Transcribe

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UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
So. 157 Howard Street
Spokane 4, Washington
January 31, 1962

Memorandum

To: Chief, Division of Field Operations

From: Acting Field Officer, Region I

Subject: Application Examination Report, OME-6177 (Gold), Eich, Wagner, and Kallestad, Jefferson Gulch Placers, Powell County, Montana

INTRODUCTION

Because of the completeness of the application it is doubtful that an on-site examination would contribute any noteworthy additional information. However, it was deemed advisable to discuss the proposed project and costs with the applicants. Accordingly, on December 6, 1961, accompanied by Suk Koo Yoon, a trainee from Korea, Louie Eich and Herman Kallestad were met and interviewed in Garrison, Montana. About 2 hours were spent discussing the project and costs.

The applicants conceded that their proposal to dig test pits at 25-foot intervals across the gulch and 200-foot intervals along it resulted in many more pits than necessary and agreed that 40-foot intervals across the gulch and 500-foot intervals along it would be adequate providing that provision was made for additional pits to test adequately the interpolation between the original ones.

The possibility of testing the ground by churn drilling was discussed at some length, but the applicants were not receptive to the idea. They insist that the area and therefore the volume of ground sampled by each churn drill hole would be considerably less than the area and sample volume resulting from test pitting, and that therefore to test the ground thoroughly, at least twice as many drill holes as test pits would be necessary. Their stand was also influenced, I believe, by the fact that they own the equipment and can contribute that and their own labor to the cost of test pitting, whereas they would have to provide the full 50 percent of their share of the cost by cash if the exploration were carried out by churn drill.

As the applicants would not consider churn drilling, they were not asked to submit bids. However, the relative merits and costs of churn drilling and test pitting were discussed with Dean Holt of the Spokane Bureau of Mines, Office of Mineral Resources. Mr. Holt has investigated many placer deposits for the Bureau of Mines and is familiar with the Jefferson Gulch placers. He is of the opinion that test pits would give more satisfactory results than churn drilling and, provided the holes do not exceed 20 feet in depth, that they would be considerably cheaper. He estimates on the basis of his experience in testing placer ground in the Northwest States, that the cost of churn drilling would range from $5.00 to $6.50 per foot, depending upon the amount of drilling. The recommended pattern of test pitting requires 113 test pits plus 62 auxiliary pits, or a total of 175 pits. The average depth of pit is estimated to be 16 feet. At the minimum of $5.00 per foot, if the same number of locations were churn drilled, the cost would be 2,800 feet X $5.00 = $14,000.00. To this must be added the cost of mobilization and sampling.

It is recommended that a total of 113 test pits be excavated at 40-foot intervals along 14 lines as shown on plate 1. It is also recommended that provision be made for 62 additional pits at locations to be approved by the Government. Each pit should be 9 feet long and 4 feet wide, the long axis being at right angles to the trend of the gulch being tested. The depths of the pits will vary, but the average depth is estimated to be 16 feet. Each pit will be put down at least to bedrock and, where possible, should penetrate bedrock up to 3 feet.

COSTS

A total of 175 test pits, each 9' X 7' in section and the average depth being 16 feet will contain 6,533 cubic yards. At 6.4 pits per day, 175 pits would require 27.3 plus 3 moves of the washing plant at 2 days per move--time to complete the project 33.2, say 33 days or 1.5 months at 22 days per month.

1. Independent Contracts		None
2. Labor and Supervision		
3 equipment operators, 33 days at $25.00/day	$2,475.00	
1 engineer-sampler, 1.5 months at $500.00/month	750.00	
	$3,225.00	
FICA and other insurance at 12.2%	393.45	
		$3,618.45
3. Operating Materials and Supplies		
6" aluminum water pipe, 400 ft at $3.00/ft	$1,200.00	
6" water hose, 25 ft at $6.50/ft	162.50	
10" suction hose, 15 ft at $8.00/ft	120.00	
Diesel oil, 2,100 gal at $0.19/gal	399.00	
Gas for Michigan C16 dragline, trucks and welder, 1,425 gal at $0.27/gal	384.75	
Oil and grease at 20% of fuel	156.75	
2 large gold pans at $2.75	5.50	
2 rd. pt. No. 2 shovels at $4.19	8.38	
2 sq. pt. No. 2 shovels at $3.79	7.58	
2 axes at $5.25	10.50	
1 R. R. pick w/handle	3.50	
1 8 lb. mall	5.00	
		$2,463.46

