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REPORT
on the

SHEEP TANKS MINE

by:
John Hope

CONSOLIDATED COPPERMINES CORPORATION

COPY

MEMORANDUM

FROM John Hope, Chief Geologist

CITY December 27, 1945

TO C. I. Cook, General Manager

DATE Kimberly, Nevada

SUBJECT THE SHEEP TANKS MINE.

YUMA Co

On December 12th, 1945, in your company together with Mr. Sirkegian and Mr. Proctor, Mr. Kitch and I made a brief examination of the Sheep Tanks Mine. On December 13th and 14th, in compliance with your orders, Mr. Kitch and I returned to the property and further examined the mine, taking the samples you recommended. The following report gives the results of this brief investigation.

LOCATION:

The property of the Sheep Tanks Consolidated Mining Co., the Sheep Tanks Mine, is located 27 miles south of Hope, Arizona, in the western margin of the Little Horn Mountains. The mine is connected to U.S.Highway 60 by 27 miles of poorly maintained gravel road of which about 15 miles are in fair condition and 12 miles are nearly impassable. The property may also be reached from Horn, Arizona, by travelling over 35 miles of poor gravel road. Horn lies on the main line of the Southern Pacific Railway and would serve as a shipping point for the property.

OWNERSHIP:

The Sheep Tanks Mine is owned by the Sheep Tanks Consolidated Mining Co. of which Mr. E. W. Mills of Salome, Arizona, is the sole owner. Some 123 claims have been staked out by Mr. Mills which completely cover the mineralized area and all possible extensions. Of these, only fourteen have been surveyed for patent and these cover the area of principal interest.

A map showing these fourteen claims and related data including the principal workings is attached to this report as Plate 1.

WORKINGS:

With the exception of various shallow cuts and pits, the workings of the Sheep Tanks Mine consist of four main levels. These are the 2000, the 2171, the 2200,and the 2237 levels, in ascending order. The level numbers may also be considered as relative elevations for the purpose of this report. Plates 2, 3, and 4 show the plans of these levels. On the lowest of these, the 2000 level, a 1300 foot tunnel penetrates the ridge called Resolution Hill below the Resolution Vein. From this tunnel, a 237 foot raise has been driven to connect with the 2237 level. The upper levels were not laid out to plan but merely "followed the ore" making it difficult to calculate any ore reserve figure. These workings will be described in later portions of this report.

GEOLOGY:

The Sheep Tanks Mine is situated in an area of Tertiary flows and intrusives which range from rhyolite and breccias to a diorite porphyry. A geologic map of the area, taken from Bulletin 134 of the Arizona Bureau of Mines, is included in this report as Plate 5.

The basement rocks of the district are a steeply dipping series of rhyolite flows upon which a thick series of dacite flows have been unconformably laid. These dacite flows also dip steeply, probably the result of tilting not folding. Both the rhyolite and dacite have been intruded by a diorite porphyry which

formed irregular masses as well as sills and dikes. Overlying the rhyolite and porphyry is a thick series of breccia which seems to be more or less sandwiched in under the dacite. It would seem probable that this breccia is the result of a low angle thrust movement which has been hydrothermally altered and recemented. This breccia is the host rock of the main ore deposit, the Resolution Vein, of the Sheep Tanks Mine.

Tertiary agglomerate caps the high ridges in the southern part of the district while to the north, Quaternary tuffs and basalt cappings may be found.

The so-called Resolution Vein occupies a low angle fault zone which dips northerly and has been vertically offset by past mineral east-west striking faults. The vein outcrops near the top of Resolution Hill south of camp at the junction of the Resolution and the Resolution No.1 claims.

The vein material consists of masses of limonite, calcite, adularia, and quartz which are cut by later veinlets or stringers of pyrolusite. These veinlets of pyrolusite and the presence of adularia are the distinguishing features of the vein. In thickness, the vein varies from a few inches to forty feet and the best ore lies in its upper margin on the 2237 level.

