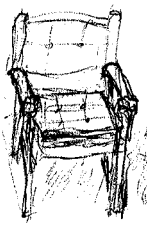
Rabbit Hole Bad Points

1/ People - "a little knowledge is a dangerous thing"
2/ Proposed budget
3/ 3 abandoned plants
4/ Water - lack of
5/ To much emphasis on high grade samples.
6/ Unsubstantiated projections of these values throughout all of property.
7/ Distance from town
8/ Problems of managing a camp site.
9/ Potential ownership conflict 35% to 65% etc etc, Problems w/ liens on equip? Check w/ courthouse

#1 *

*



Rabbit Hole
Good Points

1/ Diagnostic Terrain
2/ Evidence of old workings
3/ Gold country!
4/ High grade samples reported on by several different investigators
5/ Red clay - maybe lode area
6/ Probably few environmental restrictions
7/ Could be more than one false bedrock clay horizon.

Might be another point indicative of nearby source?

FINNING

• SEATTLE: (206) 762-9050

• SPOKANE (509) 535-7766

Goldfield Engineering & Machine
PO 174 Provo Utah
84603
801 - 374-6611
Ray Crosby Head Engr

Peterson Owner
Option 3000 sq
or 10% of prop owned
Price of 400,000.
352000 left to pay
before any profits etc.

Jatmus
65% Net Profits

Who is taking care of this

Then Edgemont has 35%

FINNING

- SEATTLE: (206) 762-9050
- SPOKANE (509) 535-7766

Legal?
What about all of the equip
etc.

Richard Simpson
Edmonds
PO 466
Verdi NV 89439

Costs
from Section 3 of Rabbit Hole

Plant
1000 / yd / hr. cost
Quote from Goldfields
Recycling Plant.
Dewatering screws etc ??

(margin, bracketing the lines above: each others questions)

250 ~~yd~~ / hr ~~cost~~ plant

(margin: I think this could be too optomistic)

250
3000
2 | 75 ~~0000~~
375.0 Tons/hr

Heavy Equip
Richard ~~[illegible]~~ sees - scrapers
to bring ore to plant in gulch bottom

FINNING

• SEATTLE: (206) 762-9050

• SPOKANE (509) 535-7766

Check on volume / & size of equipment

2 - Zeyd scrapers

Front end loader

D 7 Dozer.

Price based on used equip

Contracting — estimate

55 - 65¢ / yd

Vehicles

Pickups etc. $ used?

RS - yes having 2 crews stay there 2 wks on 12 hr/day & then another crew on 1 wk off.

Catered $50/man/day

Explanation — can't get workers showing up after nite on town

FINNING
• SEATTLE: (206) 762-9050
• SPOKANE (509) 535-7766

Lab equip & supplies
- Lab amalgamation
Retorting
& Pour gold.

Office —
Maybe contract office help.
Pita leasing of people

Labor start to spill water
well — & do all dirt work
day 1 → then 4 months

Labor — to cover overhead
insur, FICA — RJF says
add 100% — Wow

Value of material 11.00/cu yd ??

0.01 = $4
.02 = $8
.03 = $12

original calculations
were - using $6.00

RABBIT HOLE PLACER					
	1989	1990	1991	1992	1993
MATERIALS 000 cu.yd					
Ore	0	3,000	3,000	3,000	
Waste	0	0	0	0	
Total Material	0	3,000	3,000	3,000	
GRADES, oz/cu.yd					
Gold	0.000	0.020	0.020	0.020	
PRODUCTION 000oz					
Gold	0	60,000	60,000	60,000	
RECOVERIES %					
Gold	0.00	95.00	95.00	95.00	
SALES 000 oz					
Gold	0	57,000	57,000	57,000	
COMMODITY PRICES					
Gold	400.00	400.00	400.00	400.00	
PAYABILITY %					
Gold	97.00	97.00	97.00	97.00	
FINENESS					
Gold	900	900	900	900	
NET REVENUE $000	0	19,904,400	19,904,400	19,904,400	
UNIT REVENUE $/yd3	0.00	6.63	6.63	6.63	
CAPITAL COSTS $					
Engineering	344,000	0	0	0	
Plant	0	780,000	0	0	
Surface Facilities	54,000	1,030,000	0	0	
Mining Equipment	0	150,000	0	0	
Working	0	226,913	0	0	
Ongoing & Replacement	0	150,000	150,000	150,000	
Total Capital	398,000	2,336,913	150,000	150,000	
OPERATING COSTS					
Manpower	0	1,269,000	1,269,000	1,269,000	
Direct Overhead	0	990,000	990,000	990,000	
Indirect Costs	0	90,000	90,000	90,000	
Contingency @ 15%	0	352,350	352,350	352,350	
Total Operating Cost	0	2,701,350	2,701,350	2,701,350	
CASHFLOW $	-398,000	14,866,137	17,053,050	17,053,050	
Cumulative Cashflow	-398,000	14,468,137	31,521,187	48,574,237	
Unit Profitability	0.00	4.82	10.51	16.19	

RABBIT HOLE
PLACER QUESTIONS

Section I ----- A copy of the Questions for reference
(note Question #12 is illegible)

Section II ----- Responses to Questions #1,7,9,10,11&16
Attachments -- 1. Sample Sites Map
2. Topography Map
3. Atlantis Claims Test Sample Report

Section III ----- Responses to Questions #2,4,5,6,14,&20
Attachments -- 1. Proposed Water Well Site
2. Projected Water Requirements

Section IV ----- Responses to Questions #3&8
Attachments -- 1. Cross-Section Drawing
2. Watts, Griffis & McOuat Report
3. Barrel Springs Report
4. J. David Mason Report

Section V ----- Response to Question #13
Attachment -- 1. Aslett Plant Run Report

Section VI ----- Response to Question #15

Section VII ----- Responses to Questions #17,18&19

Prepared by

Richard K. Simpson

14 February, 1989
Winnemucca, Nevada

SECTION I

A copy of the Questions for reference
(note Question #12 is illegible)

RABBIT HOLE PLACER QUESTIONS

1. Scale plan showing topography and all sample point locations, together with any other infrastructure including adits and shafts.

2. Proposed mining plan, sequence, schedule, materials movement, grade variation with time.

3. Ore reserve statement with supporting date and calculations and geologic plans and sections.

4. Capital cost estimate.

5. Operating cost estimate.

6. Estimated cashflow based upon mining plan and cost estimates.

7. Supporting data for metallurgical performance.

8. Copy of 1983 Watts, Griffis, McQuat report and map.

9. Copy of 1986 Tatman report and map.

10. Copy of 1987 Aslett data.

11. Copy of Swarbrick/Simpson underground sampling data and maps.

12. Soil analysis of Simpson et al, Sept 1988.

13. Retails of Aslett plant operation.

14. Estimate of water requirement of plant.

15. Explanation of the assertion that black sands represent only 10% of the fire assay sample, and 0.005 of the head ore.

16. Mineralogical report explaining distribution of gold in the feed.

17. Explanation of the need to grind the black sands to liberate contained gold.

18. Explanation of the conceptional process route for the extraction of gold from the black sands.

19. Has a total analysis of the black sands been undertaken to provide an estimate of the content of elements and minerals other than gold. If so what are the results?

20. When in full production, how is it proposed to operate year round?

SECTION II

Responses to Questions #1,7,9,10,11&16

ATTACHMENTS

1. Sample Sites Map
2. Topography Map
3. Atlantis Claims Test Sample Report

RABBIT HOLE PLACER QUESTIONS

REPLIES:

In response to Question #1, please find attached a map of the Atlantis Claims indicating the location of the Tatman plant; the Aslett plant; the Watts, Griffis, McOuat sample locations; the Tatman sample locations; the Aslett sample and run ore locations; and the Swarbrick/Simpson sample locations. The Legend for the Aslett-Swarbrick/Simpson data refers to the Atlantis Claims Test Sample report which is also attached as it responds to Questions #7,11 and 16.

Also find attached a Topography map with the Atlantis Claims located to reflect the contours of the area. The projected area of mineralization is also delineated on this map.

In response to Question #9, the only data on the Tatman tests are plotted on the sample test location map, they were given to me verbally by J. Wayne Tatman.

In response to Question #10 it also was passed to me by word of mouth from Aslett, the data is included in the Atlantis Claim Test Sample report as well as plotted on the map.

5 October, 1988
Winnemucca, Nevada

Mr. Nigel Spinks
London, England
FAX 011-441-638-1766

Atlantis Claims
Pershing County, Nevada

Proposed Water Well Site

LOCATION: SE¼,NE¼ of Section 27, T34N, R29E, MDB&M, Pershing County, Nevada.
Permit #51570, Issued by the State of Nevada on May 11, 1988.
This permit has a life of five years and is extendable.

DEPTH: 750 Feet

RESERVOIR: Thick uncemented alluvial fan gravels, located in the southwest corner of the property. This location will afford maximum drainage of the aquifer on our property which dips in a southwesterly direction. Juxtaposed to the Rosebud normal fault (see cross section map), this location gives us closure to the south in this drainage pattern and enhances the area of drainage at this location.

REPORTS: Information from the State of Nevada Hydrology Engineering Report for this aquifer is sparse and inconclusive. However private reports mention plans for development of deepwater. A well drilled to 600' in the late 1940's produced 400GPM and supplied water for a dredge located in one of the canyons. We plan to penetrate the Basal sediment of the alluvial fan to maximize the vertical interval of drainage.

Regards,

Richard K. Simpson

James C. Swarbrick

TABLE 1

ASSAY RESULTS SUMMARY

Site No.	Total Sample Volume (ft^3)	Gold Recovered (g)	Gold Grade (oz Tr/yd^3)	Gold Grade (US \$/yd^3)	Site Description
RHS-1	1.5	0.162	0.0938	33.75	Old adit, 3-ft vertical channel
-2	0.375	0.003	0.0069	2.50	Old adit, 3-ft vertical channel
-3	0.375	0.003	0.0069	2.50	Old adit, 3-ft vertical channel
-4	0.5	0.043	0:0747	26.88	Old adit, 3-ft vertical channel
-5	1.5	0.039	0.0226	8.13	Old shaft, 16-ft vertical channel
-6	1.327	0.016	0.0105	3.77	Old shaft, 37-ft vertical channel
-7	1.0	0.079	0.0686	24.69	Old adit, 3-ft vertical channel
-8	0.75	0.001	0.0012	0.42	Old trench, 3-ft vertical channel
-9	0.834	0.015	0.0180	5.62	Old adit, 2-ft vertical channel
-10	1.5	0.008	0.0046	1.67	Old adit, 3-ft vertical channel
-11	1.0	0.481	0.4175	150.32	Old adit, 2-ft vertical channel
Total	10.66	0.850	0.0692	24.92	

NOTE: To calculate value of gold in US dollars per cubic yard, as for site RHS-1, using US \$400 per oz Tr and a 900 fineness, the formula is:

$$\text{US \$/yd}^3 = \frac{0.162\ \text{g}}{1.5\ \text{ft}^3} \times \frac{27\ \text{ft}^3}{\text{yd}^3} \times \frac{\text{oz Tr}}{31.103\ \text{g}} \times \frac{\text{US \$400}}{\text{oz Tr}} \times \frac{900}{1{,}000}$$

$$= \frac{0.162}{1.5} \times 312.51 \times \frac{\text{US \$}}{\text{yd}^3}$$

$$= \text{US \$33.75 per cubic yard}$$

ATLANTIS CLAIMS
TEST SAMPLES

1. On May 11, 1983 P.G. Lalande of Watts, Griffis and McOuat Limited, Consulting Engineers and Geologists of Toronto, Canada, performed a sampling of this property (the results are attached).

2. In December of 1986, Tatman took 5 samples totaling 1,000 tons, he processed them together and recovered 30 ounces of Gold. At $400 per ounce this works out $18 per cubic yard. This was free Gold only with no attempt to analyze the Black Sands.

3. In the spring of 1987, Dale Aslett did some independent sampling with results ranging as high as $300 per cubic yard. This was the basis for his desire to enter into a mining agreement with us.

4. In August-September of 1987, Tatman ran his plant briefly with a resultant $5.19 per cubic yard recovery (free Gold only). This figure I believe reflects poor plant efficiency as he was feeding the plant from ore tested by Watts, Griffis and McOuat to be $33.75 per cubic yard (RHS-1).

5. In early August 1988, Jim Swarbrick and I began sampling various adits and old shafts on the property. The samples were small, Gold recovery unweighable, we were looking for "Good Color" only. We found "Good Color" in every sample on the property.

6. By September 7th, 1988, Aslett had made a large dozer cut in the ridge where he had recovered his best sample. He made a cut 60' wide and 25' deep, down to the old tunnel level. We took a 200# sample of this cut and recovered $26.40 per cubic yard of coarsed Gold only. (NOTE: We have determined thru sampling that coarse Gold represents 53% and fine amalgable Gold represents 47%)

7. Aslett stockpiled this ore in front of his plant and ran it with poor results, $2.88 per cubic yard coarse Gold. On the 17th of September, 1988 we took a 200# sample from the stockpile directly in front of the plant with the results of $24.00 per cubic yard coarse Gold. We knew then that the head ore was good and that the Magnatites and Black Sands were clogging the riffles causing Gold to be washed over and away.

8. On 2 October, 1988, we took two 100# samples from the dozer cut to assure ourselves that high grade ore was still in place. The results in coarse Gold were $25.00 and $38.00 per cubic yard for each sample.

9. On the 5th of October, 1988, I received the results of our first fire assay.

The Fire Assay Results Were -
Gold ----- 1.131 oz per ton
Silver --- 0.28 oz per ton
Platinum - undectectable

NOTE: Small fire assay firms are not capable of testing for Platinum.

This fire assay sample was composed of Black Sands and Magnatites, the precious metals are in the Black Sands.

Jim Swarbrick and I estimate that the Black Sands represent only 1/10th of the fire assay sample, and that the Black Sands represent 0.005 of the head ore.

Therefore had the Magnatites been removed from the fire assay samole prior to the test the results would have been Gold 11.31 oz per ton and Silver 2.8 oz per ton.

10. On the 6th of October, 1988, Jim Swarbrick took a 100# sample 300' NE of the Tatman plant, coarse Gold recovered $30.90 per cubic yard.

11. 8 October, 1988 Jim Swarbrick and I did the following sampling.

Original Dozer Cut - From the Wall above Tunnel Level
(each sample 50#)

	TOP	MIDDLE	BOTTOM
EAST ---	$7.50	$5.25	$ 3.75
MIDDLE -	6.00	5.25	11.25
WEST ---	7.50	5.25	11.25

(all values per cu/yd & coarse Gold only)

Cut 500' NE of Tatman Plant

200# Sample - $7.50 per cu/yd coarse Gold

South (adjacent to) of Dozer Cut - above Tunnel Level

200# Sample - $3.75 per cu/yd coarse Gold

12. 27 October, 1988 took a 100# sample from an old tunnel 50' North of the Dozer Cut. Recovered $39.60 per cu/yd of coarse Gold. We separated the Magnatites from the Black Sands and weighed the Blacks, they equaled 1% of the head ore.

13. 28 October, 1988 ran the following samples, each 100#

New cut 350' NE of Tatman plant
$2.50 per cu/yd coarse Gold

New cut 100' North of Dozer Cut - 5' Deep
$2.00 per cu/yd coarse Gold

New cut 100' North of Dozer Cut - 10' Deep
$2.50 per cu/yd coarse Gold

14. 29 October, 1988 ran the following samples, each 100#

New cut 100' North of Dozer Cut - 3' Deep
$6.50 per cu/yd coarse Gold

New cut 100' North of Dozer Cut - 6' Deep
$17.00 per cu/yd coarse Gold

New cut 100' North of Dozer Cut - 12' Deep
$5.00 per cu/yd coarse Gold

Stockpile at Plant - South end
$7.00 per cu/yd coarse Gold

Stockpile at Plant - North end
$15.00 per cu/yd coarse Gold

15. 30 October, 1988 ran the following samples, each 100#

Deepened New cut 100' Norht of Dozer Cut, hit clay layer, sampled it, no visible Gold. Took sample in gravel channel above caly layer, $2.00 per cu/yd coarse Gold.

