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MINING
ENGINEER

ALBERT BURCH

Mining Engineer

Black Oak Ranch, Medford, Oregon

REPORT UPON

PROPERTY OF

GENII MINING CO.

BY

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REPORT UPON

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GENII MINING CO.

Nov. 1930

CONCLUSIONS AND RECOMMENDATIONS

Developed Channel.

The nature of the exploratory work in the Genii is such, consisting as it does of drifts, cross-cuts and diagonal cross-cuts, that the channel can be said to have been explored for a length of 700 feet in pay and 500 feet that is not payable.

In the section of pay channel ~~I estimate that the~~ net value is from \$60,000 to \$80,000, if worked with proper equipment.

Equipment.

Proper equipment for mining, transporting and washing the gravel at the rate of one hundred yards per day should not cost to exceed \$35,000.

Available for Future Prospecting.

This should leave from the proceeds of the developed gravel \$25,000 to \$45,000 available for exploration and development of the adjacent sections of the channel up and down stream.

Future Prospects.

It is hardly conceivable that, with a considerable portion of the explored channel either eroded by later washing or filled with lava, the best part of the ground within the company's holdings has been tapped, nor is it certain that the poorest has been found. All that we can do is to assume that it is average ground, and, if so, the remainder of the channel should pay a profit of several hundred thousand dollars.

(signed) ALBERT BURCH

Mining Engineer

Medford, Oregon

November 29, 1930

LIMITS OF CHANNEL

The map which accompanies this report, was prepared by the superintendent in advance of my visit to the mine and on it, in addition to sample numbers and values per yard, which I have added, are the outlines of the channel, as determined by him. After checking it over underground, I have no fault to find with its accuracy. Such an outline is always a matter of opinion until the whole of the pay is worked out, and from the best data now available, I believe the boundaries as shown are approximately correct.

SAMPLING

The sampling was done by blasting at regular intervals of fifty feet in the drifts and at shorter intervals in the cross-cuts. Usually one cubic yard (estimated) of material was taken from each blast for washing, but in some cases one and one-half yards, two yards, ~~and in one instance three~~ yards were taken. These were in places where the first shots did not go high enough above bedrock or deep enough into it to give a fair sample.

Each sample was washed in an Ulsdonk concentrator, which was cleaned up after each sample, with the exception of the section under coarse screen of the hopper. This was cleaned up at the end of the run and yielded \$20.33, which was apportioned among all of the samples equally. Finally the samples were cleaned by Abbot A. Hanks, Inc. of San Francisco, and the metallic contents of each sample weighed separately. A composite was made for the determination of the fineness and the gold was found to be worth \$18.29 per ounce. The black sands were saved and two composite samples were made up, one from the up-stream gravel, and one from the down-stream. They assayed respectively \$19.43 and \$10.12 per ton.

most of the gold is very close to bedrock, still the upper ground will yield something (see samples 12, 13 and 24). Therefore, where less than six feet in height was sampled, ten per cent was arbitrarily added to the weighed gold to account for that which would in mining be removed from above the top of the sample, and the amount thus obtained was applied to a thickness of six feet.

The following is a list of the samples, their positions being shown upon the accompanying map; (78¢ per sample added to "total gold value" from general cleanup in computing value per yard).

NO.	DEPTH SAMPLED	YARDS WASHED	TOTAL GOLD RECOVERED FROM SAMPLE	VALUE PER YARD	POUNDS BLACK SAND
1	4 feet	1	\$ 6.97	\$ 5.69	1.8
2	3.5 "	1.5	33.51	13.63	5.5
3	4 "	2	21.77	8.27	12.5
4	4.5 "	2	34.74	14.68	13.
5	4 "	1	7.71	6.27	6.7
6	6 "	1	1.93	2.71	5.5
7	4.5 "	1	17.47	2.77	4.
8	4.5 "	1	8.08	6.53	7.
9	4.5 "	1	7.42	6.74	4.5
10	5. "	1	2.48	2.85	6.8
11	6. "	1	1.62	2.40	7.5
12	6. "	1	2.24	3.02	7.5
13	6. "	1	0.81	1.59	19.
14	5.5 "	1	0.76	1.41	11.
15	4.5 "	1	7.13	6.52	6.
16	5.5 "	1	1.69	2.26	8.5
17	4.5 "	1	2.91	2.77	4.5
18	5 "	1	5.19	4.98	9.5
19	5 "	1	3.26	3.37	7.
*20	3.5 "	1.5	7.53	4.17	36.
*21	3.5 "	1.5	11.12	5.64	21.
*22	3.5 "	1	6.19	5.31	12.5
*23	4. "	1	9.94	8.81	5.8
24	5 "	1	2.42	3.20	4.2
*25	3 "	3	32.51	6.34	11.5
*26	3 "	1	45.86	27.47	9.5

*Small nuggets from these samples, totaling \$7.83 were saved separately and apportioned among the samples equally in computing value per yard. This is in addition to the 78¢ per sample from the general cleanup.

