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PRINTED: 03/22/2002

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: MORNING GLORY

ALTERNATE NAMES:

SANTA CRUZ COUNTY MILS NUMBER: 108B

LOCATION: TOWNSHIP 23 S RANGE 16 E SECTION 17 QUARTER NE
LATITUDE: N 31DEG 26MIN 01SEC LONGITUDE: W 110DEG 43MIN 38SEC
TOPO MAP NAME: HARSHAW - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
- COPPER SULFIDE
- SILVER
- GOLD
- ZINC SULFIDE
- LEAD SULFIDE
- BARIUM BARITE

BIBLIOGRAPHY:

- AZBM BULL. 191, INDEX OF MINING PROP. IN SANTA CRUZ CO. P. 80
- USBM FIELD NOTES
- AZBM CLIPPING FILE
- SCHRADER, F.C., 1915, USGS BULL. 582, P. 306

04/29/99

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MORNING GLORY MINE 9/84 SANTA CRUZ COUNTY
HARSHAW DISTRICT
T23S R16E Sec. 17

MILS Santa Cruz Index #108B

Mining World May 1963, p. 38

ABM Bull. 129, p. 66

ABM Bull 191, p. 80

History of Mining in Arizona, ABM p. 300-301

USGS Bull. 582, p. 306-307

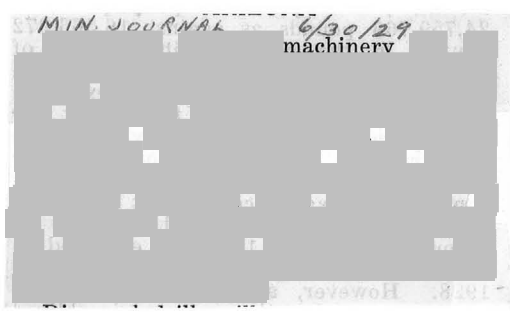
Arizona Mining Journal Jan. 15, 1922 p. 19; June, 1918, p. 42

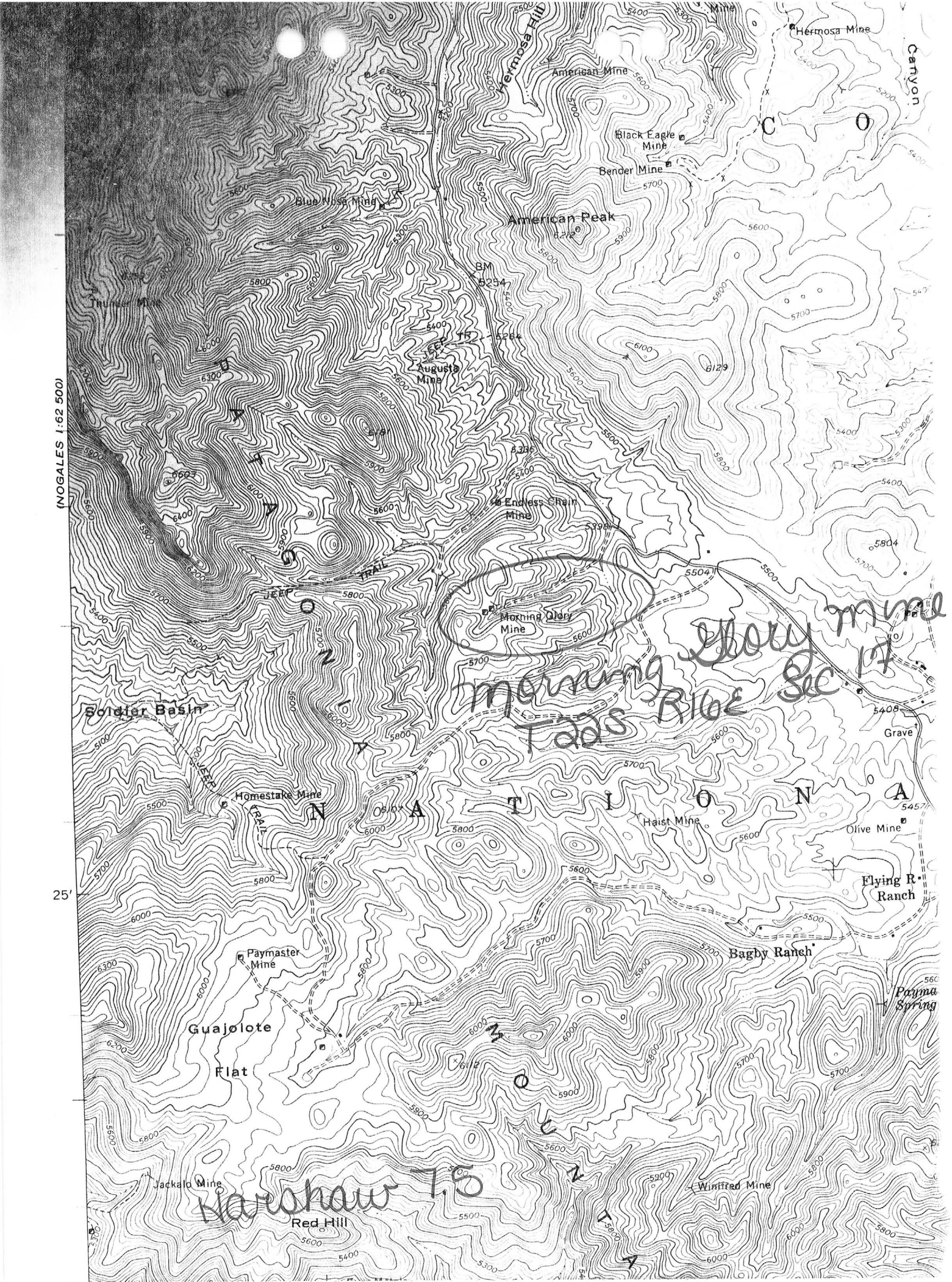
Gold Depository & Loan Co., Inc. (file)

Mining Journal - June 30, 1929, p. 31

Production Possibilities of the Marginal Copper Mines in AZ, 1941, p. 102

Harshaw 7.5 (included in file)

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Hermosa Mine
Canyon
C O
American Mine
Black Eagle Mine
Bender Mine
Blue Nose Mine
American Peak
BM 5254
Thunder Mine
JEEP TR
Augusta Mine
6129
6091
6603
Endless Chain Mine
5804
5504
JEEP TRAIL
Morning Glory Mine
Morning Glory mine
T22S R16E Sec 17
Soldier Basin
5408
Grave
JEEP TRAIL
Homestake Mine
N A T I O N A
Haist Mine
Olive Mine
Flying R Ranch
Bagby Ranch
Paymaster Mine
Payma Spring
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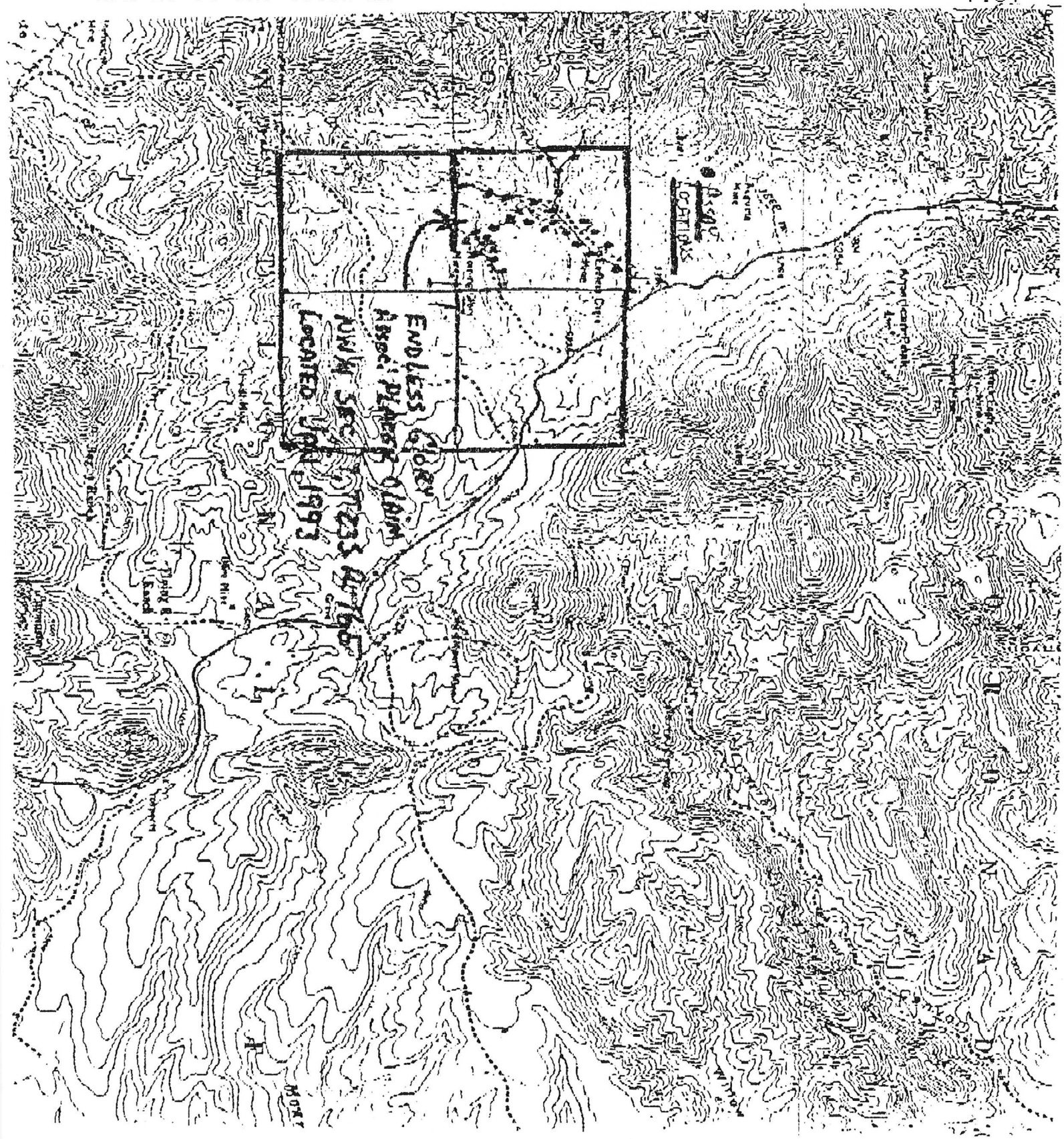
Flat
Z O U Z A
Jackalo Mine
Winifred Mine
Harshaw 7.5
Red Hill