Made a New cut 250'NE of Tatman plant
Mostly clay - No visible Gold

Made New cut 100' NE of Tatman plant
Clay and gravel - $3.00 per cu/yd coarse Gold

16. 31 October, 1988 ran the following samples, each 100#

New cut 100' North of Dozer Cut
Wall sample midway down east slope
15' deep - $7.50 per cu/yd coarse Gold

Red Ridge ½ mile east of Aslett plant
10' deep - $10.50 per cu/yd coarse Gold

Red Gulch Ridge 3/4 mile east of Aslett plant
Mid-tunnel level 8' below surface
$8.00 per cu/yd coarse Gold
Lots of Black Sands

Tunnel on east flank of Red Gulch Ridge
$6.00 per cu/yd coarse Gold
Lots of Black Sands

200' North of Tatman plant - 2' Deep
$2.00 per cu/yd coarse Gold - Good Black Sands

150' North of Tatman plant - 4' Deep
$3.50 per cu/yd coarse Gold - Good Black Sands

SECTION III

Responses to Questions #2,4,5,6,14&20

ATTACHMENTS

1. Proposed Water Well Site
2. Projected Water Requirements

D H. BRYAN
overnor

STATE OF NEVADA

ROLAND D. WESTERGARD
Director

PETER G. MORROS
State Engineer

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF WATER RESOURCES
Capitol Complex
201 S. Fall Street
Carson City, Nevada 89710

51570

January 22, 1988

Richmond Minerals, Inc.
P.O. Box 466
Winnemucca, NV 89445

Ladies and Gentlemen:

The above referenced application to appropriate water for mining, milling and domestic purposes has been reviewed by this office. Before further consideration can be given towards the issuance of any permit, should the application become ready for action, it will be necessary for you to submit additional justification data and information concerning the annual consumptive use under your application. Therefore, the following information is hereby requested (please answer all applicable items):

1. The number of hours per day and days per year of plant operation that water will be consumed.

2. The number of tons of ore to be processed on a daily basis.

3. The amount of water in gallons per ton of ore required by your plant operation.

4. Accurate description of all plant operation components utilizing water along with the hourly/daily volume of water (i.e. gallons per hour) required for each component.

5. Minimum total volume of water required for plant operations on a daily basis.

6. Total annual volume of water calculated to be recycled or the % Recycle Factor of Item (5) above, and description of recycling method(s).

7. Projected total annual consumptive use, including plant losses, dust control and domestic use.

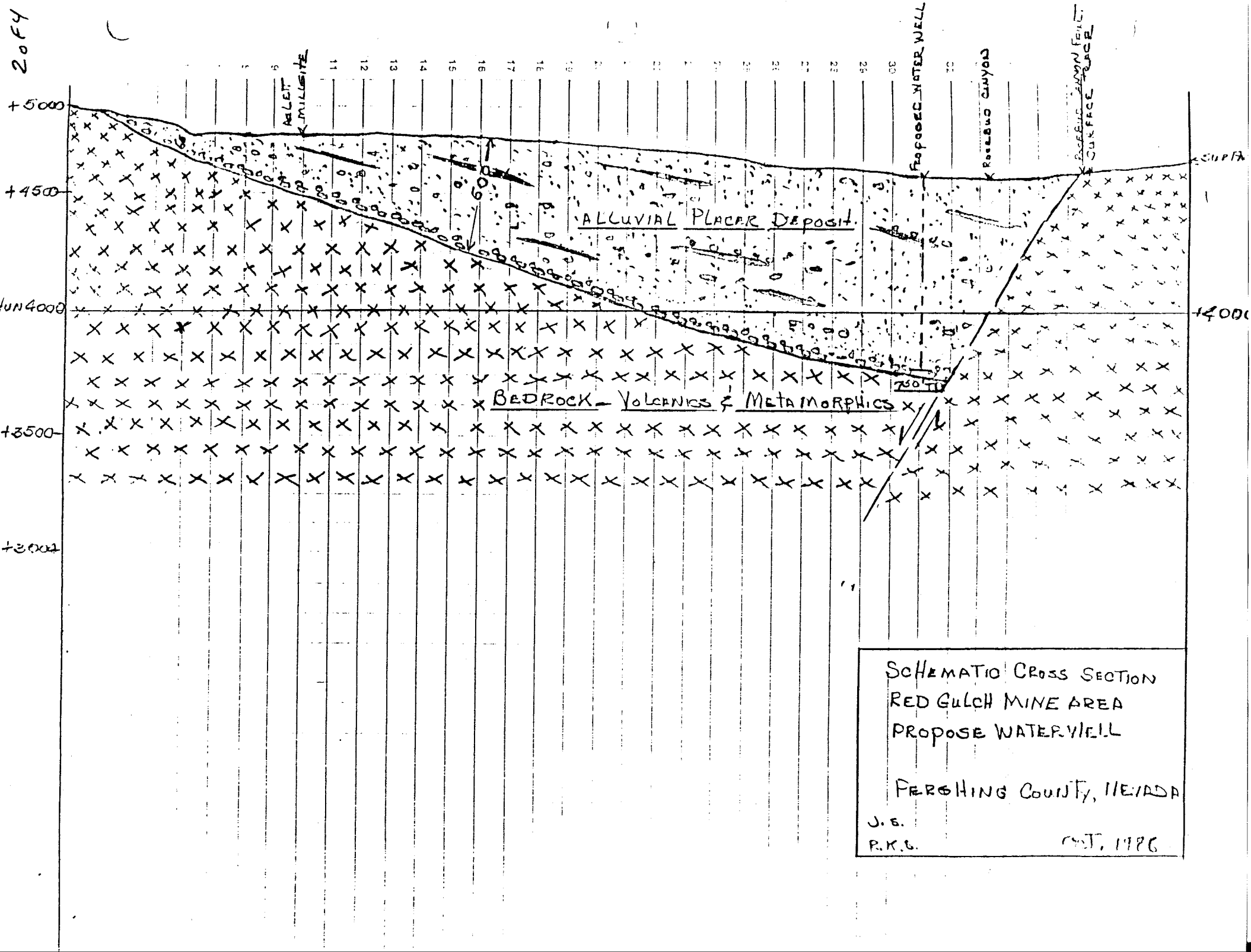
Your earliest response would be greatly appreciated. Should you have any questions regarding this matter, please contact this office.

Sincerely,

Diana Jean Lefler

Diana Jean Lefler,
Hydraulic Engineer II

DJL/pm
Cert. Mail No. P 470 072 472
cc: John H. Milton, III, Cert. Mail No. P 470 072 473



SCHEMATIC CROSS SECTION
RED GULCH MINE AREA
PROPOSE WATER WELL

PERSHING COUNTY, NEVADA

J. E.
R. K. E.

OCT. 1986

RICHMOND MINERALS INC.

P.O. Box 466
Winnemucca, Nevada 89445

Diana Jean Lefler
Department of Conservation and Natural Resources
Division of Water Resources
Capital Complex
201 S. Fall Street
Carson City, Nevada 89710

25 January, 1988

RE: Application #51570

Ms. Lefler,

In reply to your request of 22 January, 1988, for information concerning our application #51570 to divert water for mining and milling operations, please find the requested information attached. If any further data is needed by your office, we will supply as soon as requested.

Sincerely,

Richard K. Simpson
Vice President and General Manager

cc: John Milton III

REQUESTED INFORMATION

1. We project that we will average 20 hours per day and 220 days per year.

2. Our projections are 800 tons per hour on a 20 hour per day basis, or 16,000 tons per day.

3. We project total usage of 5GPM of water per ton of ore per hour.

4. This is a placer gold recovery plant with a simple washing-gravity recovery system.

   It is composed of the following:

   A. An 8' by 30' washing trommel capable of processing 800 tons per hour, with an influx of 4.25GPM of water per ton of raw ore per hour.

      That is 4.25GPM per ton per hour or 204,000GPH or 4,080,000GPD.

   B. Ten 48" by 48" duplex gravity jigs with an estimated influx requirement of 60GPM per jig or 36,000GPH or 720,000GPD.

   These two major components utilize 99.9% of the plant required water, for a total of 240,000GPH or 4,800,000GPD.

5. 4,800,000 Gallons per day.

6. Total annual volume of water projected to be recycled is 823,680,000 Gallons.

   Recycle percentage is estimated to be 78% of the plant requirement volume under number 5 above.

   In this system our objective is to wash the clays from the placer deposit and allow the more dense material to be separated thru gravity. Therefore our fluid below the last gravity recovery point is carrying blonde sands and clays. These sands will be screened out onto a tailings pile while the viscous fluids will pass into a dewatering pond with light overflow at one end and a sand screw at the other. The fluid passing thru the overflow will enter a series of sealed settleing ponds and then will be recycled into the trommel washing system.

7. Total estimated annual consumption 236,982,000 Gallons.

PROJECTED WATER CONSUMPTION PLAN

A. Our plant design of 800 tons per hour, projects water consumption of 5GPM per ton of raw ore per hour.

Therefore considering a twenty hour day average our projected daily consumption is --- 4,800,000GPD

We plan to recycle 78% of this volume thru a recycling process, Therefore the estimate make-up requirement of the actual plant is --- 1,056,000GPD

B. Water requirements for a 25 man work camp is estimated at 60 gallons per day per man or --- 1,500GPD

C. Dust control water requirements are estimated at --- 14,292GPD

D. Initially all water will be pumped into a sealed, open pond from the well, where evaporation and seepage is estimated at one-half of one percent or --- 5,400GPD

Total estimated requirements --- 1,077,192GPD

REPLIES:

In response to Question #2, by "Proposed Mining Plan" I assume you mean an actual plan of plant design, procurement, erection and operation. However at this point in time further testing and delineation of the property is needed. Through this testing, an optimum plant design and recovery process will be defined. I will endeavor to answer your query with best knowledge at this time, bearing in mind that plans and projections may change.

I will divide this Section into four parts.

A. Testing Property - with Capital Cost
B. Plant Procurement and Erection - with Capital Cost
C. Operation - with Cost Estimate
D. Estimated Cash Flow Based on the above

In this Section I will respond to Questions #2,4,5,6,14 and 20.

A. TESTING PROPERTY

In the Spring of 1989 we should contract an Independent Engineering firm to test this property and define the following:

1. The value of free Gold per cubic yard head ore.
2. The percent of Magnetites.
3. The percent of Black Sands.
4. What precious metals are recoverable from the Black Sands and their value per cubic yard of head ore.
5. To what mesh the Black Sands must be crushed to liberate these precious metals.
6. Define the process of recovery of precious metals from the Black Sands.
7. List all samples with their respective recoveries plotted on a map.
8. Deduce the minimum recoverable reserves for the property.
9. Design the optimum plant and process to recover these precious metals.
10. Detail a plan for handling of the Black Sands for maximum profit.

We have a permit from the State of Nevada to drill a water well on the property. I recommend that a water well be drilled to provide ample water for the property evaluation as well as providing water to Aslett's plant so that he may improve his recovery process thereby creating a postive cash flow.

Assuming that operations begin on 1 April, 1989, the following is the sequence of events with cost estimates.

DATE	OPERATION	COST	ACCUM
1March	G&A	$ 7,500	$ 7,500
1March	Purchase Vehicle	15,000	22,500
15March	During March contract water well driller to begin well on 1 April	50,000	72,500
1April	Rig up camp	7,500	80,000
1April	G&A	12,000	92,000
1April	Purchase Vehicle	10,000	102,000
15April	Contract testing company to begin property evaluation by Mid-April - cost estimate is to complete all objectives set out above - completed by Mid-July	200,000	302,000
1May	G&A	14,000	316,000
1June	G&A	14,000	330,000
1July	G&A	14,000	344,000

Mid-July 1989 this phase of the project is complete.

B. PLANT PROCUREMENT & ERECTION

Assuming a 500 cubic yard per hour plant - Capital cost estimates are:

1.	500 cubic yard per hour plant designed, fabricated, erected and run-out	$ 500,000
2.	Water recycling plant	150,000
3.	Heavy equipment	150,000
4.	Vehicles	45,000
5.	Winterized plant enclosure	75,000
6.	Man camp	50,000
7.	Generators	30,000
8.	Laboratory equipment-supplies-	25,000
9.	Office equipment-supplies	20,000
10.	Communications	10,000
11.	Miscellaneous costs	150,000
12.	Overhead pre-start-up	250,000
13.	Funds needed to operate until self-sustaining cash flow	255,000
		$1,710,000
	Contingency--	250,000
	Total Capital--	$1,960,000

Total time required for this phase is 90 days, completed in Mid-October 1989. Considering that we have winterized the plant and if there are no delays, we could begin mining and operate thru the winter. However if any of the phases testing, construction or funding cause delays it could be spring 1990 before mining begins.

C. OPERATION

By enclosing the plant itself within a winterized structure and utilizing space heaters, a 24 hour per day, year-round operation can be conducted.

The plan of operation would be to operate a 500 cubic yard per hour plant 24 hours per day, 7 days per week, 365 days per year. Net productive operating periods for this projection will be 20 hours per day and 25 days per month due to maintenance, mechanical breakdown, etc.

Three sets of crews will be employed, each working a 12 hour shift, living in an on-site man camp. Each crew working two weeks on, one week off and rotating shifts upon return after days-off. In this manner two crews will be at the mine working and one crew on days-off at all times.

Daily Man Power costs include all benefits and taxes

General Manager	$ 400	
One Geologist	300	
One Operations Supt	250	
Three Plant Foremen	450	(two on shift)
One Metalurgist	150	
One Asst Metalurgist	100	
One Bookeeper/Secretary	80	
Six Heavy Equipment Operators	800	(four on shift)
Three Welder/Mechanics	400	(two on shift)
Three Electricians	400	(two on shift)
Six Laborers	600	(four on shift)
Three Security Guards	300	(two on shift)
Total -	$4,230	

Daily Direct Overhead

Camp Costs	$1,200
Insurance	60
Fuel and Oil	1,500
Office in Town	150
Equipment Repair	75
General Maintenance	100
Legal	75
Laboratory expenses	140
Total -	$3,300

Assuming the plant runs 500 cubic yards per hour for a net 20 hours per day, daily thru-put would be 10,000 cubic yards. Cost per cubic yard would be $0.96.

Daily Indirect Costs

Non-Nevada expenses	$300
Capital Equipment Replacement	500
Total-	$800

Total Daily Cost Estimates

Manpower -	$4,230
Direct ---	3,300
Indirect -	800
15%	$8,330
Contingency	1,250
Daily Cost	$9,580 Total

D. ESTIMATED CASH FLOW

Assumptions - 20 Hour Day, Net
25 Days per Month, Net
500 Cubic Yards per Hour
$11.00 per Cubic Yard Recovery
24.5% Edgemont Interest
10% of Gross to Peterson ($325,000 total)
100% of Operating Cost Returned
100% of Capital Returned
a. $177,460 Initial Capital
b. 344,000 Test Capital
c. 1,960,000 Plant Capital
Total - $2,481,460

We can assume that with no delays the plant is in place and ready for debugging by mid-October 1989. I will assume for this study that the first steady operational income is attained in January 1990. Therefore -

Cash Flow Estimates

Month Year	Total Value	Peterson 10%	OPEXP	Returned Capital	NET	24.5%	Edgemont Accumlated
Jan1990	2,750M	275M	287.4M	2,187.86M	---	---	---
Feb1990	2,750M	50M	287.4M	293.62M	2,118.98M	519.15M	519.15M
March1990	2,750M	--	287.4M	---	2,462.60M	603.34M	1,122.49M

At this point in time Edgemont has recovered it's capital outlay, is recovering it's operating expense prior to distribution and has a static monthly profit of $603,340.

All of the quoted figures assume no problems at any step, however we know this is not realistic. Starting up a new plant with new people in the dead of winter may not be feasible. Therefore a more realistic start-up date would be 1 May, 1990.

I will summarize the funding/time requirements in two cases, one for a October 1989 start-up and one for a May 1990.

