipped with 15-H. P. Fairbanks-Morse hoist and 40-H. P. Sullivan Compressor.

AD BONAZA MINING COMPANY—Incorporated under Arizona laws. Frank T. Torpey, president and treasurer; W. P. DeWolf, secretary, Oatman. Shares, par value, \$1.00 each. Treasury, 500,000 shares. Owns the GOLD ROAD, LINE ROAD, SILVER DOLLAR, GOLD DOLLAR EXTENSION, CLIMATE, HOUGHTON, A. ROBBIE, GOLD ROAD MILL, LINE ROAD MILLSITE, 152.85 acres patented, U. S. Mineral Survey No. 1699; also the TIP TOP and TIP TOP FRACTION, 25 acres patented, U. S. Mineral Survey No. 2775; also the GOLD ROAD and LAST CHANCE, 30.65 acres patented, U. S. Mineral Survey No. 2440, and the BILLY BRYAN and BILLY BRYAN MILLSITE, 24.95 acres, a total holding of 233.54 acres.

AD WILSON ROSE FRACTION, GOLD ROAD VIEW, AD WILSON No. 2, CLARA and FRANK JR., 90 acres of and adjoining Gold Road Mines Company. Development consists of a main shaft 376 feet, with 80 feet of drifting level, and 100 feet of drifting on 100-foot level. Equipped with 15-H. P. Fairbanks-Morse hoist and 40-H. P. Sullivan Compressor.

AD RED TOP MINING COMPANY—Organized under Arizona laws. Caspar Taylor, president; George Taylor, vice-president; Brant, New York. Shares, par value, \$1.00 each. Treasury, 250,000 shares. Owns the RED TOP, RED TOP No. 1, and RED TOP No. 2. Development consists of a main shaft 200 feet of tunnel, cross-cutting east extension of Gold Road Mine.

AD LES MINING & MILLING COMPANY—Incorporated under Arizona laws. O. P. Brown, president; James Nelson, vice-president; Wm. Elsborg, treasurer, 806 New York Street, Minneapolis, Minn. Shares, par value, \$1.00 each. Treasury, 800,000 shares. Owns the THELMA, VULCAN, ATLAS, URANIUM, HERCULES, DUPLEX, COMBINATION, O. P. HAMLET, THISTLE, SPES BONA EXTENSION, ALPHA and ALPHA; 280 acres patented U. S. Mineral Survey No. 2737, 2 1/2 miles west of Gold Road. Development consists of a main shaft 205 feet deep on the Hercules vein.

cross-cut of 12 feet at 160; a shaft 110 feet on the Spes-Bona vein with 160 feet of drifting at cross-cut; also a large amount of other work upon the group. Equipment: One Westinghouse 50-H. P. type F Motor, one Ingersoll-Rand air compressor, one 30-H. P. Westinghouse direct connected hoist, one Triple Gould station pump, blacksmith shop, houses, transformer house, etc.

AD IVANHOE CONSOLIDATED MINES COMPANY—Incorporated under the laws of Arizona. E. A. Carter, president; Fred Fox, vice-president; F. B. Farrow, secretary; F. P. McClain, Treasurer. 1,000,000 shares par value \$1.00 each, non-assessable. Treasury 600,000 shares.

Owns the IVANHOE No. 1, IVANHOE No. 2, IVANHOE No. 3, NANCY LEE No. 1, NANCY LEE No. 2, comprising 100 acres adjoining the Pittsburgh mines on the southwest and the Hercules upon the south, two miles northwest of Oatman. Development consists of main working shaft of 225 feet together with crosscuts therefrom and over 300 feet of additional work. Property equipped with 25 H. P. Fairbanks Morse Hoist, 145 foot Ingersoll Rand compressor, hoist room, blacksmith shop, boarding house and bunk house.

AD JEROME-OATMAN MINING COMPANY—Incorporated under Arizona laws. Walter C. Miller, President; D. J. Shea, Vice-President; Hon. S. F. Dennison, secretary; Henry D. Lewis, treasurer; James P. Rice, supt., Oatman, Arizona. Main office, Jerome, Arizona.

1,500,000.00. One Million five hundred thousand shares, par value ten cents each. Treasury 458,701 shares (September 13th, 1915). Owns the BIG WONDER NO. 1, BIG WONDER NO. 2, HAWK, BALDWIN, CANANEA, COMPTON, and COMPTON EXTENSION together with an option upon the WARNER GROUP comprising the HE, SHE, IT, BUTT NO. 1, BUTT NO. 2, WEDGE, JOULIA, and SILVER CITY. Located two and one half miles west of Gold Road Mine, and adjoining the Hercules, and the Neglected group of the Tom Reed Company. Development consists of over 400 feet of shafts and tunnels. A 300 cu. ft. air compressor of the Diesel type and hoist capable of sinking 800 feet, drill sharpener, etc., is being placed upon the property.

AD LEXINGTON-ARIZONA MINING COMPANY—Incorporated under Arizona laws, with \$1,000,000.00 capitalization. Dr. C. H. Phinney, president; J. A. Small, secretary; C. Durkee, treasurer; H. E. Woods, general manager; J. C. Denton, superintendent, 538 Merchants National Bank Bldg., Los Angeles, Cal. Owns the LEXINGTON, HAPPY NEW YEAR, BOSTON, ALICE, ONLY CHANCE, BIG JOHNNIE, U. S. Patent Survey No. 2775, and a portion of the SURPRISE EAST EXTENSION, U. S. Mineral Survey No. 2822, comprising 94,304 acres patented; also the YORK, YORK ANNEX and BUNKER HILL, U. S. Mineral Survey No. 3190; the BIG ANDY and ANDY, U. S. Mineral Survey No. 3191, 51.18 acres, patent pending, and the SOUTH ANNEX, 10 acres, unpatented, a total of 155,484 acres. Located one mile south of the Tom Reed Mine. Owns the LEXINGTON SPRINGS and Mill Site, six miles north of the Lexington properties. Owns the Townsite of OLDTRAILS, Rowley & Blakeslee, general agents, platted upon the westerly portion of the LEXINGTON estate, in sections 22 and 27, township 19 N. R. 20 West.

Development, other than numerous shallow shafts, cuts and trenches, has been confined to four shafts; No. 1 upon the LEXINGTON, depth 225 feet, with 54 feet of cross-cutting at the 200-foot level; No. 2, HAPPY NEW YEAR shaft 75 feet with 50 feet of cross-cutting; No. 3, BIG JOHNNIE shaft 100 feet with 15 feet of cross-cutting; No. 4, YORK, shaft of 50 feet with 35 feet of cross-cutting. The total development approximates 760 feet. The property is equipped with a 16-H. P. Charter hoist, pumping plant, mine buildings, etc., and the company has installed a steel reservoir upon the Bunker Hill, from which point water is conducted to the new main working shaft and from thence to OLDTRAILS townsite.

AD LAZY BOY GOLD MINES COMPANY—Incorporated under Arizona laws. James L. McIver, President; W. K. Ridenour, Vice-President; Geo. W. Long, Secretary-Treasurer; Wallace Keith and H. C. Hamlin. Treasury, \$100,000.00. One Million shares, par value, ten cents each, 1,000,000. Owns the LAZY BOY, RED BIRD, NEVER REST, JUMBO and COMBINATION, 100 acres, 1 3/4 miles south of Oldtrails townsite. Over 200 feet of development.

AD LUCKY BOY MINING & MILLING COMPANY—Incorporated under Arizona laws. George E. Fairhead, President; N. D. Arcy, Vice-President; W. S. Tarbell, Secy.-Treas., Oatman, Arizona, and 677 I. W. Hellman Building, Los Angeles, California.

1,000,000 shares, par value ten cents each. Treasury 500,000 shares. Owns the LUCKY BOY, FRIDAY, HAWKSHAW, HAWKSHAW No. 1, 2, 3, 4, 5, 6, and FRACTION, also a controlling interest in the TOM REED ANNEX GOLD MINES COMPANY, owning the ROSE and INDIANA, a total of 2000 acres situated adjoining the Tom Reed Mine on the southeast and the Telluride upon the south. Development consists of a 50 foot shaft and other workings, a total of 250 feet.

