CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
416 W. Congress St., Suite 100
Tucson, Arizona 85701
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

The following file is part of the A. F. Budge Mining Ltd. Mining Collection

ACCESS STATEMENT

These digitized collections are accessible for purposes of education and research. We have indicated what we know about copyright and rights of privacy, publicity, or trademark. Due to the nature of archival collections, we are not always able to identify this information. We are eager to hear from any rights owners, so that we may obtain accurate information. Upon request, we will remove material from public view while we address a rights issue.

CONSTRAINTS STATEMENT

The Arizona Geological Survey does not claim to control all rights for all materials in its collection. These rights include, but are not limited to: copyright, privacy rights, and cultural protection rights. The User hereby assumes all responsibility for obtaining any rights to use the material in excess of "fair use."

The Survey makes no intellectual property claims to the products created by individual authors in the manuscript collections, except when the author deeded those rights to the Survey or when those authors were employed by the State of Arizona and created intellectual products as a function of their official duties. The Survey does maintain property rights to the physical and digital representations of the works.

QUALITY STATEMENT

The Arizona Geological Survey is not responsible for the accuracy of the records, information, or opinions that may be contained in the files. The Survey collects, catalogs, and archives data on mineral properties regardless of its views of the veracity or accuracy of those data.

Vulture Tailings Samples

Hole No.	From	To	Interval	Gold oz/ton	Iron King Composite Sample oz/ton	Check Assay oz/ton
T-1	0	5	5	0.060		
	5	10	5	0.050		
	10	15	5	0.050		
	15	19	4	0.065		
	19	25	6	0.045		
	0	25	25	0.053	0.061	
T-2	0	5	5	0.075		
	5	10	5	0.030		
	10	15	5	0.050		
	15	20	5	0.020		
	20	23.5	3.5	0.010		
	0	20	20	0.046		
T-2A	0	2	2	0.040		
(check)	5	6	1	0.035		
(on)	10	11	1	0.035		
(samplin	15	16	1	0.005		
T-3	0	5	5	0.020		
	5	10	5	0.015		
	10	15	5	0.075		
	15	19	4	0.015		
	0	15	15	0.041		
T-4	0	5	5	0.045		0.065
	5	10	5	0.010		0.015
	10	15	5	0.020		0.025
	15	17.5	2.5	0.015		0.020
	0	17.5	17.5	0.024		0.033
T-5	0	5	5	0.025		0.030
	5	10	5	0.015		0.015
	10	15	5	0.020		0.020
	15	20	5	0.030		0.035
	0	20	20	0.023		0.025
T-6	0	5	5	0.040		
	5	10	5	0.025		
	10	15	5	0.030		
	15	20	5	0.030		
	0	20	20	0.031		
T-7	0	5	5	0.045		
	5	10	5	0.045		

	10	15	5	0.050	
	15	20	5	0.050	
	0	20	20	0.048	
T-8	0	5	5	0.060	
	5	10	5	0.035	
	10	15	5	0.025	
	0	15	15	0.040	
T-9	0	5	5	0.050	
	5	10	5	0.030	
	10	13.5	3.5	0.030	
	0	13.5	13.5	0.037	0.037
T-10	0	5	5	0.050	
	5	10	5	0.020	
	0	10	10	0.035	
T-11	0	5	5	0.055	
T-12	0	5	5	0.035	
T-13	0	5	5	0.060	
	5	10	5	0.065	
	10	15	5	0.030	
	0	15	15	0.052	
T-14	0	5	5	0.040	
	5	10	5	0.055	
	0	10	10	0.048	
T-15	0	5	5	0.055	
	5	9	4	0.040	
	0	9	9	0.048	
T-16	0	5	5	0.035	
	5	10	5	0.045	
	10	15	5	0.010	
	0	15	15	0.030	
T-17	0	5	5	0.020	
T-18	0	5	5	0.040	
T-19	0	5	5	0.055	
	5	10	5	0.030	
	0	10	10	0.043	0.043

T-20	0	5	5	0.040	
	5	10	5	0.030	
	0	10	10	0.035	
T-21	0	5	5	0.050	
	5	10	5	0.020	
	10	15	5	0.040	
	15	17	2	0.025	
	0	17	17	0.035	
T-22	0	5	5	0.020	
	5	10	5	0.015	
	10	15	5	0.040	
	15	20	5	0.030	
	0	20	20	0.026	
T-23	0	5	5	0.025	0.025
	5	10	5	0.025	0.020
	10	15	5	0.015	0.010
	0	15	15	0.022	0.018
T-24	0	5	5	0.010	
	5	10	5	0.010	
	10	15	5	0.015	
	15	20	5	0.010	
	0	20	20	0.011	
T-25	0	5	5	0.015	0.010
	5	10	5	0.015	0.010
	10	15	5	0.020	0.010
	15	19	4	0.015	0.015
	0	19	19	0.016	0.011
T-26	0	5	5	0.020	
	5	10	5	0.020	
	0	10	10	0.020	
T-27	0	5	5	0.020	0.020
	5	10	5	0.015	0.010
	10	15	5	0.020	0.015
	15	20	5	0.025	0.015
	0	20	20	0.020	0.015
T-28	0	5	5	0.015	
	5	10	5	0.010	
	10	15	5	0.015	
	15	17	2	0.010	

	0	17	17	0.013		
T-29	0	5	5	0.025		0.025
	5	10	5	0.015		0.010
	10	15	5	0.015		0.020
	15	20	5	0.010		0.025
	0	20	20	0.016		0.020
T-30	0	5	5	0.025		
	5	10	5	0.015		
	0	10	10	0.020		
T-31	0	5	5	0.010		0.010
	5	10	5	0.020		0.025
	10	15	5	0.020		0.010
	0	15	15	0.017		0.015
T-32	0	5	5	0.030		
T-33	0	5	5	0.035	0.037	
T-34	0	5	5	0.035		
T-35	0	5	5	0.030		
T-36	0	5	5	0.040		
T-37	0	5	5	0.035		
	5	10	5	0.020		
	0	10	10	0.028		
T-38	0	5	5	0.050		
	5	10	5	0.015		
	0	10	10	0.033	0.036	
T-39	0	5	5	0.010		
T-40	0	5	5	0.020		
	5	10	5	0.010		
	0	10	10	0.015		
T-41	0	5	5	0.095		
	5	10	5	0.020		
	0	10	10	0.058	0.070	
T-42	0	5	5	0.050		
T-43	0	5	5	0.025		

T-44	0	5	5	0.060		
	5	8	3	0.035		
	0	8	8	0.051		
T-45	0	5	5	0.025		
T-46	0	5	5	0.020		
T-47	0	5	5	0.050		
	5	8	3	0.040		
	0	8	8	0.046	0.047	
T-48	0	5	5	0.040		
T-49	0	5	5	0.025		
	5	7.5	2.5	0.010		
	0	7.5	7.5	0.020		
T-50	0	5	5	0.060		
	5	10	5	0.025		
	0	10	10	0.043		
T-51	0	5	5	0.055		
	5	10	5	0.035		
	10	15	5	0.030		
	15	20	5	0.030		
	0	20	20	0.038		
T-52	0	5	5	0.065		
	5	10	5	0.030		
	10	15	5	0.060		
	15	18	3	0.050		
	0	18	18	0.051		
T-53	0	5	5	0.065		0.055
	5	10	5	0.035		0.035
	10	14	4	0.020		0.025
	0	14	14	0.041		0.039
T-54	0	5	5	0.045		
	5	10	5	0.050		
	0	10	10	0.048		
T-55	0	5	5	0.050		
	5	10	5	0.045		
	10	15	5	0.040		
	15	20	5	0.025		

	0	20	20	0.040	
T-56	0	5	5	0.015	0.015
	5	10	5	0.010	0.015
	10	15	5	0.015	0.015
	15	20	5	0.020	0.015
	0	20	20	0.015	0.015
T-57	0	5	5	0.010	0.010
	5	10	5	0.010	0.010
	10	15	5	0.015	0.010
	15	18	3	0.015	0.010
	0	18	18	0.012	0.010

M E M O

TO: Dale Allen, Carole O'Brien, Ron Short, Anthony Budge

FROM: Don White

DATE: October 25, 1988

SUBJECT: Vulture Tailings Excavation Blocks

Dale requested I tally reserves of Vulture stamp mill tailings by six large blocks corresponding to his anticipated excavation sequence. This provides him with subtotals against which he may compare measured tons (based on scraper loads) and recovered ounces (based on bullion pours).

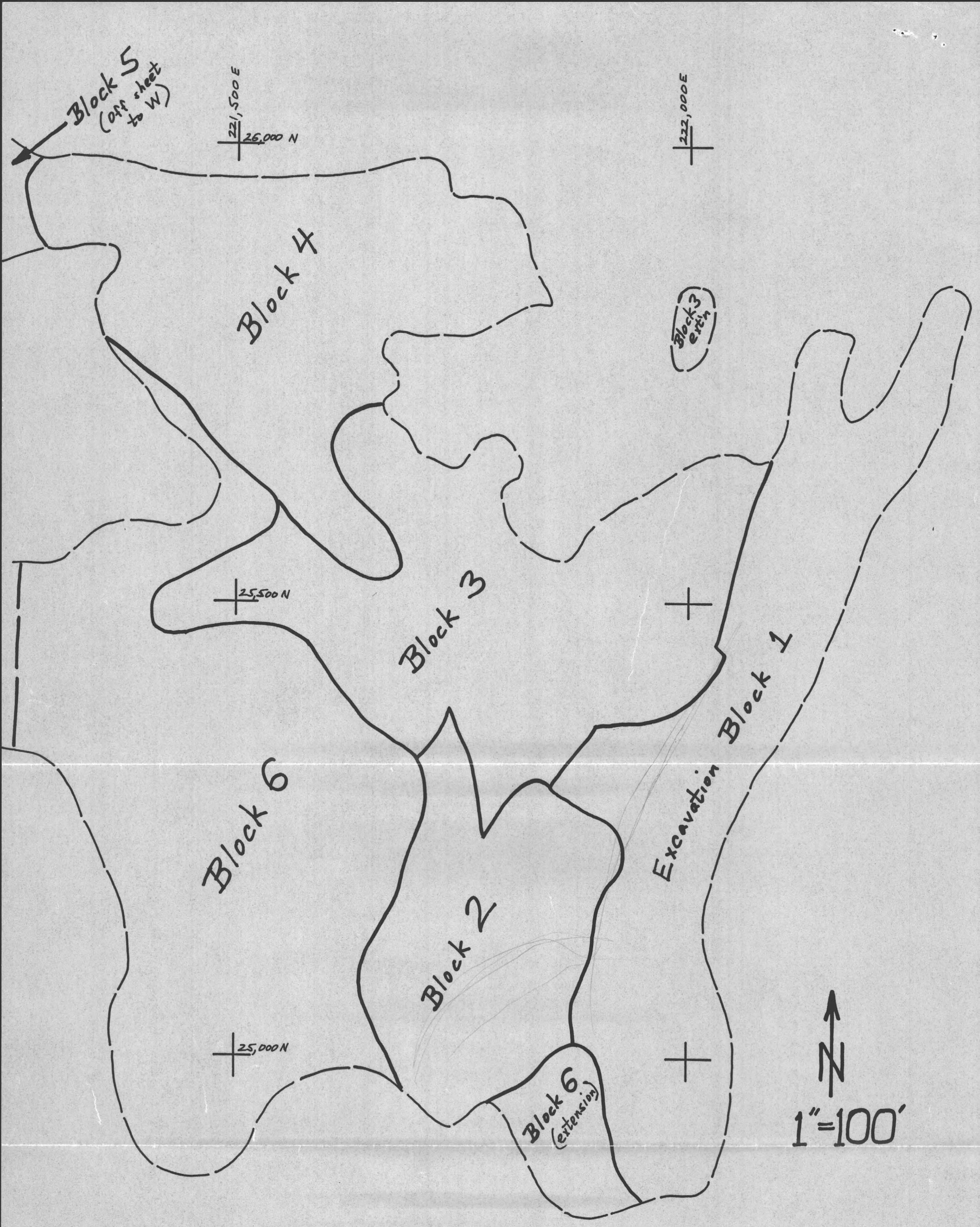
All that was involved is recombining the reserve blocks (my memo and maps of July 8, 1988) according to location within the newly defined excavation blocks (plan accompanying). The computations are appended and the totals are summarized as follows:

VULTURE TAILINGS

Summary of excavation blocks

(after discounting 10% for surface erosion)

Excavation block #	Cubic yards	Short tons	Grade (oz/t)	Contained oz Au
1	27,300	44,000	.041	1,800
2	10,600	17,000	.030	500
3	37,700	61,000	.032	2,000
4	49,300	80,000	.040	3,200
5	7,700	13,000	.038	500
Subtotal, First 5 blocks (≥.020 oz/t)	132,000yd^3	215,000 s.t.	.037 oz/t	8,000 oz Au
Low grade block 6	94,000yd^3	150,000 s.t.	.014 oz/t	2,000 oz Au
Grand Total including low grade	226,000yd^3	365,000 s.t.	.027 oz/t	10,000 oz Au



Vulture Tailings Excavation Blocks

(Intended as an overlay to the reserve block plan)

Don C. White- Oct., 1988

Tabulation of Vulture Tailings Reserve Blocks by Excavation Blocks

Don C. White - Oct, 1988

Reserve Block #	Au Grade (oz/t)	Thickness (ft)	Area (ft²)	Cubic Yards (ft·a/27)	Short Tons ($Yd^3 \times 1.62$ st/yd^3)	Contained oz. Au
32	.032	5	15,600	2,889	4,680	150
33	.031	2	10,500	778	1,260	39
18	.044	5	26,600	4,926	8,029	353
6	.053	7	3,500	907	1,470	78
5	.053	9	12,000	4,000	6,480	343
16	.047	8	16,300	4,830	7,824	368
19	.041	4	10,500	1,556	2,520	103
7	.053	6	6,300	1,400	2,268	120
30	.037	11	4,400	1,793	2,904	107
29	.034	6	20,200	4,489	7,272	247
44	.024	6	12,700	2,822	4,572	110
Excavation Block 1	.041	—	—	30,390	49,279	2,018
17	.040	4	7,600	1,126	1,824	73
28	.035	3	37,400	4,156	6,732	236
42	.024	7	19,800	5,133	8,316	200
43	.029	4	9,100	1,348	2,184	63
Excavation Block 2	.030	—	—	11,763	19,056	572
46	.028	1	3,600	133	216	6
45	.022	3	22,400	2,489	4,032	89
31	.035	3	9,000	1,000	1,620	57
15	.040	4	11,200	1,659	2,688	108
4	.055	4	2,900	430	696	38
27	.034	4	4,700	696	1,128	38
14	.042	8	8,600	2,548	4,128	173
13	.042	12	5,500	2,444	3,960	166
26	.035	8	24,500	7,259	11,760	412
25	.037	13	20,900	10,063	16,302	603
41	.020	14	5,400	2,800	4,536	91
40	.024	16	15,000	8,889	14,400	346
39	.026	6	6,500	1,444	2,340	61
Excavation Block 3	.032	—	—	41,854	67,806	2,188

Reserve Block #	Au Grade (oz/t)	Thickness (ft)	Area (ft^2)	Cubic Yards ($ft^3/27$)	Short Tons ($ft^3 \times 1.62$ s.t./yd^3)	Contained oz. Au
24	.034	17	17,900	11,270	18,258	621
38	.022	17	3,800	2,393	3,876	85
11	.044	17	20,000	12,593	20,400	898
3	.051	17	4,700	2,959	4,794	244
2	.053	22	5,500	4,481	7,260	385
9	.044	22	3,300	2,689	4,356	192
10	.045	22	3,200	2,607	4,224	190
8	.044	17	2,100	1,322	2,142	94
23	.031	12	4,400	1,956	3,168	98
21	.035	5	8,800	1,630	2,640	92
35	.021	9	2,000	667	1,080	23
34	.023	2	7,200	533	864	20
12	.042	12	12,700	5,644	9,144	384
22	.034	7	11,200	2,903	4,704	160
36	.026	8	2,400	711	1,152	30
37	.024	3	4,200	467	756	18
Excavation Block 4	.040	—	—	54,825	88,818	3,534
1	.073	3	4,200	467	757	55
Add-on*	.036	2	110,000	8,148	13,200	475
Excavation Block 5	.038	—	—	8,615	13,957	525
Excavation Block 6†	.014	15	170,000	94,000	150,000	2,100

* "Add-on" = Area of yellow, stamp mill tailing to N.W. of main body (W of old mill site) found in August, 1988 (subsequent to July, 1988 reserve memo)

† Block 6 is the low grade, partially cyanide tails bounding the SW side of the stamp mill tails. They may be economic.

A.F.B.

M E M O

TO: Dale Allen, Carole O'Brien, Anthony Budge

FROM: Don White

DATE: May 27, 1988

SUBJECT: Vulture tailings review

The site work for the Vulture tailings heap leach is progressing rapidly. With excavation of the tails becoming imminent, Carole on May 17th asked me to help delimit just what should be excavated and what not. I was at a distinct disadvantage on this because I have had nothing to do with the tailings appraisal to date. The sampling all predated my involvement at Vulture starting September, 1984. The tails sampling was done by Milt Hood and George Hennessey and surveying by Milt and later Joe Fernandez.

On May 19 and 20 I worked up charts and plots of data from Milt Hood's map of the Sargent Hauskins Beckwith spring, 1984 auger drilling program (holes T-1 thru 57). It became apparent that some major inconsistencies existed. Only after receiving what few notes Milt had left was I able to correct all the tailings thicknesses to reflect tails only, no gravels. We still do not know, and probably never will, whether the generally 5-foot assays were truly combined tails and gravels for basal intervals or whether gravels were excluded and the reported intervals are in error. The problem, in part, is that the alluvium does carry gold of similar grade to that in the tailings, say 1 gram or .03 oz/t. It's just that the gravel probably won't handle in the process being set up for agglomeration and may not cyanide leach too well either. So it needs to be eliminated from the "tailings" reserve even though it ought to be evaluated for placer potential.

Another failing is that the old tailings work included no reproduceable points on the ground. None of the pickets labelling holes or trenches have survived. Neither have the holes or trenches themselves. That, coupled with the lack of survey control and known inconsistencies between Milt's and Joe's work, leaves me at a loss to locate anything accurately. What I have done is proceed as best I can with the 1"=100' topo base and utilize natural features to correlate Hennessey's tailings margin mapping, Pegasus' trenching, Milt's auger drilling and my own interpretations.

Correcting to eliminate gravels cut about 8% from Milt Hood's tonnage calculations. As a trade off, the grade came up slightly. The appended charts show Milt's reserve block figures, Carole's assay print out, and my interpretation for each hole.

On the contoured gold grade map it is clear that the grade distribution plumes out from the old stamp mill discharge point at the northwest. It also has thick strands of better grade filling the underlying alluvial channels. The zero thickness margin of the tails needs to be defined more accurately and hence is not on the plan.

Using strictly the area drill tested to date, and eliminating all tails less than .020 oz/t, the reserve documented thus far is as summarized on the chart. I have broken the reserve into grade categories so you can see what

the relative richness and value is for each category. The total is about 1/4 million tons at about .039 oz/t (.020 oz/t cutoff). The average thickness is about nine feet. Thus the total reserve contains about 10,000 ounces of gold which, with metallurgical recoveries of 70%, may yield about 7,000 ounces of gold or $3¼ million at todays $450/oz gold price.

What also comes out of the contouring is that the trends continue both NE and NW. The SE boundary is a sharp topographic feature that I shall map accurately. The SW boundary is a gradational one from stamp mill (amalgamation) tails to very low grade cyanide tails (basically the .020 cutoff line). But the NE boundary is open, albeit a thin veneer of tails over alluvium. The most significant undefined boundary is to the NW where both grade and thickness are best.

Newly arrived are the 1"=100' topo map and a 2-inch diameter auger which I believe will retain the tailings if they are at all moist. I recommend that I spend a few days in early June sampling the NE and NW bounds of the stamp mill tails, conducting some checks of the auger sampling against old data, and mapping the zero-thickness isopach of the tailings. Then we will have in hand the data to define what should be excavated.

Of course excavation could start at any time with the core area already known to be good grade. The final decision on how far SW to excavate is a financial one based on operating costs to establish a more accurate cutoff than my estimated .020 oz/t.

I will provide an update on this when sampling and assaying are complete, and at that time will include a more rigorous reserve chart with thickness calculated locally for each hole rather than averaged throughout a grade category.

DW:sk

Vulture Stamp Mill Tailings Reserves (1)

Grade Category	$\bar{X}$ Grade (oz/t)	$\bar{X}$ Thickness (2) (ft)	Area (ft^2)	Volume (yd^3)	Tons (3) (s.t.)	% of Tons (%)	Contained oz. Au (oz)	Recoverable oz. Au (4) (oz)	Value @ $450/oz ($)	% of Value (%)
>.05	.055	11.0	60,000	24,000	39,000	15	2,100	1,470	660,000	20
.040-.049	.045	9.8	150,000	54,000	87,000	32	3,900	2,730	1,239,000	38
.030-.039	.035	8.9	140,000	46,000	74,000	28	2,600	1,820	820,000	25
.020-.029	.025	8.1	140,000	42,000	68,000	25	1,700	1,190	530,000	17
TOTALS (5)										
>.020 oz/t	.039	9.3	490,000	166,000	264,000	100	10,300	7,200	3,240,000	100

Notes:

(1) Based upon spring, 1984 S.H.B. auger drilling (holes T-1 thru 57) select Pegasus backhoe trench sampling, Mitt Hoade tails thickness notes, Skyline and Iron King Assay reports, and Don White's contoured gold grade plan, May, 1988, accompanying.

(2) Average thicknesses from accompanying chart of data points within each grade category

(3) Tonnages based upon bulk density of 1.62 s.t./yd^3 apparently measured by S.H.B.

