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GRUTT-DUNNING PROPERTY

Rawhide District, Mineral County, Nevada

A Summary Report

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Summary and Conclusion

From 1906 until 1940 the old Rawhide district had a modest production record amounting to about \$1 1/2 million in gold and silver. This was mostly from small, high-grade shoots associated with fracture zones and breccia in altered volcanic rock of rhyolite composition. Since 1940 consideration has been given to searching for much larger bodies of low grade mineralization in this same geologic environment which might be amenable to open pit mining, and in 1969-1970 a major mining company did extensive sampling and drilling on the Grutt-Dunning property. The data developed suggests that:

(1) A few small pockets of high grade may still exist here and there on the property, but as in the past the cost of extracting them may likely exceed their worth.

(2) Zones on Murray Hill and Crazy Hill have vertical sections exceeding 100 feet which average from .03 to about .06 oz gold per ton plus a little silver. Further drilling is necessary to delimit them, but in size they appear to have tonnage potentials of a few million tons at most - not 10's of millions.

(3) Two holes on Crazy Hill have sections greater than 100 feet averaging more than .20 oz Au per ton. They are thought to be due to the drill hole running down a steeply inclined thin zone, but further field work and possibly drilling is necessary to resolve this.

Introduction

The old Rawhide district, first discovered in 1906 was the site of several small high-grade gold-silver mines which until 1940 produced about \$1 1/2 million from a modest tonnage of only 71,000. This averaged about \$21 per ton (with gold at \$20 and silver at 60¢ per oz) but most of this production reportedly came from a few small pockets of very rich ore which was hand-sorted and shipped directly to smelters. As this was the type of ore wanted, essentially all of the district's underground development work was directed toward the finding of more of these rich shoots, and by 1920 some 100,000 feet of underground shafts and tunnels had been driven, probably at a total cost exceeding the value of the production from the entire district.

Since World War II, however, attention at Rawhide has been focussed on exploring for large areas that might contain enough lower grade gold-silver mineralization to support a large-scale, open pit type of operation.

Sampling and drilling to explore for this possibility has been carried on by a number of major companies: in the 1940's Consolidated Copper Mines took several hundred samples, and in the 1950's Yuba Consolidated bulk sampled several of the old dumps and also put down at least three diamond drill holes. Standard Slag also sampled and drilled a few holes in the 1960's, and in 1969-1970 Homestake Mining Company, in a joint venture with Getty Oil Company, did sampling, and finally made extensive tests of some of the favorable zones on the Grutt-Dunning property by drilling some 60 holes to depths of as much as 500 feet. This firm also put down a great many 4-foot jackhammer holes to test the near surface mineralization on Grutt, Murray and Balloon Hills. The results of this work are summarized herewith. A map from the Homestake file showing their drilling on the Grutt-Dunning property is included as Figure 1.