AD LUCKY SAM MINING COMPANY—Incorporated under Arizona laws. W. S. Tarbell, President; G. M. Gilbert, Vice-President; George E. Fairhead, Secy.-Treasurer; 678 I. W. Hellman building, Los Angeles, Cal.

1,000,000.00. One Million shares, par value ten cents each. Treasury, 600,000 shares. Owns the LUCKY SAM, LUCKY SAM NO. 1, LUCKY SAM NO. 2, LUCKY SAM ANNEX and other properties totaling over 200 acres adjoining the Cone M. & M. Co. on the north, the Crown Head upon the south and 2000 feet southwest of the Pioneer Group. Two shafts, main working being 90 feet and other development.

AD MAZONA MINING COMPANY—Incorporated under Arizona laws. James Conlin, president; E. P. McConnell, secretary-treasurer; R. C. Taber, Ass't. treasurer; H. C. Taber, vice-president and consulting engineer; H. N. Taber, superintendent; 404 Van Nuys Building, Los Angeles, Cal.

1,000,000 shares, par value \$1.00 each, non-assessable. Treasury 600,000 shares. Owns the GOLD CROSS, HOMESTEAD, HORN NO. 1, HORN NO. 2, HORN NO. 3, LITTLE ANNIE, LITTLE ANNIE NO. 2, LITTLE ANNIE NO. 3, and LA VETA, 152 acres. Adjoins the Cone View of the Tom Reed Gold Mines Company on the west and the Carter on the north. A 25 H. P. Fairbanks-Morse hoist and complete equipment to be installed.

AD NAVY GROUP MINING & MILLING COMPANY—Incorporated under Arizona laws. Dr. Geo. P. Waller, president; F. M. Townsend, secretary, 1029 Higgins building, Los Angeles, Cal. R. E. Zuver, Agent, Gold Road, Arizona.

1,000,000 shares, par value, \$1.00 each. Owns the INDIANA, OREGON and TEXAS, 48.26 acres patented, U. S. Mineral Survey No. 2667. Has 750 feet of tunnel and about 75 feet of other work.

AD NELLIE MINING COMPANY—Incorporated under Arizona laws. F. M. Woods, president; R. C. Wilson, vice-president; E. T. Walmsley, secretary; W. F. Vansant, treasurer; Oldmails, (Oatman P. O.) Arizona; Colorado Springs, Colorado, and 538 Merchants National Bank Building, Los Angeles, California. 1,000,000 shares, par value, \$1.00 each, full paid, non-assessable. Owns the NELLIE, NELLIE NO. 2, NELLIE NO. 3, GOLD, BILL RUSH and BILL RUSH FRACTION, 110 acres. Development comprises 250 feet of shafts and cuts. Adjoins the L. & R. Golden Era of the Black Range Mining Company on the west, five miles south of Oatman. Preparations are being made to equip the property with a hoist for extended development.

AD ORION MINING & MILLING COMPANY—Incorporated under Arizona laws. J. L. Humble, president; George Edwin Burnell, vice-president; Wm. H. Wise, secretary-treasurer; Seward A. Simons, Legal Counsel; Richard Lloyd, superintendent; Frederick F. Brush, consulting engineer; C. J. Rhodes, general manager, 733 Central Building, Los Angeles, Cal.

1,250,000 shares, par value, \$1.00 each. Treasury, 500,000 shares. Owns the OVERSIGHT, 8.08 acres, patented U. S. Mineral Survey No. 2122, and the HIDDEN TREASURE EXTENSION, 19.44 acres, patented, U. S. Mineral Survey No. 2716; a total of 27.52 acres, patented; also the VICTOR, VIRGIN, HIDDEN TREASURE, HIDDEN TREASURE FRACTION, HIDDEN TREASURE ANNEX, LA VETA, NIGHT OWL, LONESOME, and TREASURE, 162.48 acres, patent pending, a total ownership of 190 acres. Development amounts to 4000 feet and includes a main working shaft of 530 feet upon the Victor, with 1530 feet of drifting and 332 feet of cross-cutting. A second shaft of 200 feet depth upon the Victor with 100 feet of cross-cutting, to

(Corporations Continued on Insert)

SPRINGS' (Independent Millsite) together with 3 1-3 miles of pipe-line conveying water into the District.

FEDERAL DEVELOPMENT COMPANY—W. P. Henry, secretary, 405 Foxcraft building, 63 Post street, San Francisco, Cal. Owns the ROOSEVELT and CLIMAX, 39.11 acres, patented, U. S. Mineral Survey No. 2749. Located 2 1-2 miles west of Oatman. Equipped with small hoist.

FESSENDEN GOLD MINES COMPANY—Incorporated under Arizona laws. M. A. Fessenden, president; F. W. Crosley, vice-president; J. E. Shank, secretary; Dan Angius, treasurer; J. O. A. Carper, Oatman, Arizona.
\$1,000,000. One Million shares, par value, ten cents each. Treasury, 600,000 shares. Owns the SUNLIGHT and MOONLIGHT, 40 acres adjoining the Long & Malver group upon the east. Machinery will soon be placed upon the ground.

GOLD CLIFF EXPLORATION COMPANY—Incorporated under Arizona laws. Stephen E. Barron, president; Thomas Devine, secretary-treasurer. Board of Control: Stephen E. Barron, Wm. B. Stephens and S. O. Fry.
1,000,000 shares, par value, \$1.00 each. Treasury, 490,000 shares. Owns the CRYSTAL CONE, CRYSTAL CONE No. 1, PICTURE OF WEALTH, GOLD VAULT No. 2, ATLANTIC, ATLANTIC No. 1, ATLANTIC No. 2, CLIFF, OKANOGAN, QUEEN BEE, MIRABLE VISU, HELENE, LATITE, PROTECTOR, PRUDENCE, and GOLD SPRING, 320 acres adjoining the Tom Reed Mine upon the south. Also the GOLD CLIFF, PASADENA, SOUTH PASADENA and HINSBURGH, 80 acres in the Wallapai Mining District, 16 miles north of Kingman. The total holdings of the company aggregate 400 acres. Over 16,000 cubic feet of development has been performed upon the properties in the Tom Reed-Gold Road district, and 350 feet upon the group in the Wallapai district including an adit tunnel of 175 feet and a shaft of 65 feet.

GOLD GIANT MINING & MILLING COMPANY—Incorporated under Arizona laws. W. H. Clune, president; C. E. Slosson, Monrovia, Cal., secretary.
1,000,000 shares, par value, \$1.00 each. Treasury, 160,000 shares. Owns the COLUMBINE, BOXER, BLIND BOY and MILLSITE, which includes the old MOSS MINE, 85 acres. Adjoins California Moss upon the west and is four miles northwest from Gold Road. Main shaft, 220 feet deep. Has produced about \$250,000.00.

GOLD ORE MINING COMPANY—Incorporated under Arizona laws. C. E. Speer, president; J. T. Mitchell, secretary; A. F. Pollock, treasurer; A. C. Werden, general manager, Gold Road, Arizona.
1,000,000 shares, par value, \$1.00 each.
Owns the MIDNIGHT, RED CREEK No. 1, RED CREEK No. 2, LIZZIE LEMEN, B. C. C. and ZOROASTER, 120 acres, 2000 feet north of U. S. L. M. 1699 Gold Road Mine. Two shafts, 215 and 550 feet respectively; also 800 feet drifting and additional work. Equipped with 15-H. P. Fairbanks-Morse hoist. Body of commercial milling ore on 550-foot level and now being developed on the 550 level. Some ore has been shipped.

GOLD RANGE MINING & MILLING COMPANY—Incorporated under the laws of Arizona. J. Irving McKenna, president; Edmund Snow, vice-president; J. E. Nelson, secretary-treasurer. Principal office, Oatman, Arizona; Branch office, 56 Wilcox Building, Los Angeles, California.
1,000,000 shares, par value, \$1.00 each, non-assessable. Treasury, 400,000 shares. Owns the ESMERALDA, LITTLE ALICE, GOLD PRINCE, SIR JOHN, COLORADO, SAINT JOSEPH, COLUMBUS and FRACTION, about 130 acres. Adjoins the Ivanhoe Consolidated on the east and the Tom Reed property upon the west.