Essentially, then, the vein is a flat lying body of irregular thickness which outcrops only near the top of Resolution Hill. The ore shown on Plate 2 of the 2237 level is the top portion of the vein while that indicated on Plate 3 of the 2200 level and the 2170 level may be considered near the lower wall of the vein or approximately the lower limit of mineralization.

The ore indicated on the tunnel level or the 2000 level represents related mineralized fractures, which though not vein, were weakly mineralized by the same solutions which formed the Resolution Vein. These fractures are narrow and could hardly be expected to be continuous enough to warrant their inclusion in any ore reserve calculation.

The three compartment raise which connects the 2000 and the 2237 levels, and which was represented as being in low grade ore, followed one of these steeply dipping fractures. As may be seen on Plate 4, Raise G, this raise was in ore only where it cut the Resolution Vein near the 2237 level. Ore in this report is considered material which would average $3.00 per ton since the property would not be of interest to Coppermines if a large tonnage were not available.

Some manganese and limonite is contained in all the rocks of the area, especially the breccia, making it difficult to distinguish between the above mentioned rock types.

ORE RESERVES:

Mr. Mills evidently had the idea that the above mentioned breccia was the ore body and did not seem to realize that this was not the case. It is true that the breccia is the host rock for the ore but is ore only where it

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TO DATE

SUBJECT **THE SHEEP TANKS MINE.**

is cut by mineralized fractures such as the Resolution Vein.

It was on the basis of Mr. Mill's representations that a large body of low grade material was available, that an attempt was made to check these representations by sampling the outcrops as will be explained under "Sampling". Mr. Mills probably based his assumptions on the fact that a large number of the cuts and pits assayed ore and he did not realize that most of these shallow workings followed some mineralized fault or fracture, and that the assays did not nearly represent the tonnages he ascribed to them.

Essentially the deposit is a flat dipping vein with definite walls and limits, though irregular. Therefore, any idea that the entire series of breccia is ore must be discounted. The check sampling done during the period of our examination proves this beyond doubt.

Another fallacy in Mr. Mill's reasoning is that he considers the manganese present in the rock a valuable constituent. It is definitely too low grade to be considered as such. While it is possible to extract the manganese, the consumption of sulphur per pound of manganese produced is so high (1½ lbs.) that the idea is entirely uneconomical. It is necessary to extract the manganese to recover the silver values of the ore; however, using the process of leaching with sulphur dioxide, it is possible to obtain only a 40% recovery of the silver. If the property is to be considered in any sense, the gold is the only economically valuable constituent, and it may be recovered by conventional metallurgical practices.

An attempt was made, in preparing the included plan maps of the main levels, to show the amount the ore reserves would be increased, using a $3.00 cutoff, by including the silver values at $0.71 per ounce. It may be seen from these maps that the additional tonnage is negligible.

It will also be noted that the plan map of the 2237 level shows a moderate tonnage of high grade ore available, but a large percentage of that ore was mined by leasers and no map of the level, as it is now, is available. In fact, the cream of the property has already been mined.

It is possible that small additional tonnages may be located by prospecting the northern extension of the vein which has been faulted down by east-west striking faults. However, it is not believed that a sufficient tonnage could be developed to warrant the expenditure necessary. Erosion has already removed any possible southern extensions of the vein.

The included plans show only the indications of ore. The assay maps loaned to us by Mr. Mills showed that no systematic sampling had ever been done. In other words, the samples are not development advance samples, that is, each sample representing so many feet of development advance. Instead short channel cuts have been taken more or less at random, and any ore reserve calculations based on such sampling would be only an appoximation.

However, it will be noted from the included maps that the tonnage of ore "in sight" is small and would be of no interest to Coppermines.