ENDLESS
LOCATIONS
LOCATED

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MORNING GLORY MINE - In Patagonia Dists - 14 mi. So of Patagonia SANTA CRUZ COUNTY

Buildings are apparently occupied, but no one in camp.

GWI WR 7/3/65

Field interview. Mrs. Banta the owner of the Morning Glory Mine re: possible sale.
GWI WR 5/21/72

Mine visit, the Morning Glory mine. The Forest Service is reported to have removed the buildings completely. GWI WR 9/1/76

CJH WR 11/12/82: Visitors: Juan Chavez, Box 902, Patagonia, AZ 85624 and Bob Rumsey, 6575 E. 22nd Street, Tucson, AZ 85710. Mr. Chavez holds the Blue Nose, Morning Glory, Augusta and Endless Chain mines in the Patagonia District, Santa Cruz County. Along with Mr. Rumsey they are going to put the Morning Glory back into production. They are going to build a mill and ship lead-silver concentrates to ASARCO-El Paso.

CJH WR 7/22/83: Visitors: Juan Chavez and his father, P.O. Box 872, Patagonia, AZ 85624. Telephone - 394-2755. He has dissolved his old company, Impossible Dream, Inc., and formed a new one, Sonora Mineral, Inc. at the above address. Financing for his Morning Glory mine, Harshaw District, Santa Cruz County, is hard to come by. Kerley Chemicals of Sahuarita may be interested. They are sending their geologist David Kept to look at it. Suggested that he also contact the Escapules in Tombstone.

MG WR 8/31/84: Mrs. Nadia Banta (c) called to discuss filing for her affidavits of labor. Mrs. Banta owns the Blue Nose and the Morning Glory mines in Santa Cruz County. Mrs. Banta said she would be willing to let the department copy various engineering reports on her properties.

COBALT NO. 1 9/84 SANTA CRUZ COUNTY
T23S R16E Sec 21 SE¼

MG WR 8/31/84: Mrs. Nadia Banta (c) called to discuss filing fees for her affidavits of labor. Mrs. Banta owns the Blue Nose, Morning Glory, Banta and Cobalt No. 1 claim, all in Santa Cruz Co. Mrs. Banta said she was willing to let the Department copy various engineering reports on her properties.

BANTA SANTA CRUZ COUNTY
Patagonia District
gold, silver, copper and lead T23S R16E Sec. 15

See: Gold Depository & Loan Company - (file)
Tan folder of properties

MG WR 8/31/84: Mrs. Nadia Banta (c) called to discuss filing fees for her affidavits of labor. She ows the Banta claims in the NE¼, Sec 22 T23S R16E.

MORNING GLORY MINE SANTA CRUZ COUNTY

Production from the Morning Glory mine, Harshaw district, Santa Cruz Co., reported to the U.S. Bureau of Mines:

Production reported during years: 1907-08, 1910, 1912-13, 1918-19, 1922-24, 1928-29

Cumulative Totals: 5,008 tons of ore treated, yielding:
196,128 pounds of copper
10,853 pounds of zinc
21,885 ounces of silver
21 ounces of gold

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PHOENIX, ARIZONA

M N Greeley
7-28-83

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO.	2.	3. Recipient's Accession No.

4. Title and Subtitle

Mineral appraisal of Coronado National Forest, part 7
Patagonia Mountains-Canelo Hills Unit, Cochise and Santa Cruz Counties, Arizona

5. Report Date 1994

6.

7. Author(s)

Mark L. Chatman

8. Performing Organization Rept. No.

9. Performing Organization Name and Address

U.S. Bureau of Mines
Intermountain Field Operations Center, Resource Evaluation Branch
Box 25086
Denver, CO 80225-0086

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.

(C)

(G)

12. Sponsoring Organization Name and Address

13. Type of Report & Period Covered

14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

This report presents an economic mineral assessment and inventory of mines and prospects in the approximately 176,000-acre Patagonia Mountains-Canelo Hills Unit of Coronado National Forest. Deposits or areas most likely to experience future development are characterized in terms of their economics, based on data acquired by the author from a variety of sources, and supplemented by USBM field data collected by other workers in 1990 and 1991. Numerous mine maps, rock-chip sample assays, and detailed descriptions of mine and prospect sites are in this report and appendixes.

Heavy but sporadic mining, mainly between the 1850's and 1950's was nearly all confined to the Patagonia Mountains. High-grade sulfide veins, replacements, and skarn deposits accounted for most of the production, which included large quantities of zinc, lead, copper, and silver, and considerable quantities of gold. Small quantities of molybdenum, manganese, tungsten, and placer gold have been mined. Most of the traditionally mined metalliferous sites will not see future activity due to the low tonnages present and removal of most high-grade rock. Possible future development areas include copper porphyries and breccia pipes; most are too deeply buried for current development. Localities where similar deposits may be concealed are identified.

17. Document Analysis a. Descriptors

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
	20. Security Class (This Page)	22. Price

(See ANSI–Z39.18) *See Instructions on Reverse* OPTIONAL FORM 272 (4–77) (Formerly NTIS–35) Department of Commerce

Sample nos. PA328-331

Fig. 3

Endless Chain Mine

GEOLOGY.

A 2.5-ft-wide, NE.-trending replacement zone of Cretaceous-age Bisbee Group quartzite with banded chalcopyrite, pyrite, tetrahedrite, and chalcocite, was excavated by scattered adits and an inclined shaft (Schrader, 1915, p. 307-308; Keith, 1975, p. 79). If all the workings on fig. 3 are on this same replacement zone, then it has a strike length of at least 1,600 ft.

HISTORY, DEVELOPMENT, OWNERSHIP, PRODUCTION.

Scattered workings (fig. 3) were mined for 100 st of copper-silver ores prior to 1900. No recent activity is thought to have occurred.

ECONOMIC ANALYSIS AND ENGINEERING DOCUMENTATION.

Silver is present in the mined zone in amounts of 1 oz to 2 oz Ag/st. Copper is geochemically anomalous, but does not occur in concentrations that warrant economic interest. The mined zone is apparently of considerable strike length, but its thin nature precludes its consideration as an economic target for either copper or silver under 1994 market conditions. The maximum gold content is 1.9 ppm at site PA330 (appendix C).

Environmental issues. Acidic effluent observed at the site of inclined shaft PA328-329 apparently is related to highly pyritic, oxidizing mill tailings. Amount of tailings observed in 1994 was 21,000 ft^3, or about 1,100 st. See sample descriptions in appendix B. Dump of the flooded, unsampled adit between PA328-329 and PA330 has been removed by stream erosion. Adit PA331 dump contains about 320,000 ft^3, or 17,000 st (C. E. Ellis, USBM, written commun., 1994).

Sample nos. PA332-334

Fig. 3

Morning Glory Mine

GEOLOGY.