GOLD REED MINING COMPANY—Incorporated under the laws of Arizona. Charles H. Burlock, president; Reginald Fenton, treasurer, and L. A. Burlock, secretary, 154 21st street, San Diego, Cal. 1,000,000 shares, par value, \$1.00 each.
Owns the MOSSBACK, MOSSBACK EXTENSION, IDA, GLADYS, and ALICE B., COTTONWOOD MILLSITE and Water right, 96.809 acres patented U. S. Mineral Survey No. 3006, 3 1-2 miles northwest of Gold Road.
Development: Main shaft 300 feet with cross-cut of 217 feet, with other work, totalling 1,100 feet. Water is conveyed by pipe line 2 1-2 miles to the mine.

TOM REED-GOLD ROAD DISTRICT

CORPORATIONS

ARGO MINES COMPANY—Incorporated under Arizona laws. S. S. Jones, president; J. M. Francis, Vice President; J. E. Shank, Secretary-Treasurer.

1,000,000 shares par value \$1.00 each. Treasury 600,000 shares. Owns the LITTLE JACK, LITTLE JACK NO. 1, and HOOSIER, 60 acres, adjoining the Tom Reed on the East.

ARIZONA-TOM REED GOLD MINES COMPANY—Incorporated under Arizona laws. George F. Moser, president; Charles S. Seeley, vice-president; C. L. Moser, secretary-treasurer; George F. Moser, general manager.

1,000,000 shares, par value, \$1.00 each; non-assessable. Treasury, 500,000 shares. Owns the TRIO and LILAH, 28.9 acres patented, U. S. Mineral Survey No. 2870, and the HEALTH and WEALTH, 24.5 acres unpatented, a compact group of 53.4 acres adjoining the Pioneer Mine on the east, the Orion upon the west, and one and one-half miles westerly from Tom Reed Mine.

Development consists of several shafts from 10 to 100 feet in depth. Property will be developed by a deep working shaft. The TRIO of this group has shipped very high-grade ore.

ARIZONA WHITE CHIEF MINING COMPANY—Incorporated under Arizona laws; T. W. Wampler, president; A. E. Glenn, secretary-treasurer, Oatman, Arizona.

1,000,000 shares, par value \$1.00 each. Treasury 650,000 shares. Owns the BOUNDARY CONE EXTENSION NO. 1, BOUNDARY CONE EXTENSION NO. 2, BOUNDARY CONE EXTENSION NO. 3, BOUNDARY CONE EXTENSION NO. 4, UNION LEADER NO. 4, POINT NO. 1, POINT NO. 2, HANDY, and other properties a total of over 200 acres, adjoining the Lexington on the South. Approximately 500 feet of development.

BIG JIM GOLD MINING COMPANY—Incorporated under the laws of Arizona. C. C. Spicer, president; E. H. Newland, vice-president; S. M. Warmbath, secretary and general manager; N. D'Arcy, treasurer; A. G. Keating, superintendent. Board of Directors: C. C. Spicer, E. H. Newland, S. M. Warmbath, N. D'Arcy and H. E. Woods. 561 I. W. Hellman Building, Los Angeles, California.

1,000,000 shares, par value 10 cents each. Treasury 370,000 shares. Owns the BIG JIM, MONARCH, LITTLE ALICE, MOHAWK and MOHAWK EXTENSION, adjoining the properties of the Tom Reed Gold Mines Company and the United Eastern Mining Company; also the OCTOPUS, OCTOPUS NO. 2 and OCTOPUS NO. 3, the extension of the Pioneer Consolidated Mine on the north, a total of 110 acres.

Development upon these properties includes a number of shafts and cuts sufficient for patenting the same, and a main working shaft upon the Big Jim which is being sunk to a depth of 300 feet. A 25-H. P. Fairbanks-Morse Hoist, together with a 35 H. P. White & Middleton Engine and 10x10 Ingersoll Rand Compressor, have been installed and mine buildings, blacksmith shop, erected. The stock of the Big Jim Gold Mining Company is listed upon the Los Angeles and San Francisco Stock Exchanges.

BLACK RANGE MINING COMPANY—Incorporated under the laws of Arizona. D. P. Wright, president; Del Sherer, vice-president; J. S. Withers, secretary-treasurer, Oatman, Arizona. 1,000,000 shares, par value, \$1.00 each. Treasury, 500,000 shares. Owns the L. & R., and GOLDEN ERA, 40 acres, patented, U. S. Mineral Survey No. 2512; also owns the LADYSMITH, LADYSMITH NO. 2, SAINT PATRICK, SAINT PATRICK NO. 1, NETTIE and NETTIE NO. 2, 120 acres, unpatented, a total of 180 acres. Development consists of three main shafts, No. 1 being 200 feet, No. 2 150 feet and No. 3, 70 feet in depth, together with numerous smaller shafts, cuts and tunnels, all upon the easterly extension of the Nellie vein. Distant, 5 miles south of Oatman. Equipped with 10-H. P. Hoist, mine buildings and boarding house.

BOUNDARY CONE GOLD MINES COMPANY—Incorporated under Arizona laws. F. H. Biles, president; I. D. L. Williams, secretary; Calvin Hartwell, treasurer; W. F. Ball, Dr. S. M. Barnes, Charles Grimes, T. C. Job, Calvin Hartwell, F. H. Biles and I. D. L. Williams, directors. Frank Dryden, superintendent. Address of secretary, Rex Arms, Los Angeles, Cal. 1,600,000 shares, par value, \$1.00 each. Treasury 600,000 shares. Owns SURPRISE, SURPRISE EAST EXTENSION, SURPRISE WEST EXTENSION, GREAT EASTERN, GREAT EASTERN EXTENSION, BOER and APEX, a total of 82 acres patented, U. S. Mineral Survey No. 2822. Located one mile southwest of Oatman, Arizona. Development: Main working shaft 550 feet, with over 4000 feet of crosscutting and drifting. Property has a 15 H. P. Fairbanks-Morse hoist, engine house, blacksmith shop, together with complete mining equipment.

CARTER GOLD MINING AND MILLING COMPANY—Incorporated under Arizona laws. E. A. Shaw, president; Henry Lovin, vice-president; W. K. Ridenour, secretary; H. H. Watkins, treasurer, Kingman, Arizona.

1,000,000 shares, par value, \$1.00 each. Treasury 300,000 shares. Owns the NEW YORK, GIANT and GOLD CROSS, 50,859 acres patented, U. S. Mineral Survey No. 2704, also adjoining fraction, a total of 55 acres. Principal development consists of a main working shaft 250 feet in depth with 100 feet of cross-cutting, also 200 feet of drifting on the 250 foot level, together with considerable other work, both underground and surface. Equipped with 25-H. P. Witte engine, blacksmith shop.

CASEY JONES MINING COMPANY—Incorporated under Arizona laws. H. M. Caswell, President; V. S. Rowley, Vice-President; J. E. Shank, Secretary-Treasurer; J. J. Casey and George Z. Mellen.

1,000,000 shares, par value 10 cents each. Treasury, 600,000 shares. Owns the SWALLOW GROUP of approximately 120 acres adjoining the Oatman Gold Group upon the east.

CLARISSA MINING AND MILLING COMPANY—Organized under Arizona laws. Edward M. Rabb, president; A. W. Sydnor, vice-president and treasurer; Fred T. Bragonier, secretary; Gold Road and Globe, Arizona.

1,000,000 shares, par value, \$1.00 each, non-assessable. Treasury, 550,000 shares. Owns the GOLD OF OPHIR, COLORADO, MASCOTT, NEW YEAR, TRILBY, BOUQUET, and MIDGET FRACTION, 80 acres. Adjoins the United Western on the north and the Crown City on the east.

CONE MINING & MILLING COMPANY—Incorporated under Arizona laws. J. P. Eaton, president; M. J. Walsh, vice-president; Hugh Sparkman, secretary-treasurer; 131-132 Edgerly building, Fresno, California.