SAMPLING:

During the brief period of our examination, Mr. Kitch and I cut thirty-eight large samples in order to check the possibility that a large tonnage of low grade ore could be developed. It has already been mentioned in this report that this would be impossible as may be seen from the assays listed below. Special attention was paid to the sampling of Resolution Hill and Dark Horse Hill since we were led to believe that the entire hill carried values. The outcrop samples taken on Resolution Hill, where the Resolution Vein outcrops, averaged only 0.034 oz. Gold/ton, while those taken on Dark Horse Hill averaged but 0.01 oz. Gold/ton. In fact, only the samples taken on the 2237 level showed a gold content of appreciable value. The samples taken together with their assays are listed below:

C.C.C. Sample No.	Location	Oz. Au per ton	Oz. Ag per ton	Composite % Mn/ton
3151	Pit near Mexican Cross	.40	1.49	1.19
3152	Mexican Cross Outcrop	.01	.63	"
3153	Outcrop So. West of M. Cross	.02	.70	"
3154	" No. East " "	.01	.24	"
3155	So. E. Pt. Resol. Hill	.005	.18	1.50
3156	" " " " "	.14	1.44	"
3157	Top of Resol. Hill	.01	.34	"
3158	So. E. Pt. Resol. Hill	.04	1.41	"
3159	Top of Resol. Hill	.005	.20	"
3160	35' Tunnel and Cut on R. Hill	.020	.82	"
3161	Dump of 2200 Level " " "	.020	2.40	"
3162	" " " " " " "	.030	1.54	"
3163	Crest-Tailings Pile	.030	5.19	5.47
3164	Middle-Tailings Pile	.030	5.99	"
3165	Toe-Tailings Pile	.040	5.38	"
3166	3 Comp. Rse.-2200 Level (see plan)	.010	.55	0.61
3167	50' Cut on 2200 Level " "	.020	.32	"
3168	" " " " " " "	.020	.49	"
3169	Pillar on 2237 Level	.380	12.30	5.16
3170	3 Comp. Rse.-2237 Level	.610	5.44	"
3171	Wall on 2237 Level	.130	1.08	"
3172	Stope Back of 2237 Level	.080	1.52	"
3173	Shaft & Pit-2237 Level	.070	4.94	3.65
3174	Outcrop by 2237 L. Stope	.070	1.71	"
3175	Dump of 2237 Level	.080	2.66	"
3176	" " " "	.040	1.45	"
3177	Outcrop-Dark Horse Hill	.010	.37	1.19
3178	Adit in " " "	.010	.30	"
3179	Outcrop-Dark Horse Hill	Trace	.15	"
3180	Dump-So. of Camp	"	.19	"

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C.C.C. Sample No.	Location	Oz.Au. per ton	Oz.Ag per ton	Composite % Mn/ton
3181	Outcrop-Dark Horse Hill	.010	.17	1.19
3182	" " " "	.040	.91	"
3183	2000 L. 1st. xc. West (see plan)	.010	.470	0.49
3184	2000 L. " " " " "	.010	.55	"
3185	Waste Dump of 2000 L.	.010	.32	"
3186	Ore " " "	.010	1.81	2.42
3187	" " " "	.030	1.05	"

The above samples taken on the main levels are shown on the plan maps while the locations of Resolution Hill and Dark Horse Hill may be seen on Plate 5.

PRODUCTION:

Briefly, the total production of the property is approximately 20,000 tons that averaged about $12.00/ton. The three check samples (see list above) of tailings represent nearly 15,000 tons of ore milled and the ore dump samples about 6000 tons.

The recent high grade shipments made by leasers total about 2200 tons that averaged $27.00/ton.

SUMMARY:

While the Sheep Tanks Mine has definite possibilities as a small relatively high grade prospect, it may be seen from the above data given that it is of no interest to this Company. It would be possible to develop and mine small tonnages but the nature of the deposit together with its complex fault pattern would certainly make it a high cost operation.

Therefore, the property does not warrant further attention or investigation.