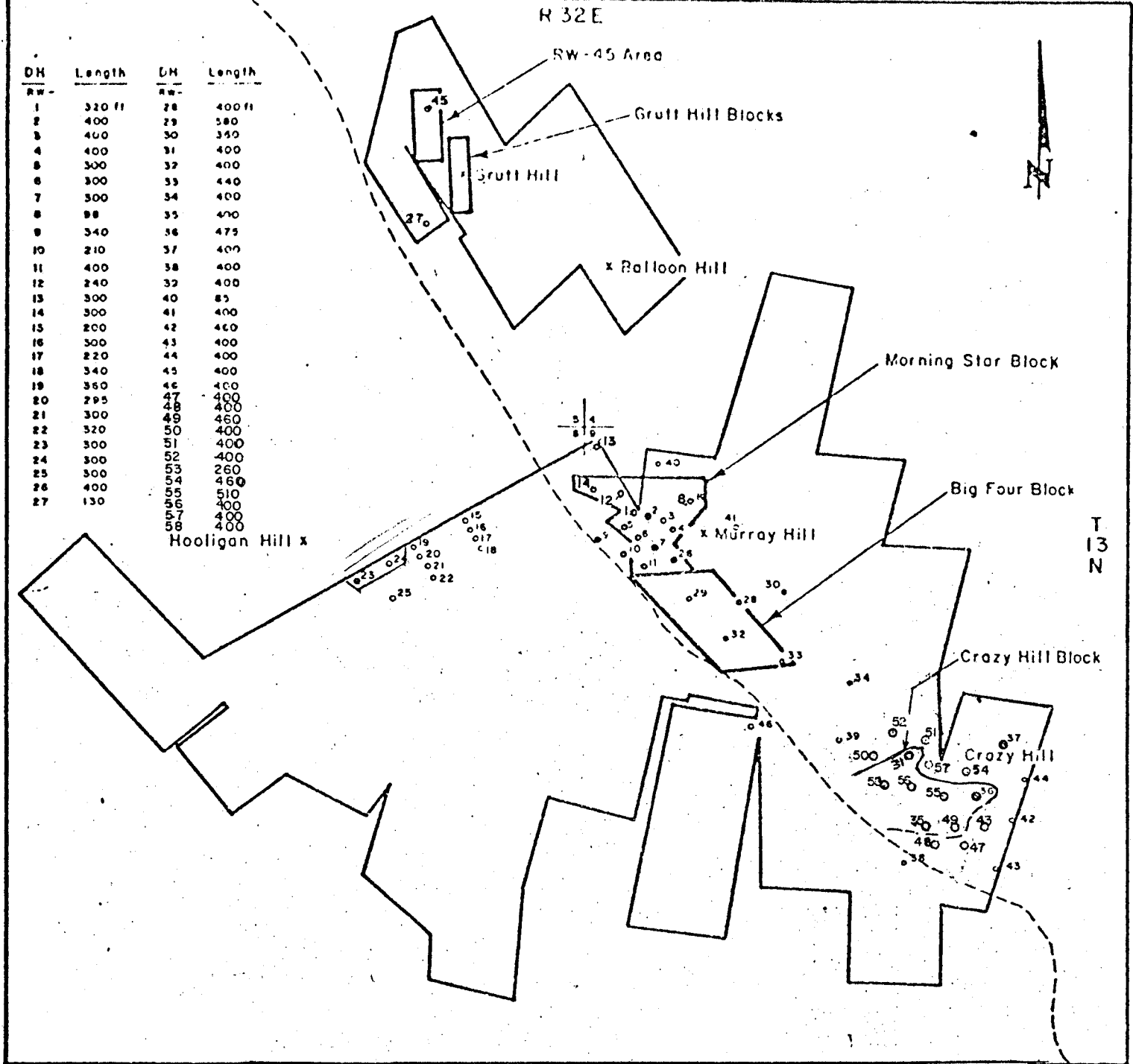
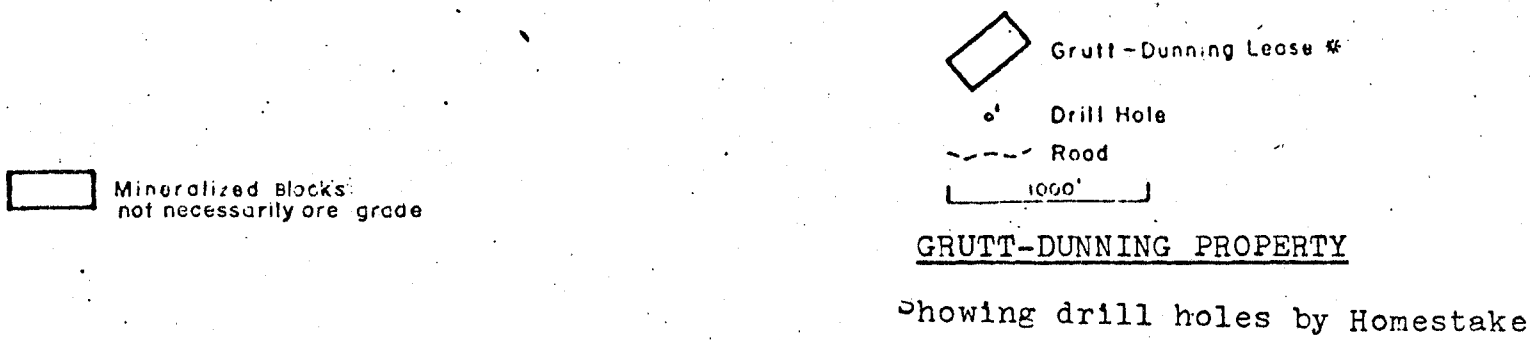