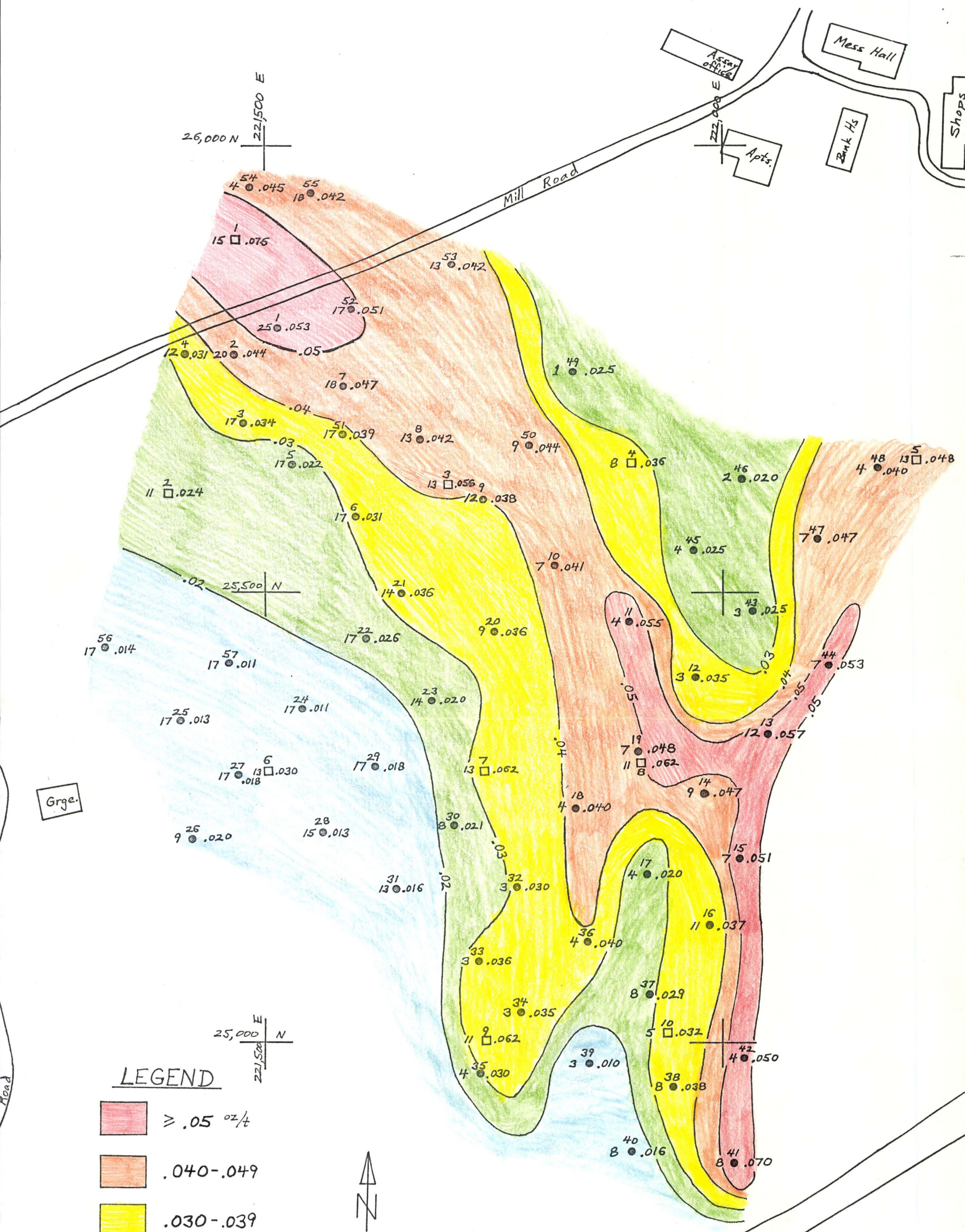
(4) Assuming 70% metallurgical recovery.

(5) .020 oz/t cutoff grade only estimated as that which will marginally exist variable or operating costs.

Don White
May 27, 1988

Vulture Tailings

Contoured Gold Grade (oz/t)



LEGEND

- ≥ .05 oz/t
- .040-.049
- .030-.039
- .020-.029
- <..02 oz/t

1" = 100'

S.H.B. (DMEA) auger hole — Hole number — Zortman (Pegasus) backhoe trench

Tailings thickness (ft) — 11 ● 22 □ .031 — Gold grade (oz/t)

< .02 oz/t thru > .05 oz/t by .01 oz/t

Don C. White - May, 1988

Average thickness (T) and grade (G) for each Stamp Mill Tailings Grade Category

	≥.05		.040-.049		.030-.039		.020-.029	
	T	G	T	G	T	G	T	G
1	15	.076	4	.045	12	.031	11	.024
2	25	.053	18	.042	17	.034	17	.022
3	17	.051	13	.042	17	.039	17	.026
4	4	.055	20	.044	17	.031	14	.020
5	11	.062	18	.047	14	.036	8	.021
6	7	.053	13	.042	9	.036	4	.020
7	12	.057	9	.044	3	.030	8	.029
8	7	.051	4	.040	3	.036	1	.025
9	4	.050	7	.041	3	.035	2	.020
10	8	.070	4	.040	4	.030	4	.025
11			7	.048	11	.037	3	.025
12			7	.047	5	.032		
13			4	.040	8	.038		
14					8	.036		
15					3	.035		
Σ	110	.578	128	.562	134	.516	89	.257
X	11.0	.058	9.8	.043	8.9	.034	8.1	.023

Utilizing T-1 thru 57 auger hole data and select Pegasus backhoe trench data.

Don White
May, 1988

Vulture Tailings

Compiled by D.C. White May, 1988

Stamp Mill (amalgamation) tails sampled by SHB. power auger, 1982.

Hole #	T.D.	Bottom of tails	M. Hood Map		C. O'Brien Chart		D. White		Remarks
			Depth	Grade	Depth	Grade	Depth	Grade	
T-1	25	25	25	.053	Same		25	.053	IK. check .061
T-2	23	20	20	.044	20	(.046)	20	.044	
T-3	19	17	17	.034	15	(.041)	17	.034	
4	17	12	15	.035	17	.024	12	.031	Skyline check .035
5	20	17	17	.023	20	.023	17	.022	Skyline check .025
6	20	17	17	.031	20	.031	17	.031	
7	20	18	20	.048	Same		18	.047	
8	15	13	15	.040	Same		13	.042	
9	13	12	(15)	.037	13	.037	12	.038	IK. check .037
10	10	7	7	.041	10	.035	7	.041	
11	5	4	5	.055	Same		4	.055	
12	5	3	5	.035	Same		3	.035	
13	15	12	15	.052	Same		12	.057	
14	10	9	10	.048	Same		9	.047	
15	9	7	9	.048	Same		7	.051	
16	15	11	11	.037	15	.030	11	.037	
17	5	4	4	.020	5	.020	4	.020	
18	5	4	5	.040	Same		4	.040	
19	10	7	10	.043	Same		7	.048	IK. check .043
20	10	9	10	.035	Same		9	.036	
21	17	14	17	.035	Same		14	.036	
22	20	17	20	.026	Same		17	.026	
23	17	14	14	.022	15	.022	14	.020	Skyline check .018
24	20	17	17	.011	20	.011	17	.011	
25	19	17	17	.016	19	.016	17	.013	Skyline check .011
26	10	9	9	.020	10	.020	9	.020	
27	20	17	17	.020	20	.020	17	.018	Skyline check .020
28	17	15	15	.013	17	.013	15	.013	
29	20	17	17	.017	20	.016	17	.018	Skyline check .020
T-30	10	8	8	.021	10	.020	8	.021	

Hole #	T.D.	Bottom of tails	Mt Hood Map		C. O'Brien Chart		D. White		Remarks
			Depth	Grade	Depth	Grade	Depth	Grade	
T-31	15	13	13	.016	15	.017	13	.016	Skyline check .015
32	5	3	5	.030	Same		3	.030	
33	5	3	5	.035	Same		3	.036	I.K. check .037
34	5	3	5	.035	Same		3	.035	
35	5	4	5	(.035)	5	.030	4	.030	
36	5	4	5	.040	Same		4	.040	
37	10	8	8	.029	10	.026	8	.029	
38	10	8	8	.037	10	.033	8	.038	I.K. check .036
39	5	3	3	.010	5	.010	3	.010	
40	10	8	8	.016	10	.015	8	.016	
41	10	8	8	.064	10	.056	8	.070	I.K. check .070
42	5	4	4	.050	5	.050	4	.050	
43	5	3	3	.025	5	.025	3	.025	
44	8	7	8	.051	Same		7	.053	
45	5	4	4	.025	5	.025	4	.025	
46	5	2	2	.020	5	.020	2	.020	
47	8	7	8	.046	Same		7	.047	I.K. check .047
48	5	4	5	.040	Same		4	.040	
49	7	1	1	(.018)	7	.020	1	.025	
50	10	9	9	.044	10	.043	9	.044	
51	20	17	20	.038	Same		17	.039	
52	18	17	18	.051	Same		17	.051	
53	14	13	13	.043	14	.041	13	.042	Skyline check .039
54	10	4	10	.048	Same		4	.045	
55	20	18	18	.042	20	.040	18	.042	
56	20	17	17	.014	20	.015	17	.014	Skyline check .015
T-57	18	17	17	.012	18	.012	17	.011	Skyline check .010

Compiled by
D.C. White
May, 1988

Vulture Tailings

Stamp mill (amalgamation) tails sampled from backhoe trencher, 1982

Backhoe Trench #	Thickness (ft)	Grade (Au^{oz}/t)	T x G
1	15	.076	1.140
2	11	.024	.264
3	13	.056	.728
4	8	.036	.288
5	13	.048	.624
6	13	.030	.390
7	13	.062	.806
8	11	.062	.682
9	11	.062	.692
10	5	.032	.160
Σ	113		5.764
$\bar{X}$	11.3	.051	.576

Hole #	Tail Thickness (ft)	Gold Grade (oz/t)	T x G
T-1	25	.053	1.325
T-2	20	.044	.880
T-3	17	.034	.578
4	12	.031	.372
5	17	.022	.374
6	17	.031	.527
7	18	.047	.846
8	13	.042	.546
9	12	.038	.456
10	7	.041	.287
11	4	.055	.220
12	3	.035	.105
13	12	.057	.684
14	9	.047	.423
15	7	.051	.357
16	11	.037	.407
17	4	.020	.080
18	4	.040	.160
19	7	.048	.336
20	9	.036	.324
21	14	.036	.504
22	17	.026	.442
23	14	.020	.280
24	17	.011	.187
25	17	.013	.221
26	9	.020	.180
27	17	.018	.306
28	15	.013	.195
29	17	.018	.306
T-30	8	.021	.168

T-31	13	.016	—	.208
32	3	.030		.090
33	3	.036		.108
34	3	.035		.105
35	4	.030		.120
36	4	.040		.160
37	8	.029		.232
38	8	.038		.304
39	3	.010	—	.030
40	8	.016	—	.128
41	8	.070		.560
42	4	.050		.200
43	3	.025		.075
44	7	.053		.371
45	4	.025		.100
46	2	.020		.040
47	7	.047		.329
48	4	.040		.160
49	1	.025		.025
50	9	.044		.396
51	17	.039		.663
52	17	.051		.867
53	13	.042		.546
54	4	.045		.180
55	18	.042		.756
56	17	.014	—	.238
T-57	17	.011	—	.187
Σ	582			11.254
$\bar{X}$	10.2	.033		.337

M E M O

TO: Dale Allen, Ron Short, Carole O'Brien, Anthony Budge

FROM: Don White

DATE: July 21, 1988

SUBJECT: Vulture tailings grade boundary staking and possible additional reserves

At my suggestion and with Ron's approval, I have just completed marking the .020 oz/t grade boundary on the west perimeter of the stamp mill tailings. That line is now demarcated by bright blue pickets so positioned that the excavation equipment may take everything east of and up to the pickets, but leave the pickets standing and what lies beyond.

Of course there is some good likelihood of lowering the cutoff grade in the future. If that can go as low as .014 oz/t, at least another 150,000 s.t. of tails are available in physical continuity with the stamp mill tailings already planned for leaching. What's more, no effort has been made to systematically identify tailings of that low grade. Considerably more may be available around the north and west side of the old Denver Mill.

While on site I took the opportunity to sample the stamp mill tails south of Vulture Mine Road. There are small amounts (total likely less than 1,000 s.t.) of tails physically recoverable along the dry stream bed banks for about a mile below the main tailings area. Three samples now in for assay will tell us whether those tails are worth going after with a small bucket loader or similar light equipment.

The most significant new observation is that there may be an extension of the best grade tailings west from the old stamp mill and in addition to those documented in my reserve memo of July 8, 1988.

While staking the .020 grade boundary I noted the newly disturbed area beyond any previously recognized tailings. It was all yellow, typical of stamp mill tailings (as opposed to pinkish cyanidation tailings). In a newly excavated but yet unfilled garbage pit I could see gentle west-dipping bedding, indicating a source from the stamp mill. This find is due north of the Denver Mill and due west of the old stamp mill. It juxtaposes the highest documented tails thus far (.073 oz/t at site T-104).

These "new" tailings were pretty well concealed by road metal and wind-blown sand and pink cyanide tailings. Only by heavy equipment having disturbed the surface did it become clear that they are there. Nine new hand-auger holes were put in to sample the area.

If we get lucky and the approximately 100,000 ft^2 new tails at average 2 ft. thickness happens to run .05 oz/t recoverable, then we will have added an easy 500 ounces gold to reserves. That is about a 10 percent add-on; not bad for a by-product of a garbage hole!

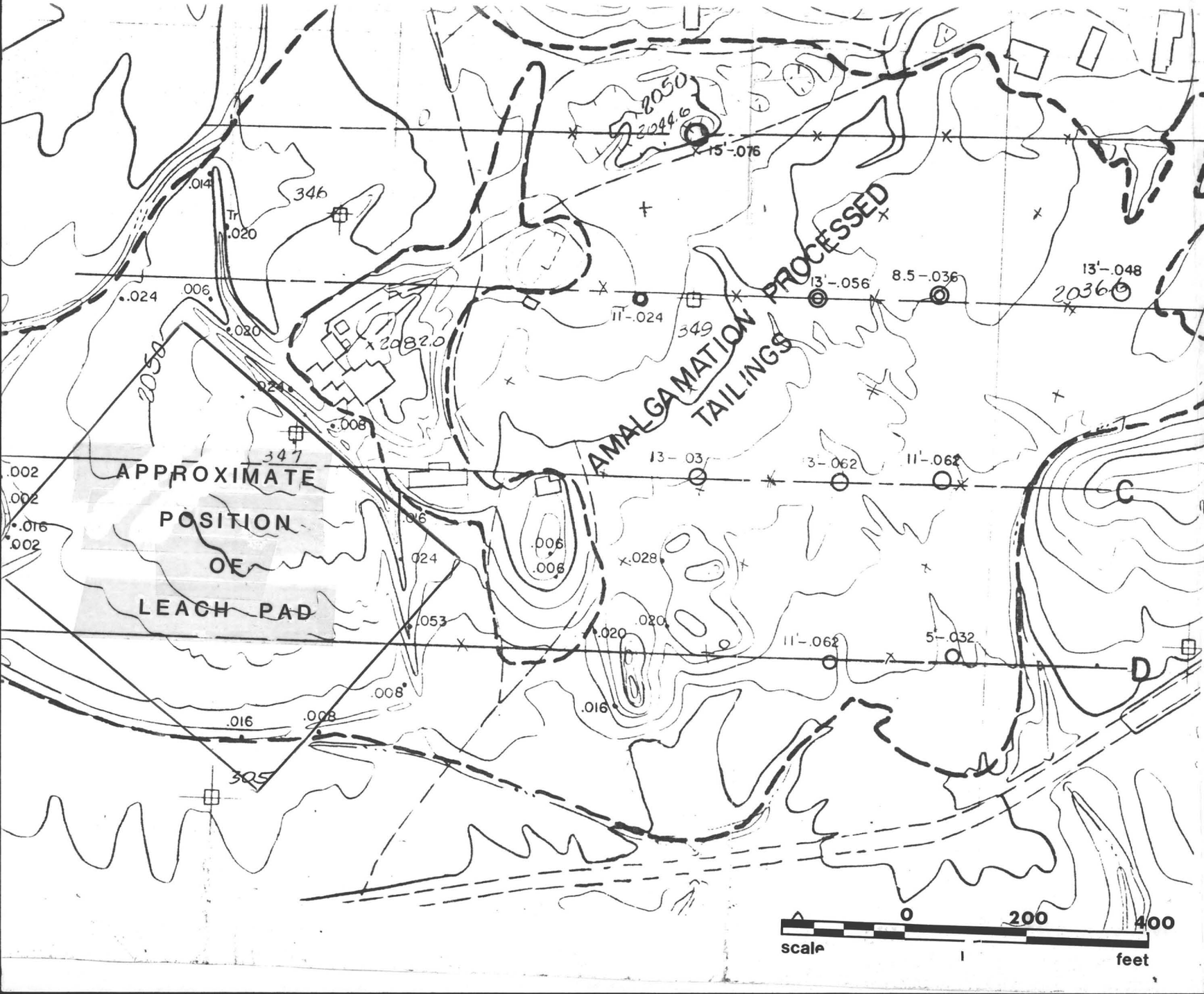
DW:sk

Summary: Vulture Tailings Sampling

Hole No.	From	To	Interval	Gold Assay (oz/ton)
T-1	0	25	25	0.057
T-2	0	20	20	0.046
T-3	0	15	15	0.041
T-4	0	17.5	17.5	0.030
T-5	0	20	20	0.024
T-6	0	20	20	0.031
T-7	0	20	20	0.048
T-8	0	15	15	0.040
T-9	0	13.5	13.5	0.037
T-10	0	10	10	0.035
T-11	0	5	5	0.055
T-12	0	5	5	0.035
T-13	0	15	15	0.052
T-14	0	10	10	0.048
T-15	0	9	9	0.048
T-16	0	15	15	0.030
T-17	0	5	5	0.020
T-18	0	5	5	0.040
T-19	0	10	10	0.043
T-20	0	10	10	0.035
T-21	0	17	17	0.035
T-32	0	5	5	0.030
T-33	0	5	5	0.036
T-34	0	5	5	0.035
T-35	0	5	5	0.030
T-36	0	5	5	0.040
T-38	0	10	10	0.035
T-41	0	10	10	0.058
T-42	0	5	5	0.050
T-43	0	5	5	0.025
T-44	0	8	8	0.051
T-47	0	8	8	0.046
T-48	0	5	5	0.040
T-50	0	10	10	0.043
T-51	0	20	20	0.038
T-52	0	18	18	0.051
T-53	0	14	14	0.041
T-54	0	10	10	0.048
T-55	0	20	20	0.040

weighted average grade: 0.041

average depth: 11.5



IINE PROJECT

Co. ARIZONA

S AREA——

PERIMETER

RENCHES

each)

SAMPLES

----- oz. Au/T

26 new b.h.+ 4 misc. 30

400

082 By G.D.H

Carole

M E M O

TO: Dale Allen, Carole O'Brien, Anthony Budge

FROM: Don White

DATE: July 8, 1988

SUBJECT: Vulture stamp mill tailings reserve

My memo of May 27th reviewed the tailings reserve with respect to the data then available. Since then I have completed the necessary extension and fill-in augering to define the limits of the economic tails. The new data comes from 36 new hand-auger holes sampled on 3-foot or shorter intervals and logged to indicate variations in tailings color, grain size, and induration. Of course the tailings to alluvium contact was logged. Additionally, the limits of the tails were mapped more carefully.

What the new data and careful study of the old tells us is:

1) The power auger hole data from Milt Hood had to be adjusted to cut out the alluvium footages.

2) The eight Pegasus backhoe trenches are spurious both for location (I confirmed some "off" by about 100 feet!) and for assays (consistently higher than adjacent or even surrounding drilling; bad lab work - ?). Thus they are eliminated.

3) The mapping of tails limits defined two major historical excavations nearly to the base of the tails. These occur near the NE and NW ends of the tails area (see plan) and eliminate substantial tonnage that Milt Hood's reserve blocks included in error.

4) A key observation is that all the power auger hole collars are on topographic highs, effectively biasing the thickness and hence the tonnage calculations. The original near planar tailings surface has been severely dissected by erosion with some channels cut 10 feet deep and 20 feet across. Of course these and even much less severe watercourses thwarted the truck-mounted auger rig. Hence all the accessible drill sites were selectively on the top-most flat. My "guestimate" is that approximately a 10% discount need be made to adjust for the tails removed by erosion. Only a careful survey would allow accurate quantification of this problem. This does not seem warranted.

What I have done to compute the reserve is to utilize the data in its entirety. Rather than merely assign orthogonal blocks to each hole, I have contoured both the gold grade and the tails thickness and used the overlay of those two plans to define the natural cutoffs of blocks (see reserve block plan). This means that each block is expected to be uniform within a range of 0.01 oz/t Au and 5 feet in thickness.

The ensuing tabulations and reserve chart are accompanying. After applying the somewhat arbitrary 10% erosion discount we are left with about 200,000 short tons at .037 oz/t, using a .020 oz/t cutoff.

Considerations for the future

In the course of the hand augering and manipulation of the old data, some revelations were made which ought to help planning:

1) There is a tendency for the more yellow tinted tails, as opposed to the reddish tails, to be the most consistently better grade. Some of the red or pink tails do carry good grades however. Also, the coarser the grain size (i.e., the less well tuned the stamps) the better the gold remaining in the tails.

2) There are some beds within the tails that are very well indurated fines and slimes. I can't imagine these not being some problem, even with agglomeration. Caking on equipment, plugging the agglomerator or stacker, etc. is likely. Such material seems most abundant in the < .020 oz/t areas and .020-.029 tails of the overlap area between cyanide tails and underlying stamp mill tails.

3) My narrower assay intervals confirm a tendency toward better grade in the bottom foot of the tails in all areas. Thus good cleanup excavation will be important. The large belly-dump excavator may not be the best tool for the bottom-most cleanup against the irregular alluvium and bedrock surface. A smaller bucket-loader may be needed to reach into the old tails-filled channels for the best grade tails.

4) Milt Hood's sampling of alluvium from beneath tailings (assayed by Skyline, Tucson) and Jim Prudden's placer study both confirm that gold grades there may be comparable to the tails themselves. The question then is how well does it leach and can it be mixed with tails, handled by the agglomerator, etc. The gold distribution in the underlying gravels ought to be studied more carefully as it becomes accessible (i.e., as tails are removed) for it could be a nice bonus to the tails operation.

5) If the process, all the way from excavation through bullion pour, can be made as efficient as possible and thus lowest possible cost, one may be able to attack the remaining low grade tailing east of the new plant. Such tailings constitute an extra 150,000 tons averaging .014 oz/t or about 1,500 recoverable ounces, assuming similar 70% recoveries to the better grade.

VULTURE STAMP MILL TAILINGS RESERVE (1)

Grade Category	Wtd. Avg. Au Grade (oz/t)	Volume (Cubic yds)	Tonnage (2) (s.t.)	% of Tons	Contained oz Au	Recoverable (3) oz Au	Value @ $450/oz	% of Value
>.05 oz/t	.053	14,600	23,000	11	1,260	880	398,000	15
.040 - .049	.043	44,000	71,200	31	3,100	2,170	977,000	37
.030 - .039	.035	51,600	83,600	37	2,900	2,030	913,000	34
.020 - .029	.024	29,800	48,300	21	1,140	800	360,000	14
TOTALS (4)								
≥.020 oz/t	.037	140,000	227,000	100	8,400	5,880	2,650,000	100
After discounting roughly 10% for erosion of surface:								
	.037	125,000	200,000	--	7,500	5,300	2,300,000	--
<.020 oz/t	.014	94,000	150,000	--	2,100	1,470	660,000	--

NOTES: (1) Based upon spring, 1984 S.H.B. power auger drilling data (T-1 thru T-57), Milt Hood's tailings thickness notes and hole locations, Skyline and Iron King Assay reports, and Don White's hand auger holes (T-101 thru T-134) contoured gold grade plan, tailings isopachs.