Funding/Time Requirements
CASE #1

1March89	- G&A ----------	$ 7,500 -	$ 7,500
1March89	- Purchase Vehicle --------	15,000 -	22,500
15March89	- Deposit to Well Driller -	25,000 -	47,500
1April89	- G&A ----------	12,000 -	59,500
1April89	- Purchase Vehicle --------	10,000 -	69,500
1April89	- Rig up Camp ----------	7,500 -	77,000
15April89	- Deposit to Testing Firm -	25,000 -	102,000
15April89	- Final payment Well Drlr -	25,000 -	127,000
1May 89	- G&A ----------	14,000 -	141,000
1June 89	- G&A ----------	14,000 -	155,000
15June 89	- Cash call by Tester -----	50,000 -	205,000
1July 89	- G&A ----------	14,000 -	219,000
15July 89	- Final payment to Tester -	125,000 -	344,000

End of Test Phase

1Aug 89	- Purchase Office Equipmnt-	$ 22,000 -	$ 364,000
1Aug 89	- G&A ----------	20,000 -	384,000
1Aug 89	- Deposit for Plant --------	150,000 -	534,000
1Sept 89	- G&A ----------	20,000 -	554,000
1Sept 89	- Purchase & erect Mancamp-	50,000 -	604,000
1Sept 89	- Purchase Vehicles -------	45,000 -	649,000
1Sept 89	- Purchase Generators -----	30,000 -	679,000
1Sept 89	- Purchase Communications -	10,000 -	689,000
1Sept 89	- Purchase Lab Equipment --	25,000 -	714,000
15Sept 89	- Begin Plant erection Second Plant payment ----	150,000 -	864,000
15Sept 89	- Purchase Heavy Equipment-	150,000 -	1,014,000
15Sept 89	- Purchase Winterizing ----	75,000 -	1,089,000
1Oct 89	- G&A ----------	200,000 -	1,289,000
15Oct 89	- Plant start-up Third Plant payment -----	200,000 -	1,489,000
1Nov 89	- G&A ----------	300,000 -	1,789,000
15Nov 89	- Final Plant payment (includes water system) -	150,000 -	1,939,000
1Dec 89	- G&A ----------	365,000 -	2,304,000

End of Construction Phase

This concludes the test phase ----	$ 344,000
and the plant construction phase -	1,960,000
Total -	$2,304,000

Funding/Time Requirements
CASE #2

I will begin Case #2 at the conclusion of the test program, for in both cases it is the same. In this scenario I will delay the Plant purchase and erection until spring of 1990.

15July 89	Final test	$ E -	$ 344,000
1Aug 89	G&A	14,000 -	$ 358,000
1Sept 89	G&A	10,000 -	$ 368,000
1Oct 89	G&A	10,000 -	$ 378,000
1Nov 89	G&A	10,000 -	$ 388,000
1Dec 89	G&A	10,000 -	$ 398,000
1Jan 90	G&A	10,000 -	$ 408,000
1Feb 90	G&A	10,000 -	$ 418,000
1Feb 90	Purchase Office Equipmnt-	20,000 -	$ 438,000
1Feb 90	Deposit for Plant	150,000 -	P 588,000
1March90	G&A	20,000 -	$ 608,000
1March90	Purchase & erect Mancamp-	50,000 -	$ 658,000
1March90	Purchase Vehicles	45,000 -	$ 703,000
1March90	Purchase Generators	30,000 -	P 733,000
1March90	Purchase Communications -	10,000 -	$ 743,000
1March90	Purchase Lab Equipment --	25,000 -	P 768,000
15March90	Begin Plant erection Second Plant payment	150,000 -	P 918,000
15March90	Purchase Heavy Equipment-	150,000 -	M 1,068,000
15March90	Purchase Winterizing	75,000 -	P 1,143,000
1April90	G&A	200,000 -	$ 1,343,000
15April90	Plant start-up Third Plant payment	200,000 -	P 1,543,000
1May 90	G&A	300,000 -	$ 1,843,000
15May 90	Final Plant payment (includes water system) -	150,000 -	P 1,993,000
1June 90	G&A	365,000 -	$ 2,358,000

Under Case #2 the operation is self-sustaining in July,1990 rather than January,1990. The additional cost of Case #2 over Case #1 is $54,000 to cover G&A thru the winter. The cash flow figures are slightly different in that Edgemont has an additional $54,000 of capital to recover and Peterson's final amount has been reduced from $325,000 to $307,000.

SECTION IV

Responses to Questions #3&8

ATTACHMENTS

1. Cross-Section Drawing
2. Watts, Griffis & McOuat Report
3. Barrel Springs Report
4. J. David Mason Report

REPLIES:

In response to Question #3 I have attached a brief geological description of the property with a cross-sectional drawing of the placer deposit prepared by our geologist James C. Swarbrick. He has researched documents, participated in test sampling and walked the property doing surface geology to determine the Fan's conformation. From his research he believes the mineralized portion of this Fan as it lies on the Atlantis claims, to have a depth of no less than an average 100' and to encompass 460 acres for a total of 74,000,000 cubic yards in place.

Also find attached in support of Question #3 and in response to Question #8, a copy of the Watts, Griffis and McOuat report.

I have also attached a report on Barrel Springs which lies further down the Fan, it has references to Rabbit Hole.

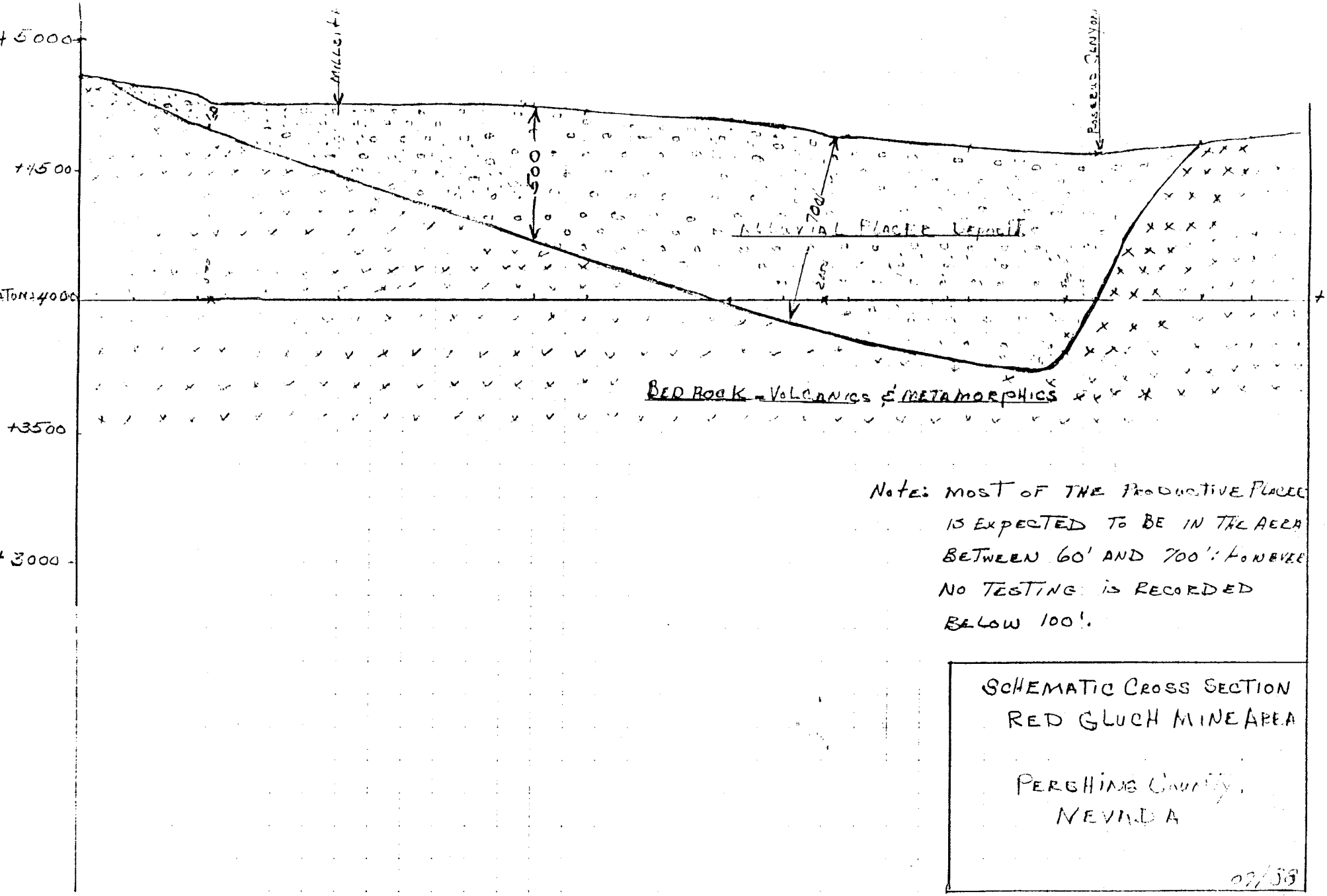
Also attached is a short report on Rabbit Hole by a J. David Mason.

Geology

The Rabbit Hole placer is an alluvial fan that was deposited in a shallow lake adjacent to the Rosebud Peak area which was the source of the Gold deposit. Composed of an illsorted complex of auriferous lobes and channels the fan contains a variety of rock fragments including rhyolite, andesite, vein quartz, silicified fault breccia and phyllite.

Distance of transport has been limited, most detnitus material is angular to subangular, subrounded to rounded pebbles and cobbles can be found only in isolated discontinous channels.

Previous placer mining has been concentrated in the gullies which dissect the fan, in an effort to avoid a thin veneer of lower grade sediments covering the surface. The Gold is free and is present in a range of sizes from nuggets to fractions in the 3-10 micron. Gold concentration in the fanglomerate deposit is erratic and somewhat unpredictable but is always present over the entire section. Trace minerals of cassiterite, cinnabar and scheelite are present.



Note: MOST OF THE PRODUCTIVE PLACER IS EXPECTED TO BE IN THE AREA BETWEEN 60' AND 700'; HOWEVER NO TESTING IS RECORDED BELOW 100'.

SCHEMATIC CROSS SECTION
RED GLUCH MINE AREA

PERSHING County,
NEVADA

02/56

REPORT ON
STAGE 1 EXPLORATION
RABBIT HOLE PLACER
NEAR
SULPHUR, NEVADA
FOR
SILVER LAKE RESOURCES INC.

Toronto, Canada
May 11, 1983

P. G. Lalande
Watts, Griffis and McOuat Limited
Consulting Engineers and Geologists

TABLE OF CONTENTS

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LIST OF DRAWINGS

1. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

1.1 SUMMARY

Silver Lake Resources Inc. has optioned the Rabbit Hole placer gold property near Sulphur, Nevada. The placer has been explored and mined intermittently since the 1870s.

Watts, Griffis and McOuat Limited have been retained to carry out a sampling program in three stages to test the potential of the property. The first stage of the program, a preliminary sampling of surface exposure and underground workings, has been completed.

Results from 20 samples collected at 11 sites scattered over the property confirmed that gold-bearing gravels are present. The samples, ranging in size from 0.375 to 1.5 cubic feet of material, had grade values ranging from US $0.42 to $150.32 per cubic yard using US $400 per troy ounce of gold and a fineness of 900.

Preliminary sampling and cursory geological observations of the old workings indicate that: 1) gold distribution is highly erratic; 2) more than one pay-zone or horizon may be encountered; and 3) low-grade overburden may exist.

1.2 CONCLUSIONS

Assays of 20 samples gave erratic results, from low to very high grade. Preliminary sampling shows gold-bearing gravels on the property, which are widespread and fairly thick. A channel sample collected on the wall of an old shaft had an average grade of US $3.77 per cubic yard for a thickness of 11 feet; samples from a second shaft gave an average grade of US $8.13 per cubic yard for a thickness of 12 feet.

1.3 RECOMMENDATIONS

It was recommended on April 8th that Silver Lake Resources Inc. proceed with Stage 2 of the program, which calls for the sinking of shafts, 3 feet in diameter, using a clamshell rig, and treatment of the material recovered (about 1/4 cubic yard per vertical foot) in a pilot plant to be situated on the property. Silver Lake accepted the recommendation. Stage 2 was initiated on April 13th and will continue until at least May 13, 1983.

2. INTRODUCTION

Early in 1983, Watts, Griffis and McOuat Limited (WGM) presented alternative budgets and programs for the exploration of the Rabbit Hole placer deposit, near Sulphur, Nevada. The exploration was to be carried out on behalf of Silver Lake Resources Inc. and Agricola Mineral Appraisals Limited.

A program in three stages was proposed:

Stage 1

The Rabbit Hole placer is a past gold producer. Stage 1, of short duration, was to consist of the preliminary sampling of old shafts and old underground workings to confirm the presence of gold-bearing gravels on the property.

Stage 2

Of one month's duration, the objectives of Stage 2 were to outline an area of gold-bearing gravels; to establish the trend of gold values; and to determine the potential for a profitable placer operation. These objectives were to be met by sinking about 15 shafts, 3 feet in diameter, to a depth of 25 feet using a powered clamshell rig and by processing the recovered material through a pilot plant to obtain reliable gold grades.

Stage 3

Likewise of one month's duration, Stage 3 will include deepening seven of the above-mentioned shafts to depths of as much as 100 feet, to check the possibility of gold-bearing gravels extending much deeper than reported in the literature.

On March 14, 1983, Silver Lake agreed to proceed with Stage 1 of the program. The work was carried out between March 22 and April 7, 1983.

The present report reviews only the results of Stage 1. The report was written by P. G. Lalande, geologist, using field notes received from C. R. Herron, geologist, and J. Rae, senior technician, and complemented by data from published and unpublished sources. The report does not include data from the Stage 2 program that was initiated on April 13, 1983. More recent data will be included in separate progress reports.

3. PROPERTY, LOCATION, AND ACCESS

The property covers some 700 acres of unpatented mining claims located in Township 24 North, Range 29 East Pershing County, Winnemucca District, State of Nevada, USA. The claims are on 'national resources lands' administered by the Bureau of Land Management (BLM).

The center of the property lies four miles south-southeast of the abandoned settlement of Sulphur and some 40 miles north-northwest of Lovelock (Figures 1 and 2).

Access is by paved highway from Reno to Lovelock (95 road miles), paved road (20 miles), and unpaved upgraded dirt road (43 miles) to the deposit. Travel to the property is easy; the road is good along its entire length, with no severe grades. Two-wheel-drive vehicles with higher-than-average ground clearance are sufficient (car, van, pick-up truck, etc.).

The Western Pacific Railroad has a siding at Sulphur that was used to ship sulfur from the area. Again, access from the siding to the property is not difficult.

A landing strip suitable for light passenger aircraft exists, adjacent to the property.

It should be relatively inexpensive to bring an electrical power line from Sulphur into the property.

The deposit lies in an area of rolling hills at an elevation of about 5,000 feet above mean sea level, surrounded by a more rugged mountainous region. It has an arid high-desert climate and little vegetation.