John Hope

JH/mc

19,500 E

19,600 E

19,700 E

19,800 E

19,900 E

20,000 E

49,600 N

49,500 N

49,400 N

49,300 N

Elev. 2236

0.13 Au.

0.38 Au.

0.61 Au.

0.08 Au.

Elev. 2188

Elev. 2170

Elev. 2167

Elev. 2171

Elev. 2162

SHEEP TANKS CONSOLIDATED MINING COMPANY

PLAN 2237 LEVEL

Scale 1"=40'

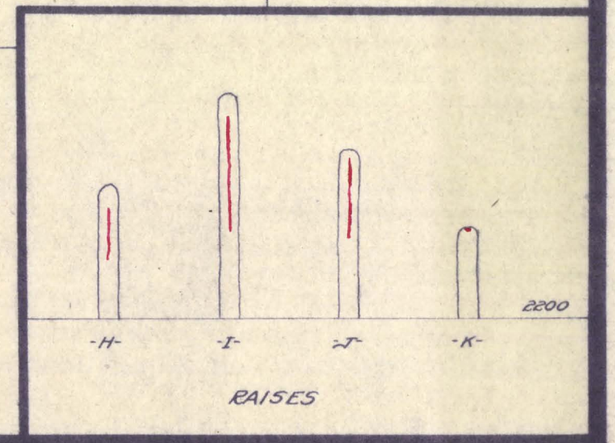
Ore averaging over $3.00 (silver content not included)

Possible ore averaging over $3.00 (silver content not included)

Additional ore if silver content included

Possible additional ore if silver content included

Plate 2



SHEEP TANKS CONSOLIDATED MINING COMPANY

PLAN 2200 LEVEL

Scale 1" = 40'

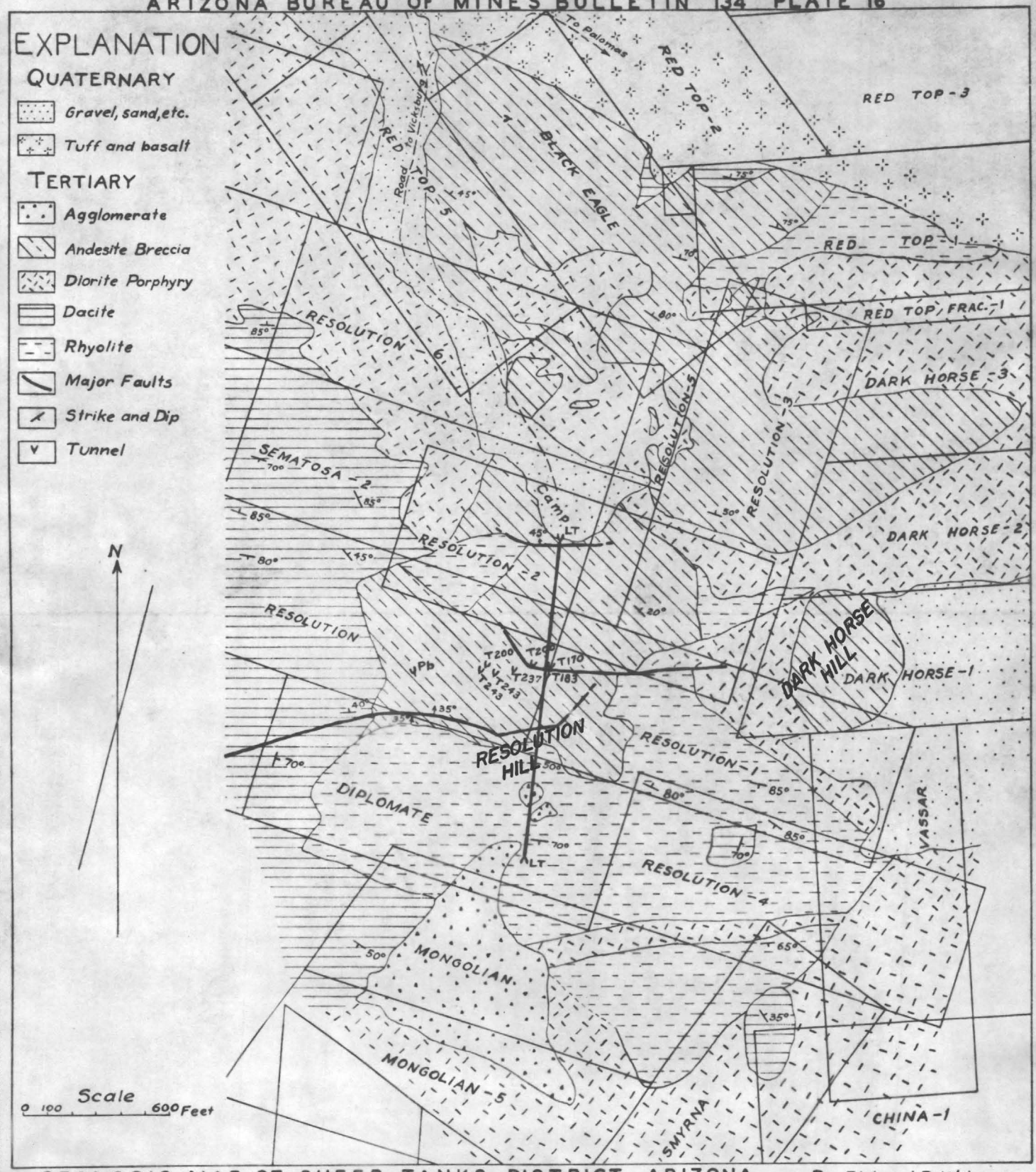
Ore averaging over $3.00 (silver content not included)