(2) Volume to tonnage conversion based upon S.H.B.'s bulk density determination of 1.62 s.t./yd^3 (16.7 ft^3/s.t.).

(3) Assume 70% metallurgical recovery.

(4) Totals for .020 oz/t cutoff; considered grade for which recovery value marginally exceeds operating (variable) costs. Note, however, that gold price increases > $450/oz could make the low grade economic.

Don C. White
July, 1988

Vulture Stamp Mill

Tailings Reserve

Tables

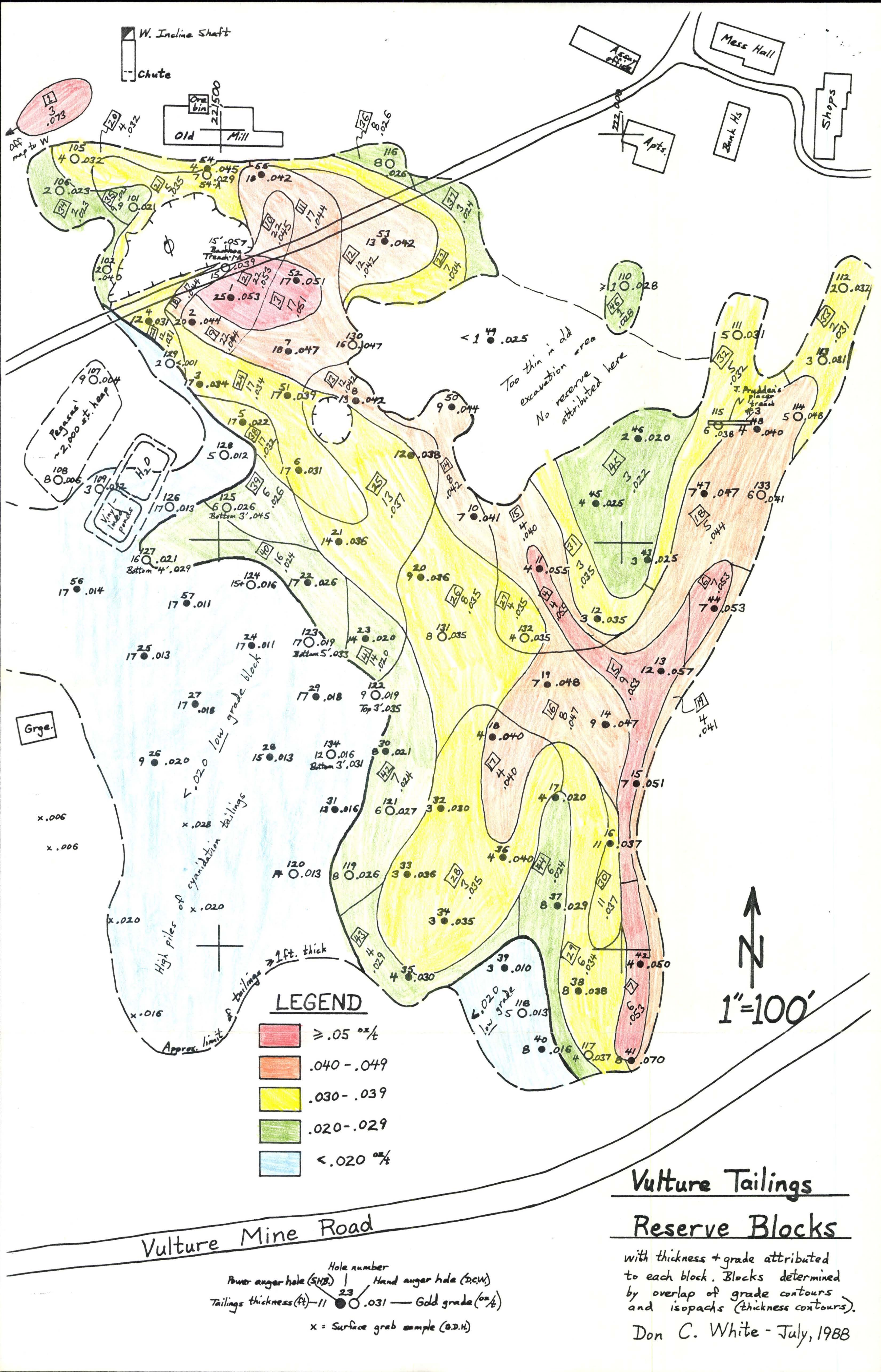
Block #	Au Grade (oz/st)	Thickness (ft)	Area (ft²)	Cubic Yards ((t·a)/27)	Short Tons (Yd³ × 1.62 st/yd³)	Contained oz Au
1	.073	3	4200	467	757	55
2	.053	22	5500	4481	7260	385
3	.051	17	4700	2959	4794	244
4	.055	4	2900	430	696	38
5	.053	9	12000	4000	6480	343
6	.053	7	3500	907	1470	78
7	.053	6	6300	1400	2268	120
≥.050 Subtotal	.0532	—	—	14,644	23,725	1,263
8	.044	17	2100	1322	2142	94
9	.044	22	3300	2689	4356	192
10	.045	22	3200	2607	4224	190
11	.044	17	20000	12593	20400	898
12	.042	12	12700	5644	9144	384
13	.042	12	5500	2444	3960	166
14	.042	8	8600	2548	4128	173
15	.040	4	11200	1659	2688	108
16	.047	8	16300	4830	7824	368
17	.040	4	7600	1126	1824	73
18	.044	5	26600	4926	8029	353
19	.041	4	10500	1556	2520	103
≥.040 Subtotal	.0435	—	—	43,975	71,239	3,102

Vulture Stamp Mill

Tailings Reserve

Tables (cont.)

Block #	Au Grade (oz/t)	Thickness (ft)	Area (ft²)	Cubic Yards ((ft²)(ft)/27)	Short Tons (yd³ × 1.62 st/yd³)	Contained oz Au
20	.032	4	4900	726	1176	38
21	.035	5	8800	1630	2640	92
22	.034	7	11200	2903	4704	160
23	.031	12	4400	1956	3168	98
24	.034	17	17900	11270	18256	621
25	.037	13	20900	10063	16302	603
26	.035	8	24500	7259	11760	412
27	.034	4	4700	696	1128	38
28	.035	3	37400	4156	6732	236
29	.034	6	20200	4489	7272	247
30	.037	11	4400	1793	2904	107
31	.035	3	9000	1000	1620	57
32	.032	5	15600	2889	4680	150
33	.031	2	10500	778	1260	39
≥.030 Subtotal	.0347	—	—	57,607	83,604	2,898
34	.023	2	7200	533	864	20
35	.021	9	2,000	667	1080	23
36	.026	8	2,400	711	1152	30
37	.024	3	4200	467	756	18
38	.022	17	3,800	2393	3876	85
39	.026	6	6,500	1444	2340	61
40	.024	16	15,000	8889	14400	346
41	.020	14	5,400	2800	4536	91
42	.024	7	19,800	5133	8316	200
43	.029	4	9,100	1348	2184	63
44	.024	6	12,700	2822	4572	110
45	.022	3	22,400	2489	4032	89
46	.028	1	3,600	133	216	6
≥.020 Subtotal	.0236	—	—	29,830	48,324	1,142
<.020 Subtotal	.014	15	170,000	94,444	153,000	2,142



Vulture Tailings
Reserve Blocks
with thickness + grade attributed to each block. Blocks determined by overlap of grade contours and isopachs (thickness contours).
Don C. White - July, 1988
LEGEND
≥.05 oz/t
.040 - .049
.030 - .039
.020 - .029
<.020 oz/t
Hole number
Power auger hole (S.H.B.)
Hand auger hole (D.C.W.)
Tailings thickness (ft) — 11
23
.031 — Gold grade (oz/t)
x = Surface grab sample (B.D.H.)
1"=100'
N
Vulture Mine Road
W. Incline Shaft
Chute
One bin
Old Mill
22,500
222,000
Assay office
Mess Hall
Apts.
Bunk Hs
Shops
off map to W
Grge.
Pegasus' ~2,000 s.t. heap
H2O
Vinyl-lined ponds
Backhoe Trench 1-A
Too thin in old excavation area
No reserve attributed here
J. Prudden's placer trench #3
<.020 low grade block
High piles of cyanidation tailings
Approx. limit of tailings ≥1ft. thick
<.020 low grade
Bottom 3'.045
Bottom 4'.029
Bottom 5'.033
Top 3'.035
Bottom 3'.031

Vulture Tailings

Isopachs (Thickness contours)

Don C. White - July, 1988

W. Incline Shaft

Chute

One bin

Old Mill

Assay office

Mess Hall

Shops

Bunk Hs

Apts.

222,000

221,500

Old excavation area

15' .057

Bedrock Trench 1-A

15 .039

Old excavation area

Pegasus' ~2,000 st. heap

Pit

H2O

Bottom 3', .045

Bottom 4', .029

Bottom 5', .033

Top 3', .035

Bottom 3', .031

Gnge.

Cyanide tails

Tall piles

Approx. limit of tailings

≥1 ft. thick

J. Prudden's placer trench #3

Vulture Mine Road

N

1" = 100'

LEGEND

- 20-25 ft.
- 15-20
- 10-15
- 5-10
- 1-5 ft.

Hole number

Power auger hole (S.H.B.) | Hand auger hole (D.C.W.)

Tailings thickness (ft) — 11 ● 23 ○ .031 — Gold grade (oz/t)

x = Surface grab sample (B.D.H.)

Vulture Tailings

Composite Samples from Holes T-1, T-9, T-19, T-33, T-38, T-41 & T-47

Hole #	Time hrs.	pH	Recovery %	Head Assay Au oz/ton	Head Assay Ag oz/ton	Tail Assay Au oz/ton	Tail Assay Ag oz/ton	NaCN consumption lb. NaCN/ton ore treated
	24	12.0	60.66	.061	.04	.017	.03	
	48	11.5	57.38					
T-1	72	11.5	60.66					1.14
	24	12.0	62.16	.037	.11	.012	nil	
	48	11.5	62.16					
T-9	72	11.5	62.16					1.22
T-19	24	11.5	81.40	.043	.15	.006	nil	
	48	11.5	74.42					None
	72	11.5	81.40					apparent
	24	12.0	72.97	.037	.15	.009	nil	
	48	11.5	72.97					None
T-33	72	11.5	75.68					apparent
	24	12.0	97.22	.036	.15	.010	nil	
	48	11.5	97.22					
T-38	72	11.0	63.89					.19
	24	12.0	82.86	.070	.37	.014	nil	
	48	12.0	82.86					
T-41	72	12.0	67.14					1.64
	24	12.0	95.92	.049	.07	.011	nil	
	48	12.0	95.92					
T-47	72	11.5	71.43					1.16

REGISTERED ASSAYER
CERTIFICATE NO.
15583
JIM ROY
WEATHERBY
Date Signed 5-21-
ARIZONA, U.S.A.

VULTURE MINE PROJECT

Maricopa Co. ARIZONA

—TAILINGS AREA—

—TAILINGS PERIMETER

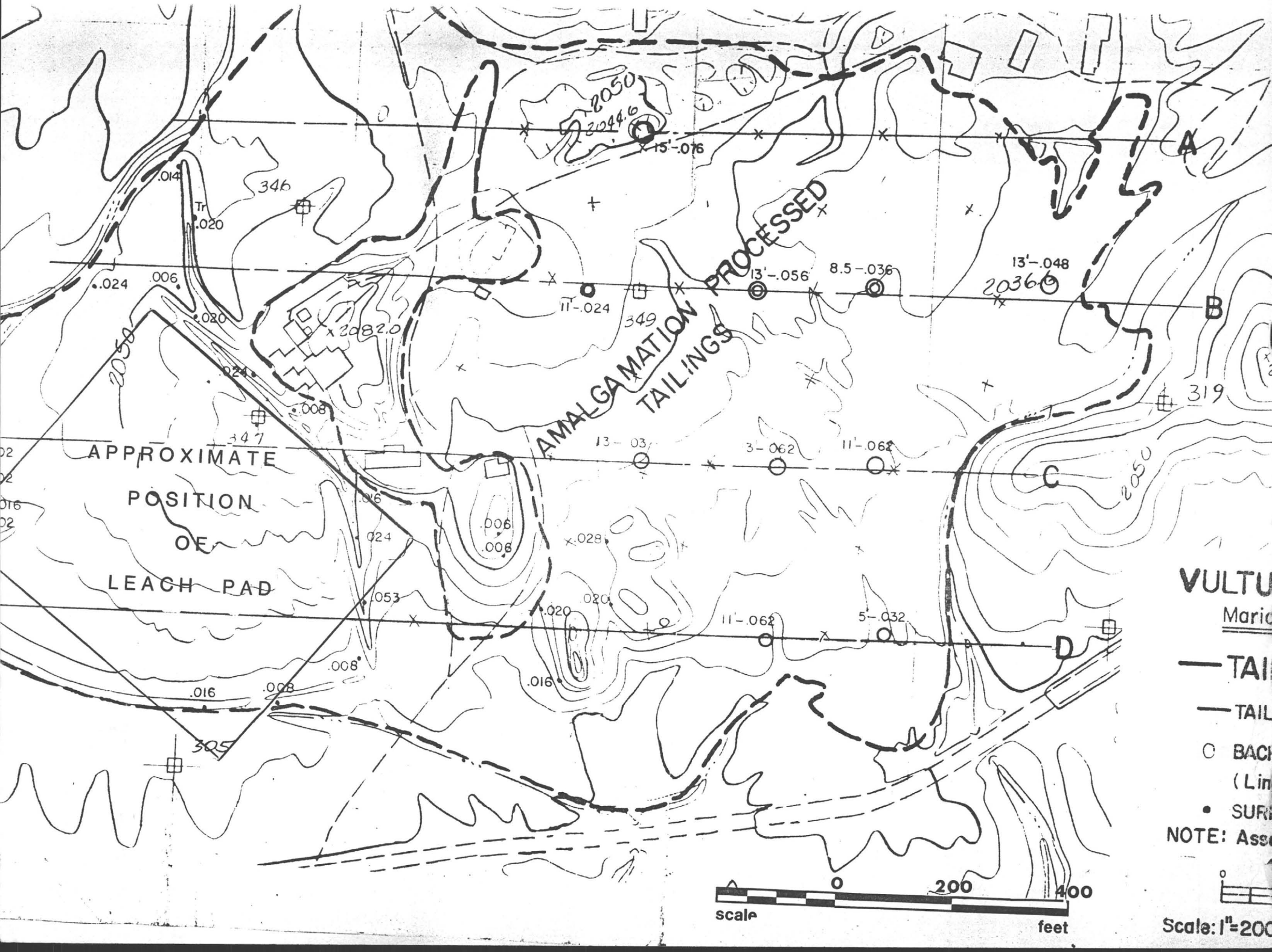
○ BACKHOE TRENCHES
(Limited Reach)

• SURFACE SAMPLES

NOTE: Assays------- oz. Au/T

0 200 400

Scale: 1"=200' OCT. 1982 By G.D.H



VULTU

Mario

— TAI

— TAIL

○ BACK

(Lin

• SURI

NOTE: Asse

Scale: 1"=200

TAILINGS SAMPLES (FEED TO AGGLOMERATOR)

DATE	LOADS	Au ppm	Au oz/t	DATE	LOADS	Au ppm	Au oz/t
3/16/89	44	1.6	0.093	4/24/89	67	1.35	0.078
3/17/89	5	11.0	0.064	4/25	67	.73	0.042
3/20/89	45	N.O	10A SAMPLE	4/26	48	.68	0.039
3/21/89	52	NO	10A SAMPLE	4/27	45	.48	0.028
3/22/89	62	NO	10A SAMPLE	4/28	25 1185	.50	0.029
3/23/89	57	NO	10A SAMPLE	5/1	50	.48	0.028
3/24/89	0	—	—	5/2	77	.65	0.038
3/27/89	0	—	—	5/3	56	1.80	0.104
3/28/89	0	—	—	5/4	78	?	
3/29/89	50	3.0	0.17	5/5	5	?	
3/30/89	48	1.2	0.070	5/8	41	1.3	.075
3/31/89	63	1.4	0.081	5/9	55	1.0	.058
4/3/89	61		0.035	5/10	65	.84	.049
4/4/89	53		0.104	5/11	90	.65	.038
4/5/89	63		0.012	5/12	51	.84	.049
4/6/89	104	NO SAMPLE		5/15	70	1.25	.073
4/7/89	71		0.029	5/16	70	.70	.041
4/10/89	47		0.045	5/17	73	.70	.041
✓ 4/11/89	48	.45	0.026	5/18	20	.66	.038
4/12/89	77		0.081	5/19	70	.68	.039
✓ 4/13/89	58	1.70	0.099	5/22	—	—	—
4/14/89	0	—	—	5/23	70	.62	.036
4/17/89	63	1.18	0.068	5/24	70	.74	.043
4/18/89	67	.80	0.046	5/25	55	.81	.047
4/19/	90	1.00	0.058	5/26	—	—	—
4/20/	51	1.35	0.078	5/29	HOLIDAY		
4/21	80	.75	0.044	5/30	76	.81	.047
				5/31	66	.75	.044

TAILINGS SAMPLES (FEED TO AGGLOMERATOR)

DATE	LOADS	Au ppm x 2	Au oz/t	Date	LOADS	Au ppm x 2	Au oz/t
June 1	47	.73	.042	15	86		.039
2	36	.65	.038	17	78		.031
5	70	.43	.025	18	96		.045
6	70	.49	.028	19	66		.019
7	70	.94	.055				
8	—	—	—				
END Heap #3 9	70	.50	.029				
12	10	1.26	.073				
13	73	1.27	.074				
14	75	1.00	.058				
15	35	.24	.014				
16	31	.50	.029				
19	77	.74	.043				
20	83	.52	.030				
21	88	.92	.053				
22	53	.91	.053				
23	75	.83	.048				
26	84	.75	.044				
27	80 ✓	1.00	.058				
28	107 ✓	1.13	.066				
29	88 ✓	1.32	.077				
30	65	NO SAMPLE					
July 5	50 ✓	0.50	.029				
6	70 ✓	0.42	.024				
7	68 ✓	0.63	.037				
8	70 ✓	0.36	.021				
10	44	NO SAMPLE					
12	66	NO SAMPLE					
13	60 ✓	0.70	.041				
14	74		.047				

from 2/84 – 4/88	$864,400	
4/88 – 7/88	737,000	
8/88 – 6/89	1,148,000	
	– 774	
	374,000	1988 ozs gold 6412 ozs silver

	1,975,400	
	1,484,400	
	491,000	
+	92	July
	70	August
	200	Sept – April
	(853,000)	

Carde

United States Department of the Interior

Geological Survey
Box 25046 M.S. 905
Denver Federal Center
Denver, Colorado 80225

June 17, 1988

Don White
521 East Willis St.
Prescott, AZ 86301

Dear Don,

Thank you for the isotopic information on the Vulture mine. I took a small amount of the muscovite (sample SS-1091), cleaned it up a little, and packaged it with other samples to be analyzed in Reston in late July or early August. The sample from Krueger was quite clean; I think the Rb-Sr data should hold up well. I'm returning the excess muscovite in a bottle that is taped shut.

I looked at the one lead isotopic analysis of galena from the mine and have the following thoughts. The radiogenic nature of the sample ($^{206}Pb/^{204}Pb$ = 18.687; $^{207}Pb/^{204}Pb$ = 15.60; $^{208}Pb/^{204}Pb$ = 37.18) eliminates that possibility that the galena is older than 100 Ma if one assumes that the lead in the galena is from the mantle or some lower crustal source. In other words, the deposit cannot be Proterozoic and have its lead derived from Proterozoic mantle or lower crustal material. The deposit can, however, be less than 100 Ma and have its lead derived, in large part, from a mixture of mantle and crustal material (i.e., subduction-related material). Because the lead is not anomalously radiogenic ($^{206}Pb/^{204}Pb$ ratio greater than 19 or so), most of it probably was not derived from Proterozoic basement rocks in the area. The possibility remains that the galena contains magmatic lead of about 100-Ma-vintage mixed with a small (less than 20 percent?) amount of Proterozoic lead.

I collected more samples of galena when we were in the field together, and will be analyzing them later this year. I'll stay in touch regarding the results. Thanks a lot for the information; the Vulture mine certainly has an interesting gold deposit associated with it.

Oh, yes, the chlorite associated with the deposit may be unusual also - it appears to be very iron rich. I'll continue my work on it as time permits.

Cheers,

Ed

Ed DeWitt

enc.

ELLIOT GEOPHYSICAL CO., INC.

4653 EAST PIMA STREET TUCSON, ARIZONA 85712 TEL. (602) 323-2421

February 24, 1986

Memo Ref: DE01E

To: B.F. Dickerson, III

From: C.L. Elliot

Re: 1981 Induced Polarization-Resistivity Survey of the Vulture Mine Area

Around the first of the year 1981, Mining Geophysical Surveys, Inc., Tucson, AZ, performed a four line induced polarization and resistivity survey of the Vulture area. The report on the survey was entitled "Induced Polarization and Resistivity Survey, Vulture Project (0844), Maricopa County, Arizona, for Noranda Exploration, Inc.". The report was dated 22 January, 1981. The author is unknown but presumably was W. Gordon Wieduwilt. This survey consisted of a group of four survey lines oriented generally northwest-southeast and centered near the old Vulture workings. The survey utilized a dipole-dipole inline array with a dipole spacing of 400 feet. Position of the survey lines is presented on the attached 1 inch = 200 ft. topographic base used for detail Vulture Mine area data presentation and analysis.

The positions of the lines are at best only approximate as they were developed from a gross enlargement of a redrafting of the original plan map of Mining Geophysical Surveys, which was not currently available to me.' There were discrepancies between the civil features shown on the Mining Geophysical Surveys pseudo sections, and the positions of the lines as presented on the Noranda Exploration, Inc. redraft. It appears that Noranda redraft has plotted the lines a bit too far south and therefore on the accompanying map, the pseudo section information of Mining Geophysical Surveys have been favored. Be that it may, there still could be +/- 100 ft. positional errors.

In addition, the position of interpreted features from the induced polarization-resistivity data could be possibly +/- 200 ft. from the indicated position on the attached map. This is due to the 400 ft. dipole spacing (2 inches at the scale of presentation) plus the absolute positioning of the lines themselves. Also, the width of interpreted features are not truly representative but are plotted to show their general position at the center of the electrical dipole that indicated the anomalous feature. Actual horizontal thicknesses could vary from a few feet to approaching 400 ft. without violating the electrical survey data. The reader is cautioned about this when studying the attached presentation.

In general terms, the induced polarization responses measured on all four survey lines are quite low and these levels fall in what is normally considered background response in most rocks of the western U.S., particularly the older rocks, such as pre-Cambrian. In the Vulture Mine area we can only recognize probable anomalous responses because the host rocks of this area are so low in induced polarization sources, such as sulfides, magnetite, certain clays, etc. This is a definite plus for utilization of the induced polarization and resistivity methods in this area. From the available data, background polarizations appear to be 7 or less milliseconds, whereas zones considered anomalous in induced polarization response have polarization levels 10 ms or greater. In addition, anomalous conditions are also quite clearly indicated in the resistivity data. Also fortuitous is that the resistivities of this area are a little higher than are normally expected in central Arizona. This is another plus for application of these methods in the Vulture Mine area.