1,500,000 shares, par value, \$1.00 each. Treasury 750,000 shares. Owns the EASY MONEY, EASY MONEY No. 1, OPPORTUNITY, WEST VIEW, NEEDLES, CONE No. 3, CONE No. 4, CONE No. 5, CONE No. 6, and CONE No. 7, comprising 200 acres located on and about the base of Boundary Cone Peak 1-2 miles southwest of Oatman. Development consists of one shaft 200 feet and a shaft 40 feet deep, together with several cross-cuts, all on the large rhyolite dyke, which traverses the property from east to west.

Equipment consists of a 15-H. P. Fairbanks-Morse engine and hoist, blacksmith shop, four houses, tools, etc., fully equipped for 500 feet depth.

CROWN CITY GOLD MINES COMPANY—Incorporated under California laws. Alex Miller, president; A. A. Weymouth, vice-president; W. M. Eason, secretary-treasurer; John C. Dalton, assistant secretary, 6 Union Savings Bank building, Pasadena, California.

1,000,000 shares, par value, \$1.00 each. Treasury, 366,952 shares. Owns the BANKER, LORELY, LOHENGRIIN, RHEINGOLD, HIGH POINT, MORNING STAR, EVENING STAR, SIDESPUR and MILLER QUARTZITE lode mining claims and the INDEPENDENT MILLSITE, a total of 185 acres. The lode claims adjoining the westerly portion of the Tom Reed Company's group upon the north, and the Pittsburgh Group upon the east.

Development includes three main shafts, 360,300 and 168 feet respectively with over 500 feet of drifting together with 300 feet of other development. Equipped with a 15 H. P., a 6 H. P. gasoline, and a 50 H. P. steam driven hoist, engine houses, boarding house and assay office. Company owns the PASADENA

SPRINGS (Independent Millsite) together with a pipe-line conveying water into the District.

FEDERAL DEVELOPMENT COMPANY—W. P. Kelly, 405 Foxcroft building, 68 Post street, San Francisco. Owns the ROOSEVELT and CLIMAX 49.21 acres; S. Mineral Survey No. 2717. Located 2 1-2 miles from Oatman. Equipped with small hoist.

FESSENDEN GOLD MINES COMPANY—Incorporated under Arizona laws. M. A. Fessenden, president; F. W. Carpenter, secretary; Dan Angus, treasurer, Oatman, Arizona. 1,000,000 shares, par value, \$1.00 each. Treasury, 600,000 shares. Owns the SUNLIGHT and MOONLIGHT 40 acres adjoining the Pioneer group upon the east. Machinery will be installed upon the ground.

GOLD CLIFF EXPLORATION COMPANY—Incorporated under Arizona laws. Stephen E. Barron, president; Vice-secretary-treasurer, Board of Control: Stephen E. Barron, Wm. E. Stephens and E. O. Fry. 1,000,000 shares, par value, \$1.00 each. Treasury 500,000 shares. Owns the CHIEF, CONE, CRYSTAL, PICTURE, ORION, and GOLD ROAD EXTENSION, APLANTIC, and ATLANTIC NO. 2, CLIFF, QUEEN BEE, and THE VICTOR, MINER, PITTSBURGH, and the GOLD SPRINGS 13 1/2 miles from Oatman upon the west. Also the ADRIANA, BOYD, CASADORA, and PUNTSBURGH, the Wallingford, District, north of Kingman. Total holdings of this company are 400 acres. Development work has been performed up to date on the Gold Road District, and the group in the Wallingford district including an area of 175 feet and a shaft of 45 feet.

GOLD GIANT MINING & MILLING COMPANY—Incorporated under Arizona laws. W. H. Clume, president; Slosson, Monterey, secretary.

1,000,000 shares, par value, \$1.00 each. Treasury 500,000 shares. Owns the COLUMBINE, BOXER, BLIN, MILLSTONE, and includes the old MOSS MINE 8 1/2 miles from Oatman upon the west and is four miles from Gold Road. Main shaft 220 feet deep, located about 120 feet from

GOLD ORION MINING COMPANY—Incorporated under Arizona laws. C. E. Burt, president; J. T. Mitchell, secretary; Pollock, treasurer; G. Warden, general manager, Oatman, Arizona.

1,000,000 shares, par value, \$1.00 each. Owns the MIDNIGHT, RED CREEK No. 1, RED LIZARD, LADY, B. C. C. and ZOROASTER, 12 feet north of Oatman, and the Gold Road Mine. 115 and 550 feet in depth, also 800 feet drifting. Body of commercial mining ore on 550-foot level developed on the west. Some ore has been shipped.

GOLD RANGE MINING & MILLING COMPANY—Incorporated under the laws of Arizona. J. Irving McKenn, Edmond, Spokane, president; J. E. Nelson, treasurer. Principal office, Oatman, Arizona; B. 356 Wilcox Building, Los Angeles, California.

1,000,000 shares, par value, \$1.00 each, non-assessable. Treasury, 400,000 shares. Owns the EMERALDA, LITTLE GOLD PRINCE, SIR JOHN COLORADO, SAIN COLUMBUS and FRACTION, about 130 acres. Ivanhoe Consolidated on the east and the Tom Reed upon the west.

GOLD REED MINING COMPANY—Incorporated under Arizona laws. Charles E. Burlock, president; R. E. Burlock, secretary, 154 21st Street, San Diego, Cal. 1,000,000 shares, par value, \$1.00 each.

Owns the MOSSBACK, MOSSBACK EXTENSION, GLADYS, and ALICE, 100 acres, patented, U. S. Mineral Survey No. 2717, 3 1/2 miles north of Gold Road. Development: Main shaft 300 feet with cross-cut with other work, totalling 1200 feet. Water is pipe line 2 1-2 miles to the mine.

FIGURES

Arizona was \$4,500,000.
STRICT contributed, in
the above sum.
by the Tom Reed alone

15
its issued capital, a re-
any other gold mine in

predicted that the TOM
will increase Arizona's
he district alone to con-
state production of gold.

Service
Service
and Freight

ight
ower
omestic and
illing
Round Mining
ltitude

res of Great Con-
nity

ly

1 District Ores
tely

LLING

with other mills in contemplation. The ores are easily crushed, averaging 7 tons per diem to the stamp.

Fully a dozen more properties are being opened which give promise of becoming dividend payers. The district is large, is interlaced with veins and ultimately should have the largest output of gold per million of any similar area in the West.

Kingman, on the main line of the Santa Fe, is the county seat of Mohave county, and the principal entrepot for the district, daily auto lines carrying freight and passengers over a well-built county road to the foot of the range, the only mountain climb being encountered going over Gold Road Pass into the town of Gold Road, a place of some 400 people built around the Gold Road Mine. A further ride of some three miles brings into view the town of Oatman with 600 inhabitants, the total population of the district including outlying points being 1200. Both towns have general merchandise stores, with a weekly newspaper at Oatman.

One mile south of Oatman is the new townsite of Oldtrails, adjacent to the Orion, Boundary Cone and Lexington properties.

To Needles, Cal., the road from Oldtrails is down grade, dropping from an elevation of 2500 feet to 403 feet at the Colorado river, Needles being the nearest railroad point, where is also located the smelting works of the Needles Mining & Smelting Company.

Through the efforts of the Tom Reed G. M. Company a new auto truck and passenger road has recently been completed to Topock, a Santa Fe Railway point, at the east end of the Colorado River bridge. The new route has been adopted by the National Old Trails Road Association as the main thoroughfare from New York to Los Angeles.

In his report upon the district regarding climate, F. C. Schrader, U. S. Geologist, says: "The climate of the region is arid; with hot summers and mild winters, but the intensity of the heat is modified by the dryness of the atmosphere, a more or less constant breeze and cool nights. The climate ranks among the most healthful in the United States.

The contract has been let for the construction of a new bridge for passenger and freight service, spanning the Colorado River at Topock, connecting Arizona with California. It is being built by Federal and State aid, and should be completed early in 1916.

TOM REED-GOLD ROAD DISTRICT

This gold producing area in which a number of new and important strikes have been made, is situated in the Black Mountains, a range trending northwest to southeast, the extreme height of the same being 5000 feet with an average distance of 14 miles east from the Colorado River.