A silicated zone, conformable with bedding in limestone of Cretaceous-age Bisbee Group rocks, dips NW. 40°, is 4-ft to 10-ft-wide, and is at least in part occupied by a rhyolite dike. Rock in the mined zone is pyritic and has high-grade zinc in the upper levels, and high-grade copper-silver in the lower levels. A S. 45°-dipping, high-copper, low-zinc vein was encountered in the bottom of the 200-ft-deep inclined shaft which crosscuts the mined ore zone. The mined zone has not been excavated below a depth of 200-ft. No data were reported concerning its continuity below that level, or its continuity along strike. Ore minerals are pyrite, chalcopyrite, sphalerite, minor galena, with a gangue of banded quartz, hematite, specularite, minor barite. Oxidation, which enhanced the value of the ores during their initial years of development, occurs to depths of at least 50 ft, and much deeper at the N. end of the deposit. High-grade zones of 17% Cu and 15 oz Ag/st were known, as were zones of 60% Zn. Typical ore grades were 3.5% Cu and 3.5 oz Ag/st. (See Schrader, 1915, p. 306-307; Keith, 1975, p. 80.)

HISTORY, DEVELOPMENT, OWNERSHIP, PRODUCTION.

Located and mined in the late 1880's by David Neal and A. S. Henderson for enriched oxides of silver which were roasted at the Mowry Mine facilities or leached. Intersection of the sulfide zone led to abandonment of the site. Relocated in 1895 or 1896, the property apparently experienced sporadic work over several years. Copper ores became the chief interest from 1907 to 1929 and the bulk of the production was for copper. Some ore was shipped in 1912 to the Pioneer smelter at Sahuarita, AZ. Ores were in demand at Sonora, Mexico because their high sulfide content facilitated metal recovery from more basic ores being worked in Mexico.

A shaft was being extended in 1915 at the site by C. B. Wilson, of Helvetia, AZ. At that time, the mine consisted of levels at 50 ft, 100 ft and 150 ft off the inclined shaft. There was stoping and 200 composite ft of drifting off those levels. (See Schrader, 1915, p. 306-307; Keith, 1975, p. 80.) It is not clear from the notes collected by USBM field crews which of the two shafts shown on fig. 3 is the original inclined shaft. The inclined shaft was open during the 1991 USBM visit to the site; the other shaft was caved.

ECONOMIC ANALYSIS AND ENGINEERING DOCUMENTATION.

Subeconomic resources likely remain in the mine. Keith (1975, p. 80) reports life-of-mine production of 5,000 st with average 3% Cu, 4 oz Ag/st, minor Zn and Au. In 1915, when extensive underground development was in place, C. B. Wilson blocked out 50,000 st of copper-silver reserves (3.5% Cu and 3.5 oz Ag/st) (Schrader, 1915, p. 306-307). Of the possible 45,000 st remaining in the mine, none may be recoverable due to mine deterioration over the past 65 years of inactivity. It is unlikely that such a low-tonnage deposit would be put into operation for historical grades of copper and silver. Highest-grade zinc concentrations are more economically interesting, but no tonnages of zinc-rich material are known to be blocked out in the mine. Overall low tonnage would likely preclude further development for zinc as well. The absence of on-strike continuity data for the mined zone precludes a complete analysis.

Environmental issues. The mine dump, highly pyritic and containing approximately 7,000 st of rock, is a source of acidic effluent. Much of it is in and immediately above a drainage. Stream channels downstream are coated with metal hydroxides, proving the movement of metals in acidic solution.

Appendix B--(Patagonia Mountains-Canelo Hills Unit)--contin.

Sample Number	Type	Length	Remarks
PA325	Chip	7.0 ft	Prospect pit; limestone/fractured felsite contact strikes N. 5° E., dips 70° NW., abundant hematite, disseminated pyrite. Extent of zone, pit dimensions, not recorded. See fig. 3.
PA326	Chip	3.0 ft	Augusta Mine adit, crosscuts, then drifts on fault (N. 75° E., 80° SE.). Sample: fault gouge, galena, sphalerite, chalcopyrite. Sulfides are on only 4-in.- to 6-in.-wide footwall side of fault. See fig. 3; mine map, fig. 43.
PA327	Select	XX	Augusta Mine, same material as PA326, from adit dump. See fig. 3; mine map, fig. 43.
PA328	Chip	2.5 ft	Endless Chain Mine, tailings pile (11,000 ft^3, or about 550 st) by caved shaft. Sample: section through tailings; highly pyritic; oxidized layers, gray clay. The shaft is an inclined working, sunk prior to 1915 (Schrader, 1915, p. 308). See fig. 3. Acidic waters leaching from the pile dissolved aluminum trash at the site.
PA329	Select	XX	Endless Chain Mine, same site as PA328. Black, aphanitic, intrusive rock, possibly a sill; contains disseminated pyrite. See fig. 3.
PA330	Select	XX	Endless Chain Mine, caved adit. Sample: vuggy quartz, galena, pyrite, hematite, from 1,200 ft^3 dump (about 60 st). See fig. 3.
PA331	Select	XX	Endless Chain Mine, caved adit; vuggy quartz, abundant pyrite from 320,000 ft^3 dump (about 17,000 st). A high-grade sample. See fig. 3.
PA332	Select	XX	Morning Glory Mine, caved shaft and inclined shaft conceal about 750-ft of workings, based on dump size. Sample: vuggy quartz, abundant pyrite, from dump. See fig. 3.
PA333	Select	XX	Morning Glory Mine; apparently a second select sample from shaft dumps: specular hematite. See fig. 3.
PA334	Select	XX	Morning Glory Mine; apparently a third select sample from the shaft dumps: sphalerite, hematite, quartz, rare chalcopyrite. See fig. 3.

Appendix C-- Patagonia Mountains-Canelo Hills Unit Contin.

Sample no.	Ag (Ppm)	As (Ppm)	Au (Ppb)	Ba (Ppm)	[illegible] (Ppm)	Cd (Ppm)	Ce (Ppm)	Co (Ppm)	Cr (Ppm)	Cs (Ppm)	Eu (Ppm)
PA306	< 5	25	94	490	< 1	< 10	100	< 10	130	6	< 2
PA307	6	24	130	1500	2	< 10	45	< 10	160	5	< 2
PA308	< 5	84	14	1300	2	< 10	85	11	< 50	8	< 2
PA309	< 5	57	< 5	1600	< 1	< 10	80	20	< 50	5	4
PA310	< 5	58	5	760	3	< 10	42	< 10	81	7	< 2
PA311	10	19	45	740	< 1	< 10	55	< 10	180	13	< 2
PA312	< 5	89	< 5	390	< 1	< 10	59	11	150	40	< 2
PA313	6	58	< 5	< 100	< 1	10	19	< 10	200	10	< 2
PA314	14	85	< 5	< 100	< 1	18	37	11	140	20	< 2
PA315	< 5	153	< 5	110	< 1	16	42	< 10	110	35	< 2
PA316	< 5	146	< 5	190	< 1	12	63	< 10	< 50	19	< 2
PA317	< 5	44	< 5	1100	4	< 10	82	< 10	86	26	< 2
PA318	< 5	40	< 5	520	< 1	< 10	36	< 10	70	26	< 2
PA319	50	191	1420	< 100	4	< 10	10	14	110	1	< 2
PA320	19	140	240	< 100	3	< 10	10	< 10	280	4	< 2
PA321	>50	1800	56	< 440	< 48	< 52	80	< 10	< 280	2	< 7
PA322	>50	559	24	< 100	5	< 10	30	< 10	210	< 1	< 2
PA323	>50	148	19	340	2	< 10	62	13	< 50	22	< 2
PA324	15	76	21	220	2	< 10	40	< 10	140	8	< 2
PA325	12	180	40	620	2	< 10	44	< 10	84	25	< 2
PA326	>50	1080	34	< 280	< 30	270	47	< 10	< 170	< 1	< 5
PA327	10	39	< 5	360	2	< 10	56	< 10	75	25	< 2
PA328	>50	132	57	100	< 1	< 10	21	170	180	2	< 2
PA329	< 5	40	16	850	< 1	< 10	50	11	230	8	< 2
PA330	>50	1570	1910	< 450	< 50	< 52	81	< 10	< 290	2	< 8
PA331	41	147	43	< 100	< 1	< 10	30	180	390	< 1	< 2
PA332	34	87	110	< 100	2	< 10	32	240	490	< 1	< 2
PA333	>50	48	130	< 100	1	51	10	< 10	100	< 1	< 2
PA334	>50	80	180	< 100	< 1	650	10	< 10	140	< 1	< 2
PA335	>50	328	58	380	32	720	30	51	< 110	< 1	< 2
PA336	10	144	45	3500	1	15	100	18	< 50	15	< 2
PA337	>50	471	70	1300	69	< 77	64	19	< 230	2	< 7
PA338	14	307	17	1700	9	< 10	66	16	< 130	7	3
PA339	>50	1420	< 160	7400	151	< 170	150	110	< 530	38	< 16
PA340	>50	1460	37	490	28	54	10	< 10	120	5	< 2
PA341	>50	1350	39	690	20	< 10	43	< 10	290	21	< 2
PA342	>50	4160	55	2400	69	< 58	49	< 10	< 180	4	< 5
PA343	>50	1020	73	310	11	< 10	33	< 10	290	19	< 2
PA344	>50	402	61	350	8	< 10	33	< 10	260	37	4
PA345	6	32	320	< 100	5	11	< 25	< 10	230	3	< 2
PA346	< 5	20	< 5	< 100	6	< 10	54	< 10	340	3	< 2
PA347	< 5	37	< 5	510	5	< 10	63	< 10	300	5	< 2