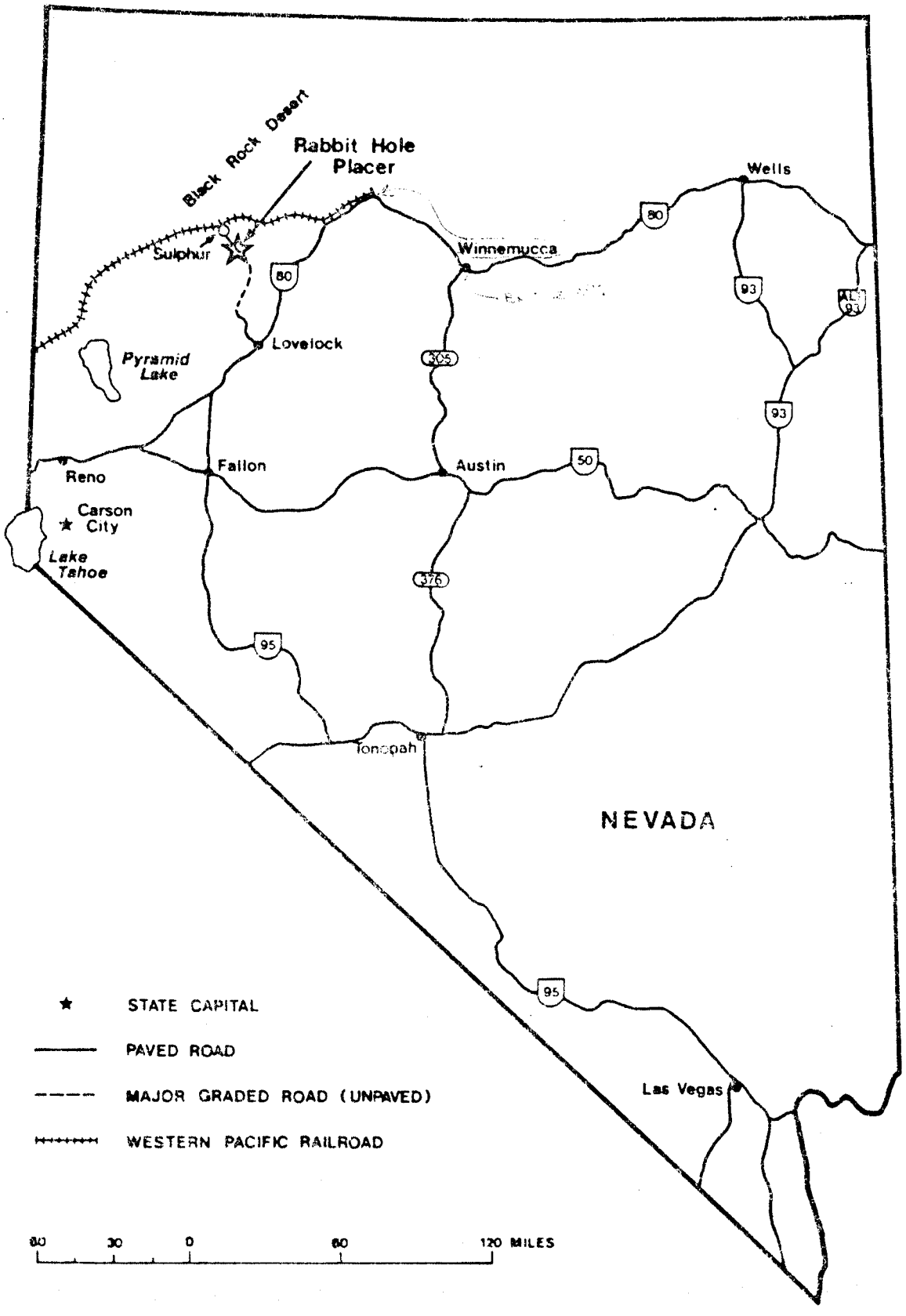

FIGURE 1: Index map showing the location of the property.

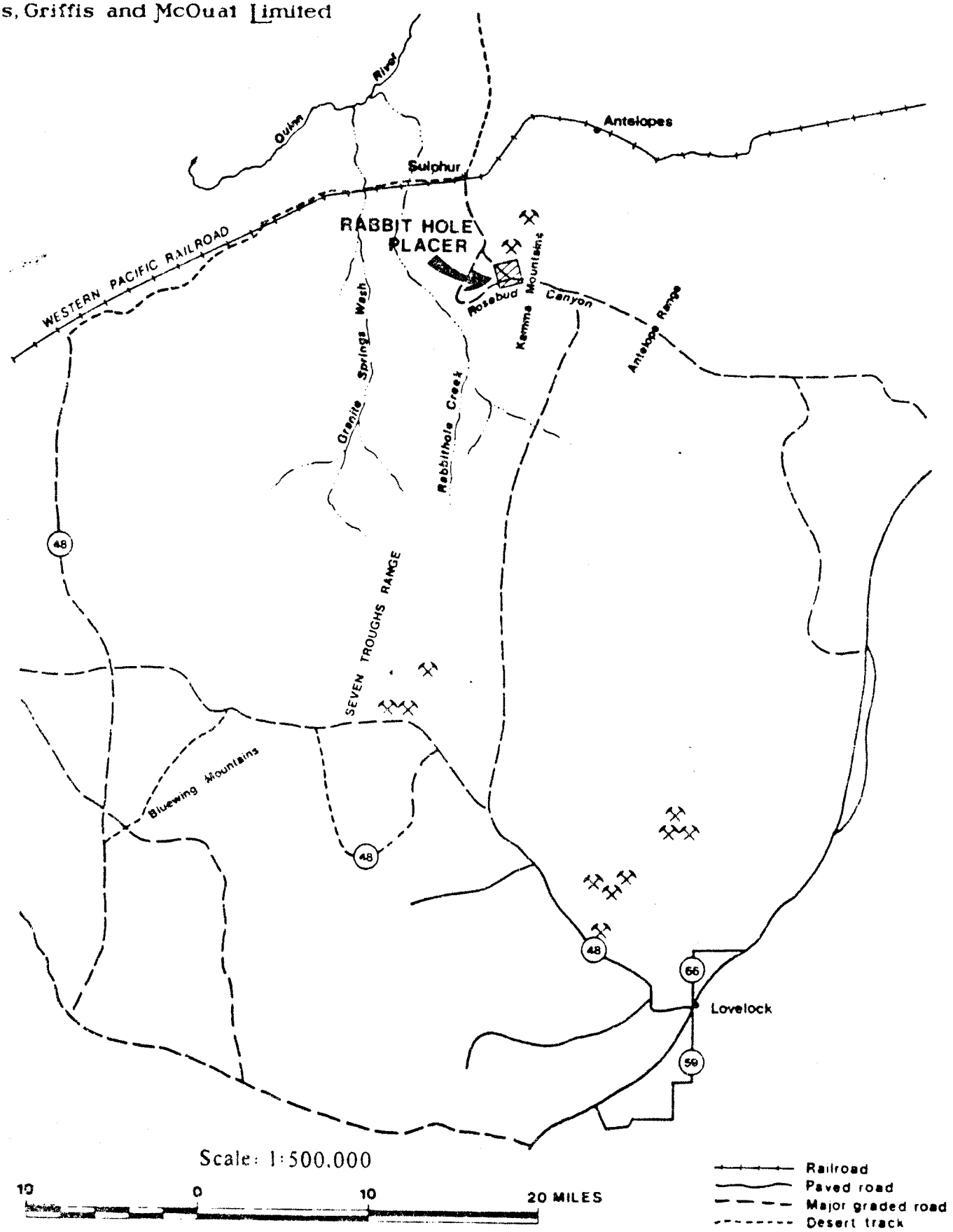

FIGURE 2: Regional map.

4. BRIEF HISTORY

Chinese placer miners were the first to have worked the gravels in the 1870s and are said to have recovered several thousands of dollars' worth of gold by treating sediments from tributaries of the Rosebud Canyon, which follows the southern boundary of the property.

Placer mining in the area was intermittent until the Depression, during which period several hundred individuals and families worked the gravel with primitive equipment on a subsistance level. These people were given a small grubstake, instructions in placer mining, and gasoline to get to the district — all provided by Pershing County to reduce welfare aid to needy individuals.

The area was used from 1942 to 1960 by the Navy as a practice bombing range; no mining was permitted. From 1960 to early 1983, the claims were worked intermittently by various individuals and groups.

5. REGIONAL GEOLOGY

This section is extracted from Geology and Mineral Deposits of Pershing County, Nevada, by M. G. Johnson (Nevada Bureau of Mines and Geology Bulletin 89, 1977):

> *The basin in which the placer deposits occur is composed of Tertiary sedimentary rocks, including lakebed deposits, and Tertiary and Quaternary fanglomerate on the west flank of the Kamma Mountains. The valley floor, barren of placers, is recent alluvial wash derived from the older alluvium. The bedrock of the surrounding mountains consists of a thick complex of Tertiary rhyolitic rocks overlying Triassic and Jurassic metasedimentary rocks.*
>
> *The chief occurrence of placer deposits is in a large alluvial fan that extends westward from Rosebud Peak at an altitude of about 5,300 feet. The geology of the fan was studied by R. G. Reeves . . . who supplied the following information. The fan is composed of three sections: an upper 3° slope extending northwest for about 2 miles, a middle 7° slope that drops about 500 feet from an altitude of about 4,900 feet, and a lower 3° slope that merges into the basin floor at an altitude of approximately 4,200 feet. Gullies have eroded deeply into the steepened slope and headward into the upper 3° slope. The fan consists of a variety of rock fragments, both angular and rounded, including rhyolite, andesite, quartz, silicified fault breccia, and phyllite. Gravels of the main fan are coarse, angular, and unsorted; along the western edge of the fan and in the deeper gullies, gravels are well sorted, stratified, and rounded. The gravels overlie a clay layer that slopes west and underlies the entire placer area. This false bedrock is within a few feet of the surface on the east side and increases to a depth of 70 or more feet about midway along the fan. The false bedrock forms a horizon separating overlying gold-bearing gravels from underlying barren gravels and probably formed prior to the relatively recent renewed uplift of the Kamma Mountains, as indicated by the break in slope at 4,900 feet.*
>
> *Most of the placer mining activity was concentrated in the gullies that dissect the fan. The best gold values were found near the heads of the ravines and at the break in slope between the upper 3° and the middle 7° fan sections.*
>
> *The gold was characteristically in the form of flat nuggets that ranged from a few cents to a few dollars in weight value . . . . Cassiterite, cinnabar, and scheelite occur in the placer gravels in trace amounts; the concentrations found were too low for economic recovery. Magnetite, some containing up to 5 percent TiO_2 . . . is a common constituent of the gravels and caused considerable problems in mining by clogging riffles.*

Detailed studies of the source of the placer gold have not been made, but the character of the fanglomerate indicates that the source was gold deposits on the west flank of the mountains similar to the gold deposits at Rosebud Peak . . . .

6. STAGE 1 EXPLORATION

6.1 OBJECTIVES

The goal of this program was to demonstrate the existence of gold-bearing gravels via sampling on surface and at depth in previous workings. Additional procedures included processing of the gravels to provide a range of grades, and field observations to increase understanding of the geology of the property, especially as to the existence of the so-called continuous clay 'false bedrock'.

Accumulated data would provide the basis for Stage 2.

6.2 FIELD PROCEDURES

Samples were taken in the form of channel samples 2–3 feet high, 6 inches to 1 foot wide, and 3–6 inches deep, depending on access via the old workings above the false bedrock that the old rivers had followed.

The material was weighed and placed in a 1-cubic-foot box before feeding into a rocker for concentration. The concentrate was removed from the apron of the rocker for fine panning, and the tailings checked. The concentrate was visually examined and colours were recorded by using a reference chart (e.g. No. 1 colour, weight over 4 mg; No. 2 colour, weight between 1–4 mg; No. 3 colour, weight less than 1 mg). Coarse gold was removed, placed in a vial, and labelled.

To recover the finer gold, a globule of clean mercury was added to the concentrate in the pan. By fine panning over a safety pan with periodic checks of the concentrate, all the free gold was amalgamated. The amalgam was removed and transferred to a parting cup; dilute nitric acid was added; and the mixture was heated over low flame, to dissolve all impurities.

The solution was then decanted. The gold was washed a few times with warm water, dried in a parting cup with low heat, and then brought to a low red heat to evaporate any residual mercury. The gold was then weighed to within 1 mg on a folding balance, and placed in small vials.

The gold was primarily coarse and clean (approximately No. 2 colour) with no rustiness (i.e. thin coatings of iron oxides, etc.) apparent.

'Black sands' constituted 3–5% of the total sample and, on quick visual inspection, consisted primarily of magnetite, with some scheelite and cassiterite grains also evident. The 'black sand' concentrate, less the extracted gold, was bagged and marked for future attention.

This sampling procedure duplicated, as closely as possible, actual recoveries in a large-scale operation.

6.3 ASSAY RESULTS

Table 1 summarizes the results of processing 20 samples from 11 sites. The value per cubic yard was calculated assuming a fineness of 900 and a price of US $400 per troy ounce of gold. Site locations are shown on Drawing 1 in the back pocket.

The preliminary program indicates that the gravels are gold-bearing at all sites, with high but erratic grade along as-yet poorly defined horizons or pay-zones. The trench sample (RHS-8) suggests that low-grade overburden (US $0.42 per cubic yard) may exist in places, whereas the remaining samples and other old workings indicate the existence of richer horizons or pay-zones of erratic, low-to-high grades ranging in value from US $2.50 to $150.32 per cubic yard.

A total of 10.66 cubic feet of gravel was sampled and processed in the field. At all 11 sites, the material was gold-bearing. The cumulative recovered gold amounted to 850 mg or 0.027 troy ounces, giving an arithmetic gold grade average of 0.07 troy

ounces per cubic yard or US $25 per cubic yard. This average would probably lessen significantly as the number and size of the samples is increased.

This preliminary sampling indicates that: 1) a low-grade overburden may exist; 2) more than one horizon or pay zone could be encountered; and 3) selective mining might be necessary.

TABLE 1

ASSAY RESULTS SUMMARY

Site No.	Total Sample Volume (ft^3)	Gold Recovered (g)	Gold Grade		Site Description
			(oz Tr/yd^3)	(US \$/yd^3)	
RHS-1	1.5	0.162	0.0938	33.75	Old adit, 3-ft vertical channel
-2	0.375	0.003	0.0069	2.50	Old adit, 3-ft vertical channel
-3	0.375	0.003	0.0069	2.50	Old adit, 3-ft vertical channel
-4	0.5	0.043	0.0747	26.88	Old adit, 3-ft vertical channel
-5	1.5	0.039	0.0226	8.13	Old shaft, 16-ft vertical channel
-6	1.327	0.016	0.0105	3.77	Old shaft, 37-ft vertical channel
-7	1.0	0.079	0.0686	24.69	Old adit, 3-ft vertical channel
-8	0.75	0.001	0.0012	0.42	Old trench, 3-ft vertical channel
-9	0.834	0.015	0.0180	5.62	Old adit, 2-ft vertical channel
-10	1.5	0.008	0.0046	1.67	Old adit, 3-ft vertical channel
-11	1.0	0.481	0.4175	150.32	Old adit, 2-ft vertical channel
Total	10.66	0.850	0.0692	24.92	

NOTE: To calculate value of gold in US dollars per cubic yard, as for site RHS-1, using US \$400 per oz Tr and a 900 fineness, the formula is:

$$\text{US \$/yd}^3 = \frac{0.162\ \text{g}}{1.5\ \text{ft}^3} \times \frac{27\ \text{ft}^3}{\text{yd}^3} \times \frac{\text{oz Tr}}{31.103\ \text{g}} \times \frac{\text{US \$400}}{\text{oz Tr}} \times \frac{900}{1{,}000}$$

$$= \frac{0.162}{1.5} \times 312.51 \times \frac{\text{US \$}}{\text{yd}^3}$$

$$= \text{US \$33.75 per cubic yard}$$

ACS

ANALYTICAL CONSULTING SERVICES

5805E.Chimney Rock • Houston, Texas 77081 • 713/663-6692
6251 Corporate Dr. Houston, Tx. 77036 (713) 995-8080

August 8, 1979

Pacific Exploration
Fallon Test Facility
P.O. Box 1418
Fallon, Nevada 89406

Subject: Quantitative analysis of four ore concentrates for seven precious metals and tin and qualitative analysis for major, minor and trace elements.

Ref: Lab No. 252

Analytical Procedure:

The digestion for the platinum group metals and gold was an aqua regia digestion. Silver was analysed in a Nitric acid matrix and tin was analysed twice, once in Nitric acid and once in Hydrochloric acid.

Analytical Results:

Quantitative Analysis:

Report on an as received dry weight basis. Precious metals are in oz/ton and tin in percent.

Sample ID	Ag	Au	Pt	Pd	Rh	Ru	Ir	Sn
Large Bag	1.32	1.07	0.74	0.19	0.31	2.98	2.71	0.05
Bucket	1.74	43.33	0.38	0.07	0.17	1.63	1.46	0.02
High Cons #2	1.19	41.35	0.89	0.24	0.36	3.58	3.25	0.05
Cons #3	-0-	14.95	1.03	0.26	0.41	4.27	3.80	0.05

Note: Bucket sample had to be dried. Moisture 14.75%.