4. Operating Equipment (Owned by Applicant)

Item	Value	Depreciation per month	
1 Lima 604 dragline, 2 yds	$30,000.00	$ 500.00	
1 Michigan C16 dragline, 3/4 yd	12,500.00	208.33	
1 Cletrac FDCL 210 hp (1953)	4,000.00	66.66	
2 Trucks, 6 yd, 2 Tons at $9,000.00 each	18,000.00	300.00	
1 Ore washer, Pitcher trammel	6,000.00	100.00	
1 Welder, Lincoln 375 amps.	650.00	10.83	
1 Pump, diesel, 10", 125 hp	3,000.00	50.00	
1 Pump, 1½"	195.75	3.26	
		$1,239.08	
at 1.5 months			$1,858.62
1 Truck and lowboy, Kenworth, 5 Ton	$10,000.00	$ 166.00	
at 6 days or 0.27 month			45.00
			$1,903.62

5. Initial Rehabilitation and Repairs — None

6. New Buildings, etc. — None

7. Miscellaneous

175 large sample sacks, tags, twine at $1.00	$ 175.00	
175 analyses for gold and silver at $6.00 each	1,050.00	
Engineering and account office expenses, 1.5 mos at $75.00/mo	112.50	
		$1,337.50

RECAPITULATION

1.	Independent Contracts	None
2.	Labor and Supervision	$3,618.45
3.	Operating Materials and Supplies	2,463.46
4.	Operating Equipment	1,903.62
5.	Initial Rehabilitation and Repairs	None
6.	New Buildings, etc.	None
7.	Miscellaneous	1,337.50
	Total cost of project	$9,323.03
	Government contribution	$4,661.51

Thus, for 2,700 linear feet of test pitting and sampling the total cost is $3.457, say $3.45 per foot, as compared to between $5.00 and $6.50 per foot for churn drilling not including mobilization and sampling cost.

Enclosure
Distribution:
OMI(3)
USGS(SRO)
Docket
Maclaren

PHYSICAL DESCRIPTION

EXHIBIT

3 (d)

We, the applicants, do not have a complete set of maps or charts showing prospective yardage or values for the placer claims in this application.

Several reports and sketches of the area north of the reservoirs shown on the 1"- 330' map are included with this application and show that there is approximately 1,333,333 cu.yds. of placer gravel with an average value of 75¢/cu.yd. fromthe south end of the Charles Pryse Patented Placer to the north end of the Toole Patented Placer Claim.

Area " A " as shown onthe map has approximately 481,000 cu. yds of overburden and 289,000 cu. yds of placer gravel with an assumed 1.66:1 value of 60¢/cu.yd or a total value of $ 173,400 for the placer gravel. Testing proposed in the application will prove or disprove these figures.

Area "C" shown onthe map has approximately 945,000 cu.yds. of overburden, and 567,000 cu.yds. of placer gravel with an unknown value 1.67:1 due to the fact that no reports of any testing is available. It is assumed that the gold value will amount to 35¢/cu.yd based on hand testing methods employed by the applicants.

Area "D" shown on the map has approximately 436,000 cu.yds. of overburden, and 262,000 cu.yds. of placer gravel with an unknown value. 1.33:1 This area will be tested provided that testing along the south-east end line of the Keating & Coffey Placer; survey No. 500 shows sufficient justification. Negotiations are in progress to obtain a lease on this property at the present time, and should conditions warrent an amended application will be filed at the proper time.

Area "E" is questionable as to yardage or value due to previous work. Testing in the southern portion of the Toole Placer will determine the advisability of testing this area. Should conditions warrent an amended application will be filed.

