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STILL & STILL
CONSULTING MINING ENGINEERS & GEOLOGISTS
ROOM 24 - UNION BLOCK PRESCOTT, ARIZONA

J. W. STILL
ARTHUR R. STILL

TELEPHONE HI 5-0610
P. O. BOX 1512

April 12,1962

Mr. D. M. Kentro, Ass't. Vice Pres.
Shattuck Denn Mining Corporation
Prescott, Arizona

Re: Ramsey Mine (also known as the R. & A.)
Plomosa Mng. Dist., Yuma County, Ariz.

Dear Mr. Kentro:

The above named property was visited on March 6th and 7th by Messrs. E. R. Tomkinson and R. G. Raabe and was the subject of an intra-company report, by Raabe, under a date of March 15th. Mr. Raabe and Robert Burwell returned to the property, on March 20th and 21st, to conduct further sampling - particularly on the 299 ft. level. At your request, Mr. Raabe and I visited the property on April 2nd and 3rd. The following letter report briefly summarizes my conclusions and recommendations relative to the Ramsey Mine. To my knowledge, Mr. Raabe concurs with the conclusions reached.

Summary:

The past operators of the Ramsey Mine exploited a relatively small, but good grade, silver oreshoot. While not really in the "bonanza" class, some shipments from the property were in excess of 150 oz. per ton silver and the entire oreshoot very probably averaged about 50 to 60 oz per ton.

It appears obvious, however, that several geologic factors combined to terminate the ore zone at shallow depth - and the present mine workings, with one possible exception, have served to

adequately explore the vein zone beyond the economic limits of the single known oreshoot. The geological conditions contributing to the termination of ore with depth, all of which occur between the 253 and 352 levels, are: 1) a change in the footwall lithology, 2) a steepening of the vein zone and 3) a change in the mineralogy. Any one of these factors has accounted for a drastic change in the grade at other deposits - here the combined effect was devastating.

One possibility remains for extending the known oreshoot underground (see Plate 2). This would involve driving the 352 level southeast from the shaft to test the area under the 75 feet length of ore indicated by Raabe's channel sampling of the corresponding drift on the 299 level. However, the presently known extent of rapid closure of the bottom of the oreshoot would indicate that this ore is not likely to extend down to the 352 and, as such, I do not believe that this work - by the Corporation - is warranted.

The outcropping rhyolite-sedimentary contact southeast of the mine was mapped and examined for some 2,000 feet (Plate 1). Several zones of manganese-carbonate mineralization, over short strike lengths, occur but none appear to be of economic significance.

The area immediately northwest of the Ramsey Mine, for about 1,500 ft., is covered by alluvium and coarse stream wash. Within this strike length other orebodies of the Ramsey type could conceivably occur. However, the highly oxidized and friable vein material typical in the Ramsey would not lend itself to exploration by drilling and the small size of the single known economic oreshoot (10,000± tons) would not justify exploration by sinking and drifting.

In light of the above, I am cannot see any reasonable potential at this property of sufficient size to merit the further interest of Shattuck Denn. Because of this conclusion, I have no alternative but to recommend that you abandon your interest in the property without incurring any additional expense therein.

Past Production and History:

The Ramsey Mine was discovered by John L. Ramsey in 1921. He personally exploited the deposit until the late 1920's, at which time he let it out to lessees. The property has operated intermittently through the years with the last known leasing operation being conducted in 1957.

As is often the case with small mines, no complete production records are available. However, from the size and outline of the stoping areas I have estimated that the mine probably produced in the order of 10,000 tons. Presumeably this was all direct shipping ore since no evidence exists on the ground of any past treatment plant.

The best available sampling of the probable tenor of the ore is based upon the record of shipments to smelters at Hayden, El Paso & Inspiration, for the period of 1940 through 1947 (attached as Appendix A). It is probable that earlier shipping records exist but are held in storage by the smelters. Apparently no shipments have been received, by these smelters, since 1947. This data is tabulated and weighted below:

Smelter	Date	Tons		oz. Ag/ton
AS&R-Hayden	1941	81)	937	46.22
" El Paso	1942-47	856)		
International	1940-41	323.7		51.64
"	1942-44	882.7		43.86
		2,143.4		46.07

It is logical to assume that this tonnage, for the most part, represents roughly the lower one-fourth of the oreshoot. Because of the structural and mineralogical changes with depth the average grade of the over-all orebody may have been somewhat higher than this figure.