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ANALYTICAL CONSULTING SERVICES

5805E Chimney Rock • Houston, Texas 77081 • 713/663-8892

August 8, 1979

Qualitative Analysis:

Sample ID	Major >1%	Minor 1-0.1%	Trace <0.1%
Large Bag	Ba, Ca, K, Mg, Na, Si, Sr	Al, Be, Cr Mn, Ti	Sn, Ni, V, Pb, Os, Cu, Co, Gd, Cs, Ag, Au, Pt Pd, Rh, Ru, Ir
Bucket	Fe, Ca, Ba, Mg, Na, Si, Sr	Mn, Al, Gd Ni, V, T	Cr, Cu, Co, Bi, P, Pb, Yr Ag, Au, Pt, Pd Rh, Ru, Ir, Sn
High Cons #2	Si, Na, Sr, Ca, Mg, Fe	Ni, Ti, V, Al, Cr, Mn, Ba	Pb, P, Mo Ag, Au, Pt, Pd, Rh, Cd, Ru, Ir, Sn
Cons #3	Mg, Ca, Fe, Na, Si, Sr	Al, Mn, Ga, Ba, Ni, Ti, Pb	Cu, Cd, Cr, Mo, Zn, P, Yr, V, Sn, Ag, Au, Pt, Pd, Rh, Ru, Ir

Sincerely,

ANALYTICAL CONSULTING SERVICES

J. D. Kyes
Lab Manager

JDK/gb

NEVADA ASSAY OFFICE
5800 RENO HIGHWAY
FALLON, NEVADA 89406
Telephone 867-3078

August 10, 1979

Pacific Exploration
Fallon, Nevada

Assay no: 116978

Barrel Springs Concentrates:
Concentration Ratio 95-1
Total wt. sample submitted----- 2 lbs. 12 oz.
Standard Mercury amalgamation: no grinding.

Rec: .88275 grams gold
= 20.62982 oz./ton of cons. X $300.00 = $6188.95

Mercury amalgamation plus grinding:

Rec: .34634 grams gold
= 8.04395 oz./ton cons. X $300.00 = $2413.19

Total gold recovered from both above: 1.22909 grams
Oz./ton gold contained in cons. 28.6738
Value at $300.00 gold (per ton of cons.) = $ 8602.131
at concentration ration of 95-1
= .3018 oz./ton raw material
=$90.55 per ton raw material

Tails after grinding:

Gold--- Trace
Silver 0

NEVADA ASSAY OFFICE
William L. Cofley
WILLIAM L. COFLEY

7. NOTES ON RABBIT HOLE DISTRICT AND PLACER

7.1 GEOLOGY

A sketchy account of the Rabbit Hole district is found in the Geology and Mineral Deposits of Pershing County (Johnson 1977). According to Johnson, gold deposition in fanglomerate placers is related to three factors:

1. Auriferous gravels lie above a barren, thick clay seam which apparently served as a false bedrock surface. This seam dips west and is covered by 5 to over 70 feet of gravel. The gravels underlying the clay horizon are supposedly barren.
2. The source of these placer deposits lies to the east and northeast, in the vicinity of Rosebud Peak.
3. The best gold enrichment occurs at a break in slope between the upper 3° and intermediate 7° portions of the Rabbit Hole alluvial fan, and at the heads of ravines cutting into this fan.

Several discrepancies in the Pershing County report were discovered upon examination of the Rabbit Hole property. The clay seam may or may not be an important factor in terms of gold concentration on top of a false bedrock. The underlying gravels were not sampled, so far as I know; an absence of gold within these sediments remains unconfirmed. Gold enrichment definitely occurs above the clay, but there is no conclusive evidence for enrichment **immediately** above the seam, as gold was found throughout a fairly extensive vertical section. The validity of this false-bedrock model is in question, and the idea definitely needs to be examined in greater detail.

Our limited examination of the clay seam indicated an eastward dip, as opposed to the westward dip quoted in Johnson (1977). However, I suspect this clay horizon is less predictable than Johnson indicates. The seam is massively bedded and poorly sorted, while the clay itself looks and feels much like bentonite. Bentonite deposits often form as a result of volcanic ash deposition in lacustrine or fluvial environments. In this case, a fluvial (or alluvial fan) sedimentary system is found, due to the poor degree of sorting and lack of well defined bedding. Volcanic ash rapidly choked stream channels, thus preventing fluvial sorting and stratification.

Gold deposition and concentration within this type of sedimentary environment would be strongly influenced by the overall geometry of the alluvial-fan system. Fan channels typically radiate (or fan) outward from their proximal source toward the distal fan margin. Water transport along main channels usually occurs within a braided network of small streams. Gold concentrations would therefore be confined to an anastomosing, fan-like network of long, narrow, isolated channels. In a broad sense, gold distribution would be erratic and very unpredictable.

Johnson suggests the placer gold was derived from an eastern and/or northeastern source. I agree with this interpretation. The best gold values occur in gravels rich in 'chalcedonic' quartz vein material, silicified-limonitized felsic tuff, and propyllitized-limonitized andesite. Some limonitic argillized volcanic material is also present. These associations are suggestive of an eroded, high-level epithermal gold/silver system similar to that occurring at Round Mountain, Nevada. Blocks of low-temperature silica-cap material and silicified explosion breccia litter the fan's surface; and the presence of placer cinnabar (Johnson 1977) offers further evidence for a Round-Mountain-type setting. (Note: The fanglomerate-hosted placer gold deposit at Round Mountain occurs adjacent to the auriferous stockwork - quartz vein zone presently being mined.)

The Rosebud Peak area, located northeast of Rabbit Hole, is a likely candidate in terms of providing a gold source. Gold particles would have been transported down the alluvial fan in a southwestward direction, with deposition occurring in fan channels that radiated outward from the fan's head near Rosebud Peak. These channels would run southward along the Rabbit Hole District's eastern margin; southwestward in the vicinity of the deep water well; and possibly westward along the district's northern margin.

The intermediate 7° slope interval mentioned earlier undoubtedly resulted from tensional tectonism along a N70°W-trending, southwest-dipping normal fault. Displacement across this structure resulted in erosion of auriferous gravels (and probably the clay seam as well) from the upper 3° slope, with redeposition on the intermediate 7° and lower 3° slopes. Gold concentration would be expected along the 7° slope and at the 7° - lower 3° break in slope due to an increased gradient. This zone or belt of

gold concentration probably extends farther to the northwest, off of the Anmorel claim block.

7.2 SUGGESTIONS

1. Secure the land occurring along the N70°W-trending, 7° fault scarp. This may include some of the gravel covered by the Star group.

2. Test the gravels underlying the clay seam, and check the upper 3° slope for the presence of gold, as well as the clay horizon.

3. A sedimentary petrology study may prove beneficial in terms of locating and defining auriferous paleo-channels. I also feel a structural analysis of recent faults may uncover additional gold-bearing portions of the Rabbit Hole alluvial fan.

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Agricola

RABBIT HOLE

"PLACER" GOLD PROPERTY

Location and Access

This property consists of some 700 acres of unpatented mining claims located abut 60 miles northwest of Lovelock, Nevada, in Pershing County with access being via a paved and gravelled all weather road. Lovelock is about 3 hours by paved highway from Reno.

The deposit is situated in an area of rolling hills, adjacent to a higher more rugged mountainous region, at an elevation of about 4,200 feet. The area is generally described as an arid, high desert, lightly vegetated by desert sage. Its remote locale, coupled with lack of human habitation for many miles in all directions, should minimize any environmental licencing required for developments. A landing strip is adjacent to the property and a Western Pacific Railway siding is located 7 miles away, at Sulphur, Nevada. Electrical power is also available at Sulphur, and it should be relatively inexpensive to bring it to the property owing to the flat topography.

Mining History

The Rabbit Hole Mining District has had an extensive history of small scale mining, dating back to the mid-1800's. Two factors have prevented large scale development prior to 1972: lack of water and the low price of gold. However, it is a testament to the viability of future operations that some previous owners were able to make a living in the 1930's and in the early 1960's.

During the post 1972 period, gold prices have of course improved vastly and water supply, as noted below is purported not to be a problem. In the 1974-1979 period,

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Rabbit Hole Placer
view of smaller excavations

Looking North

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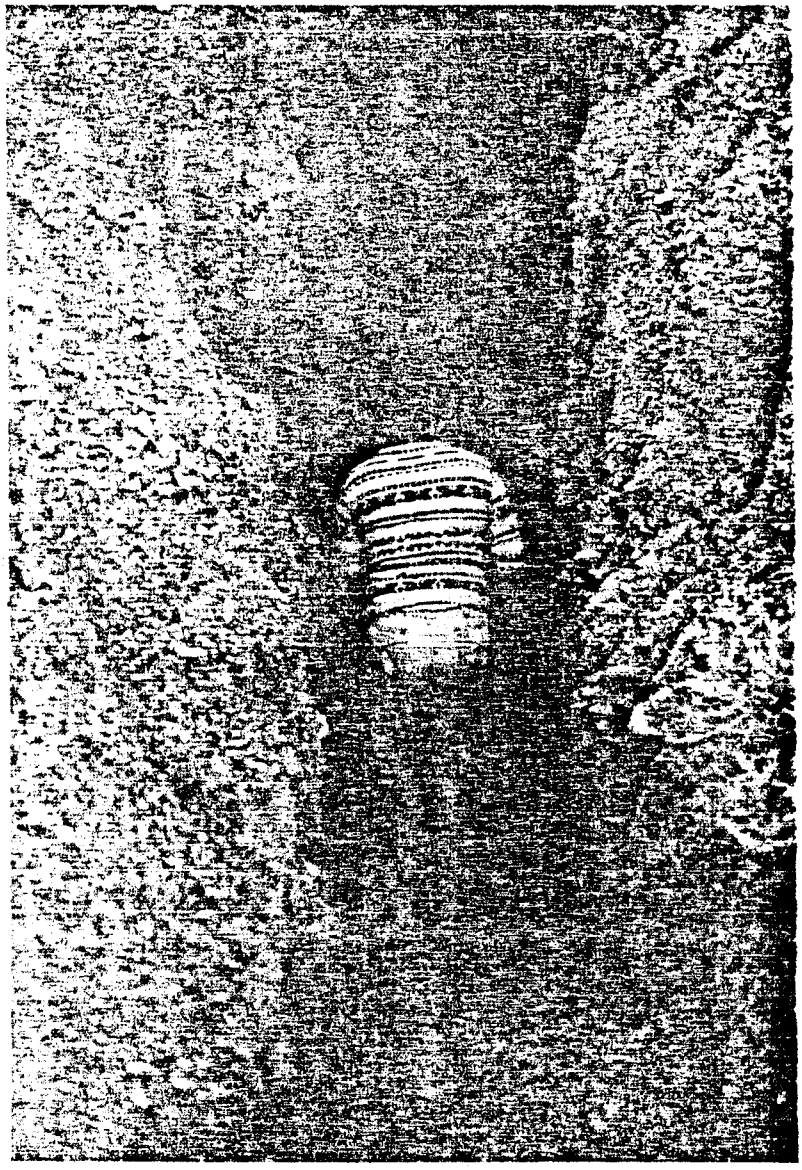

Typical drifts and adits.

Agricola

quarrels among investors are said to have terminated at least two efforts to open the area. Considerable work has been done on the property over the past three years but unfortunately, not by concerns with a track record in large scale placer mining. Exploration results were encouraging but obsolete dry wash milling equipment was used, and predictably, volume production levels were never reached.

Mr. Everett Hess, who has had an interest in the property during the last eighteen years, states that old shafts have been sunk 100 feet to "bedrock", and tunnels driven adjacent to "bedrock" in an attempt to high grade the property. Mr. Hess says he has sampled these old shafts from top to bottom and all of his test values are in excess of $1.00 per cu. yd. at $35.00 gold. He estimates a volume potential in excess of 40,000,000 yds. Approximately 700 acres of ground has been outlined and tested to 62 feet in depth at which elevation a false bedrock has been identified. In the early 1970's (gold at $60 to $100 per oz.) a 15,000 cu. yd. bulk sample from near surface was processed and a value of about $3.00/cu. yd. was recovered.

It is unlikely that detailed data is available to confirm these projections and a preliminary exploration program is needed.

Geological Considerations

The regional geology consists of quarternary deposits, which are probably overlying Tertiary sediments plus Mesozoic, igneous and metamorphic rocks. Older tunnels and open pits exist in the unconsolidated material and it is thought that higher concentrations of gold occur in loose gravels immediately over the so-called false bedrock, which is probably "hard pan", i.e. a compact clay seam.

The gold is said to be free gold ranging from nuggets and "rice" size particles down to fractions not visible to the naked eye. The associated black sand amounts to about 3 per cent of the volume and contains magnetite, hematite, cinnabar, cassiterite, rutile, and platinum.

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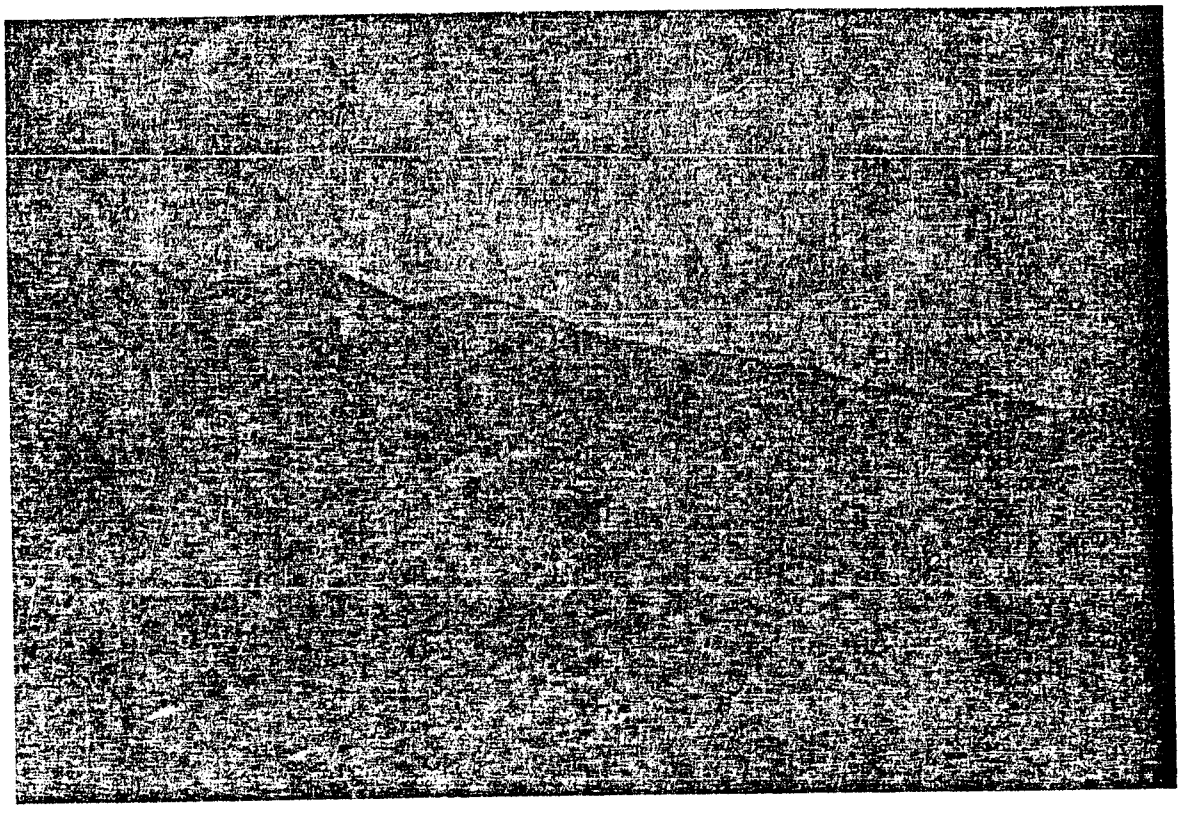
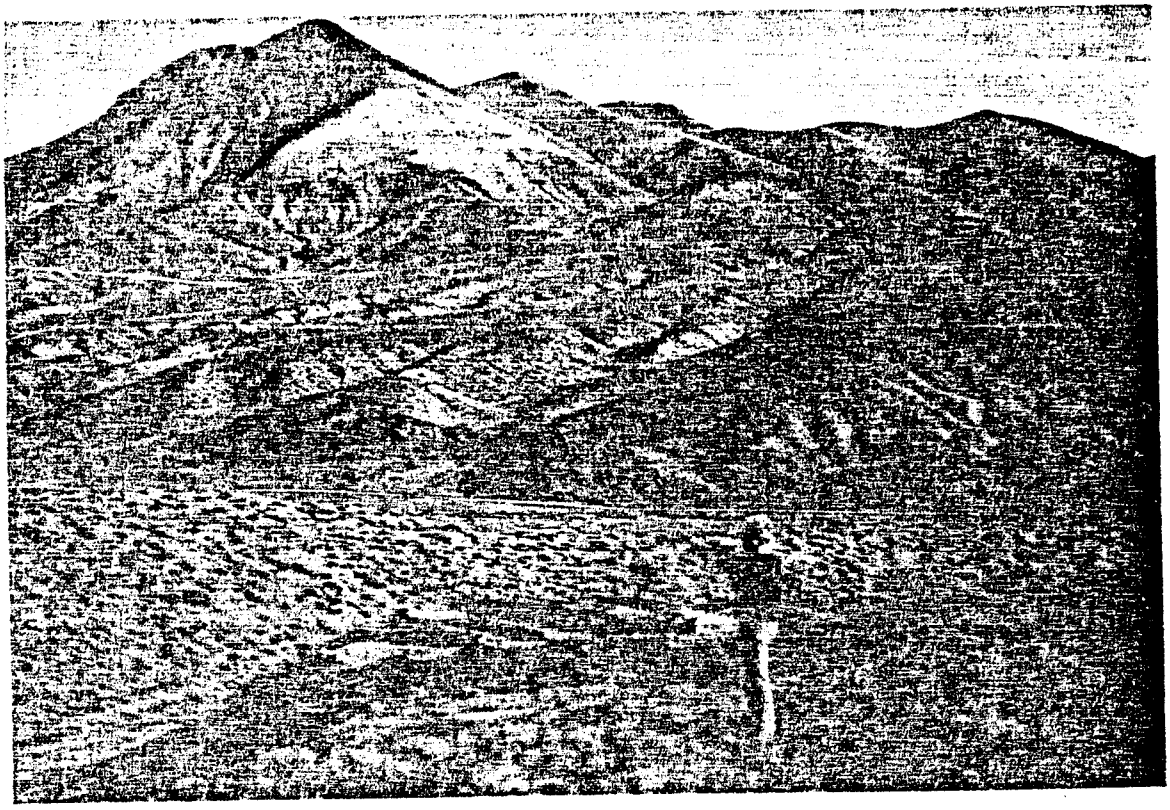
View of two possible source rocks.