Appendix D--Patag ia Mou ains-Canelo Hills Unit --cont 1 of 2

Sample Number	Ag (Ppm)	Al (Pct)	As (Ppm)	Ba (Ppm)	Be (Ppm)	Bi (Ppm)	Ca (Pct)	Cd (Ppm)	Co (Ppm)	Cr (Ppm)	Cu (Ppm)	Fe (Pct)	Ga (Ppm)	Hg (Ppm)
PA296	107.6	0.77	530	50	< 0.5	56	0.03	16.0	3	50	4328	5.98	< 10	< 1
PA297	13.0	1.10	325	90	< 0.5	< 2	0.03	2.5	12	39	963	5.68	< 10	< 1
PA298	115.6	0.97	195	70	< 0.5	44	0.03	5.0	14	76	6966	4.41	< 10	5
PA299	3.2	0.46	< 5	50	< 0.5	8	0.02	2.0	6	203	119	2.32	< 10	< 1
PA300	1.6	1.07	30	600	< 0.5	< 2	0.04	0.5	< 1	94	279	12.34	< 10	< 1
PA301	147.6	1.58	810	1180	< 0.5	66	0.04	0.5	4	84	908	3.78	< 10	< 1
PA302	32.2	1.76	440	2370	< 0.5	40	0.02	12.5	15	85	8029	1.46	10	3
PA303	6.40	0.97	710	180	< 0.5	124	0.02	13.5	6	136	924	2.65	< 10	< 1
PA304	3.2	1.25	75	120	< 0.5	6	0.02	73.5	12	114	753	3.12	< 10	< 1
PA305	26.0	1.10	195	180	< 0.5	32	0.01	9.0	4	58	7090	2.92	< 10	< 1
PA306	1.4	0.39	5	120	< 0.5	10	0.01	1.5	< 1	23	399	0.96	< 10	< 1
PA307	5.4	0.46	< 5	1310	< 0.5	< 2	0.02	0.5	< 1	50	43	1.72	< 10	< 1
PA308	2.0	2.16	80	30	< 0.5	< 2	0.34	0.5	9	12	97	4.84	20	8
PA309	0.4	1.96	35	30	< 0.5	< 2	0.54	0.5	11	23	244	4.06	10	2
PA310	3.8	1.32	55	330	< 0.5	< 2	0.01	< 0.5	< 1	41	105	14.00	< 10	< 1
PA311	7.4	0.80	30	80	< 0.5	16	0.03	3.5	< 1	113	17	0.69	10	< 1
PA312	4.6	2.61	115	30	5.0	14	2.61	8.5	12	113	84	3.14	< 10	4
PA313	3.4	1.00	75	< 10	1.0	2	12.09	9.5	6	166	29	0.94	< 10	5
PA314	13.4	2.65	95	10	4.0	32	7.26	19.0	10	143	63	3.15	< 10	< 1
PA315	2.8	2.56	135	40	3.5	< 2	12.31	13.5	10	90	90	3.01	< 10	1
PA316	2.4	2.04	150	10	5.0	2	9.92	11.0	9	34	174	2.97	< 10	2
PA317	1.0	1.32	45	30	0.5	< 2	1.51	0.5	5	66	46	2.46	10	2
PA318	2.0	2.24	65	20	< 0.5	< 2	0.18	< 0.5	1	42	21	3.00	20	6
PA319	40.8	0.44	210	< 10	< 0.5	70	0.98	< 0.5	53	118	193	6.78	< 10	28
PA320	15.6	0.39	125	30	< 0.5	6	0.42	< 0.5	9	313	76	4.59	10	< 1
PA321	176.2	0.28	1580	< 10	< 0.5	8	0.11	30.0	4	322	720	2.46	< 10	< 1
PA322	75.0	0.45	520	< 10	< 0.5	4	0.30	6.5	6	263	349	2.19	< 10	7
PA323	114.0	1.21	85	70	< 0.5	24	0.37	10.5	2	38	671	4.43	10	< 1
PA324	12.4	0.72	50	30	< 0.5	< 2	0.62	0.5	< 1	130	148	1.69	< 10	2
PA325	8.0	1.88	195	60	< 0.5	6	1.22	6.0	4	35	125	3.74	10	2
PA326	> 200.0	0.08	945	< 10	< 0.5	12	7.48	>100.0	9	148	200	1.24	< 10	5
PA327	6.8	1.19	50	110	< 0.5	2	0.29	11.5	2	29	14	0.34	10	< 1
PA328	69.8	1.31	105	20	< 0.5	422	0.85	1.5	110	151	3151	>15.00	< 10	< 1
PA329	3.6	2.59	20	60	< 0.5	14	1.34	< 0.5	8	201	132	3.50	< 10	< 1
PA330	65.6	0.40	1310	< 10	< 0.5	10	3.88	5.0	5	351	2596	5.76	< 10	< 1
PA331	39.8	0.29	180	10	< 0.5	184	0.13	< 0.5	129	310	448	>15.00	< 10	5
PA332	34.2	0.24	35	10	< 0.5	110	0.34	0.5	166	387	123	>15.00	< 10	< 1
PA333	116.8	1.27	50	< 10	< 0.5	240	0.31	56.0	< 1	104	1818	>15.00	< 10	< 1
PA334	177.6	1.30	80	< 10	< 0.5	302	0.30	>100.0	11	140	7344	>15.00	< 10	6
PA335	8.92*	0.24	285	20	< 0.5	< 2	0.66	>100.0	95	19	1415	4.97	< 10	< 1
PA336	13.8	0.76	115	50	< 0.5	< 2	0.20	30.5	30	13	72	2.71	< 10	8
PA337	53.40*	0.97	180	210	< 0.5	< 20	0.23	16.0	25	19	3.68%	4.24	< 10	13
PA338	30.2	0.61	240	40	< 0.5	< 2	0.22	5.5	23	45	666	6.04	< 10	5
PA339	17.70*	1.11	805	5000	5.0	< 2	0.24	>100.0	146	6	2503	4.28	< 10	< 1