General Geology and Nature of the Vein Zone:

The Ramsey vein occurs along the contact between Mesozoic sediments and a Cretaceous to Tertiary rhyolite. On the eastern end of the surface area examined (Plate 1) the rhyolite appears to be conformable with the sediments but within the area of the Ramsey Mine the bedding in the sediments intersects the contact at an angle of about 40 degrees. The Mesozoic sediments consist of dirty limestones (on the eastern end), quartzites, sandstones and shales. The rhyolite in part is tuffaceous although underground in the mine it it usually a blocky, light colored rock with small quartz phenocrysts that is devoid of either bedding or flow banding structures. The bulk of the rhyolite probably represents flows and, if this is the case, it was deposited on an old erosional surface of some modest relief. In the immediate area of the Ramsey Mine the two rock types are in fault contact - the Ramsey vein occuring within the fault plane.

The vein is completely oxidized to the present bottom of the mine and the mineralogy of the deposit is moderately complex. The typical vein matter consists of a spongy mass of black to reddish quartz-carbonate material with lesser amounts of manganese oxides, iron oxides, barite and celestite. A wide variety of secondary minerals of both lead and silver occur. However, lead (as both residual galena, lead carbonates and other minerals) occurs sporadically and it does not

appear to have contributed greatly to the income from past operations. Aside from lead and silver, no other minerals or metals occur in sufficient amounts to be recoverable. Based upon a specimen shown to Raabe and Tomkinson - allegedly from this deposit - Raabe believes the primary silver to have been in the form of argentite.

Below the 253 level the vein filling has the aspect of being more open and somewhat lighter in color - more barite and celestite appear and pyromorphite-mimetite becomes noticeable. On the 352 level, near the shaft, pyromorphite-mimetite occur in a spectacular abundance, filling all fractures in the hangingwall rhyolite for as much as 20 feet outward from the vein, although they are probably not present in sufficient abundance to constitute an ore of lead. To the northwest on the 352 level the manganiferous vein material rapidly narrows and finally the "vein" becomes merely a zone, some 4 ft. wide, of partially rounded boulders (both rhyolite and sediments) that are essentially "dry" of any introduced vein filling material what-so-ever.

With depth below the 352, in the main shaft, the vein continues with persistence and looks almost the same as the material between the 253 and 352 levels, however, it is essentially barren of silver (see assays, Plate 2). It is a spongy, blackish siliceous material laced with bands of coarse celestite. When viewed under the binocular microscope the spongy material is seen to contain an abundance of very tiny yellowish-green pyromorphite (?) crystals.

Based upon the Iron King sampling, the remaining portions of the vein vary in width from 3 to a maximum of about 8 feet. The stopes in the upper part of the mine attain widths of as much as 8 to 10 feet although some of this width can be attributed

to spalling of the hangingwall either during or after mining. It is likely that the width of the economically mineralized material averaged about 6 feet.

Ore Controls and Changes with Depth:

The primary ore control of the deposit is undoubtedly the rhyolite-quartzite fault contact. An indicated second control (see Plate 2) is a steeply dipping fault (or faults) that comes out of the rhyolite hangingwall and intersects the contact at a small angle. The main portion of the oreshoot occurs to the northwest of this intersection although locally both the hangingwall fault(s) and the contact zone have been stoped for a short distance to the south of the intersection. Quite probably the contact zone was initially mineralized only with quartz, manganese minerals and siderite; the hangingwall fault occuring later and the lead silver mineralization being introduced along the intersection of the two structures. The trace of this line of intersection is indicated on Plate 2 by a green arrow. Curiously, it projects downward directly into the area of "dry boulder" vein filling on the 352 level.

Between the 253 and 352 levels the lithology of the footwall changes from a fine grained, greenish quartzite to a loosely consolidated sandstone with admixed shale. This lithologic change caused a deflection in the dip of the vein of about 7 degrees (see Plate 3), carrying the vein - at least in part - into a position where both walls are in sediments. The bottom of the economic oreshoot is sharply delimited by this change in wall rock and dip.