Looking North



Looking East

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With consideration to both learned opinions on the excellent potential of this deposit and the adequate size of the claim block, a target of 20-100 million cubic yards of material with a value in excess of $5 per cubic yard, would not be unrealistic.

J. David Mason
November 19, 1982

Agricola

Sources of Data

1. A brief Summary of Four Gold Placer Deposits in Southwestern U.S.A., an unpublished report by James A. Bates, Watts Griffis and McOuat Limited, October 8, 1981.

2. Summary report by Everett Hess, May 6, 1967 (vendor)

3. Summary by Cole Reed Associates, 1980 (vendor)

4. Claim Sketches - August 1972
   Official Records of Pershing County, Nevada

5. Placer Gold Deposits of Nevada, by M.G. Johnson, Geological Survey Bulletin 1356 U.S. Dept. of the Interior, 1981

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Item 8

PRELIMINARY SURVEY OF BARREL SPRINGS PLACER PROSPECT PERSHING COUNTY, NEVADA

pacific exploration

FALLON TEST FACILITY P. O. Box 1418 Fallon, Nevada 89406 (702) 423 6581

August 13, 1979

Mr. Hans Berger
1068 Bonneville Drive
Salt Lake City, Utah 84108

SUBJECT: Preliminary Survey of Barrel Springs Placer Prospect, Pershing County, Nevada.

This firm has recently sampled and reviewed data from the Barrel Springs Prospect in depth. In addition to this undertaking, we have been technically involved over the past three years with a placer prospect known as "Rabbit Hole", which is contiguous with the subject property. Our conclusions are that the auriferous gravel deposits of Barrel Springs have an extremely high profit potential in terms of the present-day value of gold. It is our opinion that the property can initially be put into production on a scale of 300-400 cu yds per day within 90 days and eventually support a 10,000 cu yd per day open-pit production operation in about one year. The bases for our conclusions are outlined below:

HISTORY

The area has been a producing gold mining district since the 1930's. Mining techniques have ranged from hand diggings and tunnels to open-cast mining with heavy earth moving equipment.

SITE OBSERVATIONS

This geologist has recently hand picked fine flecks of gold from the bed of a small gully at the prospect. In addition, fine free gold was observed in panned samples from the Thompson pit on the property. Samples panned from the adjacent property at Rabbit Hole several months ago also showed fine free gold.

ASSAYS AND SAMPLING

Both historical and recent assays of samples from the property have consistently shown recoverable, near-surface gold to exist in bedded gravels. Gold values tend to increase with depth until "false bedrock" is encountered. This false bedrock is a homogenous consolidated clay thought to be a lake bed sequence, which repeats itself in depth down to at least several hundred feet. The highest gold content is usually found resting on top of each false bedrock stratum. The depth below ground surface of the first major false bedrock stratum varies from a few feet to tens of feet. The most economically favorable target areas for surface mining operations may, therefore, be where false bedrock is closest to ground level.

Attached to this report are assay reports from two independent laboratories giving metal contents of concentrates from the Thompson and Walz pits. The reports show an excellent profit potential for these two areas. Assay no. 116978, dated 10 August, by Nevada Assay Office, shows that grinding and Mercury amalgamation of the black sand concentrates increases gold recovery by a factor of about 1/3 or about $2,000 in addition to the primary free-gold values of $6,000 per ton, assuming the value of gold to be $300 per oz.

We recommend that additional testing be done to confirm these secondary recovery values. Bulk sampling would be the most reliable method; and the larger the sample, the more accurate the results will be.

ASSOCIATED PLACER MINERALS

Recent assays have shown a wide range of associated, potentially economic minerals to be present in the Barrel Springs placers, including Silver, Cinnabar, Chromite, Tungsten, Nickel-Cobalt, Cassiterite, Titaneum, and Platinum. Attached assay no. 252, dated 8 August, by Analytical Consulting Services shows economically interesting contents of Platinum and Ruthenium. The recoverability of these elements is not known at present, and extensive metallurgical testing will be necessary before the economics of recovery can be worked out.

ENVIRONMENTAL LIABILITIES

We have investigated the status of the property with previous engineering consultants, the U.S. Bureau of Land Management, the Nevada Bureau of Mines, the Nevada State Engineers Office, the Pershing County Surveyor, and others and have found no major legal or environmental impediments to future surface mining activities.

There are no communities to speak of within a 40 mile radius of the site, a factor which will lessen the possible environmental restrictions imposed on a placer development. The State of Nevada is known for having the least amount of environmental requirements of any state in the U.S. A possible historic site, in the form of an old cabin, exists near Rabbit Hole springs; and care should be taken so as to preserve this site.

The property east of Rabbit Hole Road has been recently classified by the BLM as not qualifying as a wilderness area: an area which includes all of the placer properties discussed in this report. The local BLM representitive has expressed dismay that the area has already extensive roadworks and diggings, but he added that he has no jurisdiction in these matters because the area is open mining claims subject to State regulations. Politically, it may be wise and prudent to build in a replanting program into the placer development. The only obvious vegatation to speak of is sagebrush, but to our knowledge there are no re-seeding requirements by authorities at this time.

IMPROVEMENTS

The site has within its boundaries a well-graded and maintained 4300-foot dirt airstrip. The site is accessible by heavy earth-moving equipment and is criss-crossed with wide, well-graded dirt roads. Three water wells have been drilled, tested and reported on by an accredited engineering company. The reported yield of the largest well is on the order of 600 gals per min. Two substantial septic tanks and leach fields have been installed and inspected by the County Health Department. They

should be more than adequate to meet the needs of a 60 man permanent camp. An adequate supply of potable water exists near the campsite, and the wells have been inspected and approved by the County Health Department.

The camp suffered a great deal of vandalism from November 1978 to August 1979; and a good part of the plumbing and wiring has been ripped out of the ground and stolen, which is unfortunate. However, it is our opinion that the value of useable and necessary improvements, e.g., excavation, grading, foundations, roads, campsite, airfield, surveying, testing, engineering, well-drilling, etc., is on the order of $500,000. The existing improvements were done in a competent manner and will greatly facilitate the construction of a future mill and campsite.

The topography of the site is suitable to surface mining, being low in relief and sparsely covered with desert sage. Winters are relatively mild with a few inches of snow possibly occuring during the height of the winter months. The nearest towns with populations of several thousand are within about 60 miles. The city of Reno with an international airport, major engineering facilities and support services is 100 miles away or about 45 minutes flying time.

The claims have been recently surveyed by a registered surveyor and the claims duly registered with the BLM and the County Recorder.

RESERVES

Based on previous exploration and mining of the Barrel Springs placers, it is our opinion that proven reserves are on the order of 50 million cu yds. According to Mr. G.R. Moore, Mining Engineer, there are 7.4 million cu yds of gravels for 40 feet of depth for each 100 acres. The areas known as the Walz, Thompson, and Nugget pits have been extensively drilled, sampled, and mined; and the total surface area of these sites is on the order of 662 acres. Using G.R. Moore's factor of 7.4 million cu yds per 100 acres, the results obtained are about 50 million cu yds of reserves.

Using a gold price of $250 per oz, these proven reserves have been shown to range in value from $8 to $50 per cu yd. Assuming the lower value of $8 per cu yd, the total gross value of the proven reserves would be $400 million. Using a mining and milling cost ranging from $2.80 to $3.20 per cu yd, the higher total cost for processing 50 million cu yds would be $160 million resulting in a net profit before taxes of $240 million.

Barrel Springs
8 August, 1979

Mining at the rate of 10,000 cu yds per day, the expected life of a 50 million cu yd mine would be 14 years returning about $17 million per annum before taxes.

Judging from the surface geology and the known test pits and digging surrounding the proven reserves, the inferred reserves could easily be three times as great as the proven 50 million cu yds.

Yours truly,

W. B. Murdaugh

William B. Murdaugh
Chief Geologist

WBM/cm

BARREL SPRINGS

Primary Recovery-2 yd 12oz cons

Secondary Recovery - same cons

NEVADA ASSAY OFFICE
5800 RENO HIGHWAY
FALLON, NEVADA 89406

Telephone 867-3678

June 11, 1979

John Peterson

Fallon, Nevada

Assay no: 116496

Amalgamation tests on Placer Gold. (Mercury)

1- using 24 lbs. of raw material
Recovered-- .15048 grams X $9.00 = $1.35
24 lbs X 108.33 = 1 yard of 2600 lbs.

1.35 X 108.33 = $146.25 per yard.

~~3~~ 5- Using 21 lbs. of raw material
Recovered-- .06934 grams X $9.00 = $0.63
21 lbs X 123.81 = 1 yard
.63 X 123.81 = $ 78.00 per yard.

NEVADA ASSAY OFFICE
WILLIAM L. COPLEY

Gold at $280.00 per oz. = $9.00 per gram

SECTION V

Response to Question #13

ATTACHMENT

1. Aslett Plant Run Report

REPLIES:

In response th Question #13 find attached the Aslett Plant Run report.

ASLETT PLANT RUN REPORT

DATE	OPERATION	HRS	VOL	RECOVERY	REMARKS
7,8&9 SEPT	Ran plant with 1" expanded metal riffles 50' long	6½	91Yd	$1.96 Per CuYd	Debugging plant running low grade ore from directly in front of plant
13-14 15SEPT	Removed 20' of 1" expanded metal replaced with Hungarian Riffles	10	140Yd	$2.88 Per CuYd	Ran ore from dozer cut Riffles still clogging with Black Sands
20SEPT	Added 10' of Hungarian Riffles for a total of 30' and steepened the drop angle	1	12Yd	$3.86 Per CuYd	Ore from dozer cut Black Sands still clogging the riffles
28SEPT	Installed 30" Knelson Bowl in place of riffles	½	6.7Yd	$9.79 Per CuYd	Ore from dozer cut Knelson Bowl not receiving required water pressure and volume
29SEPT	Adjusted flow of water to provide more to Knelson Bowl	1	12Yd	$6.70 Per CuYd	Ore from dozer cut not enough water volume to wash ore and run Knelson Bowl
1OCT	Installed booster pump to feed more water to Knelson Bowl	3	53Yd	$4.37 Per CuYd	Ore from dozer cut now providing Bowl with enough water however head ore washing system is not cleaning ore properly due to lack of water
3OCT	Slowed head ore feed rate down to attempt to better wash the rocks and still provide water to the Bowl	3½	40Yd	$3.28 Per CuYd	Ore from dozer cut even at reduced head ore feed rate there is not enough water to clean the ore and run the Bowl

4OCT	Ran plant with last water from lower pond	1	32Yd	$1.82 Per CuYd	Ore from dozer cut as pond emptied water bugs and other fine debris was pumped to the plant plugging the spray bars and causing fluctuations in Bowl pressure
2NOV	Removed the 30" Knelson Bowl and installed a Reverse Spiral Trommel(RST) Lower pond dry converted water system to upper pit	4½	100Yd	$4.67 Per CuYd	Ore from dozer cut observed good amount of Gold coming out of "RST" - After shut down panned lots of Gold from sluice below "RST"
3-4 NOV	Lowered front end of the "RST" 8" to reduce drop angle thru the barrel	4	63Yd	$4.22 Per CuYd	Ore from dozer cut With upper washing system cleaning ore, to much water is entering "RST" and washing Gold away
6NOV	Changed the upper wash system	3½	55Yd	$2.57 Per CuYd	Ore from dozer cut Rex Thompson owner of the "RST" made adjustments to the water system while running
7NOV	Rex Thompson unable to balance the wash system	½	8Yd	$3.91 Per CuYd	Ore from dozer cut Rex Thompson advised that a water skimmer should be installed to reduce the amount of water entering the "RST"
9NOV	Rain and cold causing feed problems	3½	56Yd	$2.64 Per CuYd	Ore from dozer cut Damp ore causing feed to be erratic Head ore not washing properly

11NOV	Aslett installed a baffle midway in inner barrel inside the "RST"	2¼	36Yd	$3.90 Per CuYd	Ore from dozer cut Inner baffle helped slow down wash water inside the "RST"
12-13 NOV	Aslett installed a baffle at the end of the outer barrel of the "RST"	4¼	81Yd	$2.99 Per CuYd	Ore from North side of dozer cut
15NOV	"RST" seems to be working better with baffles	2¼	36Yd	$4.38 Per CuYd	Ore from North side of dozer cut
16-17 NOV	Aslett increased the feed of the plant Head ore not cleaning	12	260Yd	$1.39 Per CuYd	Ore from cut 50' North of dozer cut
18-19 NOV	Head ore not washing properly	4¼	85Yd	$2.51 Per CuYd	Ore from dozer cut South side
					Shut down operations for the winter

SECTION VI

Response to Question #15

REPLIES:

In response to Question #15, thru researching various reports we have found that the Magnetite/Black Sand content at Rabbit hole to be reported as 3 to 5% of the head ore. The 5% figure came from a study done by the Nevada Bureau of Mines and Geology.

The term "Black Sands" includes the non-precious mineral bearing "Magnetites". Jim Swarbrick and I, thru our sample testing have determined that the "Black Sands" as a percent of head ore is no less than ½ of 1%, or 0.005. In our sampling we recovered the Black Sand/Magnetite along with the free gold because of it's density, we would then remove the Magnetites with a magnet. If the amount was weighable we would calculate percentages by weight, if the sample was very small we estimated percentages by volume.

In this way we arrived at the figure 0.005 of head ore, however we found when sample areas produced higher values of free gold the Magnetite-free Black Sands increased. As an example you will note in the Atlantis Claims Test Sample report under #12, dated 27 October, 1989 we recovered free gold equal to $39.60 per cubic yard of coarse gold only and the pure "Black Sands" equaled 1% of the head ore. Double what we have conservatively estimated.

As to the fire assay, the sample used was "Black Sands" and "Magnetites" combined in their natural state and were not separated prior to assaying. We considered this sample of Black Sand/Magnetite to represent 5% of the head ore and that the "Black Sands" alone represented ½ of 1% of the head ore (0.005), therefore:

0.05(total sample) X 0.10(10%) = 0.005(Black Sand)

As I said the "Black Sands" vary with the amount of free gold found, however we feel the 0.005 figure is a low average.

SECTION VII

Responses to Questions #17,18&19

REPLIES:

In response to Question #17, the theory must be proved or disproved when the property testing and ore analysis is done. However I will explain why I beleive crushing the "Black Sands" could be profitable.

When the gold was deposited originally it came in at the same time as the Black Sand/Magnetites, over millions of years the gold bearing "Blacks" have disseminated thereby liberating the gold. We feel that a considerable amount of gold can be recovered by crushing the "Black Sands".