Area "B" along Toole Creek has a good potential but no yardage or value has been assigned to this area until after Area "A" has been tested. Work is being done at the present time to protect this area for the benefit of the applicants. Should conditions warrent an amended application will be filed.

PHYSICAL DESCRIPTION

EXHIBIT

3 (e)

We, the applicants, would like to submit with this report a copy of a portion of Plate 2 of Bulletin 842; U. S. G. S. This illustration shows the geolgic features of the area. The contours show the direction of the various gulches within the area, as well as the high points. To the north and east of Jefferson Gulch near its head is shown a small outlier or outcrop of the quartz monzonite of the Boulder Batholith. Numerous small igneous dikes invade the general area. The immediate area of the quartz monzonite outcrop and the numerous dikes shows intensive host rock alteration and iron mineralization. Jefferson Gulch and Washington Gulch were the scene of early day valuable gold placer mining.
Numerous large gold nuggets were found in both gulches along with quantities of fine gold.
The apparent source of the gold is at or near the igneous-sedimentary contact. Several large lode producers are at or near this contact. Testing by the applicants at or near several ignoous contact s in the immediate vicinity of the subject placer claims has produced a minor amount of gold from the residual soil.

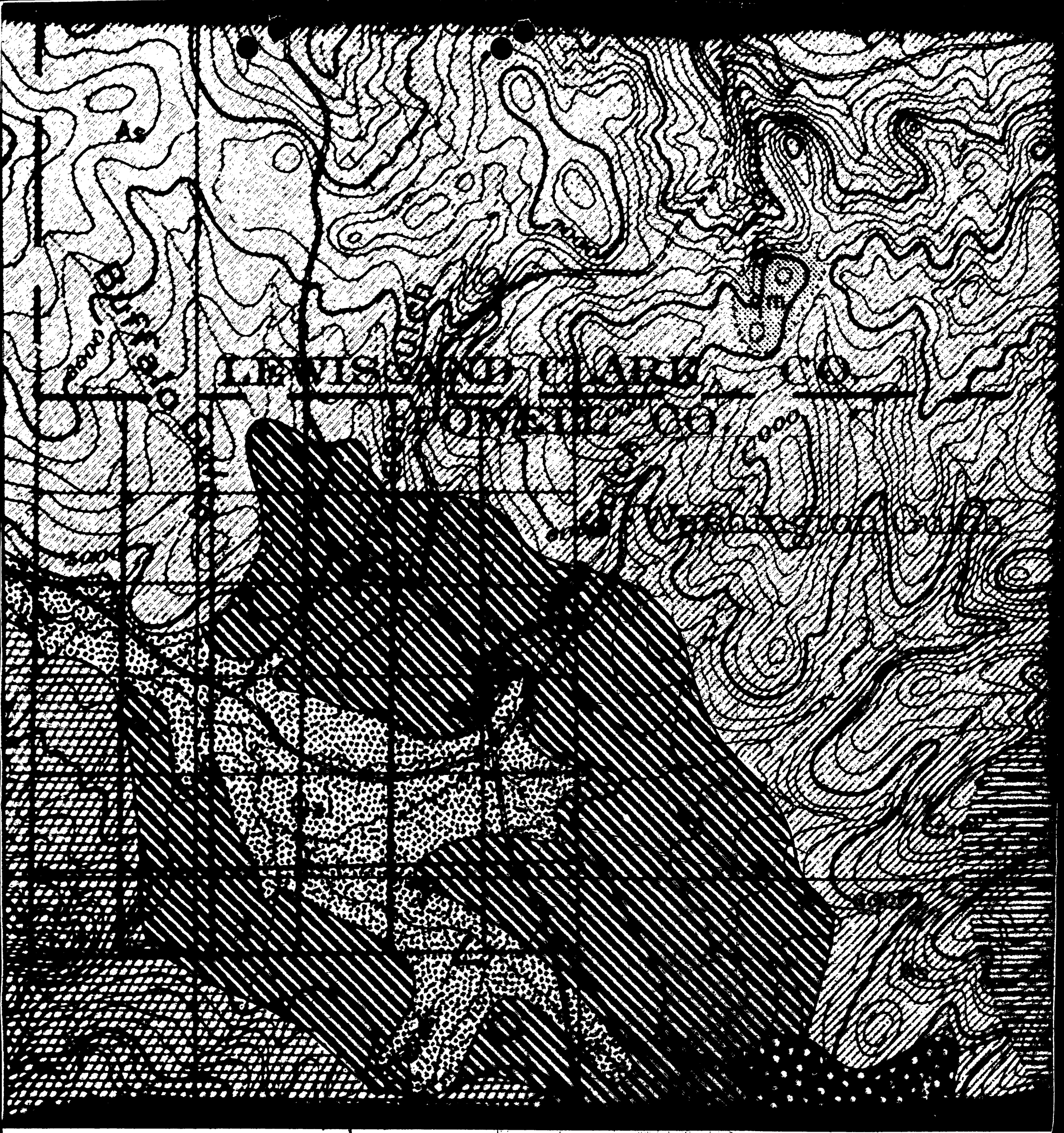
Testing of the black sand concentrates(magnetite) has shown that considerable gold is associated with magnetite in a very fine state. This fine gold has been lost in previous placer operations and is contemplated being recovered in this operation. (see report by Montana Laboratory Co.)