With the limited amount of induced polarization-resistivity data from only four lines, it is not possible to correlate the data with all of the major structures known to exist, particularly to the north and northeast of the Vulture Mine. The survey lines were not oriented properly for best indication of these known structures. It would have been much better for our purposes had the lines been oriented more east of north. However, it is possible to make some sense of the electrical data and correlate it where possible with known geology and structures.

There are four distinctive anomalous zones worthy of discussion and their positions are shown on the attached map. They have been designated zones A, B, C and D for reference.

Zone A : This zone was indicated on survey lines 1, 3 and 4. It consists of an induced polarization responsive zone associated with a congruent high resistivity zone. It occurs at or near present surface and has a steep dip, probably northerly. It rakes southerly between lines 3 and 4, and possibly could be fault offset between these lines. However, it has been shown on the attached map as a single continuous zone. It has a length of greater than 1000 feet, its extent east of line 4 is unknown, as it is beyond the survey limits. To the west it is clearly cut off by the data from line 2. This zone generally occurs along the known position of the quartz porphyry intrusive sill with its associated sulfide mineralization in the hanging and footwall pre-Cambrian rock units. Its cut off to the west also conforms with known geologic conditions as there is a pronounced geologic change. Line 2 is clearly over the qpi stock and therefore beyond the western extent of the Vulture

vein system. It is significant the the resistivity increase is congruent with the IP responsive zone. This is perhaps due to increased silicification along the sill, interjection of quartz veins, and/or possibly that the resistivity of the sill is higher than the surrounding pre-Cambrian rock units in which it is intruded. Zone A is therefore a very significant zone as it does correlate with a known structure of economic interest.

Zone B : This zone is approximately parallel with zone A and has a strike extent in excess of 1000 feet. It was recognizable in the data from lines 1, 3 and 4, and consists of predominately an induced polarization responsive indication with no obvious congruent resistivity contrast. It occurs from near surface downward and has a possibly steep northerly dip. A good dip indication is precluded by the limits of the IP coverage. From the surface this zone is obviously buried beneath the extensive tailings that exist between the Vulture Mine Road and the Vulture Mine. Therefore it is of unknown origin other than pre-Cambrian rocks do outcrop near line 3 along the interpreted zone. Like zone A, this zone is open easterly beyond the extent of the IP coverage, but is firmly cut off to the west by the data for line 2. This zone undoubtedly needs further investigation.

Zone C : This zone is a very broad induced polarization anomaly at least north-south, with no congruent resistivity contrast. It is indicated only on line 2, and extends generally from electrode C3 northerly to the end of the line and beyond. It appears to have come very close to surface at the north end of the line, and would appear to plunge southerly below the alluvium. The alluvial cover is obviously indicated in both the induced polarization and resistivity data. Line 2 is quite different in electrical characteristics from the next line to the east, line 1. Therefore, it is reflecting a predominate change of bedrock lithology and of course this is known from geologic mapping in that this line is predominately over the quartz porphyry intrusive stock. The slight increase in induced polarization response is probably associated with the qpi stock and perhaps is reflecting a very minor increase in sulfide content, perhaps the order of no more than 1/4 of one percent. The significance of this is not too important, other than IP could be a mapping tool for the qpi stock.

Zone D : This zone is identified as a distinct low resistivity response with no congruent induced

polarization, although there is slight increase in induced polarization response at the very north end of line 3 right at the limit of the data coverage. It is indicated in the data from lines 3 and 4, with line 4 being by far the best indication. It appears to be at or close to surface with a steep dip probably northeast. The position of this response as indicated strikes parallel to the well known Talmadge Fault structure, and is quite near the geologically indicated position of this structure. Therefore it is more than likely that this resistivity indication is that of the Talmadge Fault. Certainly one would expect a low resistivity response associated with this major fault structure.

In summary:

1. Background induced polarization responses in this area are quite low, at least in the immediate area of the Vulture Mine. This is a plus for application of this method.

2. Induced polarization anomalies are very subtle features as the polarization responses are still within normal background levels of typical rocks, only recognizable in the immediate Vulture Mine area because of low backgrounds.

3. Generally, induced polarization and resistivity data is of good quality, allowing for clean interpretability.

4. Four anomalous zones of possible interest have been recognized in the existing data, shown on the attached map.

Zone A - This is the Vulture ore system with increased resistivity and IP response. It reflects increased silicification and a small amount of attendant sulfide mineralization. Length greater than 1000 feet, open to the east, but cut off westerly.

Zone B - The zone of increased polarization response buried beneath tailings. Its association is unknown, has a length of greater than 1000 feet, and is parallel to a proposed structure by Hodder and White (Memo 12-14-85) in their reference Block 1. This zone deserves further investigation.

Zone C - This is a broad zone with slightly elevated induced polarization response, likely associated with the quartz porphyry intrusive stock. This zone is not in itself significant, other than it demonstrates the possibility that induced polarization could be utilized to map the qpi stock and particularly its boundaries if

other methods are not suitable.

Zone D - A low resistivity zone without congruent induced polarization response. Its position it would seem to correlate with the known surface trace of the major Talmadge Fault structure.

5. By a proper analysis of the data from this old 1981 induced polarization resistivity survey, it is clearly demonstrated that these techniques have application as geophysical tools for use in Vulture type geology structure and mineralization. While this is a more expensive method than other geophysical methods, the work here shows that good quality data can be obtained in this area and interpretable geologic structural information can be realized. Serious consideration to the employment of these methods must be done. Not only does it offer a geophysical method with direct mineralization detection, but also presumably it can be used for mapping veins, geologic contacts, and structures.

CC: Don White

BUDGE

A.F. Budge (Mining) Limited

P.O. Box 143
Clarkdale, AZ 86324
(602) 634-7712

4301 North 75th Street
Suite 101
Scottsdale, AZ 85251-3504

(602) 945-4630
FAX (602) 949-1737

P.O. Box 20878
Wickenberg, AZ 85358
Mobile (602) 376-9056

July 13, 1988

David Ganoe
Glacial Minerals
Strattonville, PA

Dear Mr. Ganoe:

Following is a listing of the equipment we have on site and on order for the processing plant at the Vulture Mine, located 14 miles south of the town of Wickenburg, Maricopa County, Arizona.

Also following is a description of the new office plus a listing of contents.

Sincerely,

Carole A. O'Brien

Carole A. O'Brien

Total pages including cover: 3

Please do not hesitate to call if you have any questions or need additional information

Equipment list for Vulture Heap Leach Facility and Processing Plant, compiled 7-13-88

	Purchase Price	
Merrill Crowe Zinc precipitation system with furnace	$ 54,840	New
9, 50-ft. channel frame conveyors and 1, 80-ft. radial stacker	$ 85,188	New
3, Peerless Suction Pumps	$ 2,477	New
2, Sperry Filter Presses	$ 17,000	Used
2, 15-ft. Screw conveyors	$ 2,700	New
1, 10-ft. x 9-ft. Agitator Tank	$ 3,250	New
1, US autojet pressure leaf filter	$ 10,000	Used
1, 50-ft. conveyor	$ 9,400	New
2, Motors	$ 319	New
1, Mag Feeder with grizzly	$ 6,000	Used
1, AA Unit	$ 4,000	Used
1, 25-ft. x 20-ft. plant building with pad	$ 17,658	New
2, silos for chemical storage	$ 14,400	New
1, Agglomerator	$ 10,000	Used
Sub-total	$ 237,232	

In addition, we have approximately $20,000 in miscellaneous driscopipe, electrical switch boxes and other incidental items.

Rented items include 1, 200 KW Cummins generator; this is on a lease with option to purchase agreement.

New office located at 4310 North 75th Street, Suite 101,
Scottsdale, Arizona

1,000 square feet in 4 offices

Newly constructed building with sprinkler system.

Total contents in office furnishings in $15,000 to $20,000 range. including major items:

Sharp FAX machine	$2,800
IBM P/C	$6,000
Telephone system	$1,400

Landlord: Levine & Associates
4434 Civic Center Plaza, Suite 201
Scottsdale, AZ 85251

Landlord requests minimum of $500,000 liability coverage.

Ron-FYI.

MILLSAPS MINERAL SERVICE, INC.

August 19.1988

Ms. Carole O'Brien
A.F. Budge Mining, Ltd
Suite 101
4301 North 75th Street
Scottsdale, Arizona 85251

Subject:Visit to Vulture 8/9-10-11

Dear Carole:

As agreed upon between Dale Allen and Ron Short I visited the Vulture operation on August 9,10, and 11th for the purpose of assisting in starting up the agglomeration. On the 9th. dirt from the low grade area was being used to prepare the road for the conveyors on the pads. Some work was done on agglomerating.

The pellets being formed were of inferior quality and quantity. The essential problem was that too much water was being added ahead of the agglomerator, and there was no feed of either cement or lime. On the 10th feed of lime and cement was started and water ahead of the agglomerator was cut off. Pellets of a satisfactory nature were made. However,the feed rate of material to the agglomerator could not be controlled. Work was done on the feeder to try to improve control.

On Thursday the 11th the feeder control seemed to improved, but the feed rate was well below the desired tonnage. Other adjustments were going to be made so that by Monday, August 15th it was expected that the feed rate would be up to the desired quantity.

ROOM 202 - 3865 WASATCH BLVD., SLC, UT 84109...(801)277-7130 OFC./277-0750 HOME

no heaters for motors

During the visit other things about the operation was brought to my attention. Among them:

The electrical system was designed without over load protection for the individual motors. ?

The use of a single generator necessitated the use of large diameter wire to cut voltage loss to the conveyor motors.

The feed hopper fit to the dump was poor, causing excessive dust at every dump cycle. ?

5" hopper

The time cycle for the self loading scraper hauling from the low grade area near the agglomerator averaged 4 minutes 7 seconds. This is probably not indicative as there was no effort made to maximize tonnage due to the feeder problems.

To grizzly

I think that Dale deserves a great deal of credit for having accomplished as much as he has in the time he has actually been working on the project.

Very truly yours,

Frank W. Millsaps

Frank W. Millsaps

Received 11/11/88

MEMO

TO: Carole A. O'Brien, A.F. Budge, R.R. Short, D.A. Allen

FROM: Don C. White

DATE: October 17, 1988

SUBJECT: Confirmation of Vulture age dating, and its significance

We have some results back from the U.S.G.S. indicating that our theories on the origin of the Vulture are right on the mark. You'll recall that the key dispute has been between those that believe the Vulture lode is a Precambrian sygenetic gold occurrence and those including Bob Hodder, Steve Reynolds and myself that believe it is epigenetic and early Laramide. (Stan Keith and Bill Rehrig concur with the epigenetic interpretation but have varied on age estimates.)

First we acquired our own age dating in mid 1987 which was a Rb-Sr whole rock/muscovite separate date on the Vulture stock. That came in at 85 ± 3 m.y., or early Laramide. That was enough to convince me, for one can walk out the physical tie from the stock to the sill and the quartz veins, with successively more gold in each. Also the small mineralized quartz veins within the core of the stock are identical to those of the Vulture lode. But still we had doubters.

Ed DeWitt of the U.S.G.S. has dated two samples that clinch up the argument. He has an Ar/Ar date on the Vulture stock that confirms our Rb/Sr date. His is about 90 m.y. He also sampled a zenolith within the quartz porphyry sill. That would have to be a fragment of Precambrian wall rock caught up in the plutonic sill. Its Ar/Ar age is also about 90 m.y. as expected of a baked fragment with an effectively reset Argon clock. So we now have an 85-90 million year age on both the stock and the sill and by two isotopic methods.

This all means that the epigenetic theories we have used to postulate other Vulture-like occurrences are indeed valid. Ron and I have talked (the morning of Oct. 5th) about how to pursue exploration for "other Vultures"; where, how, risks, incentives, and costs. He did not seem very impressed and has stated that it shall not be done under his management which effectively kills it for Budge. That is because the tailings leaching will likely be completed by early 1990 and the lease from Beal terminated. BASED ON RESULTS OF EXPLOR TO DATE. ?? THIS REASON? IF NOT WHO'S

I believe the exploration for "other Vultures", deposits of 350,000 ounces of gold occurring as 0.35 oz/t coarse gold in quartz, beneath shallow (stripable) cover of alluvium, constitute such a lucrative target that the opportunity should not be passed up. Of course it's an expensive geophysical and drilling program to test such targets and a long shot of finding one but it's very unlikely that Vulture was one-of-a-kind. I hope to be involved whenever someone else decides it is worth a shot. IF IT IS A LONG SHOT AT FINDING ONE? WHY IS IT A LONG SHOT THAT THE VULTURE IS ONE OF A KIND?

It should be stressed that this epigenetic origin for the Vulture in no way changes the merits of Stan Holmes' case for going after the possible fault extension. He happens to believe in the Precambrian syngenetic interpretation for the Vulture but the target he's interested in is strictly a structural one. He should be encouraged to get on with his venture as soon as possible in

Budge's interest though I understand he's intimidated, and rightfully so, by the 6% NSR royalty to Beal coupled with any sharing required by Budge. We're talking a deep (several 1,200-foot holes) core drilling proposition with any find requiring new shaft sinking and expensive, underground, narrow-vein mining. Chances are he and Stan West's stockholders would be better off waiting for Budge's lease to terminate and picking it up themselves with better terms and no joint venture.

That really leaves little more than the small placer potential to be tested. I have summarized that in a separate memo.

DW:sk

Received 11/11/88

M E M O

TO: R.R. Short, C.A. O'Brien, A.F. Budge, D.A. Allen

FROM: Don White

DATE: October 18, 1988

SUBJECT: Vulture placer gold potential and recommendations

Nearly four years ago (Dec. 1984) Jim Prudden conducted a placer exploration and testing program at the Vulture property.(1) His trenches, cut with a large backhoe, surrounded the lode area and channels of gravels cut from those trenches were run through a pilot plant.

Prudden's findings are summarized:

1) Most of the areas trenched are clearly subeconomic.

2) One area just south of Vulture ridge contains potentially economic grades averaging 0.5 g/yd^3. We call this Vulture South.

3) Vulture South was tested by only two trenches. The 0.5 g/yd^3 grade is the average of channels on opposite sides of the basal 5 feet of one trench, down to bedrock. The other trench did not reach bedrock, only caliche-cemented "false bedrock" but exhibited gold buildups at depth which are extrapolated to be akin to the 0.5 g/yd^3 trench. The upper 5 feet of alluvium in each trench was uneconomic.

4) The gold of the two Vulture South trenches (trenches 3 and 4) is about equally divided between very fine gold and small nuggets.

5) The gold is juvenile. It is angular, dendritic, often adhering to quartz or even containing galena or pyrite as is its association at the Vulture. Hence its likely provenance is the Vulture lode.

6) A roughly 15-acre area nearly corresponding to the stamp mill tailings now being excavated could average the 0.5 g/yd^3 found in the basal 5 feet of one trench. If so, reserves of 5-foot thickness would be 120,000 yd^3.

If Prudden's estimates of 120,000 yd^3 of 0.5 g/yd^3 are accurate, then the Vulture South zone contains about 2,000 ounces of gold at a 1:1 stripping ratio (after the tailings are removed). Getting at that placer gold seems to have certain advantages and disadvantages:

ADVANTAGES

1) Good grade; 0.5 g/yd^3

(1) Prudden, James M. 1985; Preliminary evaluation of the Vulture Mine placer potential, Maricopa Co., Arizona. Unpublished report to Ben Dickerson/A.F. Budge, Jan. 23, 1985, 36 p plus appendices.

2) Patented land; Beal lease and Vulture townsite owned by Budge.

3) Low stripping ratio; 1:1.

4) Already disturbed area beneath the tailings excavation.

5) No large boulders.

6) Good access.

7) Process water availability; present well production about 65 gpm less heap leach needs about 40 gpm leaves 25 gpm for placer makeup water.

KNOWN DISADVANTAGES

1) 120,000 yd^3 or 2,000 contained ounces is not a large enough reserve to amortize a plant and equipment.

2) There is a certain erracticness of values in immature desert alluvium that makes any sampling and evaluation risky. Actual grades overall may be better or worse.

3) The abundant hard caliche beds may present excavation problems and recovery problems if it can not be broken down in a trommel and with high pressure water.

4) Because of peculiarities of the lease, placer "mining" may introduce royalty or "production bonus" problems into the equation with Beal and not be worth the effort/expense.

Under the circumstances I recommend consideration be given to farming out the placer of Vulture South. A small, experienced contractor with his own placer equipment ought to be able to have at it and determine in short order whether it's worthwhile or not. If not, he's on his way soon. If so, he could operate only on non-Beal lands of the townsite or arrangement could be made to placer both properties.

A contractor would be well advised to test the area with backhoe trenches, running the entire contents of each trench through the plant. Such sample sizes should help alleviate the nugget effect and intrinsic erraticness of the desert placers. Such full scale testing would also provide the operators a chance to experiment with their recovery system.

A modest sized plant at 100 yd^3/hour capacity could complete the entire 120,000 yd^3 project in less than six months, one shift, five days per week.

If and when such a farm-out should be considered, I shall be happy to querry the few operators and equipment owners I know as to their interest.

DW:sk

MEMO TO: A. F. Budge

COPIES: Carole O'Brien
Ron Short

FROM: Dale H. Allen

DATE: November 22, 1988

SUBJECT: TRIP REPORT - GD RESOURCES
Reno, Nevada

****

Fourteen dore and 162 pounds of precipitate were brought to GD Resources in Sparks, Nevada. The dore was put into a remelt smelter with fluxes in an effort to get out as much Cu, Pb, Zn as possible. This procedure was repeated twice. While the final remelt was molten, dip samples were taken and split into three separate samples; one for Budge Mining, one for GD Resources, and one for an umpire (to be kept in GD Resources safe, should it become necessary to have an umpire run assays). Payment will be based on GD Resources' assay, to be made 15 days after the assay. Should our assays differ from theirs, the sample they are holding for the umpire will be assayed. If necessary, payment adjustment will be made 15 days after agreement is reached.

The precipitate weight was 175 pounds. It was too wet to be handled correctly, so GD Resources put the material into a 55 gallon drum which they set on top of a furnace. They do not have the facilities to deal with wet material. Precip would normally be shipped in sealed drums and opened in front of a company representative. A sample is then poured into large rotating feed mixer and blended for 30 to 40 minutes. A sample is taken, rolled, and split in thirds. Payment is based on assay. However, my experience has been that the assay seldom was indicative of actual gold recovery. We often got 105 to 120% recovery. So on this first shipment, I felt payment should be based on a sample from the end product.

In order to do this, it was necessary for GD Resources to do a clean out melt with slag material. Then they ran the Vulture precip with fluxes that are normally used in fire assay (litharge, flour, etc). After that, they ran another clean out smelt with slag to recover any precious metals left in the smelter. All the metal obtained from the last two fusions were cuppeled and accupulated. The dore obtained was remelted in a furnace and was dip sampled, split into thirds. Basis of payment is GD Resources' assay, 15 working days from assay.

Therefore, if we are to send our precipitate to GD Resources, I believe payment should be based on precipitate assay rather than dore because of the procedure they have to use in order to get dore. It is handled too many times and they use the same furnace for all other material. In this instance, the precipitate sample method is the lesser of two evils. I feel that had I not been present they would not have taken quite the precautions and care to obtain maximum recovery of precious metals.

Furthermore, based on my previous experience, GD Resources' methods, security problems, handling problems, cost of overseer, etc., it would behoove us to take zinc precip to dore. These bars could be stored in a safety deposit box. Any bars not saleable could be taken to GD Resources on an as-needed basis.

As for GD Resources itself, it is run by Steven Kay, who I found to be extremely ethical and professional. Kevin McNamara, the refinery superintendent was also very professional. In talking with him, I obtained good information on fluxes. He gave us a flux formula to use for remelt and one to try for our precipitate.

JAMES M. PRUDDEN
4809 Quail Point Road
Salt Lake City, Utah 84124
(801) 272-4720

Carole A. O'Brien
A.F. Budge Limited
7340 E. Shoeman Lane
Suite 111 "B" (E)
Scotsdale, AZ 85251

31 January 1989

Dear Carole:

I enjoyed our group conversation today regarding your mining plans for the Vulture placers. Ore reserve development should commence with regular spaced sample points to provide grade and geological data for feasibility analysis. The backhoe trenches/pits should yield the necessary information within a short time with which to formulate production scheduling. This two-three month period would be utilized to design a process facility.

The following suggestions should provide the cost effective approach in producing the necessary three dimensional geological appraisal and attendant channel sampling for property evaluation. These steps are:

1. A series of backhoe trenches/pits are required to be excivated into bedrock on fences at 100 foot spacings. The excivations would be spaced at 50 foot centers along these lines. The maps that I have available do not have a scale, however former Trench #3 could be the focal point for this grid and the line would then extend westerly through Trench #4. Surveyed surface elevations for all excivations would be required with the geological mapping providing the remaining control.

2. Channel sampling techniques would be similar to previous work and the gravel processed in a suitable gravity process plant. The samples will require pre-treatment with dilute nitric acid prior to amalgamation. You might consider dispatching the concentrates to a metallurgical laboratory for total processing.

The above should be sufficient to start the project on a sound heading. When I arrive onsite there will be sufficient exposure to determine the course of further development work. This trenching could be extensive, however I believe it will be considerably less expensive than drilling. It also furnishes bulk samples on a regular grid basis for pilot scale work. Channel sampling will require two individuals with a third to operate the plant. One should be a geologist or equivalent. Although I

will be available to start this project, my availability for the month of February is limited. Evaluation of the data in March is one of the critical factors and I will devote full attention to this phase.

I would also like to offer a few passing comments for your edification. In the recommendation chapter in my 1985 report (page 34-36), I indicate that there are a total of three potential placers within the area sampled. These other two areas should be given due consideration. The possibility of placer reject material becoming heap leach product could be a distinct possibility considering that some of the tailings assays could be of sufficient value to qualify as leach material (e.g., tails 4/2/1 -10 mesh 0.012 OPT gold and 11-1-1 +10 mesh 0.09 OPT gold). The alluvial section in surface drill holes should also be assayed.

I trust the above provides the necessary direction on which to commence Vulture placer evaluation. The conference call on Friday will give you sufficient time to consider the above comments and could be discussed at that time. In conclusion Carole, I feel very positive that these placers will contribute to the Vulture cash flow.