Additional Ore Prospects:

The only potentially worthwhile underground development remaining, as discussed in the summary, would be the advancement of the 352 level to the southeast to test the 75 ft. block of ore exposed in the floor of the 299 level. The configuration of known ore limits would indicate that this ore probably will not project down to the 352. This reasoning is further substantiated by the sample taken in the short south stub off the shaft at the 352 level (3.2 ft. of 4.84 oz. per ton) as well as by the fact that the ore block on the 299 (75 ft. at 29.88 oz.) is already appreciably below the grade for the lower one-fourth(?) of the deposit (2143 tons at 46.07 oz.). While this may constitute a valid "wildcat" target for a small individual lessee it does not constitute, in my opinion, a sufficiently large target to arouse Shattuck Denn's interest.

The present shaft has already tested something over 200 feet of dip length directly below the known shoot. While it is entirely possible that additional depth could bring about a repetition of the rhyolite-quartzite relationship - and thus an environment potentially favorable for ore - there is, in my opinion, little justification for deeper work at this time. My thinking in this matter is largely influenced by the limited size of the only district orebody known to date, i.e. the quarry hardly seems worth the pursuit at that depth. It is possible that a detailed geologic study of the area (both surface and underground) could develop a larger potential than that known to date by the projection of geologic contacts (and theory) such that more worthwhile targets, particularly at depth, might be indicated. However, such programs are long term, expensive

and quite highly speculative and I believe that Shattuck Denn has sufficiently better prospects - within the limits of their own properties - to wisely preclude the tying up of their limited number of technical personnel on such a "long shot".

With regard to repetitions along strike, the area to the southeast was examined, and mapped in a cursory manner, as shown on Plate 1. Several zones of siliceous manganese-carbonate mineralization do occur, over short strike lengths, within this area. Two such zones were sampled by us (at traverse stations 2 and 5) and were found to be essentially barren of silver. These same areas had been tested in the past, by parties unknown, by short drill holes. Both of these zones are entirely within the sediments and the adjacent contact is barren of mineralization. Other small zones exist between Sta. # 5 and the Ramsey Mine. These are entirely within the rhyolite and, from the limited work done on them, they too must be of low grade.

One large shaft is located well within the rhyolite at our station 11. Neither Byrd nor Burney, who visited the property with Raabe and Tomkinson, had any contributing knowledge of this workings. A 4 to 5 ft. zone of manganiferous vein material has been trenched both to the north and the south of the shaft. The shaft timbers appear to be good and are probably not over 10 to 15 years old. The shaft is in excess of 100 ft. deep although no evidence remaining on the ground would indicate that an ore bin ever existed at the site. Due to the limited time available for the examination, and a total lack of knowledge as to the condition of the shaft below the collar, this workings was not entered.

The area to the northwest of the Ramsey Mine is a rather broad foothills outwash and is alluvial covered for about 1500 feet along the projected strike of the Ramsey vein. There is a possibility of additional oreshoots in this direction, although the only major factor that gives this area potential is the fact that it is covered and has, therefore, not been previously prospected. Because of the nature of the normal vein material at the Ramsey (oxidized and friable) diamond drilling would not be a satisfactory exploration tool. The limited size, and potential worth, of a second 10,000 tons silver orebody precludes exploration by underground methods within an area of such limited known potential.

Conclusion:

While the Ramsey Mine area does constitute a very interesting geological occurrence - from many aspects - it does not, in my opinion, hold a sufficient potential for additional orebodies to warrant the expenditures necessary for their exploration and/or development.

Arthur R. Still
Mining Geologist

ARS/

Copies: Kentro-2
Mine office file-1
Raabe-1
Still & Still file-1

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MIAMI, ARIZONA

SMELTING DEPARTMENT
File No. 700
April 2, 1962

Mr. Arthur R. Still
P. O. Box 1512
Prescott, Arizona

Dear Art:

Our old records, back in the 20's, leave a lot to be desired; however, I have found these in the 1940's.