The bed rock exposed in the previous placer operations show that shale and quartzite of the Belt series is the host rock of the general area. The contour of the bed rock is very uneven.

This shale and quartzite is covered with a layer of clay, then a good gold bearing strata of gravel carrying a very small proportion of large granite boulders, then a layer of overburden consisting of gravel intermixed with carboniferous material and residual soil.

No previous attempt has been made to penetrate the clay in enough places to determine if any gold bearing gravel exists between the clay and bed-rock. This should be done especially in the depressed areas of the bed-rock.

The 1"- 330' maps shows the approximate extent of the placer deposit within the confines of the subject placer claims. (see exhibit 3(a)).



GEOLOGIC MAP
ECK & WAGGNER PLACERS

An Algonkian Bolt Series, Shales, Limestone Quartzite

Qal Alluvium

T Tertiary Gravels etc

qm Cretaceous, Monzonite

PHYSICAL DESCRIPTION

EXHIBIT

3 (f)

We, the applicants, expect to find sufficient placer gold along with contained gold in the magnetite to warrent a profitable placer mining operation. This expectation is based on past samples, production, and recent testing.

Recent testing suggests that the magnetite contains sufficient gold values to warrent their extraction and beneficiation. A report by the Montana Laboratory Co. is included within this report and is submitted to support this theory. (Exhibit 3 (g)

Testing by previous operators shows that there is a possibility that the placer ground in Area "A" contains approximately 60¢/cu.yd.

The above testing is described fully in Mr. Smith's report of April 28, 1958,and is substantiated by a letter from a neutral observer Mr. Leo M. Miller to Mr. W.T. Beaumont of the Small Business Administration dated April 28, 1958. The manner of testing as described in Mr. Smith's report indicates that care was maintained to obtain a representative sample of that area. That care was also maintained during the concentrating of the sample by sluicing methods. There are several descrepancies in the manner that the testing was done that would not allow full credence to be given the results. (Exhibit 3(g)

There are no assay certificates available on any of the previous testing except for the determinations made and results presented in the Montana Laboratory Co.'s report (Exhibit 3(g)

Testing of Areas "D & E" will depend on the results of tests conducted on the magnetite concentrate obtained from tests conducted on Area "C",

PHYSICAL DESCRIPTION

EXHIBIT

3 (g)

Copies of previous reports by operators and copies of tests are included within this reports and are as follows:

1. Qualatative Spectrographic Examination, Smith Emery Company; June 17, 1961

2. Tests on Placer Sands, Montana Laboratory Co., June 19, 1961

3. Condensed engineer' s report onJefferson Gulch Placer Gold. Mr. James Smith, Engineer.

4. Report on Examination of Jefferson Gulch Placers; April 28, 1958

5. Statement by Gus Carlson on Jefferson Gulch Placers

6. Letter dated April 28, 1958 by Leo Miller, Sales Engineer, Montana Powder and Equipment Co., Helena, Montana,Concerning Jefferson Gulch Placers.