Jim

James M. Prudden

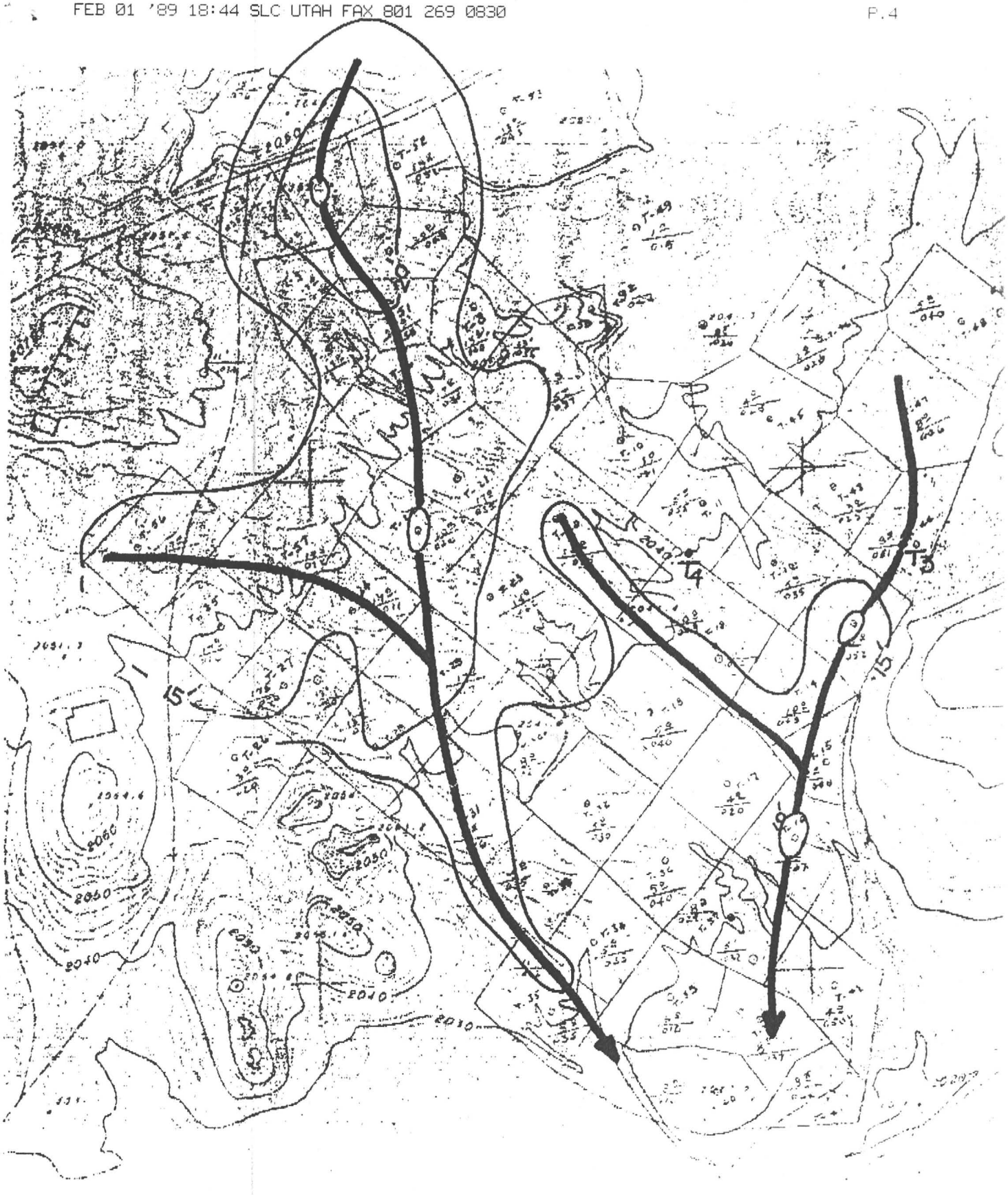


Figure 4
Vulture Mine Tailing Area showing tailings isopachs based on drill holes and proposed pre-tailings erosion surface channel axies

VULTURE MINE

ESTIMATED MINING COST OF PROJECT

			WEEKLY	CUMULATIVE
RUNNING COSTS INCURRED TO DATE AUGUST 1/88 THRU DECEMBER 31/88				412,942.00
COST TO COMPLETION				
TAILINGS PILE -	GROSS TONNAGE	225,000		
	COMPLETED	84,600		
	REMAINING	140,400	5,850.00	169,650.00
	FOR 29 WEEKS			
AGGLOMERATOR - FOR 29 WEEKS			5,052.00	146,494.00
HEAP /POND	GROSS TONNAGE	225,000		
(ASSUMING .03 ozs. per ton)	COMPLETED	18,750		
	REMAINING	206,250	4,338.00	238,590.00
	FOR 55 WEEKS			
PLANT/FURNACE	GROSS PRODUCTION	6,750		
	COMPLETED	560		
	REMAINING	6,190	2,485.00	136,675.00
	FOR 55 WEEKS			
FUEL FOR GENERATOR - FOR 55 WEEKS			1,050.00	57,750.00
SUPPLIES AND REPAIRS - FOR 29 WEEKS			1,900.00	55,100.00
- FOR 26 WEEKS			(800.00)	20,800.00
OVERHEADS AND OTHER - FOR 29 WEEKS			2,403.00	69,687.00
- FOR 26 WEEKS			(1600.00)	41,600.00
ROYALTY			1,154.00	62,316.00
RECLAMATION				20,000.00
TOTAL COST			24,231.00	1,431,604.00
PRODUCTION - GOLD 225,000 TONS @ 0.03				
6,750 oz. @ $395.00			44,437.50	2,666,250.00
(WEEKLY PRODUCTION 112.5 oz.)				
- SILVER 225,000 TONS @ 0.10				
22,500 oz. @ $6.00			2,250.00	135,000.00
(WEEKLY PRODUCTION 375 oz.)				
			46,687.50	2,801,250.00
CONTRIBUTION			22,456.50	1,369,646.00
TOTAL DEVELOPMENT COSTS THRU JULY 31/88 (EXCLUDES CAPITAL EXPENDITURE)				1,298,938.00
NET CONTIRBUTION				70,708.00

NOTES:
1. CAPITAL EXPENDITURE $338,872
2. THE ABOVE CONTRIBUTION DOES NOT INCLUDE ANY CHARGE FOR DEPRECIATION.

VULTURE MINE

TAILINGS FILE

LABOUR: RATE $18.50 PER HOUR		
HOURS WORKED - AVERAGE 60 OVER PAST FEW MONTHS	1,110.00	
PAYROLL TAXES AND FRINGES	90.00	
EQUIPMENT ; 55 TO 60 HOURS PER WEEK(AVERAGE OVER PAST FOUR MONTHS; 58.125)	4,650.00	
PRODUCTION 5,000 TONS PER WEEK AT $1.17 PER TON		
TOTAL		5,850.00
AGGLOMERATOR		
LABOUR: RATE $9.00 PER HOUR		
HOURS WORKED - 40 REGULAR, 10 OVERTIME	495.00	
PAYROLL TAXES AND FRINGES		
(BASED ON MARRIED GROUP PREMIUM)	169.00	
MATERIALS		
LIME - @ $0.26 /TON (6.5 POUNDS PER TON)	1,300.00	
CEMENT - @ $0.28/TON (7 POUNDS PER TON)	1,400.00	
CYANIDE - .15 POUNDS @ $2.25/POUND	1,687.50	
TOTAL		5,051.50
HEAP/PONDS		
LABOUR: RATE $9.00 PER HOUR (2 WORKERS)		
HOURS WORKED - 40 REGULAR, 10 OVERTIME	990.00	
PAYROLL TAXES AND FRINGES	244.00	
(BASED ON SINGLE GROUP PREMIUM)		
MATERIALS: CYANIDE - 0.35 POUNDS PER TON @ $2.25 PER POUND	2,953.50	
MILLSPERESE - $0.03 PER TON	150.00	
TOTAL		4,337.50
ESTIMATED LEACHING: 3,750 TONS PER WEEK		
PLANT/FURNACE		
LABOUR: RATE $11.00 AND $9.00 PER HOUR (3 WORKERS)		
HOURS WORKED - 40 REGULAR, 10 OVERTIME	1,595.00	
PAYROLL TAXES AND FRINGES		
(BASED ON SINGLE GROUP PREMIUM)	390.00	
MATERIALS		
ZINC DUST & LEAD NITRATE @ $3.00 PER TON	150.00	
FLUXES, $1.90 PER POUND @ $0.02/TON	100.00	
FILTER PAPER & CLOTH @$0.02/TON	100.00	
CRUCIBLES @$0.02/TON	100.00	
PROPANE @$0.01/TON	50.00	
TOTAL		2,485.00
OTHER COSTS		
FUEL FOR GENERATOR @ $0.21/TON	1,050.00	
MISC SUPPLIES & REPAIRS @ $0.38/TON	1,900.00	
MISC EXPENSES @ $0.06/TON	300.00	
OVERHEADS; MANAGER - SALARY	1,058.00	
PAYROLL TAXES AND FRINGES	245.00	
CONSULTANT @ $0.16/TON	800.00	
TOTAL		5,353.00
TOTAL OVERALL COSTS PER WEEK		23,077.00

FAX 602-949-1737

JAMES M. PRUDDEN
CONSULTING GEOLOGIST

4809 Quail Point Road
Salt Lake City, Utah 84124
801-272-4720

Dale H. Allen
Production Manager
A.F. Budge Ltd.
4301 N. 75 th. St.
Scottsdale, AZ 85251

20 February 1989

Dear Dale:

I believe the last three days were very constructive for the Vulture Mine placer project. The mine has changed greatly in four years and it was very beneficial for me to spend three days on the property spot sampling and reviewing the back hoe trenching. The following comments highlight my conclusions during this visit and strive to provide direction for the field crew.

1. The large variations in bed rock topography has illustrated that the back hoe will require dozer slots cut in specific areas to ensure complete placer profile sampling. Spot sampling has indicated that significant gold concentrations can occur in alluvial sediments encountered in trenches that did not quite reach bedrock. Hence the critical requirement to sample the complete gelogical profile.

2. Delineating minable reserves within the area stripped of tailings (including 1984 Trench 3) will require completion of the 100' X 50' grid that is already in progress. Current trenching is already producing the bed rock profile and sample density in sufficient detail for mine planning. This grid system should continue to the Vulture mine road.

3. Sampling has indicated that there is a distinct possibility that the placer will continue northward from the present trench system. This would carry the open pit mining into the area occupied by the historic Vulture Mine buildings.

4. A reconnaissance line has been marked about 300' south of the Vulture Mine road as a significant step to sample the down stream section presently being trenched. Sample points at 200' intervals would define the bed rock profile and related placer gold concentrations for this initial phase.

5. Trenching in the southern portion of the stripped area has indicated that bed rock becomes progressivly deeper westward towards the unmined tailings. This area will require dozer trenching following possible tailings removal.

6. A second paleo-tributaty is indicated (my 1984 report) northwest of the stripped area underlying unmined tailings. This area will also require dozer trenching to access back hoe trench depths. Again I must defer to tailings removal plans.

7. A long trench line has been planned for the 1984 Trench 15-16 area. A dozer is definatly required to cut through the dense caliche encountered in previous back hoe excivations. Similar parallel lines 400' to the north and south will provide the geometry required for preliminary evaluation and would require marking in the field following dozer cutting of the first line. Sampling will be at 200' spacings along these three lines.

8. Trench surveying would be required at the commencement of sampling to provide grid and elevation references for geological and sample control. I will require the services of a three man crew for a six day work week commencing on March 6 th.

It is apparent that multiple excivations will be required in some areas. It might become time and cost effective to employ a reverse circulation drill to sample these problem areas. This would be specially true where premature tailings excivation would not coincide with planned heap leach production schedules and also sampling adjacent to the historic buildings. The requirement for a drill would be evident during the sampling program.

I would be pleased to discuss the above with you at any time to ensure that current mine projects would operate smoothly and adhere to your production schedule. It is my objective to commence economic evaluation of the placers at the earliest possible date.

Sincerely yours,

Jim

JAMES M. PRUDDEN
CONSULTING GEOLOGIST

4809 Quail Point Road
Salt Lake City, Utah 84124
801-272-4720

To: Budge Mining Company 19 March 1989
From: J.M. Prudden
Subject: Progress Report; Vulture Mine Placer Project

A majority of the marked back hoe sample sites had been excivated on arrival on 6 th. March. During the course of the following two weeks some trenches required deepening to reach bed rock. Also, several long trenches have been excivated in the eastern placer area (former Trench 13). Some of the trenches on the margin of the tailings removal area failed to reach bedrock. A line of trenches (Line 22) spaced at two hundred foot intervals south of the main Vulture Mine road were also excivated.

Sampling commenced on Line 10 which is immediately south of the Vulture Mine buildings and within the tailings removal area. Logistics involving Line 22 necessitated shifting channel cutting to this southern most area. A total of 20 concentrates are presently packaged awaiting transport to Dawson's Metallurgical Laboratory for amalgamation assaying. Mountain States R&D Laboratory in Tucson has received 60 tailings plus 3 bed rock chip samples for fire assay.

Detailed trench wall geologic mapping is providing the necessary technical comparison between sedimentation and related gold deposition. This suspected positive relationship between gold and geology will guide feasibility studies and greatly assist visual grade control to minimize mining dilution.

Process plant productivity has been somewhat lower than expected mainly due to the very difficult processing characteristics of the Vulture placers. A combination of angular rock fragments and substantial percentages of caliche in the trommel oversize product necessitates re-running these tailings two and sometimes a third time to maximize recoveries. The nature of the caliche cemented matrix would suggest 1-3% gold loss for some of these troublesome samples. Statistics generated from sample processing indicate an average tonnage factor of 3,445 pounds per cubic yard and 11.2% swell factor.

A host of logistic problems, including start-up, lack of water and power, mechanical breakdowns and labor difficulties have resulted in a calculated 53% plant utilization for this 11 day operating period.

The gold recovered has been generally fine grained, although 5mg. grains have been noted. Line 10 gold is very juvenile with dendritic and wire forms common. The major concentrations in this location are associated with specific geologic units not necessarily lying on bed rock. Recovered gold from the 22 Line is subrounded and is associated with unsorted cobble gravels lying on bedrock.

J.M. Prudden

Ron

M E M O

TO: C.A. O'Brien, R.R. Short, D.A. Allen, A.F. Budge

FROM: Don C. White

DATE: April 30, 1989

SUBJECT: Vulture mine fluid inclusion and radiogenic age dating results.

BACKGROUND As part of our trade of information with the Arizona and United States Geological Surveys, we were promised the results of laboratory studies on Vulture samples. Two of those studies are now complete. They are fluid inclusion work through the Arizona Survey's Jon Spencer, using Univ. of Arizona facilities and Argon 40/Argon 39 radiogenic dating through the U.S.G.S.'s Ed DeWitt using the Reston, VA lab. of U.S.G.S.

The fluid inclusion and geochronology studies are extensions of what Budge has already financed and learned by geologic mapping and a single Rb/Sr date.

Still hoped for are oxygen isotope study results from Rob Kerrich of Univ. of Saskatchewan who promised such data personally with Bill Rehrig over two years ago and also committed to provide it as part of the AZ Geol. Survey's Vulture Mtn. regional study.

None of these studies has cost Budge anything beyond my time for one meeting in the field to discuss objectives and collect samples.

FLUID INCLUSION RESULTS Accompanying is the writeup by Jon Spencer and John Duncan. They find that the thirteen fluid inclusion analyses conducted support our geologic interpretations of an epigenetic sill-like apophysis extending from the Vulture stock, originally in a cuopla position but now rotated to an east-flanking position and eroded to reveal a paleo-cross section.

Their data indicates a progression from high-temperature and high-salinity fluids ($\geq$ 300°C and $\geq$ 13% NaCl equiv.) in the stock samples through to relatively low-temperature and low-alinity fluids ($\leq$ 260°C and $\leq$ 6% NaCl equiv.) in the mine area of the quartz porphyry apophysis. This is supportive of our ideas on the genesis of the deposit and of our ideas on how to find more, such as the appropriateness of the present I.P. survey.

GEOCHROMOLOGY RESULTS Ed DeWitt's notes on the results and interpretation of the Ar40/Ar39 age dating are accompanying. In short, they confirm our earlier Rb/Sr date of 86 ± 3 m.y. by five new dates. He sampled the stock core, the apophysis, zenoliths of altered and thus reset Proterozoic rock within the apophysis, and more distal Proterozoic rocks. The stock, apophysis and zenolith all date late Cretaceous or earliest Laramide orogeny. The two more distal Proterozoic samples have been reset from 1.8 to 0.3 b.y. but the exact cause is uncertain and not terribly pertinent to the Vulture mineralization story.

CONCLUSIONS Both data sets are supportive of our epigenetic, mesothermal to epithermal interpretation of the genesis of the Vulture lode gold occurrence. The data thereby add conviction to the merits of the ongoing induced polarization survey of the east perimeter of the Vulture stock. That survey has already confirmed a resistivity and chargeability anomaly on an orientation line across the known lode and turned up other anomalies that will require further I.P. definition, geologic mapping and drill testing.

Notes on Vulture Mine $^{40}Ar/^{39}Ar$ samples - by Ed DeWitt, U.S. Geol. Survey
April, 1989

3-1-88-10
Ms

Underground; Proterozoic cg msschist, extensively chloritized by mineralizing solutions. Probably from uppermost part of pluton, but can't say for sure

Age spectrum = Min = 93.5 ± 5.2 (2σ) errors for all
Max = 385 ± 3.0 Total gas = 279 Ma

K/Ca not plotted - (Analyzed in Reston)

Conclusions = Hydrothermal mineralization probably < 350°C, most likely ~ 285-300°C. Could fit diffusion curve, if knew what regional cooling of ms was like away from pluton; ie. reset from 800 Ma? 1.4 Ga? - what

SS-1091
Ms

Surface; Cretaceous ms-bt gneissenized pluton; sample from White.

Age Spectrum = Min = 86 ± 12 (3%) or 88.4 ± 1.3 (12% of gas)
Max = 100 ± 3.0

K/Ca not plotted - (Analyzed in Reston)

Conclusions = either partially degassed ~ 100 Ma pluton or mica in separate is mix of plutonic and hydrothermal muscovite, with plutonic being ~ 97 ± 2 (49% of gas) and alteration ms being younger (~ 88), or 97 Ma muscovite having cooled slowly and lost little bit of original argon. Slow cooling, however, doesn't look good w/ spectra from 3-1-88-3 below

3-1-88-3
Ms

Surface; Near Cretaceous pluton on North. Coarse ms adjacent to 1" to 6" qtz veins
Probably not more than ft away from pluton

Age Spectrum Min = 86 ± 6 (1.6%)
Max = Plateau for 92% of gas @ 97 ± 1.1 Ma

$^{39}/_{37}$ = Low (?), variable 25-180; 180 = degassing humps

Conclusions = Rapid cooling at 97 Ma; tiny gas fraction at beginning could be very low temp loss during any subsequent time or could reflect very minor loss during mineralization @ 86 ± 6 or from 86 to 97 Ma. Can't say that

Notes on Vulture Mine $^{40}Ar/^{39}Ar$ samples – (cont)

3-1-88-4
Hb

Surface; Proterozoic amphibolite ~ 400-500' N. of Cretaceous pluton. No alteration obvious. Collected ~ 4ft N to NW of 3-1-88-3 Ms.

Age Spectrum Min = 314 ± 5 Ma

Max = 940 ± 8 Ma Total gas = 820 ± 8 Ma

$^{39}/_{37}$ = constant at .04 over 77% of spectrum (low K hornblende)

K/Ca ~ .0x2 ; K ~ 0.2 for hornblende

Conclusion – If Proterozoic hi-temp cooling @ ~ 930 Ma, then Hb has lost only ~13% of argon during Phanerozoic (i.e., probably Cretaceous), so temp in wallrocks here not high enough (~ 350-375°C) to reset hb. However, if Proterozoic cooling was 1.2, 1.4, or 1.6 Ga, then ~ 32%, 42%, or 49% of argon could have been lost during Cretaceous. See results from 3-1-88-6 for this tie point.

3-1-88-6
Hb

Surface; Proterozoic meta-diorite-gabbro that intrudes pelitic metasediments. Collected 0.5(?) mi NE of mine, near (~) base of Tv

Age Spectrum Min = 307 ± 7 Ma

Max = 900 ± 7 Ma Total gas = 786 ± 7 Ma

$^{39}/_{37}$ = constant at 0.6 over 95.4% of spectrum (slightly higher K than 3-1-88-4) K/Ca ~ .035 ; K ~ 0.4 for hornblende (12% CaO)

Conclusion – Lowest point in saddles of 3-1-88-4 and 3-1-88-6 identical at 310 ± 6 Ma. High temp part of 3-1-88-6 actually slightly lower (~ 30 Ma) than 3-1-88-4. Total gas date of 3-1-88-6 actually less (~ 35 Ma) than 3-1-88-4. So, 3-1-88-4 can't have been affected by any heating event at 86-97 Ma of any significance that 3-1-88-6 didn't see. So, what remains to be discovered is the age of the disturbance which caused the ~ 900 Ma high-temperature part of both spectra, and the age of the heating responsible for the 300 Ma low-temperature end. Could it be the event in the South Mts or is it Cretaceous, but pre-97 Ma?

Jan. 20, 1989

Don White
521 East Willis St.
Prescott, AZ 86301

Dear Don:

Encolsed is all of the data we have generated so far on the Vulture Mine. I am still waiting for Ed DeWitt and Rob Kerrich to send me geochronology and oxygen isotope data, respectively. As I recall, you showed us a contour map of gold concentration in a cross section of the Vulture mine, based largely on assays of drill-core samples. Would it be possible for you to send me a copy of that map so that I could make a simplified version for publication along with the rest of the Vulture mine data?

Also enclosed is a copy of part of Scarborough and Meader's geologic map of the northern Plomosa Mountains. I hope it is useful.

Best regards,

Jon

Jon Spencer
Arizona Geological Survey (new name)
845 N. Park Ave.
Tucson, AZ 85719
(602) 882-4795 (new number)

Fluid-inclusion data from the Vulture Mine, west-central Arizona

Jon Spencer — Arizona Geological Survey
John Duncan — 845 N. Park Ave., Tucson, AZ 85719

January, 1989

The Vulture Mine mineral deposit is within and adjacent to an apophysis of a Cretaceous granitic intrusion (Fig. 1; Reynolds and others, 1988). Extreme Miocene crustal extension has affected the Vulture Mountains, including the area of the Vulture Mine. The rocks of the Vulture Mine area have been tilted approximately 90° to the ~~west~~ east or ~~southwest~~ northeast by movement on listric and/or planar normal faults. As a result of tilting, a vertical cross section of the deposit, the upper part of the Cretaceous stock, and the older host rocks is exposed in map view at the Earth's surface. The original orientation of the vein was approximately N11E 78NW, assuming no post-mineralization, pre-Miocene tilting (Fig. 2).