AVERAGE VALUES

Placer deposits are always very irregular in value with excessively rich and excessively lean spots, and it is therefore entirely proper, in making up averages, to include both high grade and low grade samples, provided they are equally spaced or otherwise weighted as to value.

For the purpose of arriving at an average value for the explored ground in this channel, I have divided the ground into two blocks of about equal area with the North Crosscut as a dividing line and have given all samples equal weight with the following exceptions:

Nos. 12 and 13 were disregarded because they are far above bedrock, though their value indicates almost a certainty of good gravel under them on bedrock.

Nos. 5, 6 and 7 were averaged and treated as one sample and the same applies to Nos. 10 and 11. ~~Nos. 14, 15, 16, 17, 18 and Nos. 21, 25 and 26.~~

The result is an average of \$6.54 per yard for the upstream block and \$6.93 per yard for the downstream.

TOTAL YARDS AND VALUE

When it comes to defining the limits of such a channel as this without having finally worked it out (which is too late), the best any one can do is to make an intelligent guess and express his opinion. There is no such thing even as being so conservative as to make a perfectly safe guess.

It is my opinion, based upon the best evidence obtainable, that 38,500 square feet of channel will be mined in the upstream section as explored and 39,600 in that downstream from the "North Crosscut". Assuming a working height of six feet the two blocks should produce 17,350 yards of gravel and the two areas are so nearly equal, and their average values also, that we can safely average

the two blocks together, making \$6.78 per yard as the average. This is in recoverable free gold. The black sands also have some value, but after being cleaned by the Ulsdonk machine the value is so small as to be negligible.

WORKING COSTS AND NET VALUE

With proper equipment I estimate the working costs at \$2.35 per yard, but it is probably safer to use the figure given me by the superintendent, viz., \$2.50 per yard. On this basis the profit would be \$4.28 per yard, or \$74,250. In actual working, the mining may be done with a lower roof, than is estimated, producing less yards of a higher value per yard, or more ground may be removed with a lower yield per yard. Either plan might result in a larger net return. Also there are possibly rich spots or barren islands and "boil" holes which have not been discovered that would materially change the net results.

All that I can say then, is that properly equipped, I believe the net returns from the explored ground will be from \$60,000 to \$80,000.

WORKING CONDITIONS AND EQUIPMENT

The mine is not very well opened for economical operating, but few drift mines ever are. The nature of such deposits makes it impossible to lay out haulage ways that will fit the entire mine.

The main haulage tunnel is very good, but the gravel from upstream has to be transferred twice to reach it and from downstream once, and I see no way of avoiding either at present.

There is no dump room at the mouth of the haulage tunnel, and this could not have been provided. It is now proposed to hoist the gravel over a surface tram and dump the trailing into a gulch well above the river level. This will be sufficient for all the gravel now developed, provided the barrier between the dump and the river is made to satisfy the authorities who supervise debris control in the Sacramento river drainage. Ultimately the trailing

carried further away, and therefore no more money than is necessary should be spent upon immovable structures upon the present site.

I therefore favor the following outside equipment:

1. Incline surface tram to haul trains from tunnel mouth to washery site.
2. Rock bin of 6000 cubic feet capacity.
3. Conveyor under rock bin chutes to carry rock to concentrators.
4. Two units Ulsdonk concentrators (to operate two shifts or 16 hours per day).
5. Pump and pipe line to supply water for washing.
6. An electric hoist for operating the surface tram.
7. In the near future, though not now, a drag line scraper to move the coarse rock down hill.

For underground use there will be required:

1. A compressor of about 800 cubic feet capacity, ~~the small~~ one now on hand to be used as a standby.
2. A larger storage battery locomotive to handle ten car train.
3. About ten new cars for tunnel, preferably side dump of about 30 cubic feet capacity.
4. Electric hoise for the incline.
5. Two scraper hoists and three scrapers.
6. About four machine drills.

I have estimated the cost of the equipment as listed above very roughly and do not think it should exceed \$35,000.

FUTURE OF THE MINE

The last five hundred feet of drift going upstream has been mostly in gravel cemented by lava, but for a short distance at the end, has been in free gravel again, which, according to the superintendent, is not quite of payable grade. This is quite likely to come into pay gravel at any time, and with more than a

mile of stream ahead, I do not hesitate to join Mr. Hershey in predicting that much of it will be found to be pay.

Down stream the workings seem to have reached a former low water fall, below which is the usual barren "boil" hole. Beyond this, a stretch of channel may be expected, where the water was comparatively quiet, and therefore favorable for a uniform deposit of gold. Also the gravel in that direction was probably too deep to be affected by the subsequent lava flow. Altogether, I am inclined to the belief that a more reliable output may be expected from the down stream than the up stream section. The two combined are likely to yield several hundred thousand dollars in profit, but I decline to predict any definite amount.

ALBERT BURCH

Mining Engineer

Medford, Oregon

November 29, 1930.