APPEND D 2 of 2

K (Pct)	La (Ppm)	Mg (Pct)	Mn (Ppm)	Mo (Ppm)	Na (Pct)	Ni (Ppm)	P (Ppm)	(Ppm)	Sb (Ppm)	Sc (Ppm)	Sr (Ppm)	Ti (Pct)	Tl (Ppm)	U (Ppm)
0.98	20	0.06	275	30	0.06	5	250	2.29%	1370	2	19	< 0.01	< 10	< 10
0.58	10	0.06	150	4	0.03	16	350	3112	100	3	30	< 0.01	< 10	< 10
0.48	20	0.04	80	7	0.02	38	970	1.00%	875	3	60	< 0.01	< 10	< 10
0.31	10	0.01	55	10	0.02	13	60	120	10	< 1	11	< 0.01	< 10	< 10
0.39	20	0.03	420	11	0.03	< 1	1240	478	35	3	29	< 0.01	< 10	< 10
1.17	10	0.05	100	3	0.05	< 1	1270	4756	575	1	50	< 0.01	< 10	< 10
0.73	< 10	0.05	125	3	0.02	< 1	330	2208	160	1	14	< 0.01	< 10	< 10
0.51	10	0.03	70	8	0.04	9	390	2724	1455	1	20	< 0.01	< 10	< 10
0.62	30	0.08	130	9	0.03	19	440	298	10	3	27	< 0.01	< 10	40
0.84	30	0.02	60	3	0.04	< 1	920	4950	200	1	28	< 0.01	< 10	20
0.31	< 10	0.01	35	8	0.01	5	40	168	< 5	< 1	3	< 0.01	< 10	< 10
0.35	< 10	0.02	290	4	0.02	1	40	78	< 5	< 1	5	< 0.01	< 10	10
0.14	20	1.65	1245	4	0.03	12	1370	634	< 5	8	23	0.05	< 10	< 10
0.19	10	1.83	1180	1	0.04	16	1320	26	< 5	7	29	0.12	< 10	10
0.19	< 10	0.03	40	4	< 0.01	7	230	2	5	1	19	< 0.01	< 10	< 10
0.26	10	0.11	35	5	< 0.01	< 1	240	438	5	< 1	24	0.01	< 10	< 10
0.15	20	0.90	> 10000	2	0.02	14	800	2564	5	7	238	0.18	20	< 10
< 0.01	< 10	0.70	> 10000	8	< 0.01	6	190	1928	5	2	75	0.04	< 10	< 10
< 0.01	< 10	2.19	> 10000	4	< 0.01	21	720	> 10000	10	5	24	0.17	< 10	< 10
0.49	< 10	1.86	> 10000	3	< 0.01	17	830	474	10	4	141	0.03	< 10	< 10
0.05	< 10	1.04	7905	< 1	< 0.01	3	650	386	10	4	65	0.01	< 10	< 10
0.23	10	0.58	1535	3	0.05	< 1	700	108	5	4	47	0.14	40	< 10
0.15	10	0.75	440	4	< 0.01	2	420	84	5	7	29	0.09	60	< 10
< 0.01	30	0.31	> 10000	12	< 0.01	19	580	248	50	2	2	< 0.01	70	80
0.08	< 10	0.05	> 10000	4	< 0.01	24	580	104	15	2	4	< 0.01	20	< 10
0.05	< 10	0.02	7260	9	< 0.01	20	120	> 10000	1500	1	3	< 0.01	50	< 10
0.07	< 10	0.05	> 10000	10	< 0.01	16	850	> 10000	250	1	4	< 0.01	< 10	< 10
0.57	20	0.19	6850	25	0.01	8	940	> 10000	305 2876	4	19	0.01	< 10	< 10
0.24	< 10	0.04	390	402	0.01	7	350	3036	30 656	2	10	< 0.01	< 10	< 10
0.51	10	0.72	485	< 1	0.04	< 1	750	1862	10 2910	4	46	0.02	30	< 10
< 0.01	< 10	0.01	> 10000	1	< 0.01	< 1	460	> 10000	960 >10000	< 1	25	< 0.01	110	< 10
0.52	< 10	0.07	405	< 1	< 0.01	< 1	60	2214	15 4756	2	11	0.01	50	< 10
0.14	< 10	0.28	1360	27	< 0.01	25	110	1152	10 474	4	15	0.03	< 10	< 10
0.43	10	0.69	400	10	0.28	11	530	312	5 164	7	170	0.20	< 10	< 10
0.01	< 10	0.07	6445	17	0.02	10	120	> 10000	1350 2342	1	42	0.01	< 10	< 10
0.04	< 10	0.02	135	19	< 0.01	9	< 10	332	5 310	2	2	0.01	< 10	< 10
0.02	< 10	0.02	180	14	< 0.01	19	< 10	1914	35 352	2	10	0.01	< 10	< 10
< 0.01	< 10	0.39	> 10000	7	< 0.01	13	140	670	5 >10000	4	2	0.03	< 10	< 10
0.06	< 10	0.38	> 10000	9	< 0.01	< 1	1030	1210	5 >10000	4	2	0.01	< 10	< 10
0.03	30	0.49	32.80%	< 1	0.02	15	630	4.11%	555 13.4%	7	12	< 0.01	< 10	< 10
0.44	40	0.24	10.20%	8	0.04	4	460	1570	25	2	923	< 0.01	< 10	< 10
0.18	10	0.13	4690	3	0.02	8	< 200	1.50%	230	1	25	< 0.01	10	< 10
0.29	30	0.09	6085	< 1	0.03	20	920	1050	260	6	8	< 0.01	< 10	< 10
1.30	30	0.31	27.90%	21	0.06	30	930	998	3755	4	1758	0.04	200	< 10

~ 1994 OR 1995 : DATE OF REPORT

LEO BYRNES
918 250 3761
FAX 918 250 3761
TO
Alfred Wiemann

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II. PROPERTY DESCRIPTION - The subject property consists of an unpatented association placer claim and totals 160 acres. The ENDLESS GLORY mining property is situated in Santa Cruz County, Arizona. The claim is properly recorded and documented with both the Santa Cruz County Recorder's office and the Arizona state B.L.M. office. The claim was staked and filed in January, 1993 and have been assigned ARC # 329696. The attachments include the B.L.M. filing receipt and the county recorded mining claim notice.

The property contains many old workings and prospects. The excavations include drifts, shafts, trenches, prospect holes and roadways. Extreme care should be taken when exploring these diggings. The area of mineralization usually exist near these surface disturbances and in the washes near and below these diggings. All areas of interest will be discussed in the following sections of this report.

III. GEOGRAPHIC LOCATION - The geographic location of the subject property is shown in the subsequent paragraphs.

A. GENERAL LOCATION - As stated earlier, the ENDLESS GLORY mining property is located in Santa Cruz County, Arizona. Attachment #1 shows the property location on a western U.S. map, and Attachment #2 shows the property on an Arizona state map. The area of southern Arizona contains several broad mountain ranges which are separated by valleys which run in a

north - south direction. The mountainous regions may contain vast amounts of base metals along with economical values of silver and gold. The region is quite arid and water is scarce. The mild winters and warm summers yield good year - around mining. If summer mining is scheduled, it is advised that strenuous activity be curtailed during the few very hot summer days.

B. SITE LOCATION - The mining property is situated in the Coronado National Forest, approximately 15 miles south of Patagonia, Arizona and 10 miles north of the Arizona - Mexico border. The area is mountainous, with elevations on the subject property ranging from 5,220 feet to 6,000 feet. The subject property lies in R16E, T23S and is in an area of extensive early mining of base metals. Several areas of patented mining claims are in the area. Access to the property is good, with several National Forest roads and jeep trails dissecting the mining area. Attachment #3 shows the outline of the ENDLESS GLORY property on a U.S.G.S. contour map. While water in the general area is scarce, there is sufficient water on the claim due to a year - around stream that flows through the west and north sides of the property. The lode mines exist throughout the entire claim area and the lode areas of interest include the Morning Glory and Endless Chain mines. The

majority of placer areas in the claim are in the stream and below the lode disturbances. The lode and placer mineralization will be discussed in the following sections of this report.

Due to the higher elevation, the foliage on the property consists of low to moderate cedars and oaks, with manzanitas and the side slopes. Grasses and cactus exist in the lower wash areas. Clearing of land for mining use should be very easy throughout the mining property.

The nearest town which can supply common products and services is Nogales, Arizona, which is situated approximately 20 miles southwest of the mine area. The nearest major city, which can supply specialized products and services is Tucson, Arizona, which is approximately 80 miles northwest of the subject property.

IV. HISTORY - Valuable minerals were first discovered in the region by native americans centuries ago. The spanish explorers also found this area to be very rich in gold, silver, copper, lead and zinc. The first american prospectors probably discovered this area in the mid 1880's, but were unable to mine the area due to pressure from the local indians. The first mining by prospectors was for the base metals, but recent exploration has emphasized the values of gold silver. It is

property is presented in the following paragraphs:

A. REGIONAL GEOLOGY - The geology of southern Arizona is mountainous areas of granite and rhyolite with valleys of tertiarys and very small new alluvials. The majority of mountains in the region are intruded by cretaceous volcanics and laramide quartz dikes and barites.

B. SITE GEOLOGY - The geology of the subject property is very similar to that of the region. The ENDLESS GLORY claim is situated in a mountainous area made up of limestones and rhyolites which are intersected by veins of quartz and barite. The veins of quartz contain high amounts of sulfides, such as galena, pyrite, chalcopyrite, marcasite, and arsenopyrite. The gold, lead, copper, zinc and silver values appear to be associated with these sulfides and occur in lenses and pockets. The veins of quartz are up to 7 feet thick and are readily easily seen on the surface. It is quite obvious, from even a fast inspection of the mining areas, that there will be large amounts of economic base metals obtained in any mining operation. These base metals are just as high in mine dollar values as the gold and silver values.

The placer values are found in the washes that are below and through the mineralized lode veins. It is probable that any type of gravity concentration recovery circuit used for the

placer gold extraction will also recover the majority of the base metals present in the placer ores. Mining and geological data presented in this report are shown and included in the attachments. As shown in the production data, there were records of metals mined from the Morning Glory and Endless Chain mines. It is probable that there were significant amounts of production which were not recorded or documented. It should be mentioned that the early mine production emphasized the recovery of the base metals (copper, lead and zinc), and the mine recoveries were not designed for the recovery of gold or silver.