Possible ore averaging over $3.00 (silver content not included)

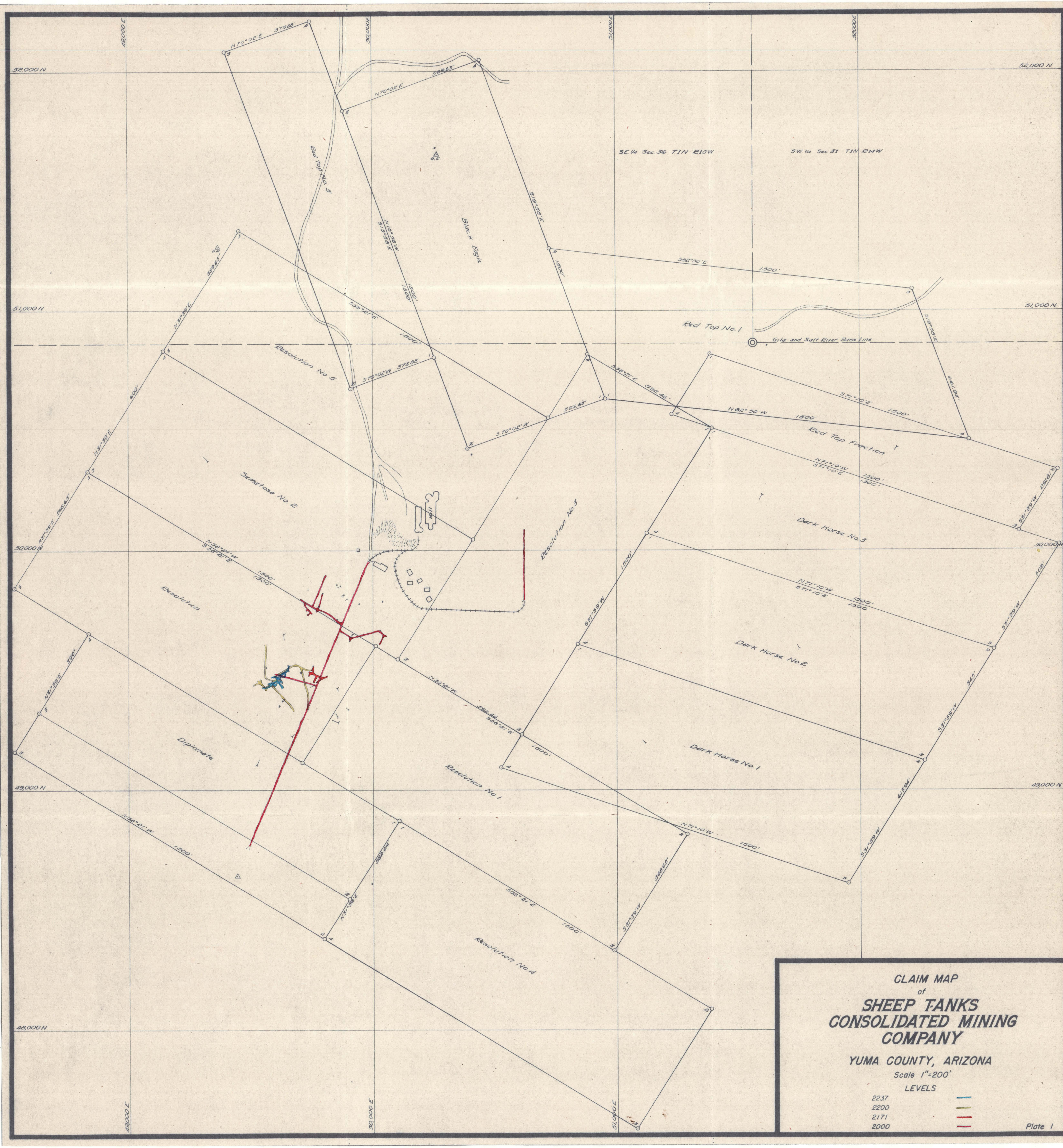
Additional ore if silver content included