In response to Question #18, again analysis must be done to determine the most profitable process. It may be found that it is better to sell the "Blacks" outright rather than set up a chemical processing plant. However the normal process after crushing to liberate the fine gold from the "Blacks" is to dissolve the gold with a Sodium Cyanide solution and then recover the gold with a carbon filter of thru electroplating. This Cyanide process is strictly controlled by State and Federal agencies, and as I stated before it may prove expediant to sell the "Blacks" to companys set up to handle the Cyanide process.

In response to Question #19, no analysis has been done to date. This will be accomplished in the property test program.

flows cover parts of the southern part of the Nightingale district.

The tungsten deposits are in tactites at and near the contact of granodiorite and limestone. The contact is irregular in detail although generally concordant with bedding in the sedimentary rocks. Numerous small inclusions of sedimentary rocks are entirely surrounded by granodiorite at distances to several hundred feet from the main contact; these inclusions are most numerous in the Cowles Canyon area, but occur elsewhere in the district.

ORE DEPOSITS

Scheelite, the only tungsten mineral mined in the district, is present in economic concentrations only in the tactite but was observed in a few places in the granodiorite (Smith and Guild, 1944, p. 46–48). The ore-bearing tactite is a dark-green and brown thinly layered rock, mostly quartz, epidote, and garnet, with substantial amounts of calcite, pyroxene, and minor amounts of tremolite, pyrrhotite, molybdenite, chalcopyrite, arsenopyrite, pyrite, titanite, and apatite. Some tactite at the Alpine mine contains galena and zinc (Nevada Bureau of Mines and Geology data).

In general, the tactite is exposed as small outcrops adjacent to limestone or granodiorite contacts. The regional dip is steeply southwest, and the tactite commonly thickens at depth. The tactite layers vary from fine-grained to coarse-grained mineral assemblages and are roughly parallel to the bedding in the original limestone. Scheelite concentration varies in alternating layers, and as the layers were thin, all tactite was mined and the ore subsequently sorted. The scheelite, where present in the tactite at the Nightingale mine, is typically disseminated through the tactite in equidimensional grains a quarter of an inch or less in diameter but occurs as imperfectly shaped crystals as large as 1 inch in diameter in coarse-grained tactite layers (Smith and Guild, 1944, p. 50).

Silver and lead prospects are known in the district. In 1944, the district was credited with the production of 1 oz gold, 914 oz silver, and 900 lb of lead from a tungsten mine.

Two uranium deposits occur within the Nightingale district, the Sage Hen Springs prospect in fractures in quartzite, near a pegmatite dike; the Two Chukkers prospect in a basalt(?) dike that cuts granodiorite. The mineralogy and radioactivity of these prospects is described by Garside (1973).

Placerites District

The Placerites district is located in the low hills (corner of Tps. 32 and 33 N., Rs. 29 and 30 E.) southeast of the central Kamma Mountains and northeast of the north end of the Seven Troughs Range. It is accessible from the Lovelock–Sulphur road, about 47 miles north of Lovelock and 18 miles south of Sulphur (Humboldt County). The district is solely a gold placer district; no evidence of gold veins that may have supplied the source of the placer gold has been found.

The following information about the district is summarized from Johnson (1973). The placers are found in a small area of gravel hills adjacent to Rabbithole Creek on the northeast; most of the work was concentrated around the southern and eastern outer edges of the gravel hills. The gold is coarse and about 890 fine and is erratically distributed throughout the gravels, which range in thickness to about 25 feet or more.

The Placerites district was first worked in the early 1870's (some reports state 1850's) by "Mahogany Jack" and his three partners who reportedly recovered $30,000 in gold. The placers were worked again in the 1890's and have been worked intermittently since that time. Most of the initial concentration was accomplished by small-scale hand methods, principally dry-washing, and the gravels were hauled 9 miles northwest to Rabbithole Spring for washing, or ditches and pipes were constructed to bring water to the placers. A dragline scraper operated by the Nevada–Montana Co. mined 140 tons of gravel daily for a short period in 1931. Numerous pits, cuts, and trenches can still be seen in the area; a recent trench is about 1,000 feet long, 25 feet wide, and generally 6 to 10 feet deep, although the deepest part is 25 feet.

Recorded production during this century amounted to 554 oz of placer gold; the total estimated production since 1870 is probably about 2,500 oz.

Rabbit Hole District

The Rabbit Hole district is a placer gold district centered in the basin (T. 34 N., Rs. 29 and 30 E.) formed by the Kamma Mountains on the east, Rosebud Peak to the north and northeast, and an unnamed east-trending hill to the south and southwest. The extent and location of the individual placer claims is difficult to determine because the area is unsurveyed, and the Lovelock 2° topographic quadrangle map does not show locations of springs, gulches, and mines. The district is accessible from the Lovelock–Sulphur road, about 79 miles west and north of Lovelock, and by the Long Canyon–Rosebud Canyon road, which leads south and west from Jungo in Humboldt County. The district adjoins the Sulphur district of Humboldt County (see Willden, 1964, p. 111, table 16) to the north, and a few portions of the sulphur claims extend into Pershing County.

Placer deposits in the Rabbit Hole district are on the west flank of Rosebud Peak (S½ T. 34 N., R. 29 E., unsurveyed), along the north side of the east-trending hill on the west side of Rabbithole Spring, and in tributaries of Rosebud Canyon called Coarse Gold Canyon, Red Gulch, Long Gulch, and Barrel Springs Canyon. Gold is the principal commodity mined from the gravels; other minerals present are cassiterite, cinnabar, scheelite, and titaniferous magnetite.

HISTORY

The placers in the Rabbit Hole district were reportedly worked in the 1870's by Chinese placer miners, said to have recovered several thousand dollars in placer gold from

tributaries to Rosebud Canyon (Vanderburg, 1936b, p. 154). Active mining did not begin until 1911, when the Discovery Placers, 1 mile west of Rosebud, were worked for 60 days. Until the 1930's, placer mining was intermittent; from 1933 to 1942, the placers were worked continuously both by individuals who dry-washed the gravels and by companies who used dry-concentration plants, power shovels, and trucks. Small placer operators using hand methods were more successful in the Rabbit Hole district than in any other district in Nevada. During the depression years of the 1930's, Pershing County officials used the Rabbit Hole placers to alleviate the county relief rolls by supplying needy individuals with a small grubstake, instructions in placer mining, and gasoline to get to the district.

Although most of the descriptions of the placer mining operations in this area state that the work was concentrated in the Rabbit Hole district (west side of the Kamma Mountains), all recorded production but 89 oz was credited to the Rosebud district (southeast side of the Kamma Mountains). The largest yearly production was for 1939 and 1940, when placer mining operations at the Janke group of claims in Barrel Springs Canyon and on the Rio Seco claims, unlocated, produced a total of 3,008 oz of gold. Placer production continued intermittently from 1943 to 1963. Most of the placer ground is controlled by the Constant Minerals Separation Co., which has operated placers in the district since the 1940's.

GEOLOGIC SETTING AND ORE DEPOSITS

The basin in which the placer deposits occur is composed of Tertiary sedimentary rocks, including lakebed deposits, and Tertiary and Quaternary fanglomerate on the west flank of the Kamma Mountains. The valley floor, barren of placers, is recent alluvial wash derived from the older alluvium. The bedrock of the surrounding mountains consists of a thick complex of Tertiary rhyolitic rocks overlying Triassic and Jurassic metasedimentary rocks.

The chief occurrence of placer deposits is in a large alluvial fan that extends westward from Rosebud Peak at an altitude of about 5,300 feet. The geology of the fan was studied by R. G. Reeves (unpub. data), who supplied the following information. The fan is composed of three sections: an upper 3° slope extending northwest for about 2 miles, a middle 7° slope that drops about 500 feet from an altitude of about 4,900 feet, and a lower 3° slope that merges into the basin floor at an altitude of approximately 4,200 feet. Gullies have eroded deeply into the steepened slope and headward into the upper 3° slope. The fan consists of a variety of rock fragments, both angular and rounded, including rhyolite, andesite, quartz, silicified fault breccia, and phyllite. Gravels of the main fan are coarse, angular, and unsorted; along the western edge of the fan and in the deeper gullies, gravels are well sorted, stratified, and rounded. The gravels overlie a clay layer that slopes west and underlies the entire placer area. This false bedrock is within a few feet of the surface on the east side and increases to a depth of 70 or more feet about midway along the fan. The false bedrock forms a horizon separating overlying gold-bearing gravels from underlying barren gravels and probably formed prior to the relatively recent renewed uplift of the Kamma Mountains, as indicated by the break in slope at 4,900 feet.

Most of the placer mining activity was concentrated in the gullies that dissect the fan. The best gold values were found near the heads of the ravines and at the break in slope between the upper 3° and the middle 7° fan sections.

The gold was characteristically in the form of flat nuggets that ranged from a few cents to a few dollars in weight value (Vanderburg, 1936b, p. 149). Cassiterite, cinnabar, and scheelite occur in the placer gravels in trace amounts; the concentrations found were too low for economic recovery. Magnetite, some containing up to 5 percent TiO_2 (Beal, 1963, p. 22), is a common constituent of the gravels and caused considerable problems in mining by clogging riffles.

Detailed studies of the source of the placer gold have not been made, but the character of the fanglomerate indicates that the source was gold deposits on the west flank of the mountains similar to the gold deposits at Rosebud Peak (see p. 81).

Ragged Top District

The Ragged Top district, also known as the Copper Valley district, is located in the southern part of the Trinity Range and adjoins the Toy district in Churchill County on the south. Both districts are primarily tungsten districts (see Willden and Speed, 1974). The mines in the western part of the Ragged Top district are accessible from Toulon by the Ragged Top road, which leads west from Interstate Highway 80 and crosses the northern part of the district; the mines in the southern part of the district are accessible from unimproved roads that lead north from Interstate Highway 80 at Toy in Churchill County.

The principal mines in the district are the Ragged Top, on the west flank of the Trinity Range, and the Coon Can mines and other prospects on the east flank of the range adjacent to the St. Anthony stock.

HISTORY

Scheelite was first discovered in garnetized limestone at the west edge of the Trinity Range in late 1915. In April 1916 the Chicago–Nevada Tungsten Co. explored and developed the Ragged Top group of claims (Hess and Larsen, 1922, p. 289). The mine was rapidly developed during World War I and a mill built at Toulon[1] which was operated until April 1917. The company shipped 3,600 tons of ore averaging 1.25 percent WO_3 to Eureka, Utah (Hess and Larsen, 1922, p. 290), then constructed a 10-mile-long haulage road (Mining and Eng. World, 1916a, b). Total production is estimated at 12,000 to 20,000 tons of ore averaging about 1 percent WO_3 (D. M. Lemmon, unpub.

[1]The Toulon mill later became the property of Rare Metals Corp. and subsequently Wolfram Co., which used the mill to treat the tungsten ores from the Nightingale (p. 75) and Juniper Range (p. 63) districts.

continuations of the ore; numerous veins were cut by the tunnel, but all were low in silver. The East vein did not contain ore past its intersection with the West vein. Knopf (1924, p. 63) explains this absence of ore as probably due to the impounding of the downward-moving solutions by the impervious gouge at the intersection.

At the Nevada Packard mine, the ore deposits occurred in major fault zones, chiefly the contact lode that strikes N. 30° E. and dips 45°–60° W., and in stockwork bodies that consisted of a widely spaced network of mineralized veinlets. The ore consisted of rhyolite carrying disseminated cerargyrite; quartz is practically absent, and sericite is the only conspicuous gangue mineral. The ore in both the faults and the stockwork was characteristically shallow. The valuable ore shoots along the contact lode were as much as 250 feet in length, 40 feet in width, but only about 50 feet in the vertical dimension. A number of these ore shoots were stoped from the contact lode along a length of about 600 feet, but many did not carry ore to the surface. The stockwork bodies were minable to depths of only 30 feet. The stockwork bodies produced the greatest quantity of ore, but individual ore shoots in the contact lode were of much higher grade, some averaging 13 oz of silver per ton.

The gold deposits in the district occur in coarsely granular quartz veins that invariably contain tourmaline, in contrast to the major silver deposits. Some of the gold veins contain abundant coarse microcline, as at the Hagan lode. Sericite and pyrite are common constituents. The gold veins do not grade into the tourmaliniferous silver veins nor into the tourmaliniferous dumortierite veins as seen on Lincoln Hill, where all three types of deposits occur. The deposit at the Hagan lode contains coarse gold generally embedded in masses of limonite derived from the oxidation of arsenopyrite; this lode was one source for the placer deposits in Limerick Basin (Knopf, 1924, p. 76).

Placer deposits were mined in gravels in Limerick Canyon, Rochester Canyon, Weaver Canyon, and Limerick Basin (Panama Flat). Early placer mining activity during the 1860's was concentrated in Rochester Canyon, but the placer workings are now covered by mill tailings from the silver mines. Panama Flat was the center for placer mining activity in the district in this century. There the gold is mostly concentrated on bedrock or in paystreaks just above bedrock. Some gravel has yielded as much as $12 to $35 per cubic yard.

Rosebud District

The Rosebud district, located in the northern Kamma Mountains in north-central Pershing County, takes its name from Rosebud Peak, a 6,514-foot-high peak that dominates the northern part of the Kamma Mountains on the north side of Rosebud Canyon. The district is located in T. 34 N., Rs. 29 and 30 E. (unsurveyed), the only topographic map available of the area is the Lovelock 2° sheet. The Rosebud district proper is a lode mining district; most of the mines are located on the flanks of Rosebud Peak. Placer gold deposits are located on the western flanks of Rosebud Peak, and although production statistics from these deposits are frequently included with lode production from the Rosebud mines, these placers are considered to be in the Rabbit Hole district (see p. 76), which adjoins the west side of the Rosebud district.

HISTORY

Discovery of silver-gold ore near Rosebud Peak in 1906 led to a rush of miners and promoters to the area. Without taking the precaution to determine the extent and value of the ore bodies, these newcomers staked many overlapping claims on the south side of Rosebud Peak, laid out two towns, graded streets, erected a bank and hotel, and started a newspaper and post office (Paher, 1970, p. 121–122). By 1908, the towns, Rosebud and Goldbud, had died, and most of the promoters and miners had left. Those who stayed began developing the silver-gold deposits; the first shipments of ore were from the Dreamland claim in the summer of 1908.