VI. TEST DATA - As stated in an earlier section of this report, numerous samples and assays were performed on the subject property in the past. In addition, there were many samples and assays taken in the compiling of data for this report. These consisted of wash samples taken from waterways on the property, and rock chip samples and channel samples taken from the mineralized veins on the property. The assays were all fire assays and conformed to the standard industry practice. The assays on the rock samples show both base metal and precious metal values, as were the assays for the wash (placer) samples. It should be mentioned that the assay data probably only define a portion of the total areas that carry

I. PURPOSE - The purpose of this report is to present all known data on the subject property in an organized and easy to understand format. The report will show the property's geographic location, mining history, geological structure, assay data, estimated metal values, recovery possibilities, future testing suggestions and an appraisal of the property's value. It is understood that this report includes all information concerning the subject property and as future data is obtained, it should be attached or enclosed with this report.

Also, it is hereby stated that GEOSOURCE GOLD PROPERTIES may be a principle (directly or indirectly) in the ownership of the subject property and, while every effort has been made to compile and evaluate all data objectively, any perspective buyer or investor may contract the services of another engineer to help answer any questions he (they) may have.

In being contracted to compile this report, it is agreed to by GEOSOURCE GOLD PROPERTIES that no copies of this report are presented to any parties other than the contractor. Additional copies of this report are available only through the contractor.

II. PROPERTY DESCRIPTION - The subject property consists of an unpatented association placer claim and totals 160 acres. The

ORIGINAL

This instrument was recorded at request of:

SAN TANA, INC.
3104 E. Camelback Rd. #364
Phoenix, AZ 85016

The recording official is directed to return the instrument or a copy to the above person.

INSTRUMENT # 937210
OFFICIAL RECORDS OF
SANTA CRUZ COUNTY
MARY LOU G SAINI
COUNTY RECORDER
REQUEST OF :
SAN TANA, INC.
DATE: 09/30/93 TIME: 11.00
FEE: 8.00
DOCK 622 PAGE 562 PAGES: 2

Space Reserved For Recording Information

LOCATION NOTICE FOR MINING CLAIM

BLM-Lr 9 Lr-x Forms 3-M

DOCK 622 PAGE 562

Claim (Name and Number, if used)
ENDLESS GLORY

Type of Claim
Association
☒ Placer ☐ Lode ☐ Millsite ☐ Tunnelsite

Date of Location of Claim
September 1, 1993

LOCATOR OR OWNER (Name, Address and Zip Code)
Harry E. Coates, Silvina S. Coates, Douglas Julsen, Karen Julsen, Wendy Julsen, Kelly Julsen, Spence D. Whatley and San Tana, Inc., a Nevada Corporation. All c/o San Tana, Inc. 3104 E. Camelback Rd., #364, Phoenix, AZ 85016
Sold 1994 to DeLoddland E. Bullas
2/10/94 #202-6123

Type of Notice
☐ Amendment to → ☒ Original Notice ☐ Relocation Notice
If an Amendment or Relocation, Claim was named N/A in the prior notice

recorded at Docket N/A, Page N/A Mining District N/A County, Arizona

General Course of Claim is from the North to the South

Layout of Claim
Claim is 2640 feet long and 2640 feet wide.
Distance from location monument to each end of the Claim is 50 feet in a North direction and 2590 feet in a South direction.

Locality of Notice of Claim and Monument with reference to some natural object or permanent monument
BM 5254 is approximately 2800' @ 025° from Claim Monument.

Effective Date of Notice
September 1, 1993

Harry E. Coates, agent
Signature of Locator

INSTRUCTIONS Within 90 days of location of claim:
1. Complete above portion of form and post on location monument, and
2. Complete two additional copies of entire form, including map on backside, record one with County Recorder and file other with proper BLM office.

Types of Monuments
Location Monument is made of 4x4 wood posts and
Corner and End Monuments are made of 4x4 wood posts

Description of Claim
To observe the perimeter of the Claim begin at the NE corner and trave
in a South direction 2640 feet to the SE corner monument, thence
in a North direction 2640 feet to the CN corner monument, thence
in a East direction 2640 feet to the NE corner monument, thence

Location of Claim
The Claim lies in the NW quarter of section 17
Township 24S Range 16E G & SR B&M Harshaw
Mining District or Colloquial Subdivision, Santa Cruz County, Arizona,
The NE corner of the claim lies 2700 feet in a 170° direction
from the public or established survey monument or permanent natural object described as: BM 5254

good metal values. It is almost certain that in the course of further exploration and sampling, additional areas of mineralization and economic material would be discovered. The test data compiled from the assays performed on the subject property can be summarized into the following areas of economic ore:

Northern placer areas. The north and west portion of the property contains two areas of placer values. One area contains the northwest drainage and contains approximately 15,000 tons of gravels and sands that assayed .10 opt gold, 2.2% copper, 4.2 opt silver and 2.3% zinc. The second area contains approximately 100,000 tons of placer material in the north and northeast portion of the property. This area assayed .12 opt gold, 3.2% copper, 6.6 opt silver and 1.4% zinc.

Southern placer areas. These include the southwest and central placers that contain approximately 25,000 tons of ore that averaged .18 opt gold, 4.0% copper, 4.8 opt silver and 2.6% zinc.

Endless Chain Mine. This mine site is believed to contain about 10,000 tons of lode/vein material averaging .59 opt gold, 3.0% copper, .9 opt silver and 1.9% zinc.

Morning Glory West Extension. This site is very extensive and it's main drift is inaccessible. The only material

that was tested from this mine site was the dump tails which total approximately 100,000 tons that assayed .37 opt gold, 3.0% copper, 6.2 opt silver and 1.1% zinc. Morning Glory Mine. This site is also quite extensive and the dumps total approximately 20,000 tons that assay .18 opt gold, 2.9% copper, 3.4 opt silver and 1.4% zinc. Situated below the Morning Glory Mine is another smaller drainage that slopes to the northeast. This wash was tested for placer values and averaged .29 opt gold, 4.2% copper, 5.0 opt silver and 2.2% zinc. There is an estimated 10,000 tons of placer material at this location.

VII. ESTIMATED METAL VALUES - The subject property's estimated metal values will be discussed in two sections of this report. The first will be the primary metals, which on this property are gold and silver, and the secondary metals of copper and zinc. This will omit the relatively minor amounts of other base metals present such as lead, manganese, etc. Also, the total amount of base metal resources may be higher than that for gold and silver. The total gold value on the property is the total of the gold values stated in the previous section, or approximately 67,400 ounces of gold. The total silver values on the subject property is approximately 1,626,000 ounces of silver.

The total values of the secondary metals is approximately

DOUGLAS M. JULSEN

Personal History and Bibliography

I. EARLY HISTORY and EDUCATION.

Born Minneapolis, Minnesota Nov. 23, 1947

High School Hopkins H.S., Hopkins, Mn. Graduated 1965

College University of Minnesota, Institute of Technology. Graduated 1970

BS degrees, Mining Engineering and Geological Engineering, one course short of a BS in Petroleum Engineering, all are 5 year degrees.

II. POST GRADUATE WORK. 1970

Structural and Soils Engineer Soil Testing of Mn.

Performed concrete stress testing, soil gradations, Drill Hole Logging and sampling, Percolation tests. Performed all sub-surface foundation concrete stress testing on the I.D.S. Building, Minneapolis, Mn. 67 story hi-rise. Member A.I.M.E.

III. MILATARY.

Enlisted, USAF, 1970 - 1975

Officer Training School Aug- Nov 1970
Graduated as Commissioned 2nd Lt, USAF Nov 1970

Numerous Flight Training and Survival Schools 1971-72

1 year tour in Southeast Asia. 1972-73
flew 97 combat missions over North Vietnam F-105G Wild Weasel Aircraft. Flew 175 missions, southeast Asia, same aircraft. Awarded 4 Distinguished Flying Crosses and 17 Air Metals.

Stationed at Lackland AFB, TX, Mather AFB, CA, Nellis AFB, NV, Korat AFB, Thailand, George AFB, CA,

Honorable Discharge, USAF, at rank of Captain regular commission

IV. MINING ENGINEERING

Independent Mining Engineer, Colorado and Calif. 1975-80

Performed complete mining engineering functions for clients and self. These included claim staking, title searches, assaying, sampling, engineering reports, feasibility studies, flow sheets, recovery methods, mine property evaluations, permitting and reclamation.

Developed several mining properties, some of which are self owned and operated.

Owner, Northwest Mineral Services, Oregon. 1980-90

Performed the same functions as stated above. Worked at mining sites in Northern Ca.(Trinity River), Oregon (Ashwood, Baker, Roseburg and Jordon Valley), Nevada (Denio, Winnemucca, Beatty), Montana (Virginia City), Idaho (Sunlight, Idaho City), Arizona (Globe, Safford).

Work included chief engineer at Oregon King Mine, (Oregon's largest silver mine), chief engineer for Oregom Mining and Exploration, project engineer for A-Lot Mining,(Continental Lake, Tipperary, BMAX, and Wonder Rock projects. Staked over 3,500 mining claims, assayed over 300 samples and wrote 18 engineering reports for clients.