Fluid-inclusion salinity and homogenization data from samples of quartz veins reflect fluid conditions, at the approximate time of mineralization, through an originally vertical transect more than one kilometer deep. Fluid-inclusions in four samples from the structural base of the transect are characterized by the highest salinities and homogenization temperatures. The four samples define an approximately linear array on a salinity-temperature diagram (samples A, B, C, and D on Figure 3) that possibly represents mixing between a high-temperature (>300°C or higher), high-salinity (13 wt. % NaCl equiv. and greater) magma-derived fluid and a lower temperature (approx. 260°C or lower), lower salinity (5 to 6 wt. % NaCl equiv. or lower) hydrothermal fluid possibly containing a significant component of meteoric water. Both homogenization temperature and salinity are lower in fluid inclusions from samples at higher structural levels, including samples from the Vulture Mine, and a progressive decrease in temperature and salinity with decreasing paleodepth is suggested by the data (Figs. 4, 5).

FIGURE CAPTIONS

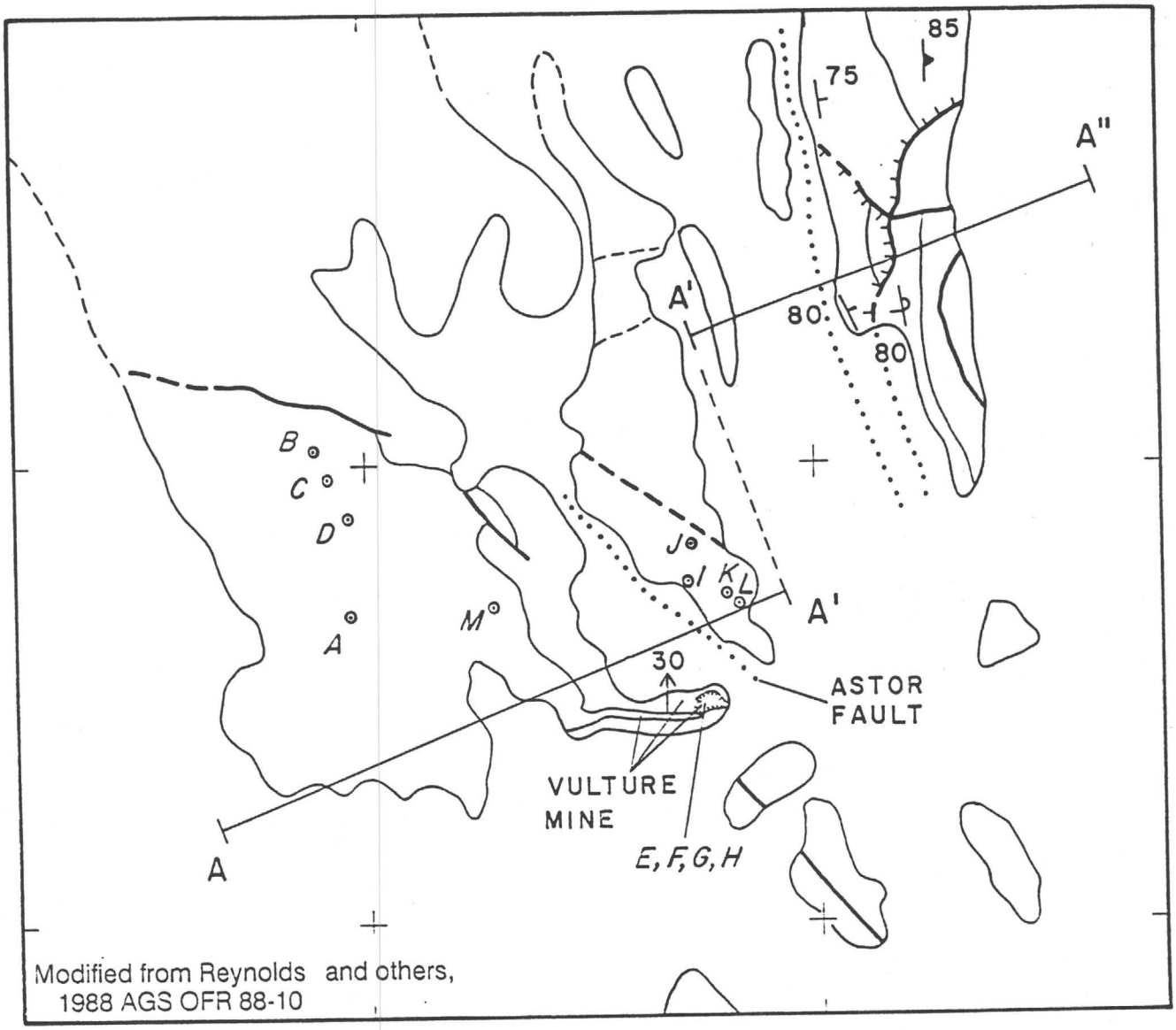
Figure 1. Simplified geologic map of the Vulture Mine area showing sample locations.

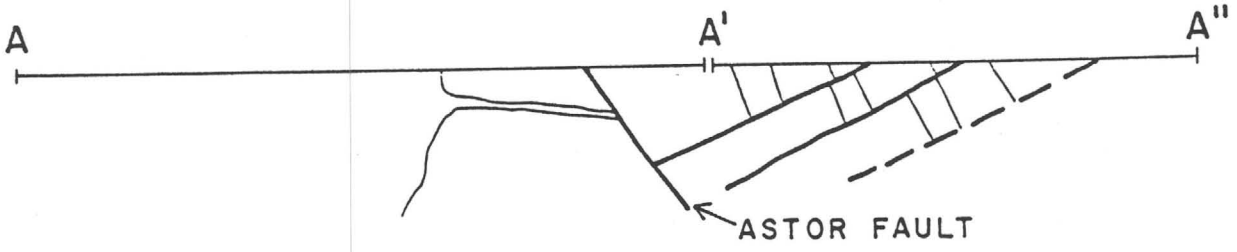
Figure 2. Stereonet showing restoration of Miocene rotation of Vulture mine vein.

Figure 3. Salinity versus homogenization temperature for fluid inclusions from quartz veins in the Vulture Mine area. Each point represents the mean for each sample. Error bars represent one standard deviation.

Figure 4. Paleodepth versus salinity (upper diagram) and homogenization temperature (lower diagram) for fluid inclusions from quartz veins in the Vulture Mine area. Paleodepth is distance perpendicular to approximately vertical contact at base of Miocene volcanic rocks that rest disconformably on the Vulture Mine block. Actual depth at time of mineralization is not known.

Figure 5. Fluid-inclusion data from the Vulture Mine area.





Aphyric rhyolite (Miocene)

Tuff and altered rhyolite (Miocene)

Basalt and andesitic flows (Miocene)

Granite (Cretaceous)

Metamorphic rocks (Early Proterozoic)

Low-angle normal faults, dashed where inferred, dotted where concealed

High-angle faults, dashed where inferred, dotted where concealed

Fig. 1

LOWER HEMISPHERE PROJECTION
VULTURE MINE VEIN

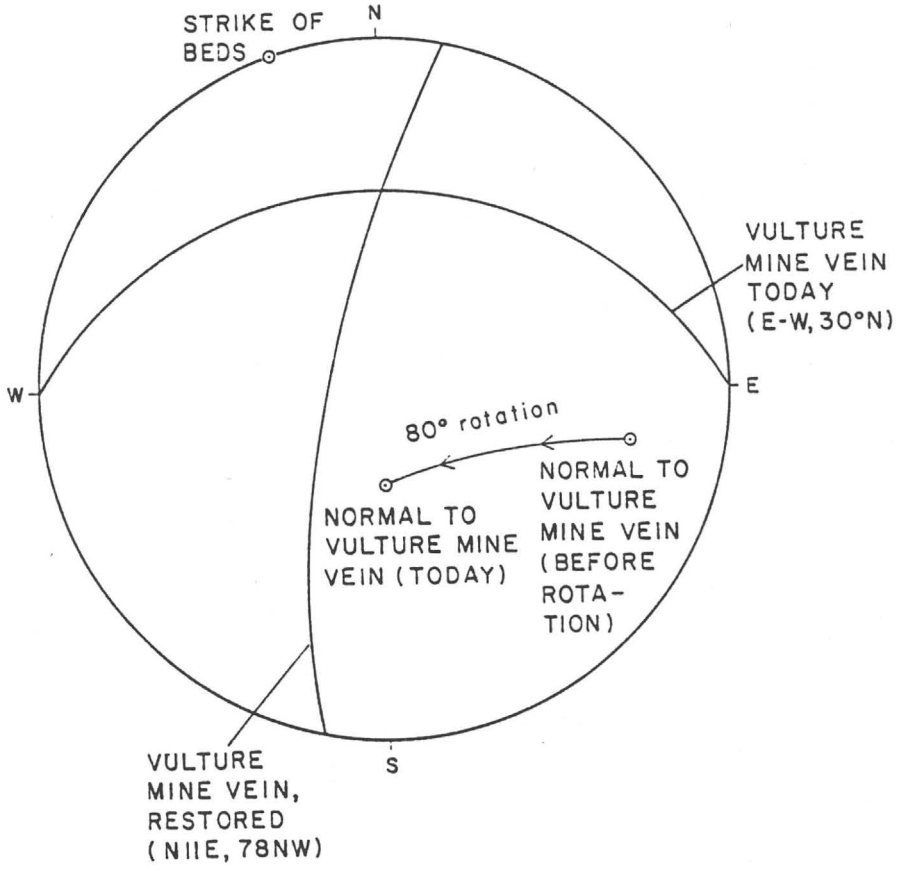


Fig. 2

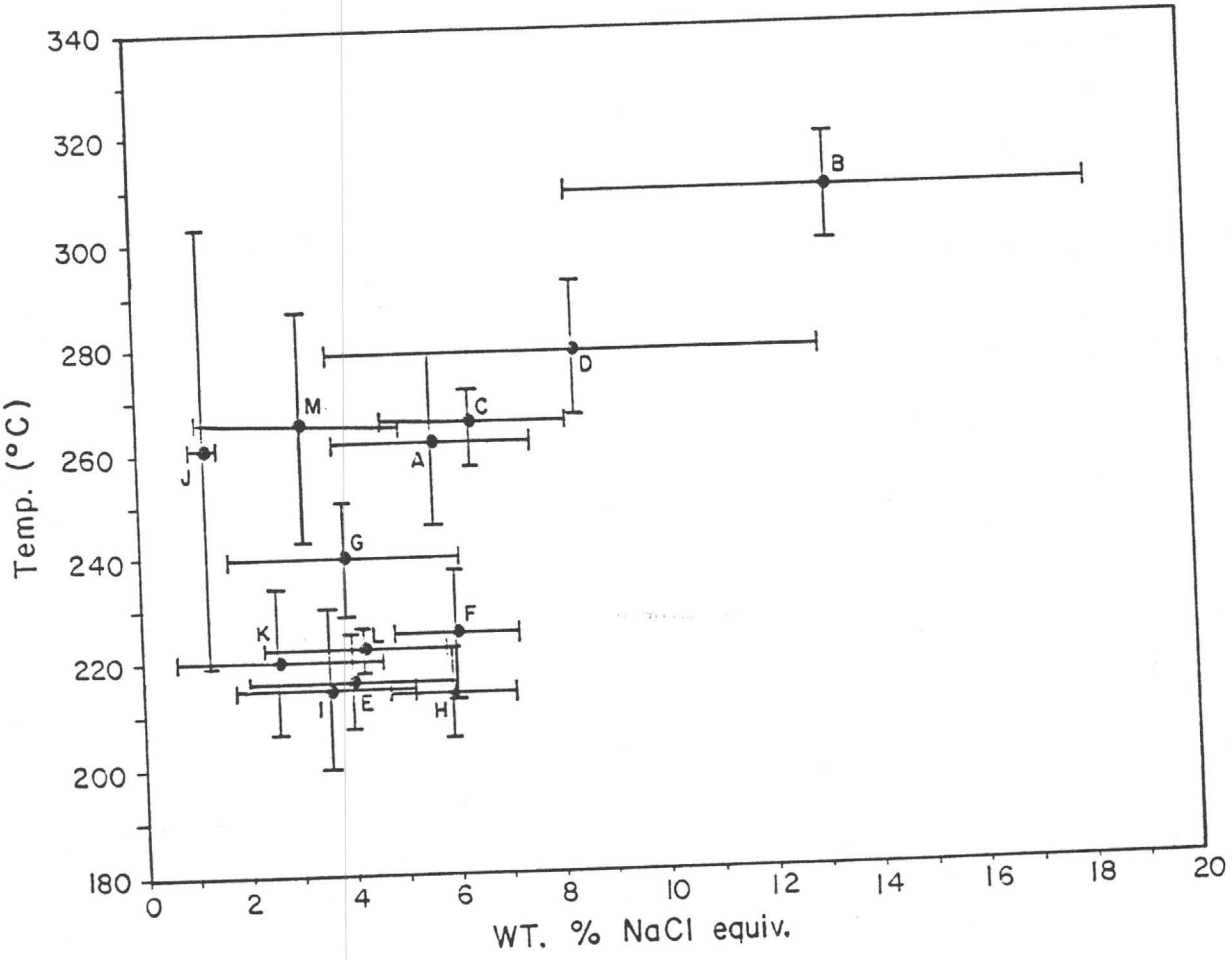

340
320
300
280
260
240
220
200
180
Temp. (°C)
0
2
4
6
8
10
12
14
16
18
20
WT. % NaCl equiv.
B
D
M
C
A
J
G
F
K
L
I
E
H

Fig. 3

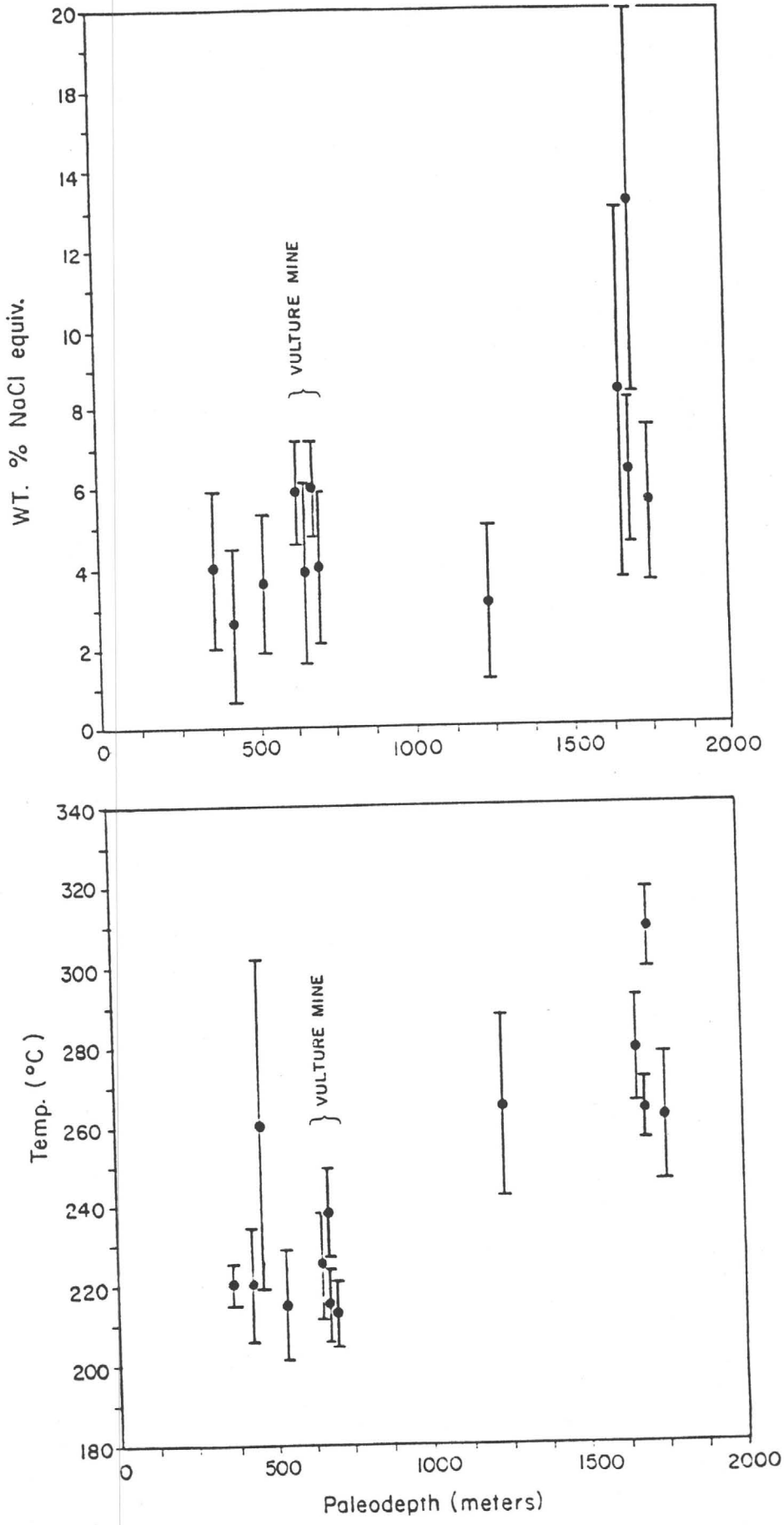

WT. % NaCl equiv.
20
18
14
12
10
8
6
4
2
0
0
500
1000
1500
2000
} VULTURE MINE
Temp. (°C)
340
320
300
280
260
240
220
200
180
0
500
1000
1500
2000
Paleodepth (meters)
} VULTURE MINE

Fig. 4

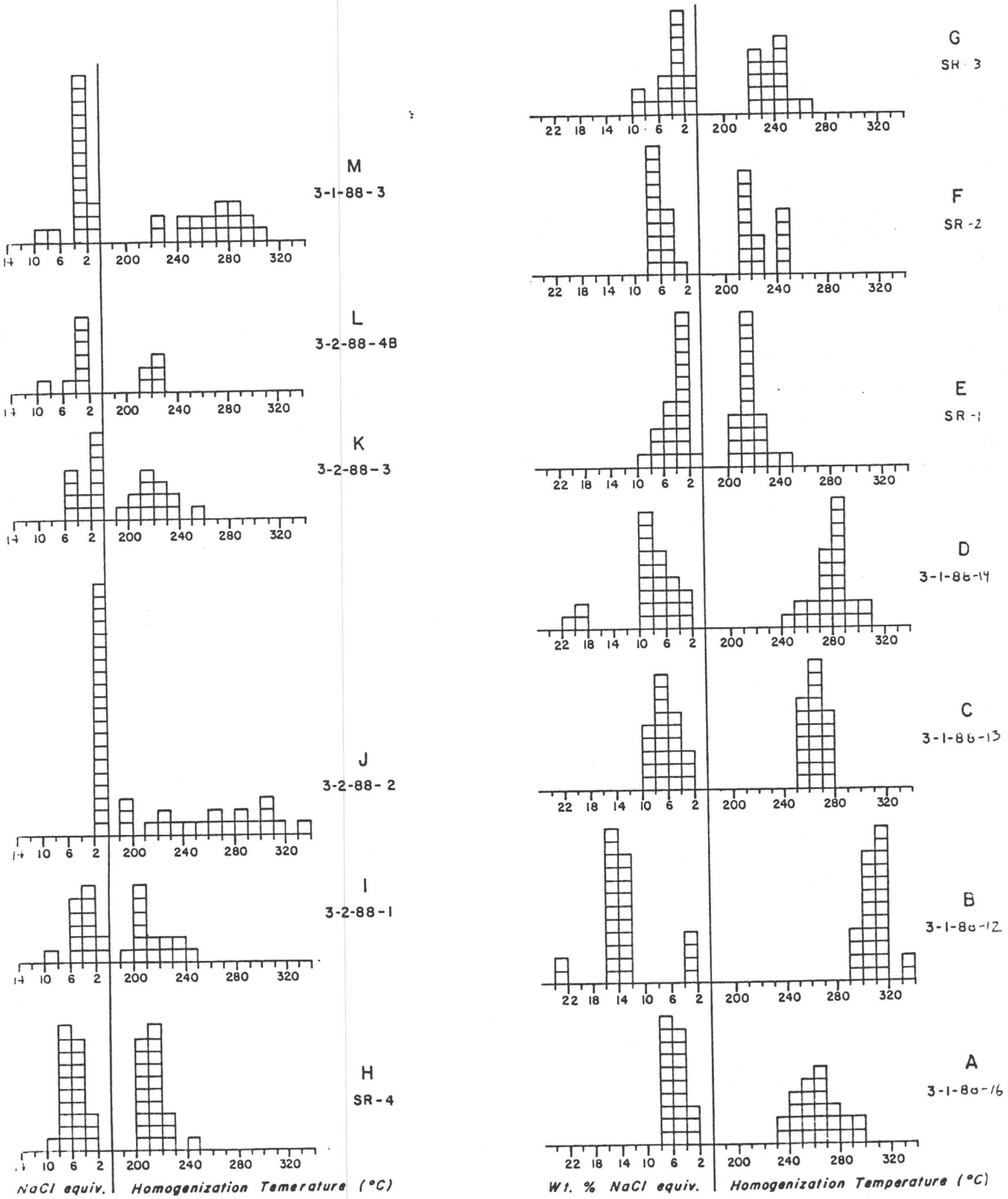

M
3-1-88-3
L
3-2-88-4B
K
3-2-88-3
J
3-2-88-2
I
3-2-88-1
H
SR-4
G
SR-3
F
SR-2
E
SR-1
D
3-1-88-14
C
3-1-88-13
B
3-1-88-12
A
3-1-88-16
14 10 6 2 200 240 280 320
22 18 14 10 6 2 200 240 280 320
NaCl equiv. Homogenization Temerature (°C)
Wt. % NaCl equiv. Homogenization Temperature (°C)

Fig. 5

To: Anthony F. Budge

From: Dale H. Allen
Carole A. O'Brien

Copies: Ronald R. Short
John W. Norby
File

Date: September 27, 1989

Subject: Vulture Mine

Production

The flow rate from the heaps has increased substantially this month and, in order to maintain a solution balance, it has been necessary to operate the plant on a 24-hour basis, 7 days a week. As a result, beginning in October, sales to GD Resources, Inc. should be approximately 100 to 150 ounces of gold per week.

This projection is made on the assumption that recent events involving a minor altercation with the Department of Environmental Quality will not effect future production.

Reported Leak

On August 10, 1989 we reported to the Arizona Department of Environmental Quality, Office of Water Quality (copy attached) that cyanide leach solution had been observed in our leak detection system on pads #1 and #2. With the use of a variable speed pump, the leak on pad #2 was measured at 25 to 30 ml per minute, or approximately 9.5 gallons per 24-hour day. The leak on pad #1 was only recently discovered, and appears to be much smaller. The appearance of this second leak is coincident with solution return from the back heap.