7. Geologic Map of general area (copy) Plate 2, U.S.G.S. Bulletin 842

The above listed maps and reports (copies) are not needed by the applicants and may be retained by the Office of Minerals Exploration. All originals from which the above listed copies have been made are available in the applicants files.

There is a sketch, aerial overlay, showing location of testing and results obtained by James Smith and Ralph Davis from 1940 to 1955 included in the report. The original of the sketch and the aerial photo is available in the applicants file.

Report on Examination of Jefferson Gulch Placer Conducted on April 28, 1958:

The Helena office of the Small Business Loans Administration advised the Jefferson Gulch Mining Company that they desired to examine bed rock material from the Jefferson Gulch Placers and observe the extraction of gold values from the bedrock or gold bearing strata of the placer ground.

The most logical approach to exposing and extracting virgin bedrock material is to advance the excavation in the operating pond a sufficient distance on a limited width to uncover virgin bedrock that can be excavated, examined and the values removed.

On Friday, April 25, 1958, I transported fuel and supplies to the property and proceeded to uncover a limited section of virgin bedrock.

During the winter, sloughing banks had filled the operating pond with waste soil to within five feet of the water surface. It was necessary to remove between seven and eight feet of this caved in material to reach the bedrock depth established at the end of operations last fall. Over 200 yards of caved in material was removed to reach the bedrock depth.

A bucket width cut was started in the face to open up virgin bedrock. This cut progressed about six feet and encountered the timbers of an old tunnel that extended from an old shaft located in the northeast corner of the working pond. There appeared to be a section of virgin bedrock between the worked bedrock and the side of the tunnel. It was decided to excavate this small section of bedrock rather than excavate through the tunnel to reach virgin ground on the east side of the tunnel. To excavate through the tunnel would cause considerable caving and foul up the working face so badly it would cost hundreds of dollars to straighten up and resume normal operations.

The virgin bedrock was contacted and operations halted until the inspecting personel was available.

On April 27, 1958, the inspecting party arrived at the mine. About two yards of material was removed from the virgin ground with the dragline bucket, operating in approximately 12 feet of water. From observation it appeared that about 50% of this material was slough off material from upper levels and about 50% was material from bedrock with a generous show of the red bedrock clay. This material was dumped on a large canvas and hand shovelled into a sluice box. The sluice box was equipped with clean riffle cloth, two sections of wooden riffles and one section of expanded metal riffle. Three large nuggets, two medium sized nuggets and considerable fine gold (-16 mesh) was recovered. (See sketch A for location of test section). (See Sketch B for cross section of profile of test section.)

This examination furnished the following information:

1. Virgin ground located immediately in front of the washing plant carries gold values.

2. Gold values are present on or near the clay bedrock in virgin ground.

3. The majority of the gold recovered was large, heavy particles that bring a premium price on today's market.

4. The virgin bedrock at the point of examination lies under 12 feet of water and originally under 30 feet of overburden. (See sketch B for profile.)

5. A lateral tunnel extends in northerly direction from the shaft located in the southeast corner of the pond. This tunnel is parallel to the working face and will be dug out during the first few days of operation. The tunnel with its timbering will hold up the digging about two days.

6. This examination verified the presence of gold in the Jefferson Gulch placers; however, due to the uncontrolled excavation of the bedrock material the results of this examination cannot be used to compute yardage values of the Jefferson Gulch placers.

7. This examination demonstrated that the clay bedrock can be penetrated and removed with a dragline bucket.

During the winter and spring breakup the banks bordering the operating pond have continued to slough off filling the pond with valueless soil and overburden. This condition can be rectified by removal of the overburden, leaving 10 to 15 feet of cover over the bedrock. This overburden can be moved by scrapers or by dragline. The first 50,000 to 10 ,000 yards should be moved by scrapers to open the ground up and allow for controlled economical disposal of waste by the use of scrapers or by using a long boom dragline.