The field is one of tertiary volcanic lavas. U. S. Geological Bulletin 397, page 34, says: "The rocks consist of andesites, trachytes, rhyolites, latites, and basalts lying in broad super-imposed sheets or flows with intercalated beds of ash tuff and breccia. THEY ARE BEST DEVELOPED IN THE BLACK MOUNTAINS, PARTICULARLY IN THE SOUTHERN PART, CONTAIN MOST OF THE MINERAL DEPOSITS OF THE RANGE, and probably played an important part in the genesis of these deposits."

In extent the district measures 7 by 10 miles lying upon the west flank of the Black Range, with all drainage into the Colorado River.

The mineralized zones are traversed by rhyolite dykes, in connection with which nearly all of the development has proceeded, the veins in a majority of the mines opened thus far, being found in close proximity to the dykes, although recent discoveries seem to indicate the existence of paying fissures, distant from any dyke material. Characteristic of the dykes and veins are their great width and length, some being from 10 to 50 feet in width, their outcrops extending over hill and valley like a veritable Chinese wall. The vein filling is largely quartz and spar, large masses of oxydized material, crushed quartz and pebbles, akin to the conglomerate of the South African reef "blanket" or "banquet" coming in with depth, the oxidization apparently becoming more marked as depth is gained. Nearly all of the dykes and veins are capped and it is necessary to carry the working below the capping to reach ore of the best grade.

The deepest shaft is that of the Tom Reed Gold Mines Company—1000 feet, the greatest depth attained being at the Gold Road mine by shaft and rift 1100 feet, the oxidized ores with depth still predominating. The production of the former is around \$1,000,000 per annum, with an average value of about \$22.00 per ton—while the Gold Road mine produces 300 tons per day of a commercial milling grade.

Sixty stamps are now dropping on District ores

FACTS AND FIGURES

For 1914, the production of gold in Arizona was \$4,500,000. The TOM REED-GOLD ROAD DISTRICT contributed, in gold bullion, FORTY PER CENT of the above sum.

During 1914, the dividends paid by the Tom Reed alone amounted to

\$627,592.95

or SIXTY-NINE PER CENT upon its issued capital, a record not exceeded nor equaled by any other gold mine in the United States.

Within a brief period it is freely predicted that the TOM REED-GOLD ROAD DISTRICT will increase Arizona's total to \$10,000,000.00 per annum, the district alone to contribute an amount equal to present state production of gold.

To the Mine Operator:

Daily Auto Service

Daily Mail Service

Express and Freight

Telephone

Telegraph

Electric Light

Electric Power

Water---Domestic and Milling

All-Year-'Round Mining Altitude

Wide Ledges of Great Continuity

And Lastly

Tom Reed-Gold Road District Ores are Absolutely

FREE MILLING

Total white tailings represented in foregoing table

199,500 tons of average assay of Oz. Gold per ton
 201,700 Oz. Silver per ton

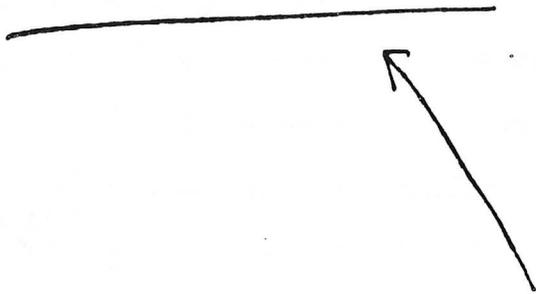
Total red tailings represented in foregoing table

91,100 tons of average assay of Oz. Gold per ton
 Oz. Silver per ton

VALUES IN DOLLARS BASED ON GOLD AT \$35.00 PER OZ. AND SILVER AT \$90 PER OZ.

Average value of white tailings per ton	-----	\$ 1.16	(1.36)
Average value of red tailings per ton	-----	\$ 2.41	(3.22)
Average value of white and red tailings per ton	-----	\$ 1.55	(1.98)
Gross value of white tailings (201,700 TONS)		\$ 235,182.00	
Gross Value of Red tilings (91,100 TONS)		\$ 219,542.00	
Gross value of white and red tailings (292,800 TONS)		\$ 454,724.00	
		\$ 566,702.	

<u>SAMPLE NO.</u>	<u>INTERVAL</u>	<u>OZ. GOLD / Ton</u>	<u>OZ. SILVER / Ton</u>	<u>Tons REPRESENTED</u>
11 - 3	0 to 6	.065 .084	.13 .22	5,700 WT
10 - 3	0 to 5	.045 .066	.123 .12	7,500 WT
9 - 3	0 to 6	.025	.09	4,100 WT
7 - 4	0 to 5	.04	.12	6,600 WT
				<u>201,700 TONS W.T.</u>



(Red TAILS)

<u>PREV. SAMPLE</u>	<u>TUNNEL COMPOSITE 100# BULK</u>	<u>OZ. GOLD</u>	<u>OZ. SILVER</u>	<u>Tons REPRESENTED</u>
JCB		.13	.25	13,000 RT
2 - 6	0 to 10 10 to 15 15 to 20	.02 .035 .025 } .026	.18 .22 .17 } .19	4,100 RT
4 - 6	0 to 4 4 to 12	.025 .06 } .0425	.08 .30 } .17	5,500 RT
1 - 4	0 to 8 8 to 15 15 to 20 20 to 26	.03 .025 .025 .04 } .030	.15 .08 .08 .21 } .13	12,500 RT
8 - 3	0 to 8 8 to 16	.08 .04 .06 } .0716	.34 .24 .25 } .29	11,000 RT
7 - 3	0 to 8 8 to 15 15 to 24	.071 .048 .015 .015 } .0336	.33 .26 .16 .14 } .217	20,000 RT
6 - 3	0 to 10 10 to 19	.085 .065 .09 } .0875	.33 .46 .31 } .32	11,000 RT
1 - 3	33 to 38 38 to 46 46 to 54	.07 .035 .03 } .045	.38 .15 .19 } .24	11,000 RT
6 - 6	0 to 4	.166 .178 .166	.377 .38 .377	3,000 RT

91,100 TONS RT

Sample No.	Interval Feet	Oz. Gold/Ton	Oz. Silver/Ton	Tons Represented (WHITE TAILS)
6-2	0 to 8 8 to 16	.02 } .02	.16 } .17 .18	8,000 WT
7-2	0 to 8 8 to 16	.015 } .0125 .01	.14 } .135 .13	10,100 WT
8-2	0 to 8 8 to 16	.015 } .0125 .01	.14 } .14 .14	14,200 WT
9-2	0 to 6 6 to 12	.01 } .015 .02	.10 } .11 .12	15,800 WT
0-3	0 to 7 7 to 13 13 to 19 19 to 26 26 to 33 33 to 40 40 to 47 47 to 53 53 to 58	.015 } .015 } .02 } .01 } .02 } .02 } .01 } .02 } .035 }	.35 } .32 } .45 } .42 } .39 } .16 } .18 } .18 } .16 } 1.165 }	.29 } 11,800 WT
1-3	0 to 11 11 to 20 20 to 27 27 to 33 33 to 38 38 to 46 46 to 54	.025 } .02 } .035 } .02 } .025 }	.08 } .25 } .11 } .12 } .14 }	18,100 WT
Prev. (1) Tunnel Sample 2-13 Sample - 100 th Bulk				
J.C.B. (1)	FACE SAMPLE 100 th Bulk	.04	.04	27,000 WT
3-3	0 to 11 11 to 20 20 to 28 28 to 36 36 to 45 45 to 54	.055 } .03 } .03 } .025 } .04 } .055 }	.10 } .09 } .13 } .09 } .18 } .29 } 1.165 }	.147 } 34,500 WT
2-4	0 to 12 12 to 21 21 to 29 29 to 37 37 to 46 46 to 54	.04 } .02 } .03 } .03 } .065 } .065 }	.12 } .17 } .21 } .15 } .23 } .32 } 1.20 }	.20 } 13,400 WT
12-3	0 to 8	.05 .05	.10 .10	3,900 WT

APPENDIX A

The following table represents the total samples taken during the writers visit to the property, the assay of each interval of those samples in gold and silver in ounces per ton of tilings, and the number of tons and type of tailings that each sample, interval of sample or group of intervals that those assays represent. It will be noticed that all of the samples combined do not represent the total tonnage as given in the table on page 9. The tonnage figures given in the following table are those tonnages that can be assigned to the individual samples without exceeding 100 foot intervals between samples. However, as previously stated, it is the writers opinion that the average of those samples indicated as representative of white tails will hold closely for the average of all of the white tails overlying the red tails. The average of those samples as ascribed to the red tails will even more closely approximate the average grade of all of the red tailings that are available. The tailings that have been previously described as not overlying the red tailings have not been closely sampled though it is probable that the average of those additional tailings will not depart far from the average of the white tailings shown in the following listing.