Personnel from the Department of Environmental Quality have since made a tour through the facilities and after conferring with their Compliance Section, have requested verbally that we stop applying all leach solution to that portion of the heap

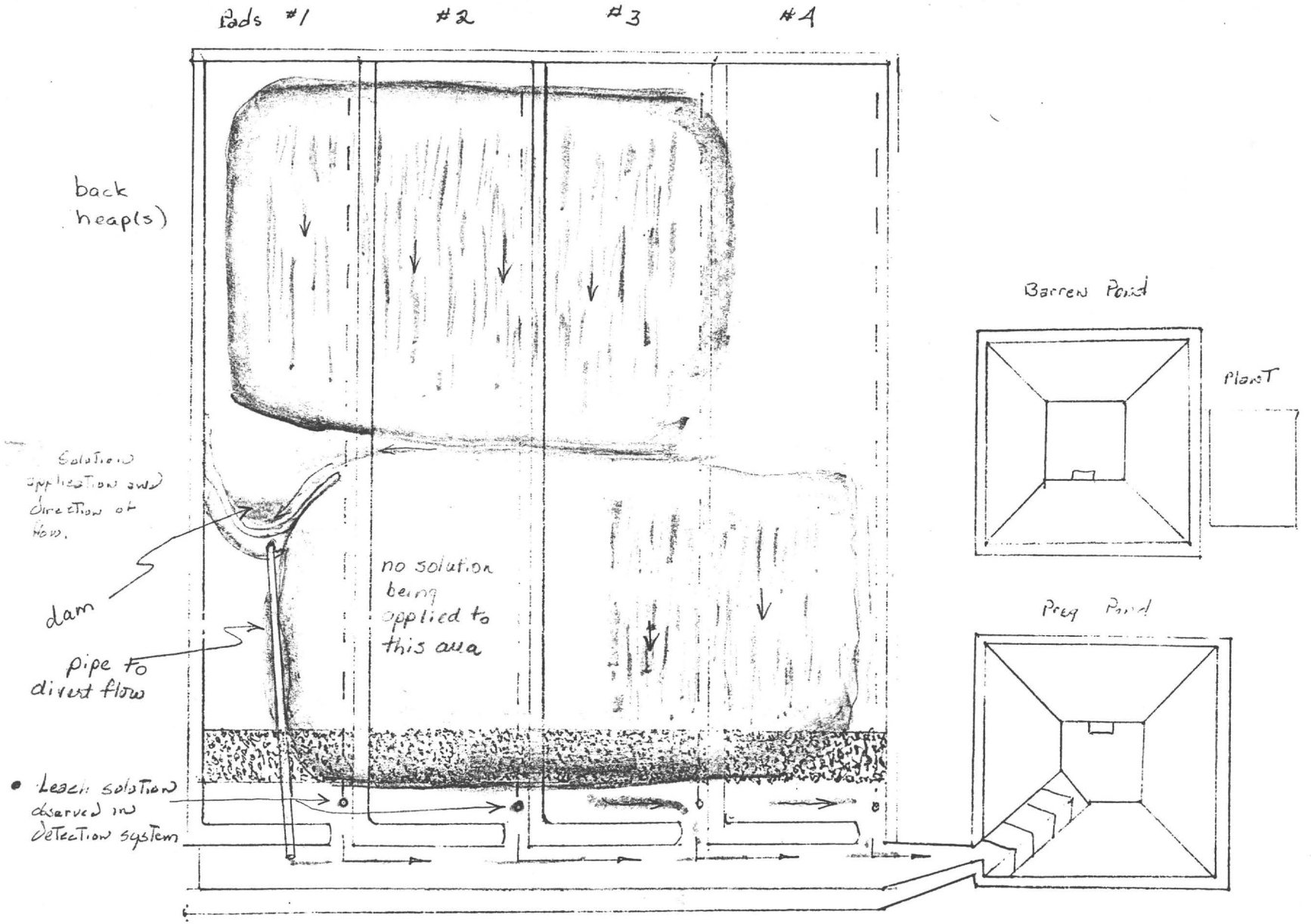
which shows evidence of a leak. They have also requested that we (1) install a second pump on the other leak, (2) monitor the flow from both leaks, (3) sample and analyse the leak solution, (4) collect and have analysed 3 samples of water from our well, the mine and one other location near the operation to determine groundwater flow and the extent of contamination, if any, and (5) within 30 days, present a plan to remediate the situation.

Status and Remedial Action

Leach solution has been percolating through this portion of the heap during the past 4 months and there is a high probability that most of the gold has been already been leached from the tails stacked here. This will be confirmed within the next few weeks; we will auger drill and sample the tails and run hot leaches to determine the gold content.

We believe the leak(s) are the result of numerous pin holes located in the front section of the pad where screened river-bed gravel was spread during the original construction.

At the present time, we are constructing a dam to contain the solution return from the back heaps, and will divert the flow through a pipe across the leaking portion of the pad to the collection ditch which drains into the pregnant pond. See following sketch map.



SERGENT, HAUSKINS & BECKWITH CONSULTING GEOTECHNICAL ENGINEERS
SOIL & FOUNDATION ENGINEERING • ENGINEERING GEOLOGY • HYDROGEOLOGY
MATERIALS ENGINEERING • MATERIALS TESTING • ENVIRONMENTAL SERVICES

August 10, 1989

Arizona Department of
Environmental Quality
Office of Water Quality
Compliance Section
Central Palm Plaza Building
2005 North Central Avenue
Phoenix, Arizona 85004

Re: Heap Leach Facility
Vulture Mine Project
Approximately 7 Miles South
of Wickenburg, Arizona

Gentlemen:

This letter of notification of violation is submitted on behalf of Ms. Carole A. O'Brien, Operator for A.F. Budge (Mining) Limited at the Vulture Mine Project, in accordance with the requirements of Part II.A.4, Part II.B.1.b and Part II.C.1 of Groundwater Quality Protection Permit No. G-0090-07. Leakage of leach solution has been detected in the leak detection sampling point at the southeast corner of the third heap leach pad cell northwest of the solution ponds at the Vulture Mine heap leach facility. The collected solution was initially detected on Monday, August 7, 1989, by Mr. Dale Allen A.F. Budge (Mining) Limited. The leakage rate has been measured at about 1.9 gallons per day (0.0013 gallons per minute). Tests on the solution performed by Budge personnel indicated a pH of 11.1 and a free cyanide concentration of 250 milligrams per liter. The location of the leak has not yet been determined.

REPLY TO: 3232 W. VIRGINIA, PHOENIX, ARIZONA 85009

PHOENIX (602) 272-6848 | TUCSON (602) 792-2779 | ALBUQUERQUE (505) 884-0950 | SANTA FE (505) 471-7836 | SALT LAKE CITY (801) 266-0720 | EL PASO (915) 564-1017 | RENO/SPARKS (702) 331-2375

Should any questions arise concerning this letter, please contact Mr. Dale Allen of Budge or the undersigned.

Respectfully submitted,
Sergent, Hauskins & Beckwith Engineers

By Nicholas J. LaFrom
Nicholas J. LaFrom, P.E.

Copies: Addressee (1)
Maricopa County Health Department (1)
A.F. Budge (Mining) Limited
Attn: Mr. Dale Allen (1)

la/J72/8-10-89

TO: R. R. SHORT, A.F. BUDGE

FROM: D. H. ALLEN

RE: Progress Report - January 1990

ARIZ. DEPARTMENT OF ENVIRONMENTAL QUALITY MEETING

The meeting with ADEQ went well. We agreed to follow the guidelines established by the state mine inspector for detoxification of the heaps. This entails the circulation of barren solution through the heaps until the cyanide content in the return solution and the material in the heap are within acceptable limits. During this period, solution would be pumped from the leak detection system. After a reasonable period of time [probably about two to three months], if the return solution and the heap still contain cyanide above the limit, hydrogen peroxide would be used to treat the barren solution.

ADEQ is also requiring that we send them a proposal indicating a method for establishing the extent of the contamination under pads 1 and 2 after the heaps have been detoxified. This should only require drilling two holes down to bed rock in front of the two pads in question.

VULTURE LABORATORY

Kornkob Metallurgical Test Work

Sample rejects from drill holes number 1 and 5 have been received at the mine. Each hole will be composited according to copper grade and predetermined acid consumption. The following test work will be performed:

A: Agglomeration tests - there are indications that the ore is well-fractured and would break up quite readily into small fragments with very little or no crushing, which is advantageous. However, if there are too many fines it is possible that the ore may have to be agglomerated to increase the permeability for maximum copper recovery.

B: Column tests - these tests would be run to determine total recovery, rate of recovery, acid consumption and permeability. If the test work being done in Tucson indicates that a pre-cure is beneficial, a test on this material could be run to substantiate those results.

Approximately two tons of sample were obtained from a dozer cut across the outcrop in the proposed south pit and delivered to Mountain States' lab for metallurgical testing. The sample is to be coned and quartered until homogeneous, with about one quarter of the sample to be crushed to one inch. Two column tests will be run on the crushed material to determine total copper recovery, acid consumption, rate of recovery and substantiate a need for acid pretreatment. We will hold off on the twenty-four inch column tests until we obtain these results.

Gold Canyon Metallurgical Test Work

The 110 drill samples from five holes completed in 1989 drilling at Gold Canyon have been received. J. W. Norby has requested that cyanide-amenability tests be performed on all composites. Bottle roll tests will be performed on pulverized and -1/2 inch material from each composite. Subsequently, we will run column tests on the -1/2 material.

M E M O

TO: R.R. Short, C.A. O'Brien, A.F. Budge, D.A. Allen

FROM: Don White

DATE: December 29, 1988

SUBJECT: A summary of exploration target types at and about the Vulture Mine, Arizona

Summary

An attempt is made here to define all the possible exploration targets around the Vulture Mine and determine which ones justify further effort. It is recommended that preliminary studies be started on two target types of major potential. One is the fault extension(s) which need a thorough data compilation and structural analysis at a cost of about $10,000. The other is the search for "blind" or alluvial-covered Vulture-like lodes by geophysical means and for that the help of a top notch geophysicist must be sought. An initial investment of $10,000. for that would determine whether or how to proceed. At stake is possibly a Vulture-scale, 350,000 ounce gold discovery.

Introduction and purpose:

A.F. Budge (Mining) Ltd. has been the lessee of the Vulture Mine patents and contiguous nine square miles of unpatented claims for four years. They have searched for open-pitable gold in the old pit area, tested some of the placer potential, experimented with the search for blind, alluvial-covered repeats of the Vulture lode, and evaluated the tailings. Only the tailings are known to be economic and on agglomeration/heap-leach cyanidation reprocessing scheme is now in progress.

The available tailings will be completely exhausted over the course of 1989 so that by early 1990 a decision will be pending as to the disposition of the lease. Either there is some justification to hold it at that time or else it should be dropped and the holding costs eliminated.

Thus any other targets or further exploration on Budge's behalf must be completed over the coming year. Anthony Budge's request is that "no stone be left unturned." Hence this memo to review what is known, define the targets remaining, consider how they may be tested, and appraise their merits on the basis of discovery potential versus exploration costs.

The Vulture Lode:

The Vulture Mine was principally an underground lode deposit. It yielded about 350,000 ounces of gold and 250,000 ounces of silver from about 1 million tons of mined quartz vein rock. Overall grades were thus 0.35 oz/t Au and 0.25 oz/t Ag but evidence indicates that early production from the oxide zone was substantially higher grade while the larger tonnage, sulfide ore production brought the grade averages down. Either way, at todays metal prices, a lode deposit of its type would be a lucrative find. Its metal content would have

a gross value of over $140 million.

The salient history of the Vulture, in outline form is,:

1) 1863 discovery and early oxide zone high grading with haulage of ores to Wickenburg and Smith's Mill on the Hassayampa River for arrastra and/or stamp milling and mercury amalgamation treatment.

2) 1880 commencement of on-site stamp milling and amalgamation. Deep underground mining.

3) 1917 loss of the vein zone against the Astor fault.

4) 1930's U.G. cleanup and partial cyanidation of earlier tailings.

5) 1942 shutdown.

6) Early 1980's mapping by Noranda and drilling/sampling by Pegasus.

7) 1984+ evaluation by Budge of open-pitable lode potential, stamp mill tailings and placer reserves, and some drill testing of alluvial-covered targets suspected to be blind lodes.

Results of exploration on behalf of Budge have culminated in an understanding of the Vulture geology that is more thorough and better supported than ever before. We are quite certain that the crucial event in the creation of the Vulture lode was intrusion of the Vulture stock in earliest Laramide time. That stock had at its cupola a sill-like apophysis which hosted and/or focused all the known quartz veins. Those veins occurred within the sill, particularly at its margins, and emanated into the immediately adjacent Precambrian volcaniclastic wall rocks, particularly the hanging wall. It is those quartz veins that carry the higher grade gold as native metal and electrum associated with minor disseminations of the sulfides galena, pyrite, and chalcopyrite.

The sill and the quartz veins are all semi-conformable to the bedding and foliation of the Precambrian host rocks. The sill and quartz veins have yielded a distinctive alteration pattern of sericite, disseminated pyrite, and silica flooding. The latter makes the lode area more resistant and hence a topographic high that begged discovery as "Vulture ridge."

Evidence for this interpretation includes structural and petrographic work, and also radiometric age dating. Both the stock and sill date at 85-90 million years before the present by two methods. Thus we have a clearly epigenetic vein system of late Cretaceous or earliest Laramide age. This constitutes a target type of known characteristics and exploration for Vulture-like deposits can take advantage of that understanding.

Geologic events subsequent to the formation of the Vulture lode have complicated the picture. One phenomena has been the post-mineral faulting of the vein into a number of segments by two sets of faults. The more major set is the series of northwest-trending, steeply northeast-dipping normal faults. The Talmage fault

of that set has an offset of over two hundred feet and forced a several year hiatus in mining until the next segment was found. The segment beyond the Astor fault, if it exists, has never been found.

Tertiary volcanic activity blanketed much of the area to the north and east with basalt, volcanic agglomerate and tuffs. Post-Tertiary regional tilting has rotated the Vulture lode from its original cupola position with respect to the stock to an apparent east flank position. The Tertiary volcanics have been tilted 20 to 80 degrees to the east of their primary position.

Erosion has then cut through Tertiary, Cretaceous and Precambrian rocks, all the way into the Vulture lode, yielding a mixed bag of alluvium covering nearly everything south of the Vulture lode and even coming close to burying the Vulture lode except for the relief of Vulture ridge. A by-product of this erosion was gold placers, particularly just south of the Vulture.

Target types:

An outline of the various target types classified by natural, engineering, and exploration parameters follows:

A. Lode

1. Known Vulture lode

   a. Open pitable reserves
   b. Underground fault extension

2. Other Vulture-like lodes

   a. About Vulture stock

      i Outcropping
      ii Buried by alluvium and/or volcanics

   b. About Cañon City stock

      i Outcropping
      ii Buried by alluvium and/or volcanics

   c. About Hartman Wash stock

   d. About other as yet unrecognized stocks

3. Other lode deposits, not Vulture-like

   a. Within Vulture or kindred stocks
   b. Within Precambrian rocks
   c. At unconformity beneath Tertiary units

B. Placer

1. Partially tested area beneath stamp mill tailings.

2. Further and wider from Vulture ridge.

C. Waste from earlier mining

1. Mine waste dumps

2. Tailings

a. Stamp mill tailings

i Wickenburg
ii Smith's Mill
iii Seymour
iv Vulture townsite

b. Cyanidation tailings

Some discussion of each of the target types is necessary to consider their realtive merits for further exploration. Let us consider them in order.

A1a Open-pitable reserves about the known Vulture lode -- This was the main focus of Pegasus' efforts and most of the drilling by Budge. Milton Hood was apparently involved in the latest Pegasus work and early Budge drilling and calculated reserves (1985) as:

Reserve	Tons	Grade	Contained Ounces
Proven	283,000	.066	18,700
Probable	66,000	.056	3,700
Dilution	35,000	.025	800
P.t. Total	384,000	.060	23,200

This was for a pit depth of 115 ft., a cutoff grade of .030 oz/t, and allowing for 10% dilution by .025 oz/t rock, all at 12 ft^3/s.t.

I have been involved in all the subsequent drilling to that which Milt Hood had to go by. I have logged the lithologies, structures, and workings, none of which had been done prior to my involvement. With the improved geologic understanding, I dispute Milt's interpretation and reserve figures. He correlated good assays over far too long distances, without regard for rock type changes and intervening faults. My own more detailed work, with more holes to go by as well, indicates about 100,000 tons in the 0.04 to 0.06 oz/t Au range. The best zone within that is less than 10,000 tons at about 0.08 oz/t between pits 1 and 2.

All the indications are that such grades can not be profitably mined because of the low recovery rates (only up to 50%) despite costly fine grinding (minus 200 mesh).

There are approximately 80 holes in this target. The drilling density (spacing of 50 to 100 ft between holes) and coverage (complete from stock to Astor fault and surface trace to open pit depth limits) are such that nothing remains to be tested that could significantly change that reserve. It has been viewed as a dead target type for over two years and I see no change in that.

A1b Underground fault extensions of the formerly mined Vulture lode -- These too have been recognized in the past and tested to various degrees. Three theoretical segments with exploration potential have been recognized. One was the so-called "Block I" (Hodder and White, Dec. 14, 1985 and White, May 15, 1986) or a step-like repeat of the oxide zone parallel to and just south of Vulture ridge. This target was geophysically surveyed and drilled and found not to exist.

The mined Vulture lode was two main segments, one footwall and one hanging wall to the Talmage fualt. The hanging wall segment required several years worth of winzing, crosscutting, and drifting before being located some 210 ft. down-dip and 150 ft right-lateral across the Talmage fault. After the Astor fault was encountered, a goodly amount of effort was expended on underground exploration to pick up the next segment. It was never found but that effort is syspected to be in the wrong area. A thoroughly diagnosed structural appraisal would better direct any future effort.

Two segments east of the Astor fault may be sought. One is from the Astor to the Schoolhouse fault and the next is east of the Schoolhouse fault, beneath about 400 feet of Tertiary volcanics and an undetermined thickness of Precambrian. Either of these segments could be as large as all the rest of the Vulture mined to date.

A note of caution, however; as we pointed out in an appraisal of targets three years ago (Hodder and White, Dec. 14, 1985) there is some reason to doubt that there is any extension at all. The mineralization of the Vulture vein system died out short of the Astor fault. Only subeconomic vein was truncated by the fault. Exploration beyond the fault will require faith that dead spots occur in the vein and that it can be better grade beyond. I feel this is legitimate. Indeed, there are ore shoots in the Vulture with lean zones between.

To explore either of the fault segments a number of exercises are recommended. One is thorough research of the old reports, logs, maps, and sections. Another is fabrication of the mine model long recommended to work out the structural complexities. We're talking in terms of individual faults but there are in fact several sets of variously oriented faults, all cross-cutting each other and the veins. A model is the surest way to come to grips with these problems.

Physical evidence may possibly be obtained down either the Douglas Shaft and/or the presently flooded levels of the old Vulture. Professional climbing help would be needed to reach the bottom of the Douglas Shaft from which mapping

and sampling would be valuable. Such help can be hired. The West Incline is flooded up to 650 level. A careful inspection of the limits of navigation eastward on the 600 level would tell whether dewatering is useful there. The only connections to the 750 level are via the E incline, caved above but possibly open from 600 to 750. Deeper levels, if dewatered may then be accessed by winzes from the 750 to 850 and 850 to 950.

If the various analyses indicate any block(s) of untested ground with potential, a diamond core drilling program would be needed to test the target(s). Several holes of about 1,000 feet in depth are likely. But complete data compilation, including the mine model, is the first prerequisite to determine whether one or more targets truly do exist. Data compilation would require 1-2 man months or $5-10,000. Drilling would cost a minimum of $100,000 (three 1,000-ft. holes at $30/ft.) and likely more than that to pursue leads so developed.

A-2 Other Vulture-like lodes -- This discussion includes both outcropping and blind targets and those about the Vulture stock and kindred stocks of the same lithology and age. The possibility of outcropping high grade gold in quartz veins has been well investigated by old-time prospectors, by Pegasus' sampling program, and by Budge's support of reconnaissance efforts at the Hartman Wash and Cañon City stocks. There are no outcropping Vulture-like lodes.

The Hartman Wash pluton appears both slightly different in petrography and virtually devoid of quartz veins or any hints of alteration like the Vulture stock. Thus it is eliminated from further consideration.

The Cañon City stock has been traversed only. It is suspected to be as fertile as the Vulture stock for it harbors visible gold in quartz up to two feet thick in its core, just like the Vulture stock. Its margins, however, where Vulture-like lodes would form, are all concealed, some by alluvium, but most by Tertiary volcanics. Thus the real issue is blind or covered deposits.

Beneath cover geophysics must be considered and we have high resolution helicopter magnetics data flown and interpreted for Budge in early 1986. From it we recognize some magnetic lows extending east from the buried Vulture stock, parallel to the Vulture lode, and of similar length. In hope that they were other quartz porphyry apophyses, ten reverse circulation holes were drilled in Feb.-Mar. 1987 under Peter Hahn's supervision. None of the holes on any of the three targets found any convincing plutonic rocks or mineralization. Thus all three targets are believed to be low-magnetic interbeds within the Precambrian stratigraphy. The ideas were good and are still good. Those three targets just aren't it. The next one may be!

One either finds other geophysical tools to corroborate or better sort out the magnetic targets, or resign themselves to drill-testing a number of exclusively magnetic targets. What I would like to see is a good method to determine whether a Vulture-like ridge coincides with any magnetic lows. The combination would make an even better drill target. We were close to

attempting a shallow, high-resolution, micro-seismic survey on the three drilled mag targets before realizing that they were so shallowly covered that the travel times could not be resolved. Also, at such shallow depths, the direct drill testing of targets was plenty cheap.

Taking the blind target program further, however, should utilize either seismic or ground-penetrating radar to locate bedrock ridges beneath alluvium or volcanics. A crew and equipment for either technique costs about $1,500. per day and a week would be the minimum initial test of such a system. That is about $10,000. Drill testing thereafter could be by reverse circulation holes at $10./ft. A hypothetical program of ten holes, 300 ft. each would cost about $30,000.

Exploration should proceed from the Vulture south, retesting the initial three magnetic lows, and then extending beyond the present claim block. The economic limit of cover thickness must be decided. My guess is that at least 200 ft. of alluvium may be considered as stripable for a Vulture-size target. That should open up several geophysical targets.

The search for and testing of blind targets is a tedious, expensive process that should not be attempted in a hurry. Every scrap of evidence has to be gleaned to guide exploration. Some geophysical techniques may turn out to be expensive failures but they are the best tools available and will have to be attempted. Top notch geophysicists are a must and I can recommend some.

A-3 Other lode deposits, not Vulture-like -- Thinking has focused on three non-Vulture-like target types. One is auriferous quartz veins within the quartz monzonite stocks themselves, as oppossed to sill-related like the Vulture. Occurrences like this are known in the Vulture stock and in Cañon City stock. The best Vulture stock veins have been sampled and found to be vein-confined without any disseminated gold. The veins themselves have been deemed too thin (2" to 12") to be mined or diluted. The Cañon City vein, however, is up to 2 ft. thick and wall rock there has not been sampled. Some check for disseminated gold and the possibility of a drillable high-grade target should be made. The sampling of walls and dumps would cost about $500. Drilling, if decided upon, could be reverse circulation in conjunction with the drill testing of one of the other target types. A total of 1,000 feet would cost about $10,000. plus up to $5,000. for dozer work and assays.