Listed below are shipments made under the name of John L. Ramsey. We did not assay for lead.

Date	Tons	Ag	Au	Cu	SiO_2	Al_2O_3	Fe	CaO
Oct. 1940	63.8	43.06	Tr	Tr	60.6	2.2	5.9	5.0
June 1940	29.0	33.73	Tr	Tr	60.2	2.7	4.6	5.8
	9.6	271.04	Tr	Tr	42.1	0.2	2.6	10.7
May 1940	40.2	38.66	.003	Nil	60.1	0.5	4.9	7.5
	32.7	50.44	Tr	Tr	55.2	1.9	5.2	7.1
Jan. 1940	23.7	73.86			62.4	1.9	4.6	5.2
Feb. 1940	30.9	61.96			63.6	2.6	4.3	4.7
Jan. 1941	51.3	29.84	.003	0.29	49.3	1.5	5.6	13.4
	7.2	185.84	.005	Tr	38.9	0.1	1.7	12.8
	21.6	16.52	Tr	Tr	49.7	2.3	3.4	14.7
Mar. 1941	13.7	21.54	Tr	Tr	45.7	1.6	3.9	17.5

323.7 (51642)

In 1942 - 1944 under the name of R & A Mines about 1500 tons were shipped of which I list some examples:

R & A MINES:

Date	Tons	Ag	SiO_2	Al_2O_3	Fe	CaO
July 1942	44.4	29.44	48.2	1.4	3.4	15.0
	47.3	33.10	50.0	1.1	3.6	16.0
Aug. 1942	50.3	18.43	46.2	1.4	3.5	15.6
	55.0	18.97	43.2	1.0	3.2	17.1
	40.0	26.70	46.4	1.8	3.4	15.4
	50.0	43.07	47.8	1.4	3.5	15.2
Sept. 1942	47.8	60.20	47.3	0.8	4.3	14.4
	50.9	38.98	44.5	0.8	4.3	15.6
	43.6	25.45	45.9	0.7	3.2	16.8
Oct. 1942	49.6	54.67	55.0	1.3	3.5	13.1
	39.4	29.41	58.7	1.3	4.3	11.6
Feb. 1943	43.8	64.72	42.7	1.3	4.7	21.7
	43.5	47.68	45.2	1.3	4.6	19.0
	41.1	65.23	48.4	1.3	4.3	16.0
March 1943	47.2	61.21	41.8	1.2	4.0	19.8
April 1943	43.9	35.76	38.3	1.0	3.0	22.2
	44.1	39.42	41.0	1.4	3.7	18.5
May 1943	49.5	88.30	44.9	1.6	3.8	16.4
April 1944	51.3	51.64	46.1	0.9	3.7	19.8
	882.7	(43.858)				

I trust this is of some assistance to you. We could use some ore of this type.

Sincerely yours,

Hank

Henry Allen
Smelter Superintendent

:fm

AMERICAN SMELTING AND REFINING COMPANY
SOUTHWESTERN ORE PURCHASING DEPARTMENT
803 VALLEY NATIONAL BUILDING
TUCSON, ARIZONA

REED F. WELCH
MANAGER

April 2, 1962

Mr. Arthur R. Still
P.O.Box 1512
Prescott, Arizona

RAMSEY(R&A) MINE, YUMA COUNTY

Dear Arthur:

I have your letter of March 30 requesting production record from the Ramsey Mine. In November 1957 I compiled this information for Mr. J.H. Byrd and enclose a copy of my letter to Mr. Byrd listing receipts from this property at El Paso and Hayden plants showing tonnage, assay and analysis.

If shipments were made to other plants from the Ramsey Mine my file does not indicate tonnage or destination.

Please let me know if I can be of further assistance.

Yours very truly,

Reed

REED F. WELCH

Enclosure

Tucson, Arizona

November6, 1957

Mr. J. M. Byrd
Byrd Mining Company
721 South 6th Ave.
Tucson, Arizona

RAMSEY (R&A) MINE, PLOMOSA DISTRICT
YUMA COUNTY, ARIZONA

Dear Mr. Byrd:

In response to your telephone request the other day I have looked up our record for the Ramsey Mine near Quartzsite and show below shipments received at El Paso and Hayden plants for the period 1941 through 1947.