Sample No.	Interval feet	Oz. Gold/Ton	Oz. Silver/Ton	Tons Represented (White Tails)
14	0 to 5½	.01	.17	21,000 NT
	5½ to 11	.015	.11	
	11 to 16	.015	.23	
	16 to 22	.015	.29	
	22 to 30	.025	.22	
	30 to 36	.025	.31	
	36 to 42	.03	.38	
	42 to 48	.03	.25	
	48 to 56	.02	.17	
	56 to 0	.02	.22	
		<u>.205</u>	<u>2.45</u>	
		<u>.0205</u>	<u>.246</u>	

The basic unit of 100 tons per day capacity will cost in the neighborhood of \$ 35,000.00. Installation and operating costs are in addition to the cost of the plant. The ion exchange principle operates with extreme simplicity and in this contemplated installation the plant is small and compact and will require a minimum of space and housing. Total labor required to operate mill and excavation machinery will probably not exceed two men. The plant will require approximately 75 gallons of water per minute per ton of installed daily capacity. It is planned at this time to utilize the water in the Tom Reed mine and to pump the required amount from the 600 level. Final tailings from the re-treatment of the Tom Reed tails are to be stacked at the lower end of the Tom Reed properties and in such a manner that the water content in the tails as discharged from the new installation will drain back toward the mill and impounded where they can probably be reused. Metallurgical tests and adaptations of the tailings to this process are still being conducted and all of the final answers are not yet available.

Several methods have been proposed for delivery of the tailings to the mill installation. Among these are, (1) pumping of tailing and water mixture to the mill, (2) scraping to a truck loading point and, (3) front end loader dumping into trucks. Most of these methods of attack have been considered and close estimates of cost for the various operations are presented along with amortization of initial costs in the cost breakdown in Appendix B.

Calculated Tonnages

The following tonnages of red and white tails present in the Tom Reed ponds are taken from cross sections 3650 through 4450. Tonnage in each section represents a block extending from the west to the east as shown on each section and with a width equal to 50 feet both north and south of that respective section. Red tails and white tails overlying the reds are obtained as outlined above. Additional white tailings present are those tailings lying south of section 3650 and north of section 4450 and to both east and west of the white tailings overlying the red tails.

<u>Section</u>	<u>Red tails</u>	<u>White Tails</u>	<u>Ratio (R:W)</u>
3650	4,100	19,322	1:4.73
3750	14,710	44,900	1:3.05
3850	21,421	59,928	1:2.44
3950	21,506	39,398	1:1.83
4050	38,327	42,199	1:1.10
4150	21,556	56,659	1:2.62
4250	32,870	62,243	1:1.89
4350	35,920	51,075	1:1.42
4450	<u>53,581</u>	<u>57,813</u>	1:1.08
	246,991	432,937	

Total Red Tails present equal ----- 246,991 tons
Total White Tails overlying red tails equal -- 432,937 tons

Average ratio of white tails to red tails -- 1.75 : 1.00

Additional white tails present equal ----- 885,092

Ratio total white tails to red tails ----- 3.57 : 1.00

Treatment Methods

The plant proposed for use in re-treating the tails is a simultaneous - counter - current cyanide leach ion - exchange type installation utilizing commercially manufactured resins. The basic design has been developed by " Infilco " and adapted to this specific use by Techmanix Corporation of Salt Lake City, Utah. The ion exchange principal is now used extensively in several different types of mill installations and is used almost exclusively in all of the late uranium mill in this country and abroad. The plant may be installed in nearly any capacity by using a series of 100 ton per day units. The plant now considered would consist of first a 100 ton per day unit and soon after enlarged to a total capacity of 500 tons per operating day.

Figures concerning volume of the material have been taken from linear measurements on Plate 1. and from cross sections as shown on Plate 2. A tonnage factor of 22 cubic feet of tailings equal to one ton was used to convert cubic feet to tons.

Annual Report and Mill Records Tonnages

<u>Year</u>	<u>Tons Treated</u>	<u>Head Value</u>
1911	14,290	\$44.58
1912	39,447	19.53
1913	43,478	23.22
1914	48,110	24.09
1915	46,895	21.33
<u>1916</u>	<u>29,916</u>	<u>22.12</u>
	222,236	

Total 1911 - 1916 red tailings treated by mill records and from annual report data equal ----- 222,236 tons.

1917	39,308	11.03
1918	81,814	7.60
1919	88,312	9.90
1920	89,557	7.94
1921	93,970	7.81
1922	70,750	5.65
1923 estimated	25,000	---
1924 estimated	25,000	---
1925 to 1928 mill down	-----	---
1929	7,673	15.30
1930 estimated	30,000	---
1931 estimated	20,000	---
1932 estimated	20,000	---
1933 estimated	20,000	---
1934 to 1939	<u>398,622</u>	---
	1,010,006	---

Total 1917 to 1939 white tailings through mill records and annual reports and estimated equal -----1,010,006

Total tailings accumulated during the years 1911 through 1939 equals ----- 1,232,242 tons.

The grade of the tailings will probably vary more in vertical extent than in a lateral manner since the tailings as they were deposited spread out and cover comparatively large horizontal areas without much gain in depth. The portion of the ponds sampled will represent a very good cross section of the total material in the larger pond since the section thus sampled represents nearly a longitudinal section of the pond in the area of greatest thickness.

Average samples taken weighed about eight pounds per individual sample. These samples were quartered and one cut sent to Techmanix Corporation of Salt Lake City, Utah. Duplicates of all samples are retained at the mine office in Oatman. Seven samples were picked at random and sent to the Sawyer Petroleum Company in Los Angeles for checking of Techmanix assays.

Tabulation of all sample results and of the tonnage represented are given in Appendix A.

Tonnage Present

The following table shows the tons milled by years for the period 1911 through 1916 for the red tailings and 1917 through 1939 for the white tailings. For certain indicated periods tonnages have been estimated from results of previous years and to some extent by conversation with Oatman residents who were present when the mill was operating. The second table shows a recap of the calculated tonnage present. These calculations are based on the survey of the ponds as they now are and upon the assumed topography of the land underlying the ponds.

From this evidence a tonnage factor of 22 cubic feet of dry tailing material was obtained.

The ponds were sampled primarily to determine the grade of the red tailings as they are exposed and to determine the grade of the white tailings that must be removed in order to get to the underlying red tails. Channel cuts were employed exclusively, mainly along the perimeter of the ponds and along benches on the surface of the ponds, though a few were taken where streams have cut deep narrow channels into the flat surface of the tailings. Location of all samples are shown on Plate 1. It was hoped that it would be possible to auger bore holes down from the surface of the piles, but it was found that a depth of from 20 feet to 25 feet was about the limit of hole that could be obtained by this method. Below that depth the walls of the holes caved and scraped to such an extent that no additional depth could be made. It is hoped that if results of the samples thus far taken indicate conclusively that the grade of the tailings is good and sufficient, then a program will be planned whereby a power auger of at least six inches diameter will be used to reach the bottom of the ponds and to obtain samples representative of the full depth of the material. It is considered however, that the samples now obtained will be indicative of the grade of the red tails and of the white tails immediately overlying the red. To a large extent they will also indicate the grade of the remaining portions of the white tails that will not have to be moved in order to uncover the red.