The possibility of sygenetic gold in the Precambrian sequence seems remote at best. The Proterozoic volcanics are notably barren, as learned by early prospectors, Pegasus' efforts and minor efforts for Budge. No further consideration is justified for this.

Robert W. Hodder noted the possibility (letter of Jan. 2, 1986) of unconformity-related gold and sulfides at the base of the Tertiary volcanics or near the top of the pre-Tertiary erosion surface. Indeed gold was identified in two drillholes and a well near the Douglas Shaft in 1930. The succeeding shaft (1931) with exploration headings about 100 feet beneath the drilled gold apparently

found little. It's possible that a zone of abundant hematite/specularite, secondary quartz, and occassional gold reported in the drill holes could be a nearly flat-lying deposit up to 50 feet thick. If so, and beneath 400 feet of Tertiary cover, an 8:1 stripping ratio is indicated. This target could be tested as a byproduct of any drilling for fault extension targets between the Schoolhouse and East faults. Alternatively, if fault extensions are not sought, four 500-ft. reverse circulation holes into the graben would cost about $20,000.

B Placer potential -- The placer potential was tested on a reconnaissance basis N, E, and S of Vulture ridge by James Prudden using a portable sizing and washing plant with sluice. His report of Jan. 23, 1985 identified the area now being exumed by the removal of stamp mill tailings as having potential for 120,000 yd^3 grading about 0.5 g/yd^3. That is 2,000 ounces of gold with a 1:1 stripping ratio in the gravels alone (i.e., after removal of all tailings, then 5 ft. barren gravels stripped to recover 5 ft. of pay gravels). The more complete analysis of advantages and disadvantages of this target are summarized in my recent memo (Oct. 18, 1988).

C-1 Mine waste dumps -- These are much too small to constitute a target unto themselves. Most of the dumps were reportedly milled and cyanided by the Dickie operation in the late 1930's. Only a few thousand tons remain in pits 1 and 2 and nearby on the surface. They have not been sampled but could be at minimal cost in hope that some leachable gold may occur in enough tons to make it worth adding to the existing tailings heap leach.

C-2 Tailings -- These were recognized early on as a small but potentially lucrative reserve of leachable gold. The stamp mill tailings on site are the object of the present operation. They are being agglomerated and stacked at the rate of 1,000 tons per day and heap leached with recovery now reaching the target 100 ounces gold per week. The reserve has been auger-drilled and estimated at 215,000 tons at .037 oz/t or 5,500 recoverable ounces gold at 70% recovery. There is also about 150,000 tons grading 0.014 oz/t that may or may not be economic.

The gold grade distribution, silver distribution, thickness variability and reserve calculations are all contained in my memos of July 8, July 21, October 21, and October 25, 1988.

The on-site cyanide tailings contain so little remaining leachable gold that they are not economic.

Consideration was given to tailings at earlier mill sites. The original Vulture mill site in Wickenburg was partly washed away by floods. The remainder was trucked to Asarco's Hayden smelter as auriferous silica flux in the 1950's. The Smith's mill site has only some 3,000 tons of .03 oz/t remaining after flood erosion. Its poor road access renders it uneconomic as an add-on to the mine-site tailings. And finally, the tailings at Seymour have been fully washed away by the Hassayampa River. Thus the stamp mill tailings at the mine site are it. There are not even any other mines in the district with any tailings.

Conclusions

Consider again our outline of target types in light of the previous discussion.

A. Lode

1. Known Vulture Lode

a. Open pitable reserves

- ~100,000 s.t. @ .05 oz/t Au (~5,000 oz, only 2,500 recoverable)
- Including ~10,000 s.t. @ .08 oz/t Au
- Completely drill tested
- Poor leachability (~50%) despite 200 mesh grind
- Not economic

b. Underground fault extension(s)

- Two target segments up to 350,000 oz each
- Prerequisite comprehensive structural analysis, $10,000
- First stage drilling 3 holes - $100,000

2. Other Vulture-like lodes

a. About Vulture stock

i Outcropping - none
ii Buried

- Geophysical targets based upon areamag. Need geophysical consultant, maybe $10,000
- Need corroborative radar imagery or shallow seismic profiling at ~ $10,000
- Drill testable for ~$30,000

b. About Cañon City stock

i Outcropping - none
ii Buried - need geophysical advice

c. About Hartman Wash stock

- Not right composition, no veins

d. About other as yet unrecognized stocks

- Need geophysical advice

3. Other lode deposits, not Vulture-like

a. Within Vulture or kindred stocks

- Small, high grade, discontinuous and subeconomic veinlets in the Vulture stock
- Cañon City vein up to 2 ft. with visible gold; ought to be evaluated as drill target and sampled for low grade halo.

b. Within Precambrian rocks - no encouragement

c. At unconformity beneath Tertiary units

- May explain gold reported in drilling near Douglas shaft
- Could be sampled in course of deep fault ext'n drilling, same area, or by 4 holes for ~ $20,000

B. Placer

- 120,000 yd^3 @ 0.5 g/yd^3 or ~2,000 oz Au postulated
- Too small reserve for plant costs
- Could be subleased, contracted

C. Waste from earlier mining

1. Mine waste dumps

- Only a few thousand tons
- Worth sampling in case heap leachable

2. Tailings

a. Stamp mill

i Wickenburg - all used up
ii Smith's Mill - 3,000 s.t. @ .03. Uneconomic recoveries and haulage costs.
iii Seymour - all washed away
iv Vulture townsite

- 215,000 s.t. @ .037 (~5,500 oz. recoverable)
- 150,000 s.t. @ .014

b. Cyanide tailings - no more recoverable Au

The economic significance of the various target types must be kept in perspective. The tailings now being reprocessed will yield about 5,500 ounces of gold. The placer potential, far from proven, is less than half that. The fault extension targets or blind Vulture-like lodes, however, each have potential for being over 100,000 ounces or about 350,000 ounces if similar to the Vulture in size.

Only the fault extension or blind target possibilities are worth major efforts. The other target types are either little known and difficult to quantify but modest (i.e., unconformity hosted Au) already studied and uneconomic (i.e., open-pit lode reserves) too small to consider independently (i.e., placers, waste dumps) or demonstrably non-existent (i.e., other tailings).

Recommendations

I recommend the basic steps be taken in pursuit of the two target types of major financial potential, the fault extension(s) and blind target(s). The basic steps are about $10,000 expense for each target type and will help decide whether they are worth taking onward to the more expensive testing stage.

Prerequisite to any search for fault extensions is a comprehensive structural analysis. This must include compilation of all available data and fabrication of a model to understand the complexities of multiple, intersecting structures. I would like to do this chore. When near complete, I may want to get advice from Bob Hodder and/or Paul Lindberg. The culmination of such study would be advice on whether or not it's worth testing, and if so where and how.

The search for blind Vulture-like targets is a difficult but high stakes geophysics exercise that must be very geologically oriented. The geologic understanding of the Vulture must be the guide and a geophysicist willing to learn and apply that understanding is crucial. For about $10,000 we ought to be able to get lots of good interpretation of our aeromagnetics and steering on the use of radar and/or seismics.

Some incidental time and expense should be devoted to sampling of waste dumps and the Cañon City vein. The main thrust, however, should be the total $20,000 allocated to determine whether the major targets are likely to exist and, if so, how to find them.

These studies would best be completed by summer, 1989, so that field work, if warranted, could be done in the fall and allow for drilling in the winter. Thus recommendations on the disposition of the lease could be made in early 1990.

DW:sk

DeCONCINI McDONALD BRAMMER YETWIN & LACY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW

EVO DeCONCINI (1901-1986)

JOHN R. McDONALD
RICHARD M. YETWIN
DINO DeCONCINI
WILLIAM B. HANSON
DAVID C. ANSON
SPENCER A. SMITH
DENISE M. BAINTON
LUIS A. OCHOA
GARY F. URMAN
J. WM. BRAMMER, JR.
JOHN C. LACY
ROBERT M. STRUSE
JOHN C. RICHARDSON
JAMES A. JUTRY
MICHAEL R. URMAN
KAREN J. NYGAARD
SUSAN E. MILLER

240 NORTH STONE AVENUE
TUCSON, ARIZONA 85701-1295
(602) 623-3411
FAX: (602) 624-0972

3030 NORTH THIRD ST., SUITE 200
PHOENIX, ARIZONA 85012-3002
(602) 241-0100
FAX: (602) 241-8533

May 9, 1988

PLEASE REPLY TO TUCSON

Carole O'Brien
A. F. Budge (Mining) Limited
7340 E. Shoeman Lane, Suite 111 "B" (E)
Scottsdale, AZ 85251-3335

Re: Vulture Mine Property; Payment of Production Bonus and Advance Minimum Royalty to V.M.P., Inc.

Dear Carole:

You recently asked me to provide you with my opinion on several issues related to the Option and Lease Agreement dated July 1, 1984, between V.M.P., Inc. and A. F. Budge (Mining) Limited, as amended by the First Amendment to Option and Lease Agreement dated effective February 1, 1985. The rights of the lessee under the agreement as amended have subsequently been assigned to Clearwater Mining Corporation, an Arizona corporation controlled by A. F. Budge.

Your questions concerned: (1) the obligation of the Lessee to pay the production bonus required under subsection (f) of Section 4 of the Agreement as amended because the initial production would be coming only from tailings on land acquired by independent action of the Lessee through the Superior Court of Arizona as the Vulture City Townsite; and (2) when the obligation to pay advance royalty would cease after the Property was placed into production and production royalty was being paid.

Your first question is the more difficult.

As you will remember, the title evaluation of the V.M.P. Property disclosed that the lessor did not own certain portions of the Property, which portions were included within an old townsite patent. This particular townsite had been conveyed to the probate judge of Maricopa County as Trustee on behalf of the residents of Vulture City but the individual lots had never been sold (other than a small portion of the property that was sold in the 1960's). At the time the Agreement was formalized, V.M.P.

contended that they had all the land within the townsite controlled under unpatented mining claims. These mining claims were eventually rejected by the Bureau of Land Management and the rejection was affirmed on a subsequent appeal to the Interior Board of Land Appeals. As a result of this situation on the Property, this office undertook to acquire on behalf of A. F. Budge, all remaining unsold townsite lots. On March 4, 1987, the Arizona Superior Court conveyed all remaining townsite lots directly to A. F. Budge. V.M.P. participated in and cooperated with A. F. Budge throughout the process, attended the final sale and raised no objections to the transaction.

Looking to the contract, there are two possible arguments. Initially, under subsection (c) to Section 7 of the Agreement, if the Property subject to the Agreement is less than the total unencumbered title to the Property, the Lessee has the right to initiate whatever action it feels is required to cure defects in title, in which case all costs and expenses of perfecting, defending and correcting title constitute credits towards any payments under Section 4 of the Agreement. This would include both advance royalties, production royalties and the production bonus.

The alternative argument is that the lack of ownership in the Vulture City Townsite was not a defect in title at all but was a total absence of title in the Lessor. Thus, the Lessee initiated action to acquire title from an independent source and the provisions of subsection (d) of Section 7 would apply concerning "lesser interests."

Quite frankly, it is my view that given the nature of the way the title was acquired with the cooperation of V.M.P. and given the circumstances that A. F. Budge could probably have forced V.M.P. to pay the purchase price for the Vulture City Townsite, the first scenario discussed above would be the most likely result of a court's view of the situation. I hasten to add, however, that A. F. Budge is entitled to a deduction from payments to be made to V.M.P. of all of the costs of acquisition of the Vulture City Townsite including the purchase price, all legal fees associated with the transaction, the appraisal fees and the various costs, as well as the costs related to the research and appeal of the BLM decision voiding the unpatented mining claims on the same property. I suggest that an audit be made of these various figures and that you provide me with a draft of them so that I can compare it with my records to insure that we have not missed anything.

With regard to the payment of advance minimum royalties, you noted that A. F. Budge had paid V.M.P. a considerable amount of money as advance minimum royalties all of which would be applicable as a credit toward production royalties. You asked me at what point the obligation to pay these monthly amounts would terminate. The simple answer to your question is never. Subsection (b) of Section 4, as amended, requires the Lessee to pay V.M.P. an advance minimum royalty during each month. It is the payment of this advance minimum royalty that keeps the leasehold rights alive. All of these payments are a credit towards production royalty that is payable pursuant to the provisions of subsection (c) of Section 4 and A. F. Budge will have no obligations to pay production royalty until the amount of the total credit of previously made advanced minimum royalty payments has been used up. If production royalty never amounts to the total accrued credits of advance minimum royalty, it does not matter and the minimum payment requirement remains.

If you would like to discuss any of these matters with me further, please don't hesitate to call me.

Very truly yours,

John C. Lacy

bpm

0506880945.jcl2.840127

DeCONCINI McDONALD BRAMMER YETWIN & LACY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW

EVO DeCONCINI (1901-1986)

JOHN R. McDONALD
RICHARD M. YETWIN
DINO DeCONCINI
WILLIAM B. HANSON
DAVID C. ANSON
SPENCER A. SMITH
DENISE M. BAINTON
LUIS A. OCHOA
GARY F. URMAN
J. WM. BRAMMER, JR.
JOHN C. LACY
ROBERT M. STRUSE
JOHN C. RICHARDSON
JAMES A. JUTRY
MICHAEL R. URMAN
KAREN J. NYGAARD
SUSAN E. MILLER

240 NORTH STONE AVENUE
TUCSON, ARIZONA 85701-1295
(602) 623-3411
FAX: (602) 624-0972

3030 NORTH THIRD ST., SUITE 200
PHOENIX, ARIZONA 85012-3002
(602) 241-0100
FAX: (602) 241-8533

July 27, 1988

PLEASE REPLY TO TUCSON

RECEIVED JUL 28 1988

Carole O'Brien
A.F. Budge (Mining) Limited
4301 North 75th Street
Suite 101
Scottsdale, AZ 85251-3504

Re: **Vulture City Townsite; Legal and Other Costs of Curative Title Action**

Dear Carole:

I have reviewed this firm's records and have determined that the following represents the amounts billed to A. F. Budge representing legal fees and costs related to the title issues created by the location of mining claims and the resulting acquisition of portions of the Vulture City Townsite. These costs are as follows:

1985 legal fees and costs related to mining claims and the Vulture City Townsite	$ 248.10
1986 legal fees and costs related to acquisition of title to the Vulture City Townsite and related matters	11,278.40
1987 legal fees and costs related to acquisition of title to Vulture City Townsite	519.82
Total legal fees and costs	$12,046.83

The additional costs you referred to in your letter consisting of (1) the appraisal fee of $1,500.00, (2) the purchase price of $16,400.00, and (3) the survey bill of $5,409.72 are also appropriate costs. I also believe that the time spent by you and Ben and perhaps others in assisting in this effort should be charged to the cost as considerable time was

spent both in overseeing the survey and participating in the efforts to acquire title to the Vulture City Townsite.

Whether interest on these costs and expenses is also an appropriate deduction under the contract is not entirely clear, but I certainly see no reason why they should not be included. In order for you to compute the appropriate interest on the legal fees and costs, I have enclosed my notes from this firm's statements. Everything shown on the July 1, 1985, bill and thereafter (excluding the $1,090.88 bill on December 1, 1985, which was the litigation over payments under the VMP lease) should be an appropriate charge.

Please review your records and give me a figure for time spent by your office in this matter, I will include that in a draft letter to Mr. Beale.

Very truly yours,

John C. Lacy

bpm

0726880505.jcl2.860020

Vulture - Problems encountered and solutions - according to Dale A

1. Drain Pipes and liner between stacks 1 & 3.
   - down approx one month to perform this task. 1 & 3
   - change system on 2 & 4 and are continuing stacking
2. Lack of drain pipe in base to drain solution - Created lag time. Dollar Value?
3. Pad design to eliminate humps. Created extra work to build roads over humps to move conveyors
4. Location of agglomerator - should have been centralized
5. dripper system - plugging up solved eventually by poking holes w/ ice pick.
6. ~~Vibrators were added~~ Material handling choose of vibrator
7. Establishing procedure for moving conveyors conveyor repairs & modifications
8. Repairs to agglomerator and adjustment at least two weeks.
9. Lack of design for construction

Changes made:

1) added motor to slucker
2) made changes to conveyor
3) Removed feeder adjusting flow w/ bin vibrator & gate.
4)

advantages to Central City

dealing w/ rock vs. sand. - fluid return quicker.
colder climate helping to elevate leach
build up and therefore better flow.

questions -
stacking heights
freezing during winter.
temps conducive to heap leaching.

Vulture Mine

notes 6/1/88
RS

1) Gene - Haul material + dump into hoppers to feed oglomerator.

$100.00 per hour for scraper (belly dump), water truck, and grader.

He will supply equipment, labor, fuel and service own equipment at this rate.

Haulage rate will be from 100 to 120 tons per hour.

Range of cost per ton will be $0.83 to $1.00 per ton

→ Gene would not be paid unless agglomerator was operating

2) Conveyor system

400 feet of conveyors = → $54,000

$54000 ÷ 250,000 tons = $0.216 per ton

988 lease - lease @ $14,000/month

$14,000 ÷ 1000 tons/day x 22 days/mo = $0.64 / ton

fuel and M&R to loader 0.10 / ton

labor - operate load 16.00 x 10 Hrs/T

= 169.00/day ÷ 1000 T/D = 0.17 / Ton

Helper - operate conveyor, feeding flein + cement =

13.00 x 10 = $130.00 ÷ 1000 T/D = 0.13/ Ton

1.26 / Ton

Maya equipment bid

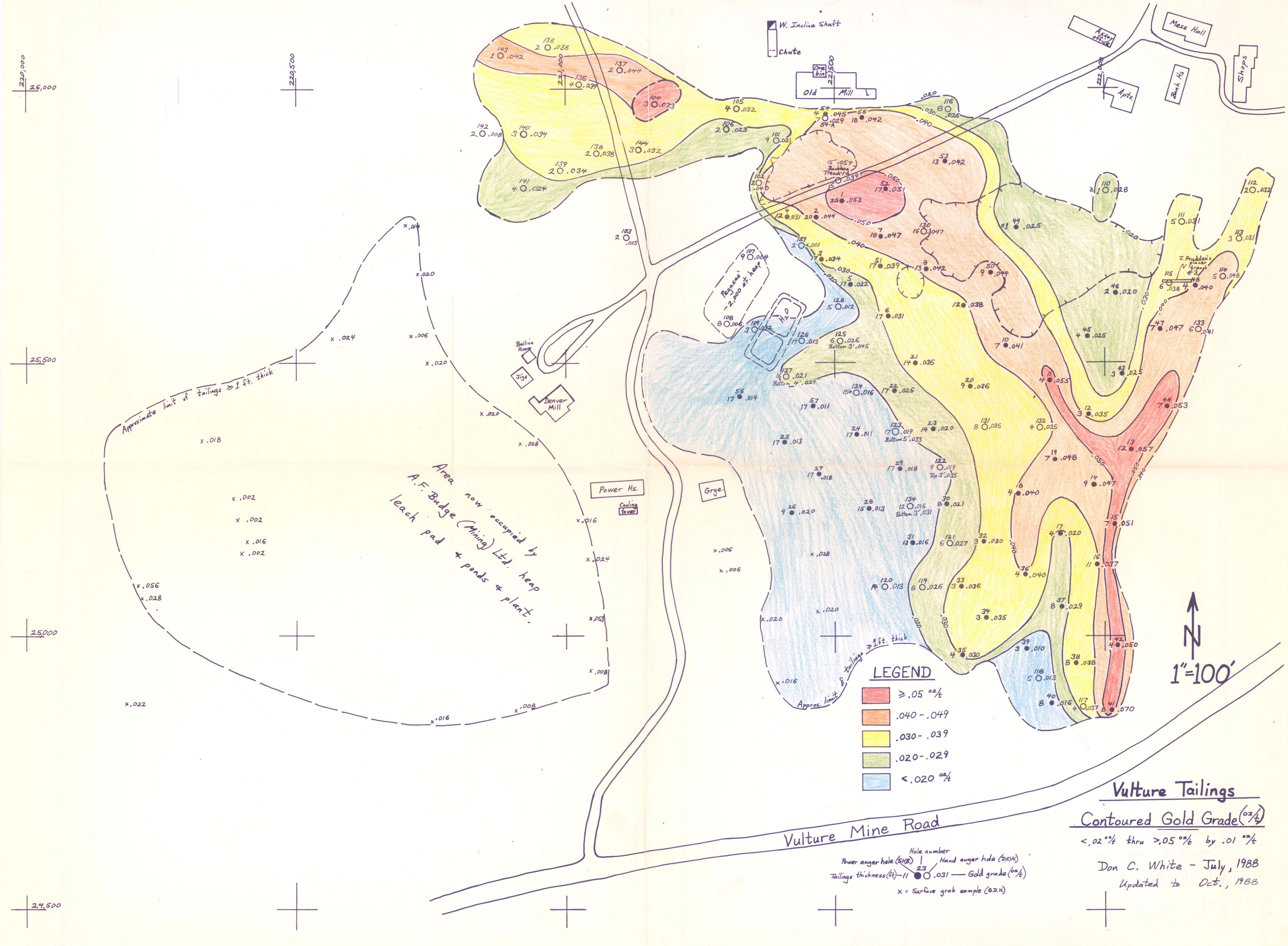
$125,000 to move + restack by agglomerator
÷ 250,000 tons = $0.50 per ton

Lease loader to feed agglomerator.

$10,000 per month ÷ 22,000 tons/month =	0.46 per ton
loader M/R + fuel	0.10 per ton
loader operator	0.17 per ton
	$1.23 per ton

1) Conveyor system versus Maya construction combination are equal in cost per ton. Only advantage to conveyor system is we would own 400 feet of conveyor which would have a residual value.

2) Best option is to have Gene haul material and dump into hopper. Least cost per ton and no rental cost or capital cost involved.



Vulture Tailings
Contoured Gold Grade (oz/t)
<.02 oz/t thru >.05 oz/t by .01 oz/t
Don C. White - July, 1988
Updated to Oct., 1988
LEGEND
≥ .05 oz/t
.040 - .049
.030 - .039
.020 - .029
< .020 oz/t
1"=100'
N
Vulture Mine Road
Hole number
Power auger hole (SHB)
Hand auger hole (D.C.W.)
Tailings thickness (ft.)
Gold grade (oz/t)
x = Surface grab sample (D.C.W.)
W. Incline Shaft
Chute
Ore bin
Old Mill
Assay office
Mess Hall
Apts.
Bunk Hs.
Shops
Bullion Room
Jigs
Denver Mill
Power Hs.
Cooling tower
Grge.
Pegasus' 2,000 st. heap
Backhoe Trench 1A
J. Prudden's placer trench #3
Approximate limit of tailings ≥ 1 ft. thick
Approx. limit of tailings ≥ 1 ft. thick
Area now occupied by A.F. Budge (Mining) Ltd. heap leach pad & ponds & plant.
220,000
220,500
221,000
221,500
222,000
26,000
25,500
25,000
24,500

Duplicate:
Scanned copy in
file 1-1-32
-MC 7/20/11