Owner, Geotech Engineering, Arizona. 1990

Performed complete mining engineering services as stated above. Acquired several mining properties in NV and AZ. In addition, worked as a consultant and independent engineering contractor for KM Minerals, ID. OMB inc. OR., Nevada Klondike, NV., Mork Enterprises, NV.

Owner, Geosource, Arizona. 1990-present

Performed complete mining engineering functions as stated above. Acquired mining properties in Nevada and Arizona. Prepared Preliminary Engineering Reports on propertys owned by clients and Geosource.

17,660,000 pounds of copper and approximately 8,370,000 pounds of zinc.

If spot prices for the metals are estimated to be $325 per ounce of gold, $3.65 per ounce of silver, $1 per pound of copper and 50¢ per pound of zinc, then the metal value present on the subject property are:

$21,905,000 in gold
$5,935,000 in silver
$17,660,000 in copper
$4,185,000 in zinc

This yields a total metal value for the property of approximately $49,700,000.

VIII. POSSIBLE RECOVERY METHODS - While the estimated gold, silver and base metals in some of the assays were quite high, there were no visible gold seen in the samples. The particle size of the metals in the ore is an important factor when designing a recovery system for metal extraction. Some possible recovery methods that could be used in retrieving the metals from this property are:

water gravity	vat leaching
floatation	amalgamation
heap leaching	centrifuge bowls

or any combination of the above methods.

IX. FUTURE PROJECTS - An important part of any mining venture is a continuous, well planned development schedule. This is true for any size mining operation. A detailed, well documented testing program should be implemented on the

property. This will gather additional information to confirm or better define the extent of the metal values present. This should be done using the most economical method known. While performing any additional testing programs, all government regulations should be obeyed. While the surface placer and tailings can be tested using a small pilot mill, the underground lode deposits would have to be further delineated prior to testing. This could be done by core drilling, etc.

X. PROPERTY EVALUATION - In this section, the subject property will be evaluated two different ways, and then the average of the two methods will be value of the subject property.

A. METAL VALUE METHOD - The first evaluation will be achieved by calculating the property value as a factor of the metal resources existing on the parcel. A conservative factor is to evaluate the property at 3% of its metal value. This equates to a property value of the ENDLESS GLORY site of $1,480,000.

B. COMPARATIVE PROPERTIES - The following is a list of comparable mining properties, and their prices:

SOURCE	LOCATION	TYPE	SIZE(acres)	PRICE	PRICE/ACRE
CMJ 8-90	OR	tails	17 (220,000 tons)	$6,000,000	$350,000
CMJ 12-89	CA	lode	1,800	$67,500,000	$37,500
CMJ 8-92	CA	lode	340	$10,000,000	$29,400
CMJ 4-90	NV	lode	1000	$15,000,000	$15,000
CMJ 9-89	CA	placer	$4,000,000 (reserves)	$675,000	17% of resve

After the first and last comparative is eliminated for high values (they were shown strictly for illustrative purposes), the 3 remaining properties average $27,300 per acre. Therefore the subject property's value using the comparative property method is $27,300 X 160, or $4,368,000.

The property's estimated value is then the LESSER of the two evaluation methods, or $1,490,000.

XI. CONCLUSION - The data presented in the preceding sections of this report is an overview of the subject property as of the report date. The property consists of an unpatented association placer claim totaling 160 acres. The claim is situated in Santa Cruz County, Arizona, and is 15 miles south of Patagonia, Arizona. There are numerous old workings on the subject property and access is via forest service roads. Samples were taken from the claim and assays were performed on these samples. These assays showed some areas of gold, silver, copper and zinc mineralization. The property is estimated to contain 67,400 ounces of gold, 1,626,000 ounces of silver, 17,660,000 pounds of copper and 8,320,000 pounds of zinc. Future work should include a small pilot mill testing program and core drilling to expand reserves and better define the best recovery method. The ENDLESS GLORY mining property is estimated to have a value of $1,490,000.

Douglas M. Julsen, Geological Eng.

CERTIFICATE OF ANALYSIS

Geosource, Gold Properties
Phoenix, Arizona

Date: 1-8-93
Sample Origin: Taken and submitted by
Test Method: Fire assay
Oz/Ton: Troy oz per 2,000 lbs of sample

Sample Number	Gold Oz/Ton	Cu % ~~ppm~~ Gold	Ag Oz/Ton	Zn % ~~ppm~~
NEP2	.13	4.0	7.2	.9
NEP3	.17	1.8	6.9	.6

Assayer: Douglas M. Fisher

Caveat Emptor. This report is provided to the named client for informational purposes only and does not guarantee whether the property it came from has any value. Amounts reported exclude mining costs and losses.

CERTIFICATE OF ANALYSIS

Geosource, Gold Properties
Phoenix, Arizona

Date: 1-8-93
Sample Origin: Taken and submitted by
Test Method: Fire assay
Oz/Ton: Troy oz per 2,000 lbs of sample

Sample Number	Gold Oz/Ton	Cu % ~~ppm~~ Gold	Ag Oz/Ton	Zn % ~~ppm~~
NEP4	.09	2.1	5.5	1.1
CP1	.04	1.7	4.7	3.0

Assayer: Douglas M. Fisher

Caveat Emptor. This report is provided to the named client for informational purposes only and does not guarantee whether the property it came from has any value. Amounts reported exclude mining costs and losses.

CERTIFICATE OF ANALYSIS

Geosource, Gold Properties
Phoenix, Arizona

Date: 1-8-93
Sample Origin: Taken and submitted by
Test Method: Fire assay
Oz/Ton: Troy oz per 2,000 lbs of sample

Sample Number	Gold Oz/Ton	Cu % ~~ppm~~ Gold	Ag Oz/Ton	Zn % ~~ppm~~
NCP2	.11	1.1	6.2	.9
NCP3	.13	8.6	8.1	4.3

CONFIDENTIAL
FOR INHOUSE EYES ONLY

Assayer: Douglas M. Fuller

Caveat Emptor. This report is provided to the named client for informational purposes only and does not guarantee whether the property it came from has any value. Amounts reported exclude mining costs and losses.

CERTIFICATE OF ANALYSIS

Geosource, Gold Properties
Phoenix, Arizona

Date: 1-8-93
Sample Origin: Taken and submitted by
Test Method: Fire assay
Oz/Ton: Troy oz per 2,000 lbs of sample

Sample Number	Gold Oz/Ton	Cu % ~~ppm~~ Gold	Ag Oz/Ton	Zn % ~~ppm~~
NCP4	.17	7.1	11.1	1.1
NEP1	.08	4.0	.8	1.8

Assayer: Douglas M. Fuller

Caveat Emptor. This report is provided to the named client for informational purposes only and does not guarantee whether the property it came from has any value. Amounts reported exclude mining costs and losses.

This materia, was in tan folder. Abstracte

MINERAL PROPERTY ABSTRACT

From Gold Depository + Loan Co file

MINERALS:	Zinc, lead, copper, and minor amounts of silver and gold
PROPERTY NAME:	Morning Glory #1-5 Morning Glory 108 B
CLAIM TYPE:	Lode
LOCATION:	Santa Cruz County, Arizona Patagonia Mining District T. 23S R. 16E Sec. 16 & 17 G&SRB&M Located about 14 miles southeast of Patagonia City, Arizona. 2 miles near claim not accessible by automobile.
GEOLOGY:	The mineralization represented as replacement deposit of pyrite, chalcopyrite, local and spotty sphalerite, minor galena, in a dipping bed of limestone in the Cretaceous Bisbee formation.
RESERVES:	Over the past 200 years, this claim has yielded substantial amounts of zinc, lead and copper. Geologic reports indicate that this claim contains ore reserves.
QUALITY:	Fire assay analysis of mine dump samples indicates the quartz contains noticable amounts of gold and silver. Because there is no accessible entrance to the mine the quantity of the ore reserves have not yet been determined. Portals need to be re-opened to obtain samples to determine current reserves.
FINANCIAL TERMS:	$325,000.00. After downpayment, payments arranged primarily from mine production.
Date:	March 25, 1982 Prepared by: Victor Gad

* GENERAL REFERENCES

REFERENCE 1 F1 < ABGI - USBM F DATA

REFERENCE 2 F2 < USBM FILES, MORNING GLORY MINE

REFERENCE 3 F3 < SCHRADER, FRANK C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA; USGS BULLETIN 582, p. 306 - 307

REFERENCE 4 F4 < TENNEY, JAMES B., 1927-1929, HISTORY OF MINING IN ARIZONA; ARIZONA BUREAU OF MINES, p. 300-301

L110 < SMELTING CO. (→ AJO CONSOLIDATED COPPER CO., SOUTHERN ARIZONA MINING AND SMELTING CO., GOLD HILL MINING AND MILLING CO. (1941); PROPERTY CONSISTS OF 10 OR MORE CONTIGUOUS CLAIMS >