Sampling of the Tailings Ponds

In order to accurately locate the samples taken and to facilitate calculation of tonnages present, a tape and Brunton map of the entire ponds was made at a scale of one inch equal to fifty feet, (Plate 1). Elevations were obtained by means of an aneroid altimeter.

The tailings consist of two separate ponds, a small one of about 50,000 tons and a larger one of about one million tons. The thickness of the tailings varies from zero feet along the eastern side to more than sixty feet along the western edge where the present drainage has cut laterally into the tailings. Generally the slope from crest to toe is about 40 degrees but in an area about 600 feet along the west side the banks are very steep and often stand vertical to a height of 40 feet or more. In this area the tailings are well exposed and will average more than 20 feet in thickness. An old map found showed the limit of the red tailings and this information was plotted on our map of the present outlines of the tailing ponds. Although no topographic map of the area underlying the dump was found, it was possible to visualize the pre-dump drainage from the slope of the land rimming the ponds. From this information an estimate of the contour of the base of the area was established and these assumed contours later used in the calculation of tonnages present. In order to derive a tonnage factor for the tailing material, a measured amount of excavation was made in the face of the pond and all material removed from this excavation was weighed.

Local Geology of the Area

The following account of the local geology of the Oatman area is taken from the book, " Mineral Deposits " by Waldemar Lindgren.

" Not far east of Needles, on the Colorado River, rises the Black Range, which is built up of a series of tilted flows of andesite-latitude rocks with minor intrusive masses of granite porphyry and quartz-monzonite porphyry. The flows rest on Precambrian rocks and have a great thickness. The gold bearing veins are formed along fault fissures with normal throw, and some of them have been very productive though the shoots are irregular. Most of the ore occurs in the Oatman andesite (the chloritic andesite of Schrader). The Tom Reed and the Gold Road veins have been the most productive. The United Eastern mine has been working a shoot with an area of about 800 feet by 800 feet which did not outcrop and which has yielded \$8,000,000. The greatest depth reached is about 1,300 feet. The veins are stringer loads often beautifully crustified and chalcedonic, and the filling consists of calcite, quartz, adularia and fluorite. The earlier calcite has been replaced by the latter two minerals. There is also a later generation of calcite. The gold, generally finely disseminated, is about the only metallic mineral and occurs chiefly in a peculiar honey-yellow quartz. The rock alteration is chloritic and sericitic ".

ore treated prior to 1916 and about 1,000,000 tons treated from 1916 to 1939. Some of the records are not available and estimates were made for those blank periods. The table included in a later part of this report shows tons milled by years of operation.

In 1939 the management of the Tom Reed operations considered the advisability of re-treating the red tailings through the mill then in operation. The plan was followed to the extent that the equipment necessary for excavating and hauling was installed and several thousand tons of the tails, mainly the red variety, were run through the mill. The tailings were obtained from an area at the downstream extremity of the ponds where the red tails were most easily obtained. Some 20,000 tons of these tails were treated and the records available on the first 8,556 tons indicate an average value of approximately \$3.32 per ton.

Legal Title to Property

The legal title to the Tom Reed holdings, Tom Reed mine and mill and several other properties in the immediate vicinity, was obtained by the Sawyer Petroleum Company by an outright purchase of the former company holdings. Electric power and water distribution systems are owned and operated by Sawyer Petroleum Company and service is rendered nearly all of the population of Oatman, approximately 100 people.

History and Description of the Property

The Tom Reed mine first began operations about the year 1911 and worked almost continuously until 1939. At that time the property closed and the mill was dismantled shortly thereafter. From 1911 until approximately 1916 the mill was operated on Tom Reed ores exclusively. From 1916 until the mill was closed, Tom Reed ores were supplimented by ores from the Black Eagle, Grey Eagle and Aztec mines, all owned by the Tom Reed Company.

The original mill was a ten-stamp installation with amalgamation plates. This was soon supplemented by a cyanide leaching circuit and later by an entirely new plant employing ball mill grinding with a counter-current-decantation cyanide flowsheet. The tailings from the original mill were later run through the new plant so that the tailings now present consist wholly of those from the new mill. During the period 1911 to 1916 while operation was on Tom Reed ores only the tailings were of a distinctive reddish color. These tailings are herein termed "Red Tails". When ores from the other mines came on stream the different characteristics of those ores imparted a white to buff color to the tailings and these later tailings are therefore termed "White Tails". The red tailings are now completely covered by white tailings except at the western edge of the ponds where the present stream erosion has exposed the red tails at the bottom of the main pond. Mine and mill records now available indicate approximately 222,000 tons of

Introduction

Early in February, 1959, Mr. E. W. Sawyer, President of the Sawyer Petroleum Company of Los Angeles, California, requested the writer to undertake the task of mapping and sampling the tailings ponds accumulated at the site of the Tom Reed mill near Oatman, Arizona. The period February 20, 1959 through March 7, 1959 was spent examining and mapping and sampling these tailings and making a rough estimate as to quantity and grade of other tailings in the area. The purpose of the work was to assist in determining the feasibility of re-treating the tailings from the Tom Reed mill in a modern plant of comparatively new design, a plant that operates under low cost conditions and permits nearly 100 percent extraction of the gold and silver values.

Location of Property

The tailings with which this report is primarily concerned are located at the site of the Tom Reed mill, now dismantled, at Oatman, Arizona approximately 30 miles southwest of Kingman, Arizona and 35 miles northeast of Needles, California. Oatman is served by an alternate route of US Highway 66. Kingman is on the main line of the Santa Fe Railroad and is the main supply point for the area. Sufficient labor force may be obtained in the immediate locality.

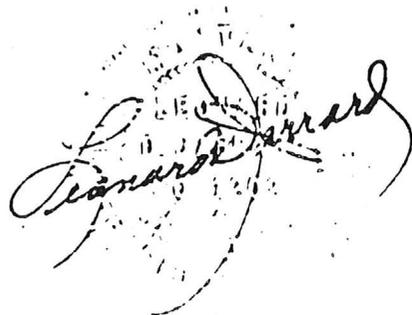
TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
LOCATION OF PROPERTY	1
HISTORY AND DESCRIPTION OF THE PROPERTY	2
LEGAL TITLE TO THE PROPERTY	3
LOCAL GEOLOGY OF THE AREA	4
SAMPLING OF THE TAILING PONDS	5
TONNAGE PRESENT	7
ANNUAL REPORT AND MILL RECORDS	8
CALCULATED TONNAGES	9
TREATMENT METHODS	9
APPENDIX A	11
APPENDIX B	12

AN APPRAISAL OF THE
TOM REED TAILINGS
OATMAN, ARIZONA

FOR
SAWYER PETROLEUM COMPANY
LOS ANGELES, CALIFORNIA

BY
Leonard D. Jarrard
Registered professional engineer

A handwritten signature in cursive script, reading "Leonard D. Jarrard", is written over a circular professional seal. The seal contains text that is mostly illegible but appears to include "REGISTERED PROFESSIONAL ENGINEER" and "STATE OF CALIFORNIA".

TOM REED GOLD MINES

Do Not Reproduce

MOHAVE COUNTY
OATMAN DIST.

Thurs. Jan. 10, 1963 - Visited White Chief mine in Oatman. No activity. Visited Tom Reed mine. 8 men working, installing transformers and repairing shaft to install pumps for mill water in the future. Joe Brandenburg in charge.

Visited Americana Investment Co. office, interviewed L. M. Wiscombe and visited several of the properties with him, that the company has acquired.
E. G. WILLIAMS - Weekly Report Jan. 11, 1963.

OATMAN, ARIZ. Americana Investments plans a 1000-ton multi-purpose cyanide mill to process mill tailings and gold-silver ores.

Taken from E. & M.J. January 1963, p 81

The Americana Investments, Inc., Leland M. Wiscombe, president, has started mill construction at its holdings near Oatman, Arizona. This is the concern which recently acquired the TOM REED GOLD properties and accumulated tailings from the SAWYER PETROLEUM COMPANY, Los Angeles, California. The tailings lease to Americana was subject to an agreement to install a 1,000-ton-per-day capacity mill and to begin immediate processing of these tailings. More than half of the needed equipment is already at the mill site, and completion of the plant is scheduled for February. W. J. Nault of Salt Lake City, Utah, co-designer of the mill, is acting as consulting metallurgist and mill technician.