Receipts Hayden Plant

Year	Shipper	Dry Tons	Approx. Average Assays Silver Oz./Ton	Lead %	Copper %	SiO2 %	Fe %	CaO %	Al2O3 %
1941	R&A Mining Co.	82	28.6	-	-	44.0	6.2	20	2.6
Receipts El Paso Plant									
1942	R&A Mining Co.	159	56.2	5.5	.05	43.0	5.5	16	1.0
		22	199.9	37.0	.07	31.0	1.4	11	-
1944	R&A Silver Mine	53	113.4	14.2	.05	47.0	3.0	10	-
	Perry, Cornett & Starnick	209	31.5	4.3	.04	54.0	3.5	10	.5
1946	Arizona-Williamsthe Co	103	54.8	4.8	.03	50.0	6.3	12	.4
	Black Mesa Mines	115	27.9	2.9	.03	39.0	4.0	15	1.8
		153	30.6	1.9	.03	50.0	4.3	12	2.8
1947	Ditto	48	39.7	2.0	.08	52.0	4.0	13	2.0
		937							

(46.215)

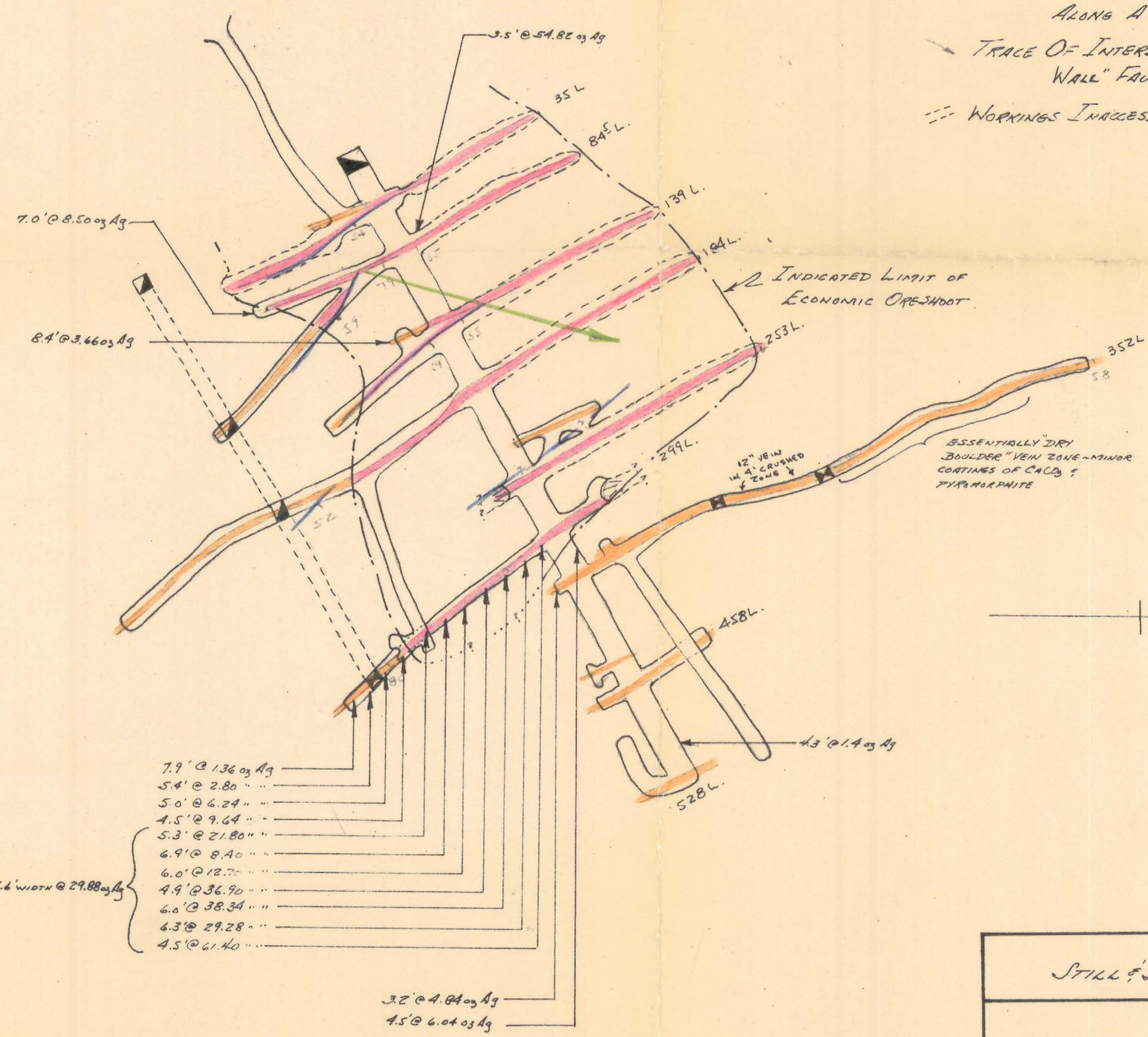
Yours very truly,

REED F. WELCH

bc:RFRoberts

EXPLANATION

- Vein - Ore Grade (By Stopes or Assays)
- Vein ~ Protore
- Fault (Note: The Vein Zone Occurs Along A Major Fault Plane)
- Trace Of Intersection "Hanging Wall" Fault & Vein Zone
- Workings Inaccessable Due To Stoping



Still & Still ~ Prescott, Ariz.

Assay Plan & Geologic Sketch Map of the RAMSEY MINE

Bromosa Mng. Dist., Yuma Co., Ariz.

ARS & R.G.R. 1" = 50' 3/62

PLATE 2

RIDGE ~ MESOZOIC SEDIMENTS (qtz,te,ss & sh)

RIDGE ~ MESOZOIC SEDIMENTS & TALUS

RHYOLITE RIDGE

RHYOLITE RIDGE

APPROX. 1500' Qal TO NEXT RIDGE