Possible additional ore if silver content included

Plate 3



GEOLOGIC MAP OF SHEEP TANKS DISTRICT, ARIZONA By Eldred D. Wilson


52,000 N
51,000 N
50,000 N
49,000 N
48,000 N
49,000 E
30,000 E
31,000 E
32,000 E
SE 1/4 Sec. 36 T1N R15W
SW 1/4 Sec. 31 T1N R14W
Gila and Salt River Base Line
Red Top No. 5
Black Eagle
Red Top No. 1
Red Top Fraction
Resolution No. 5
Semptosa No. 2
Resolution No. 3
Resolution
Dark Horse No. 3
Dark Horse No. 2
Dark Horse No. 1
Diplomate
Resolution No. 1
Resolution No. 4
CLAIM MAP
of
SHEEP TANKS
CONSOLIDATED MINING
COMPANY
YUMA COUNTY, ARIZONA
Scale 1"=200'
LEVELS
2237
2200
2171
2000
Plate I

50,000 N
49,900 N
49,800 N
49,700 N
49,600 N
49,500 N
49,400 N
49,300 N
49,200 N
49,100 N
49,000 N
19,500 E
19,600 E
19,700 E
19,800 E
19,900 E
50,000 E

Elev. 2000
Elev. 2082
Elev. 2070
Elev. 2062
Elev. 2095
-E-
Elev. Top Rse. 2107
Elev. 2070
Elev. 2068
Elev. 2064
Elev. 2042
001 Au.
001 Au.
-F-
-G-
-A-
Elev. Top Rse. 2054
-B-
-C-
-D-

2200
2100
2200
3 Compartment
-A- -B- -C- -D- -E- -F- -G-
RAISES & WINZE

SHEEP TANKS CONSOLIDATED MINING COMPANY

PLAN 2000 LEVEL

Scale 1"=40'

Ore averaging over $3.00 (silver content not included)
Possible ore averaging over $3.00 (silver content not included)
Additional ore if silver content included
Possible additional ore if silver content included

Plate 4