Stripping and removal of overburden can start immediately for the ground is free of frost and sufficiently dry to support heavy equipment. Jefferson Gulch is located in a high altitude mountainous area with a short working season so it is imperative to start operations as early in the spring as possible to take advantage of all the available working season.

James F. Smith
Partner & General Manager
Jefferson Gulch Mining Co.

C O P Y

C O P Y

S T A T E M E N T

I, GUS CARLSON, state that I have lived in Jefferson Gulch since 1929 and that I did most of the panning for Mr. Arenson when he sank twelve (12) shafts which were staggered up and down the gulch;

THAT at the upper end the ground was twenty-seven (27') feet to bedrock and, at the lower end, about ~~thirty~~ (40') feet;

THAT pay showed for a depth of ten (10') feet, but real pay gravel was about four (4') feet in depth;

THAT all of these shafts showed a value of sixty cents (60¢) per yard. This work was done in 1937.

THAT I also did the panning for Ralph Davis who had the ground just before the beginning of World War II when he cut a ditch the full lenth of the property and went down to bedrock at the upper end;

THAT he ran the homemade washing plant not over 15 or 20 minutes, and the cleanup amounted to $280;

THAT, at this time, I went down on the bedrock and took one good sized bucket holding 2 cu.ft. and cleaned bedrock. This bucket produced $7.50, but I do not consider this a fair test as I was cleaning the bedrock. All the panning that I did while Davis was on the ground averaged sixty cents (60¢) per yard.

/s/ Gus Carlson

GUS CARLSON

C

C

P

Y

MONTANA POWDER & EQUIPMENT CO.
Direct Factory Distributors
Home Office: 12 E. Lawrence, Helena, Montana --- Phone HI 2-2990
P. O. Box 1688

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Sanstorm Sand Blasting Equipment

April 28, 1958

Small Business Adminstration
Power Building
Helena, Montana
Attention: Mr. W. T. Beaumont

Gentlemen:

On this date, April 28, 1958, I accompanied Mr. Beaumont to the site of the Jefferson Gulch Mining Company's operation northwest of Avon, Montana.

In the presence of Mr. Beaumont, Mr. Jim Smith of the mining company, and I washed approximately two yards of material removed from bedrock by Mr. Smith using a 1½ yard power dragline. We recovered five gold nuggets and an undetermined amount of fine gold which we turned over to Mr. Beaumont.

In my opinion, there is, on the average, approximately seven to eight yards of overburden to be removed before the gold bearing bedrock is reached.

My presence, as a neutral observer, was requested by Mr. Stanley R. Foot of the mining company.

Sincerely,

Leo M. Miller, Sales Engineer
Montana Powder & Equipment Co.

Condensed engineer's report on Jefferson Gulch placer gold. Report by Mr. James P. Smith, Eng., of 1804 Jackson Missoula, Mont.

History: Jefferson Gulch has a record of hand placer operation that would be hard to match. The Gulch was handworked for ten miles and many millions in gold recovered. The gold taken from this Gulch was coarse and heavy. It is reported that on one set of six claims $17,000.000.00 was taken out in placer gold.

Geology: The upper reaches of Jefferson Gulch have narrow and shallow, making easy hand work. The gold was ledged on bedrock. The bedrock in the upper reaches is broken up ledged rock lying in the roofs. Progressing downstream, the overburden increased in depth and the bedrock gradually changed to red clay. This clay bedrock trapped the gold and prevented it from travelling down to the true bedrock. On the lower reaches of the Gulch a huge clay dyke was thrust up across the Gulch forming a dam that backed up the creek. The dam increased the depth of the overburden and raised the water level. This restriction or levelling off formed a natural gold trap, causing the heavy values to settle on bedrock. Fine gold passed on around the dyke and was placered on the lower end of the creek. The deep overburden and high water level prevented the hand miners from working the Gulch from the dyke upstream for 3000 feet. This area of 3000 feet on the Gulch forms the Jefferson Placer.

Developments: Prior to 1940, several test holes by individuals were driven to bedrock. The records on those holes are not available so cannot be used in evaluating this property.