FIGURE 1



Geology

The rocks of the Rawhide district consist of a rather complex series of volcanic flows and tuffs which have been locally brecciated, silicified, argillized and laced by thin quartz veinlets, some of which contain more or less gold and silver. It is thought that these volcanic rocks may have originated in and around a volcanic center which was active in this area during late Miocene time, 18 to 20 million years ago. After being erupted as sheets and irregular piles that deposited over an irregular pre-volcanic land surface, the volcanics were then considerably fractured and broken, probably by a collapse of the volcanic center itself or by regional tectonic breaks or both. Hot mineralized vapors and waters migrating from beneath the old volcanic center came up along these broken zones; this caused the alteration of the wall rocks at Rawhide and deposited silica, sulfides and the metallic minerals around and in the many fractures. This kind of activity was probably at no great depth nor at greatly elevated temperatures, and a similar history of this type of mineralization has been noted at several other places in Nevada. The age of the mineralization at Rawhide has been dated at 17 million years by workers of the U. S. Geological Survey using the potassium-argon isotope method of determination.

Following mineralization the Rawhide area was again covered by volcanic flows and ash beds, and this "post-ore" activity was probably related to a vent a few miles west called Pilot Nob, which is the "plug" or "core" of a former volcano thought to be 10 to 15 million years old. The accumulation of volcanic material was not great, however, and since the last eruption normal erosion by water has reexposed the known mineral deposits at Rawhide.

Mineralization and Potentials

As the mineralization at Rawhide follows the trend of fracture systems which developed during the early geologic history of the area, they are widely and irregularly scattered throughout the district. In and around the Grutt-Dunning property several have been identified and named: (1) Grutt Hill, (2) Balloon Hill, (3) Murray Hill, (4) Big Four, (5) Crazy Hill and (6) Hooligan Hill.

On Grutt Hill several tunnels and cuts have been made, but most past production was from the Mint shaft which is just southwest of the hill proper. Recent work by Homestake Mining Company involved drilling about thirty 5-foot jackhammer holes into breccia at the top of the hill; this outlines an area about 100 feet wide and 300 feet long which contains an average of .03 oz Au and about .4 oz Ag per ton.

Two rotary holes were also drilled (see Figure ¹/₂) and both found 20- to 100-foot sections averaging about .03 oz Au and 0.5 oz Ag per ton. These intercepts compare with the results of samples taken several years ago by Consolidated Copper Mines in the lower Grutt tunnel where a 550-foot adit averages .02 oz Au and .2 oz Ag per ton and a nearby large dump averages .032 oz Au and 0.7 oz Ag per ton. These values appear to reflect the overall potential of the area - probably a fairly large tonnage averaging about .03 Au and .5 oz Ag per ton (\$5.00 at today's prices) which is not considered of economic grade.

No deep drill holes have been put into Balloon Hill, probably because no mineralization of importance is known within the Grutt-Dunning ground. (The Kearns No. 2 shaft, which produced some good ore, is just south.) However, Homestake Mining did drill about 100 short jackhammer holes over the north part of the Hill and indicated that a little area about 25 feet square around

a breccia pipe contains about .03 oz Au and 0.3 oz Ag per ton. This, of course, has no economic potential at present.