TO HIGHWAY 60-70

RAMSEY MINE

3 (1062) 30 FT. ± INCLINED SHAFT ON 4 FT. MN-CARBONATE VEIN.

12 (1080)

CUT. SHAFT No. 16 IN STANDING

5 (1065)

16 (1064)

9 (1113)

10 (1110)

11 (1113)

2 (1082) talus — fault ? — rhy breccia

2 FT. MANGANESE-SIDERITE VEIN IN rhy

1 (1000) 4-6' MN CARBONATE ZONE IN ls. (NIL Au., 0.1 oz Ag)

4 (1048) 4 FT. MN CARBONATE VEIN MATERIAL IN ls (Tr Au, Tr Ag)

8 (1023)

rhy breccia (1049)

LEGEND

- QUATERNARY ALLUVIUM & TALUS
- CRETACEOUS OR TERTIARY RHYOLITE
- MESOZOIC SEDIMENTS (ls, ss-sh)
- MINERALIZATION (LARGELY MANGANESE-CARBONATE VEINS)
- 9 (1113) BRUNTON-PACE TRAVERSE STATION No. 9, ELEVATION 1115 FT. (STATION No. 1 ASSUMED ELEVATION 1000 FT.)
- SHORT WAGON DRILL (OR DIAMOND DRILL) HOLE, INCLINED -10°
- A A' VERTICAL CROSS SECTION A-A' (PLATE 3)

STILL & STILL ~ PRESCOTT, ARIZ.

GEOLOGIC SKETCH MAP

RAMSEY MINE AREA

PIONEER MIN. DIST., YUMA COUNTY, ARIZ.

A.R.S. & E.G.R. 1" = 100' 3/62

PLATE 1

LEGEND

- CRET. OR TERTIARY RHYOLITE
- MESOZOIC SEDIMENTS
- VEIN ~ ORE GRADE
- VEIN ~ PROTORE OR WASTE
- FAULTS (NOTE: THE VEIN ZONE OCCURS ALONG A MAJOR FAULT PLANE)

STILL & STILL ~ PRESCOTT, ARIZ.

VERTICAL X-SECTION A-A'
THRU
RAMSEY SHAFT

1"=50'

ARS & RGR 3/62

PLATE 3