TAKEN FROM MINING WORLD, February, 1963, p 31

The Americana Investments Inc., Leland M. Wiscombe, president, now have their mill building completed, also assay lab. Two steel ore bins, one 600 tons, one 400 tons completed. Two ball mills installed. One bank of flotation cells installed. The crusher is on the mill site and foundation was being poured for it. The conveyor from the tailings to the mill bin was completed. Two 500 g.p.m. pumps are installed on the 475 level of the Tom Reed shaft and the pipe line is completed to the mill. All the transformers are installed for power. Nearly all the equipment that is needed is at the mill site. They hope to be milling tailings by the first of April.

MEMO - E.G. WILLIAMS - 3-15-63

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

Ore Probable:.....
.....
.....

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

No.	Feet	Condition
Shafts.....		
Raises.....		
Tunnels.....		
Crosscuts.....		
Stopes.....		

14. Water Supply:.....
.....
.....

15. Brief History:.....
.....
.....
.....
.....
.....
.....
.....

16. Remarks:.....
.....
.....
.....
.....
.....

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

18. Signature:.....
.....

DEPARTMENT OF MINERAL RESOURCES

State of Arizona

MINE OWNER'S REPORT

Date Nov 2, 1965

1. Mine: Jack's Mill
on Tom Reed mill tailing site
2. Location: Sec. Twp. Range. Nearest Town. Distance.
Direction. Nearest R.R. Distance.

Road Conditions.

3. Mining District and County: San Francisco (Tom Reed)

4. Former Name of Mine:

5. Owner: Consolidated Mineral Recovery & Refining Co.

Address: Mass Hotel - Catman

6. Operator: Frank W. Hack, Pres. (of above Co.)

Address: % Mass Hotel - Catman

7. Principal Minerals: Custom mill ~~with~~ metals

8. Number of Claims: Lode. Patented. Unpatented.

Placer. Patented. Unpatented.

9. Type of Surrounding Terrain:

PERMANENT ADDRESS: P. O. BOX 31, RINGWOOD, IL

10. Geology and Mineralization:

A.I.J.
11-4-65 Operation to begin but adjust-
ments were needed.
Are from surrounding area mines.

11. Dimension and Value of Ore Body:

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 lessors or buyers.

Milling-- November 1923

Tom Reed
Mohave Co.

Total Ore Milled in Nov. 4059.35	Total Ore Milled in 8 Months 29702.7761			
Tom Reed Ore " " " 3534.00	Total Tom Reed " " " 27962.0000			
	Nov. Cost	Nov. C.P.T.	8 Months Cost	8 Months C.P.T.
Crushing	146.09	.0360 ✓	1227.34	.0413
Battery	13.29	.0033 ✓	153.28	.0051
Large Ball Mill	1639.69	.4040 ✓	10871.72	.3660
Conveyors	102.70	.0253 ✓	849.06	.0286
Small Ball Mills	2654.71	.6540 ✓	20996.67	.7070
Classification	106.65	.0263 ✓	864.08	.0291
Thickening	265.55	.0654 ✓	1902.20	.0640
Agitation	663.29	.1634 ✓	5939.37	.2000
Filtering	96.23	.0237 ✓	1235.06	.0416
Precipitation	402.02	.0990 ✓	5052.74	.1701
Melting	354.62	.0873 ✓	6036.89	.2032
General Charges	1.25	.0003 ✓	278.62	.0094
General Supplies	55.84	.0133 ✓	384.79	.0130
Cyanide	524.76	.1293 ✓	4035.90	.1358
Line	289.00	.0712 ✓	2490.03	.0838
Pumping	658.88	.1623 ✓	4872.09	.1640
Lighting	65.48	.0161 ✓	493.65	.0166
Mill Water	40.75	.0100 ✓	820.78	.0276
Equipment Repair	459.96	.1133 ✓	3962.20	.1335
Building Repair			63.47	.0021
Assaying	218.20	.0537 ✓	1993.05	.0671
Sampling	37.20	.0092 ✓	343.00	.0116
Burden	407.68	.1004 ✓	3482.15	.1172
Experimental			17.60	.0006
Trucking	9.50	.0023 ✓	81.87	.0028
Tools	1.97	.0005 ✓	4.36	.0001
Compressors	187.93	.0463 ✓	1339.22	.0451
Tailing Upkeep	150.00	.0370 ✓	1225.34	.0413
	9551.24	2.3529 ✓	81016.53	2.7276
Bullion Marketing	355.46	.0876 ✓	2929.00	.0986
Slag Marketing	49.50	.0122 ✓	1696.46	.0571
Total -----	9956.20	2.4527	85641.99	2.8833
Less Credits from Custom Milling	674.38		4320.65	
Tom Reed Cost based on T.R.Tonnage	9281.82	2.6264	81321.34	2.9083

ARIZONA DEPT. OF MINES & MINERAL RESOURCES
STATE OFFICE BUILDING
416 W. CONGRESS, ROOM 161
TUCSON, ARIZONA 85701

Milling - October 1923

Total Ore Milled Oct. 3458.015 Tons	Total Ore Milled in 7 Months, 25643.4261 Tons			
Tom Reed Ore " " 5183. Tons	Tom Reed Ore " " " "	" " " "	24428. Tons	Tons
	Oct.	Oct.	7 Months	7 Months
	Cost	C.P.T.	Cost	C.P.T.
Crushing	148.82 ✓	.0430	1081.25	.0482
Battery	.68 ✓	.0002	139.99	.0055
Large Ball Mill	1613.02 ✓	.4664	9232.03	.3600
Conveyors	113.82 ✓	.0327	746.36	.0291
Small Ball Mills	2562.02 ✓	.7698	8341.96	.7152
Classification	105.72 ✓	.0306	757.43	.0295
Thickening	216.32 ✓	.0626	1636.65	.0638
Agitation	724.43 ✓	.2095	5276.08	.2057
Filtering	123.61 ✓	.0357	1138.83	.0445
Precipitation	463.50 ✓	.1340	4650.72	.1813
Melting	533.62 ✓	.1544	5682.27	.2216
General Charges	20.00 ✓	.0058	277.37	.0108
General Mill Supplies	133.04 ✓	.0385	330.95	.0129
Cyanide	495.79 ✓	.1434	3511.14	.1369
Lime	279.06 ✓	.0807	2201.03	.0858
Pumping	598.49 ✓	.1731	4213.21	.1643
Lighting	69.10 ✓	.0200	428.17	.0167
Water	7.05 ✓	.0023	780.03	.0305
Equipment Repair	514.09 ✓	.1486	3502.24	.1366
Building Repair			63.47	.0025
Assaying	236.91 ✓	.0685	1774.85	.0692
Sampling	39.00 ✓	.0111	305.80	.0119
Burden	402.21 ✓	.1165	3074.47	.1199
Experimental			17.60	.0007
Trucking	6.25 ✓	.0018	72.37	.0028
Tools	.73 ✓	.0002	2.39	.0001
Compressors	172.97 ✓	.0500	1151.29	.0449
Tailing Upkeep.	155.00 ✓	.0448	1075.34	.0420
	<u>9835.45</u> ✓	<u>2.8442</u>	<u>71465.29</u>	<u>2.7869</u>
Bullion Marketing	379.14 ✓	.1096	2573.54	.1003
Slag Marketing	42.75 ✓	.0124	1646.96	.0642
	<u>10257.34</u>	<u>2.9662</u>	<u>75685.79</u>	<u>2.9614</u>
Less Credits from Custom Ore Milled	825.04		3646.27	
Tom Reed Cost based on T.R.Tonnage	<u>9432.30</u>	<u>2.9634</u>	<u>72039.52</u>	<u>2.9491</u>

ARIZONA DEPT. OF MINES & MINERAL RESOURCE
 STATE OFFICE BUILDING
 416 W. CONGRESS, ROOM 161
 TUCSON, ARIZONA 85701