At Murray Hill, a considerable amount of dump sampling as well as Homestake's short-hole geochemical program has indicated mineralization in and around a sizeable breccia zone. Also, the nearby Morning Star and Murray shafts accounted for a modest amount of the district's past production. A total of 14 holes ranging from 360 to 580 feet in depth were drilled vertically into this sector; of these, seven found mineralization which could be considered of interest:

<u>Hole No.</u>	<u>From</u>	<u>To</u>	<u>Width</u>	<u>oz/T Au</u>	<u>oz/T Ag</u>
1	190	200	10	5.20	3.8
	200	310	110	.037	.2
2	140	300	160	.07	.5
3	230	240	10	.190	.6
5	60	70	10	.215	.2
7	150	160	10	.55	.9
	160	290	180	.05	.4
8	40	50	10	.17	2.7
26	180	290	110	.089	.9

The two highest assays - 190-200 in hole 1 assaying 5.2 oz Au and 150-160 in hole 7 assaying .55 oz Au per ton - are very likely two of the small high-grade pockets for which the district is noted, and it is doubtful they represent much tonnage. The significant holes tonnage-wise are the thicker, plus 100-foot sections in holes 1, 2, 7 and 26 which average about .06 oz Au and .5 oz Ag per ton - still probably not of an economic grade at today's gold prices. These holes are roughly aligned northwest-southeast, and as most of the ground on each side has been drilled by holes showing only minor mineralization, these thick columns are likely representing a thinner zone of mineralization which is steeply inclined. If so, not much tonnage potential or good grade has been indicated by

the drilling on Murray Hill. The zone possibly continues northward, but there, it would be on the adjacent Scheeline ground.

Just southeast of Murray Hill is an area called the Big Four, named from an old shaft from which there was a minor amount of production. A vein two inches to a foot wide is said to have produced ore worth more than \$8,000 and several dumps in the north part of the sector contain values reportedly ranging from .01 to .10 oz Au per ton. Three rotary holes put down in the Big Four area, however, failed to find mineralization of economic interest.

Still farther southeast, a siliceous nob called Crazy Hill has been prospected to a small extent by a few shafts and cuts around a breccia zone. Homestake put 21 holes down into this zone to a maximum depth of 510 feet and seven of these found mineralization of possible interest:

<u>Hole No.</u>	<u>From</u>	<u>To</u>	<u>Feet</u>	<u>oz/T Au</u>	<u>oz/T Ag</u>
31	0	100	100	.358	0.4
35	120	230	110	.265	2.2
36	180	370	190	.080	2.00
49	10	155	145	.046	0.3
55	260	335	75	.046	0.5
56	20	100	80	.050	0.2
58	75	345	270	.050	0.4

The two "hot" holes, 31 and 35, are of ore grade, and would be of considerable significance if the mineralization could be shown to be connected between them. However, Homestake offset hole 31 by eleven 40- to 60-foot vertical rotary holes, numbered 31A, B, C, etc., apparently spacing them around hole no. 31. Of these, only one hole found as much as 15 feet assaying 0.10 oz Au; three others averaged .05 to .06 oz Au (plus a few tenths Ag); and the rest contained .02 or less oz Au per ton. So apparently hole 31 ran down along a narrow vein zone which was well

mineralized, but does not represent much tonnage potential. The relationship of hole 35 and the other holes, on the other hand, is not known; perhaps it can be (or has been) resolved by field observations, but if not, further drilling to delineate this mineralization might be required. In either event, the grade of mineralization in the holes other than 31 and 35 averages .055 oz Au and 0.7 oz Ag per ton, which is not particularly encouraging at the present gold price.

The northern edge of the Owl No. 1 claim of the Grutt-Dunning group runs just south of the Hooligan Hill workings from which there has been production but which are almost entirely within the adjoining Scheeline property. However, to test the ground on the Grutt-Dunning side, Homestake put 11 holes down just south of the border to a maximum depth of 360 feet. Of these only two, nos. 23 and 24, found mineralization; it amounted to only a few 10-foot intercepts of .05 to .10 oz Au per ton which indicates that perhaps just the tip of the Hooligan Hill zone extends into the Owl No. 1 claim. It has no economic significance to the Grutt-Dunning property, of course, unless it might someday be mined on the north side of the line.

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