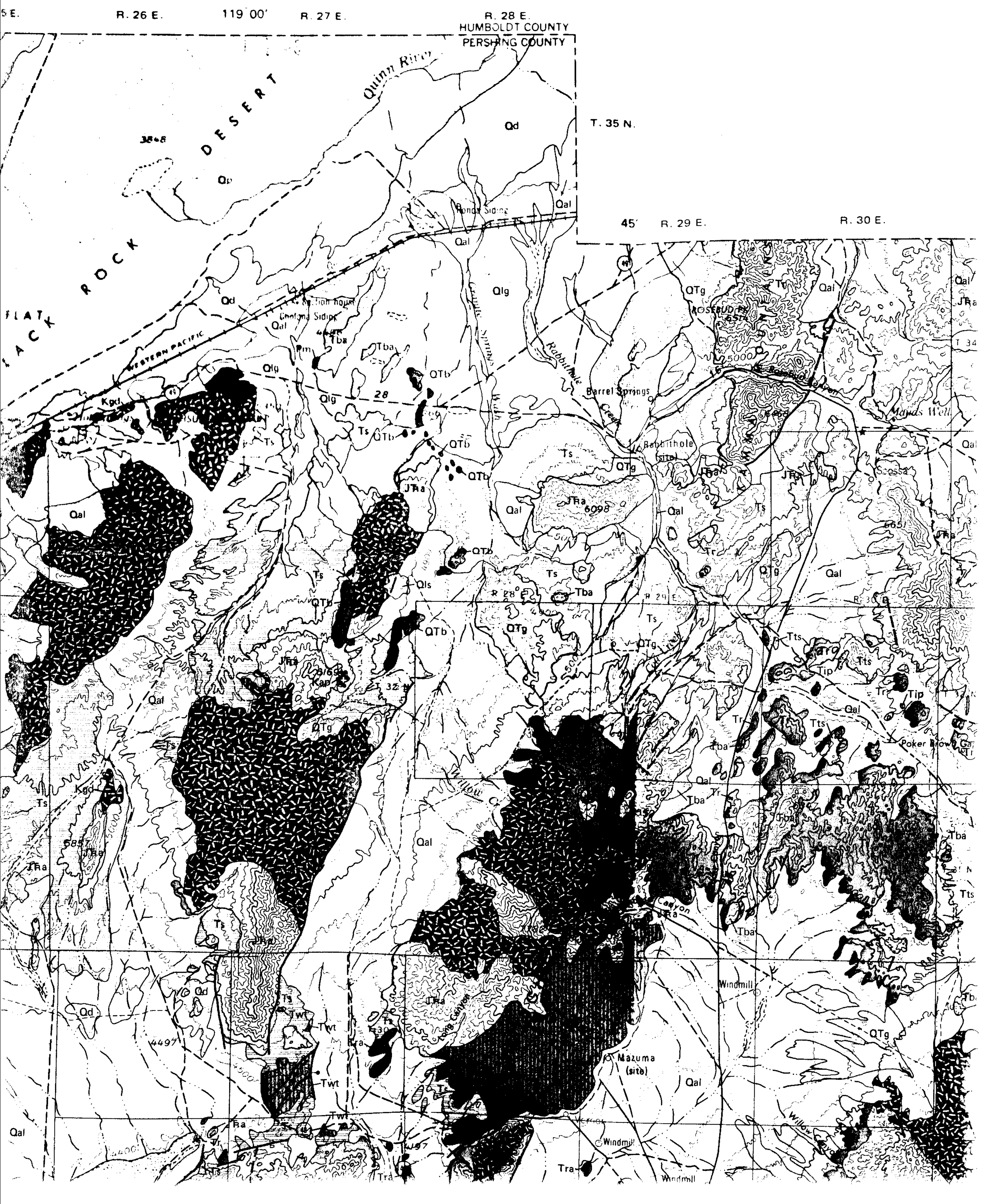
From 1908 to 1947, the mines in the district yearly produced small amounts of gold and silver with some copper and lead. The most consistent producers were the Brown Palace, Dreamland, Durango Girl, Grubstake, and Abe Lincoln claims. In the early years, the greatest value of the ore was in the silver content, the total value of the ore less than $10,000; with the rise in price of gold to $35 per ounce in 1934, the value of the ore rose to a few tens of thousands of dollars yearly. Production statistics for the lode mines in the Rosebud district are given in table 16.

GEOLOGIC SETTING AND ORE DEPOSITS

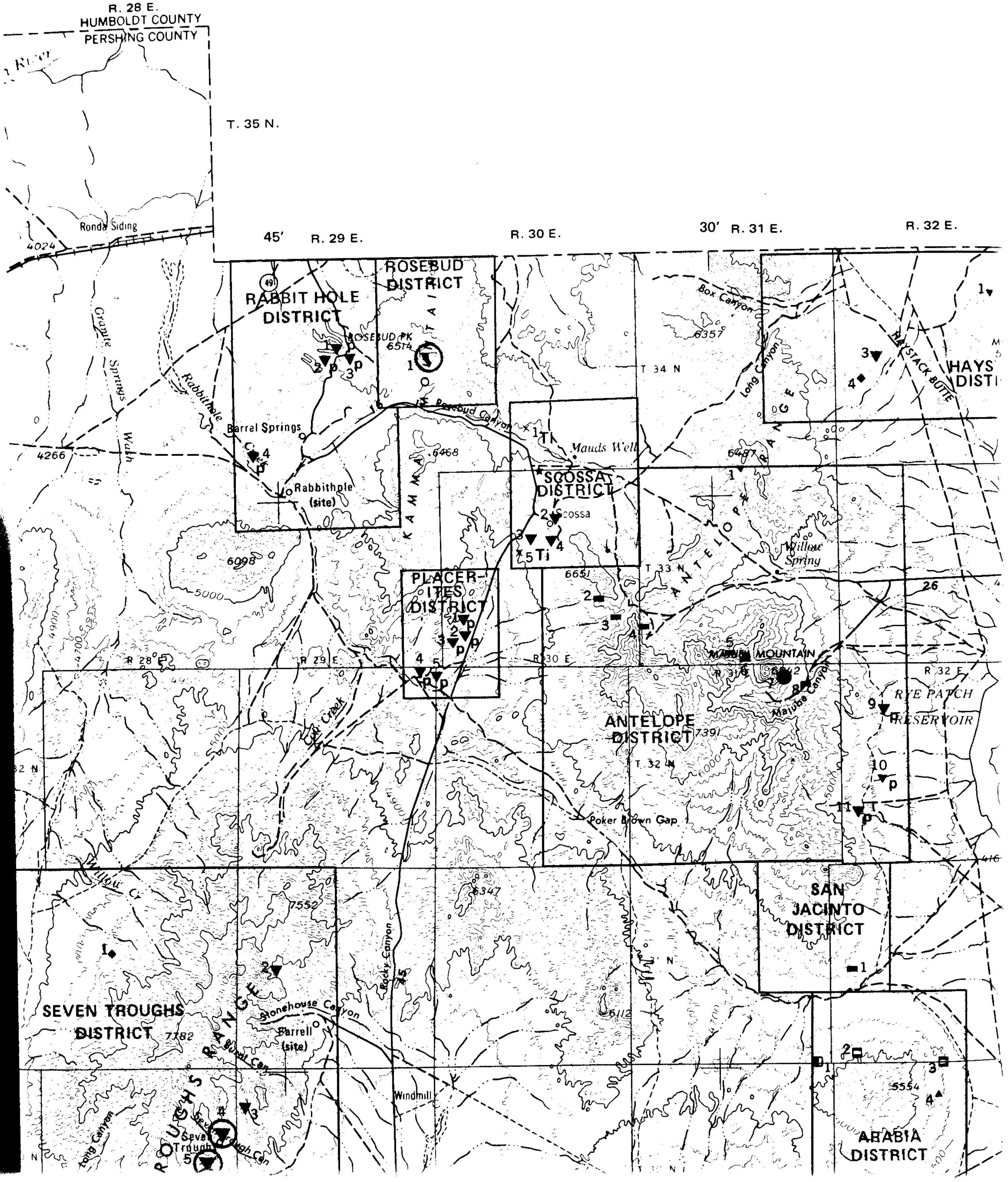
The Kamma Mountains consist of a thick sequence of rhyolitic flows and associated pyroclastic rocks that overlie the Triassic and Jurassic metasedimentary rocks of the region. The host rocks of the lode mines in the Rosebud district are altered rhyolite flows; the ore bodies occur in an east-trending, poorly defined zone of mineralization along kaolinized fault breccia and fissure zones. The geology of the ore deposits was studied by Ransome in 1908 (1909, p. 25–27) and by Nevada Bureau of Mines and Geology geologists in 1932 (Nevada Bureau of Mines and Geology files). The principal ore minerals are argentite and free gold, which occur in kaolinized zones associated with little quartz, some pyrite, limonite, and jarosite.

Rose Creek District

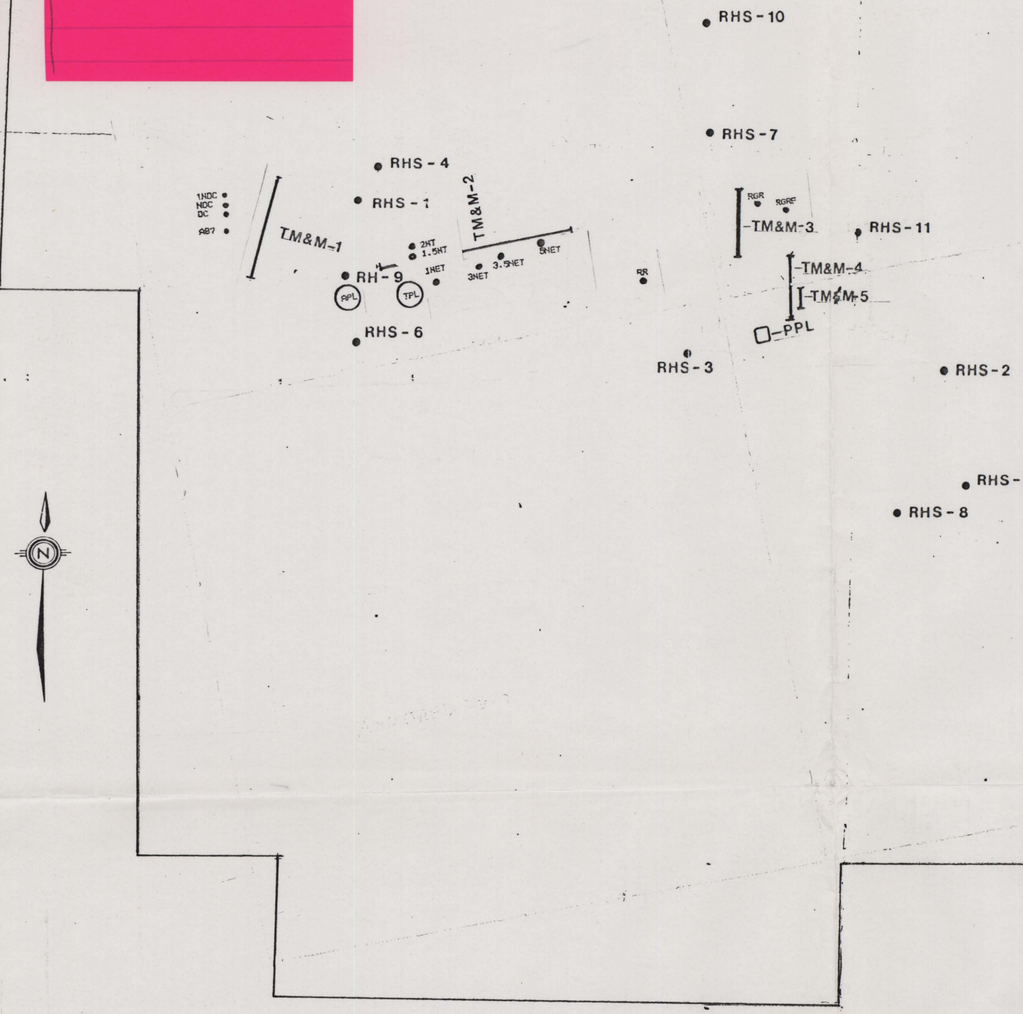
The Rose Creek district is at the northern end of the East Range at the Humboldt County–Pershing County boundary. The district includes the Rose Creek tungsten mine, several tungsten prospects, and the Victory manganese prospect in the north tier of T. 34 N., Rs. 36 and 37 E. All mines and prospects are near the edge of the range and accessible by dirt roads leading from Interstate Highway 80 in the vicinity of Rose Creek Station (Humboldt County).



R. 26 E.
119°00′
R. 27 E.
R. 28 E.
HUMBOLDT COUNTY
PERSHING COUNTY
Quinn River
BLACK ROCK DESERT
T. 35 N.
45′
R. 29 E.
R. 30 E.
Qd
Qal
Qlg
Qp
Tba
QTb
QTg
Ts
JTRa
Kgd
Kap
Tr
Tts
Tip
Twt
Tra
Qls
WESTERN PACIFIC
Rabbithole Creek
Barrel Springs
Rabbithole (site)
Maud's Well
Poker Brown Gap
Willow Creek
Long Canyon
Windmill
Mazuma (site)
6098
5857
4497


R. 28 E.
HUMBOLDT COUNTY
PERSHING COUNTY
T. 35 N.
Ronda Siding
4024
45'
R. 29 E.
R. 30 E.
30'
R. 31 E.
R. 32 E.
ROSEBUD DISTRICT
RABBIT HOLE DISTRICT
ROSEBUD PK
6514
Box Canyon
6357
Long Canyon
HAYSTACK BUTTE
HAYS DISTI
T 34 N
Grapple Springs Wash
Rabbithole
Barrel Springs
Rosebud Canyon
Mauds Well
4266
6468
Rabbithole (site)
SCOSSA DISTRICT
Scossa
6487
KAMMA MOUNTAINS
ANTELOPE RANGE
Willow Spring
6098
5000
6651
T 33 N
PLACER-ITES DISTRICT
26
4900
4700
R 28 E
R 29 E
R 30 E
MAJUBA MOUNTAIN
R 31 E
R 32 E
Majuba Canyon
RYE PATCH RESERVOIR
ANTELOPE DISTRICT
7391
Coal Creek
T. 32 N
Poker Brown Gap
Willow Cr
6347
7552
SAN JACINTO DISTRICT
SEVEN TROUGHS DISTRICT
7782
Stonehouse Canyon
Farrell (site)
Rocky Canyon
6112
Windmill
5554
ARABIA DISTRICT
Long Canyon
Seven Troughs
TROUGHS RANGE

Report on Stage 1
Exploration Rabbit Hole
Placer



WATTS, GRIFFIS and McQUAT LIMITED (RHS)
1983

ASSAY RESULTS SUMMARY

Site No.	Total Sample Volume (ft^3)	Gold Recovered (g)	Gold Grade (oz Tr/yd^3)	Gold Grade (US $/$yd^3$)	Site Description
RHS-1	1.5	0.162	0.0938	33.75	Old adit, 3-ft vertical channel
-2	0.375	0.003	0.0069	2.50	Old adit, 3-ft vertical channel
-3	0.375	0.003	0.0069	2.50	Old adit, 3-ft vertical channel
-4	0.5	0.043	0.0767	26.88	Old adit, 3-ft vertical channel
-5	1.5	0.039	0.0226	8.13	Old shaft, 16-ft vertical channel
-6	1.327	0.016	0.0105	3.77	Old shaft, 37-ft vertical channel
-7	1.0	0.079	0.0686	24.69	Old adit, 3-ft vertical channel
-8	0.75	0.001	0.0012	0.42	Old trench, 3-ft vertical channel
-9	0.834	0.015	0.0180	5.62	Old adit, 2-ft vertical channel
-10	1.5	0.008	0.0046	1.67	Old adit, 3-ft vertical channel
-11	1.0	0.481	0.4175	150.32	Old adit, 2-ft vertical channel
Total	10.66	0.850	0.0692	24.92	

NOTE: To calculate value of gold in US dollars per cubic yard, as for site RHS-1, using US $400 per oz Tr and a 900 fineness, the formula is:

$$\text{US \$/yd}^3 = \frac{0.162\ g}{1.5\ ft^3} \times \frac{27\ ft^3}{yd^3} \times \frac{oz\ Tr}{31.103\ g} \times \frac{US\ \$400}{oz\ Tr} \times \frac{900}{1{,}000}$$

$$= \frac{0.162}{1.5} \times 312.51 \times \frac{US\ \$}{yd^3}$$

= US $33.75 per cubic yard

TATMAN MINING & MILLING INC (TM&M) 1986

SITE NO.	SAMPLE VOLUME	GOLD RECOVERED	($400/oz) $/TON
TM&M - 1	400 TONS		
TM&M - 2	300 TONS		
TM&M - 3	100 TONS		
TM&M - 4	150 TONS		
TM&M - 5	50 TONS		
TOTAL	1000 TONS	30 oz	$12/TON

EDGEMONT MINERALS CORP

- TPL - Tatman Plant
- APL - Aslett Plant
- A87 - Aslett's 1987 sample area - see the Atlantis Claims Test Sample report ('ACTS') #3.
- DC - Aslett Dozer Cut, supplied most of the ore ran thru the plant - see 'ACTS' #6,7,8 & 11.
- 3NET - 300' Northeast of Tatman plant - see 'ACTS' #10.
- 5NET - 500' Northeast of Tatman plant - see 'ACTS' #11.
- NDC - 50' North of Dozer Cut - see 'ACTS' #12.
- 3.5NET - 350' Northeast of Tatman plant - see 'ACTS' #13.
- 1NDC - 100' North of Dozer Cut - see 'ACTS' #13,14,15, & 16.
- 2.5NET - 250' Northeast of Tatman plant - see 'ACTS' #15.
- 1NET - 100' Northeast of Tatman plant - see 'ACTS' #15.
- RR - Red Ridge - see 'ACTS' #16.
- RGR - Red Gulch Ridge - see 'ACTS' #16.
- RGRF - Red Gulch Ridge Flank - see 'ACTS' #16.
- 2NT - 200' North of Tatman plant - see 'ACTS' #16.
- 1.5NT - 150' North of Tatman plant - see 'ACTS' #16.

RABBIT HOLE PROPERTY, NEVADA

SAMPLING SITES - LOCATION PLAN

SCALE: 1"=500'

3T50 0023