During 1940 and 1941, Ralph Davis, an experienced placer operator with two draglines fed washing plants in operation and fourteen test holes in the Gulch. The superintendent in charge of Davis's operation, Russel Urry, states positively all there test holes ran over 60¢ per yard and up to $1.35 per yard, figured from the grass roots and taking four inches of bedrock. Based on their findings, Davis put a dragline in to cut a drain down the full length of the placer to lower the water level. Davis had dry land plants so intention was to drain the ground so he could use his dry land plant.

When they reached the mid-line of the property, the dragline went to bedrock for a run of two hours. The material from this run was put over sluices and $385.00 was recovered from a section of bedrock thirty feet long and four feet wide. Before Davis could move his equipment, the war order came down and he could not start the operation. During the war he went out of the placer business so the property was idle until 1953, when Mr. Foot and Mr. Smith took up the lease. After a thorough study of the ground and known facts, Mr. Foot and Mr. Smith drove a test hole in May and June of 1953 to check the findings of the previous holes. This hole was dug near the center of the property and at 38 feet bedrock was reached. Difficulty was encountered in digging this hole for it was making 10,000 gallons of water per hour and required a major pumping operation to keep it dry. Gold was found from the surface down to bedrock but only the last eight feet of ground was valuable enough to be worked though a plant. The bottom fifteen feet of the test hole measured four by five feet, with the top 15 feet slightly larger. Twenty-seven and one-half yards were excavated from the hole. Using this total excavation as a basis, the ground was worth $1.35 per yard in gold recovered.

The gold figured for values was taken from the last eight feet. Using the actual four by five feet of excavation of high value material as a basis (this is the true estimate) the ground carries a value of $1.67 per yard. All the gold recovered was coarse and nugget size up to 3/8 inches by 3/4 inches. The largest rocks encountered were 18" by 24" by 30", and would not hinder an operation. Based on the depth of ground and the area that has been tested, this placer has a potential of $1,000,000

In placer ground situated and deposited like the Jefferson Gulch Placer it is common to have ancient channels in the clay bedrock that are rich in gold. The benches located at a higher level than the channels seldom carry as high in gold value as the channels. It is possible that test holes showing high values penetrated channels, while the lower value holes no doubt show the values of the benches. Based on this assumption, it would appear that the value of the Jefferson Gulch Placers average over 75¢ per yard.

Operation: Records of test holes show the upper end of the placer to be 18 feet deep, the center 30 feet deep and the lower end next to the dyke, 48 feet deep. This is deep ground for a washing plant operation. The upper 1500 feet of this ground, averaging 30 to 18 feet deep, can be successfully worked with a long boom dragline and floating plant. The ground should be stripped to the water level or about 10 feet above bed rock and the pay ground ten feet above bed rock to bedrock is to be washed through the plant. Using a 1 1/4 to 1 1/2 yard dragline bucket, this operation should handle 600 to 1000 yards per day.

Economics of operation: Based on the records of Davis and the check hole driven in 1955, this ground should average over 75¢ per yard. Using this figure as the yard value, this placer should produce about $1,000,000 in returns. Operation of a dragline and floating plant will cost approximately 35¢ per yard. This would make a total cost of $435,000.00, leaving a profit of $565,000.00 for the operation. A plant can be installed on this property and operated sixty shifts for $24,000.00.

In Jefferson Gulch area it would be impractical to operate after December 1, so a winter down time of three or four months must be planned for. To insure operating funds for the 1956 spring operation of the plant an additional $4,000.00 must be allocated. This additional sum could also be used to offset any winter damage or unforseen accidents. On the property a plant should start to show a profit two months after operation began.

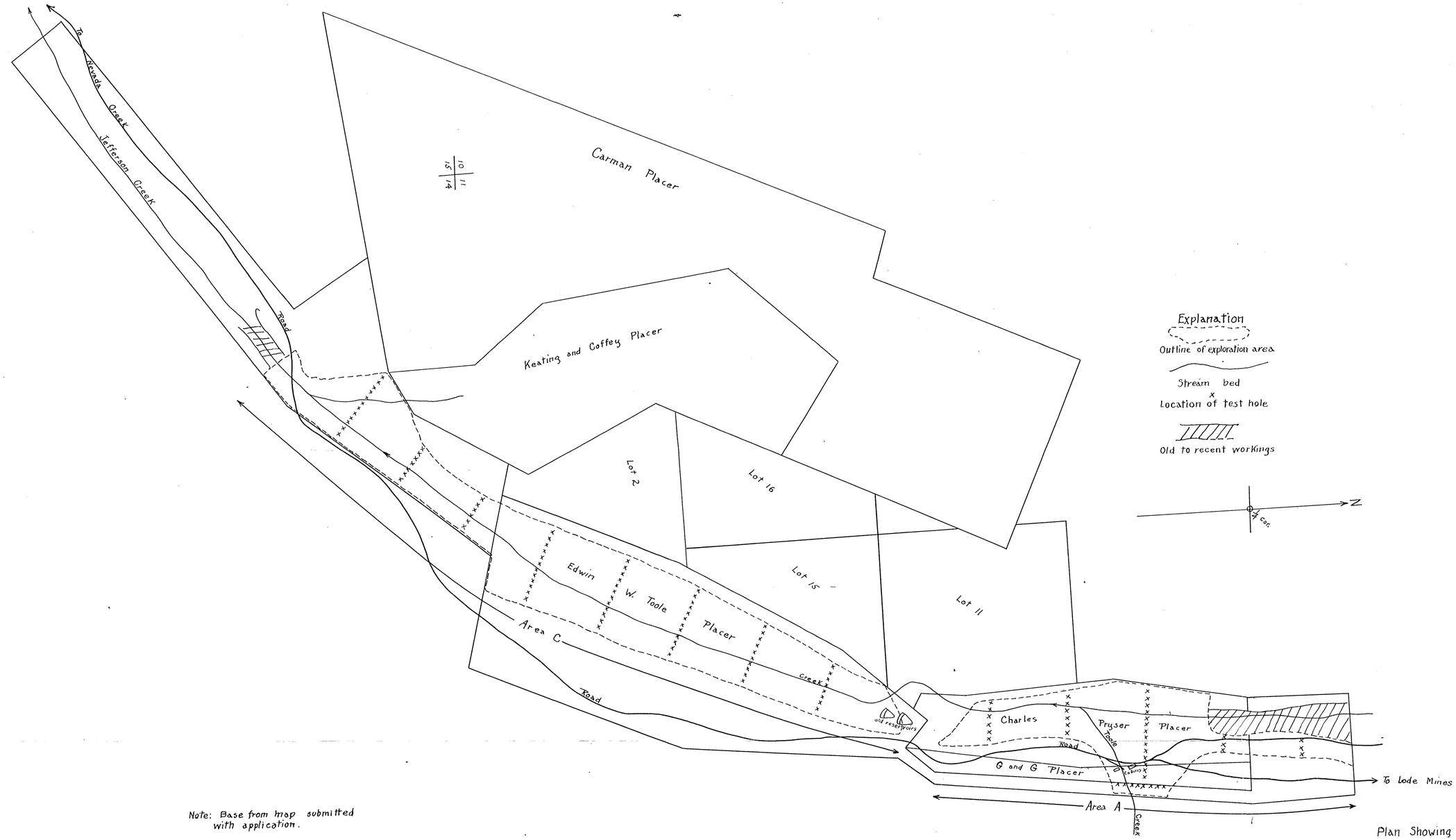
This is the best show of placer I have seen in the State of Montana and one of the best gold placers I have encountered in several years of gold dredging and placer operation.

James P. Smith

U. S. Department of the Interior

Office of Minerals Exploration
Application Examination Report

OME- 6177



Note: Base from map submitted with application.

Plan Showing
Placer Exploration Areas and
Recommended Locations of Test Pits
Eich, Wagner, and Kallestad
Jefferson Gulch Placers
T12N, R9W, PMM
Powell County Montana

1 in. = 330 feet
Dec., 1961

Plate 1