K5 < AND CARRIES BUNCHES OF ZINC BLENDE >

N75 < MINERALIZED SHEET OR SILL OF INTRUSIVE RHYOLITE WHICH HAS BEEN ALMOST COMPLETELY REPLACED >

N80 < FOLLOWED INTRUSION OF RHYOLITE >

F5 < ADMR FILE DATA, MORNING GLORY MINE >
F6 < ABGMT CLIPPINGS FILE, MORNING GLORY MINE - PATAGONIA >
F7 < SIMONS, FRANK S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA; USGS MAP I-762 (1:48000)
F8 < KEITH, STANTON B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA; ARIZONA BUREAU OF MINES BULLETIN 191, p. 80 >
F9 < ABGMT FILES, STANTON B. KEITH >

mlo # 1083

U.S. CRIB-SITE FORM

RECORD IDENTIFICATION

RECORD NUMBER B10 < >
*RECORD TYPE B20 < X, 1, M >
DEPOSIT NUMBER B40 < >
REPORT DATE G1 < 8, 2, ✗, 0, 4 > (YR. MO.)
*INFORMATION SOURCE B30 < 1, 2 >
*FILE LINK IDENT. B50 < USBM - 004023 0295 >
REPORTER(SUPERVISOR) G2 < CALDER SUSAN R. ( ) >
(last, first, middle initial) (last, first, middle initial)
REPORTER AFFILIATION G5 < ABGMT >
*SITE NAME A10 < MORNING GLORY MINE >
SYNONYMS A11 < >

LOCATION

MINING DISTRICT/AREA A30 < HARSHAW DISTRICT >
COUNTY A60 < SANTA CRUZ >
*STATE A50 < A, Z >
*COUNTRY A40 < U, S >
PHYSIOGRAPHIC PROV A63 < 1, 2, ✗ >
DRAINAGE AREA A62 < 1, 5, 0, 5, 0, 3, 0, 1, ✗ LOWER COLORADO >
*LAND STATUS A64 < 4, 1, ✗, ✗, ✗, 1, 9, 7, 9, 1 >
QUADRANGLE NAME A90 < LOCHIEL , 1, 9, 5, 8, 1 >
*QUADRANGLE SCALE A100 < 1, 0, 2, 5, 0, 0 >
SECOND QUAD NAME A93 < HARSHAW , 1, 1, 9, 4, 8, 1 >
SECOND QUAD SCALE A91 < 2, 4, 0, 0, 0 >
ELEVATION A180 < 5600 FT >

UTM
NORTHING A120 < 3, 4, 7, 0, 2, 5 >
EASTING A130 < 5, 2, 5, 9, 5, 0 >
ZONE NUMBER A140 < 1, 2 >

*ACCURATE (ACC) (circle)
ESTIMATED EST < >

GEOGRAPHIC
LATITUDE A90 < 31 - 43 - 41 N >
*LONGITUDE A80 < 110 - 43 - 37 W >

CADASTRAL
*TOWNSHIP(S) A77 < 0, 2, 3, S ✗ >
*RANGE(S) A78 < 0, 1, 6, E ✗ >
*SECTION(S) A79 < 17 ✗ >
*SECTION FRACTION(S) A76 < SE OF SE >
*MERIDIAN(S) A81 < GILA AND SALT RIVER >

*POSITION FROM NEAREST PROMINENT LOCALITY A82 < 3.0 MILES SW OF HARSHAW >
LOCATION COMMENTS A83 < 1 1/4 MILES WEST OF MOWRY MINE, ON SW SIDE OF PATAGONIA - WASHINGTON ROAD >

* ESSENTIAL INFORMATION
+ ESSENTIAL SOMETIMES OR HIGHLY RECOMMENDED

COMMODITY INFORMATION

*COMMODITIES PRESENT C10 <Cu, Ag, Zn, Pb, Au>
*ORE MINERALS C30 < PYRITE; CHALCOCITE; CHALCOPYRITE; SPHALERITE; GALENA; BORNITE >
COMMODITY SUBTYPES C41 <>
*GEN. ANALYTICAL DATA C43 < ORE VALUES AVERAGED 3% CU, 4 OZ./TON Ag, 8% Zn, MINOR Au >
COM. INFO. COMMENTS C50 < PYRITE IS VERY FINELY DISSEMINATED IN FOOTWALL >

SIGNIFICANCE

PRODUCER		NON-PRODUCER	
MAJOR PRODUCTS	MAJOR <Cu>	MAIN COMMODITIES PRESENT	C11 <>
MINOR PRODUCTS	MINOR <Ag, Au, Zn>	MINOR COMMODITIES PRESENT	C12 <>
POTENTIAL PRODUCTS	POTEN <>		
OCCURRENCES	OCCUR <Pb>	OCCURRENCES	OCCUR <>

*PRODUCTION

PRODUCER	NON-PRODUCER
PRODUCTION (YES) (circle) PRODUCTION SIZE (SML) MED LGE (circle one)	PRODUCTION UND NO (circle one)

EXPLORATION OR DEVELOPMENT

*STATUS

PRODUCER	NON-PRODUCER
STATUS AND ACTIVITY A20 <4>	STATUS AND ACTIVITY A20 <>

*DISCOVERER L20 < DAVID NEAL >
*YEAR OF DISCOVERY L10 < 1880's > *NATURE OF DISCOVERY L30 <B> *YEAR OF FIRST PRODUCTION L40 < 1907 > *YEAR OF LAST PRODUCTION L45 < 1929 >
*PRESENT/LAST OWNER A12 < MRS. BANTA (1972) >
*PRESENT/LAST OPERATOR A13 <>
EXPL./DEV.COMMENTS L110 < OWNERS AND OPERATORS INCLUDED A.S. HENDERSON, R. FARRELL, C.B. WILSON (1907-1921) MORNING GLORY MINING CO. (1921-1927), MORNING GLORY MINING AND SMELTING CO., PIONEER >

DESCRIPTION OF DEPOSIT

*DEPOSIT TYPE(S) C40 < REPLACEMENT >
*DEPOSIT FORM/SHAPE M10 < IRREGULAR; SHEETLIKE; BUNCHES >
*DEPTH TO TOP M20 <> *UNITS M21 <> *MAXIMUM LENGTH M40 <> *UNITS M41 <>
*DEPTH TO BOTTOM M30 <> *UNITS M31 <> *MAXIMUM WIDTH M50 < 10 > *UNITS M51 < FT >
*DEPOSIT SIZE M15 (SMALL) M15 <MEDIUM> M15 <LARGE> (circle one) *MAXIMUM THICKNESS M60 <> *UNITS M61 <>
*STRIKE M70 <> *DIP M80 < 40 WNW >
*DIRECTION OF PLUNGE M100 <> *PLUNGE M90 <>
*DEP. DESC. COMMENTS M110 < VEIN PARALLELS DIP OF ENCLOSING LIMESTONE BEDS >

DESCRIPTION OF WORKINGS

*Workings are: SURFACE M120 UNDERGROUND (M130) BOTH M140 (circle one) *OVERALL LENGTH M190 <> *UNITS M191 <>
*DEPTH BELOW SURFACE M160 < 200 > *UNITS M161 < FT > *OVERALL WIDTH M200 <> *UNITS M201 <>
*LENGTH OF WORKINGS M170 <> *UNITS M171 <> *OVERALL AREA M210 <> *UNITS M211 <>
*DESC. OF WORK. COM. M220 < DEVELOPMENTS INCLUDED A 45-DEGREE INCLINED SHAFT TO DEPTHS OF 200 FT; 3 SHAFT LEVELS AT 50, 100, AND 150 FT BELOW SURFACE; 700 FT. TUNNEL; ADDITIONAL 1400 FT OF TUNNEL AND OVER 3000 FT OF DEVELOPMENT WORK >

GEOLOGY

*AGE OF HOST ROCK(S) K1 < E.CRET. >
*HOST ROCK TYPE(S) K1A < SILTSTONE AND MUDSTONE, WITH SOME SANDSTONE, LIMESTONE, AND CONGLOMERATE >
*AGE OF IGNEOUS ROCK(S) K2 < C.RET. >
*IGNEOUS ROCK TYPE(S) K2A < RHYOLITE DIKE >
*AGE OF MINERALIZATION K3 < C.RET.-E.TERT. >
*PERT. MINERALS (NOT ORE) K4 < BARITE; BANDED QUARTZ; HEMATITE; SPECULARITE; EPIDOTE >
*ORE CONTROL/LOCUS K5 < WNW-DIPPING VEINLIKE ORE BED IN LIMESTONE; LARGE E-W. FAULT CUTS VEINS >
*MAJ. REG. TRENDS/STRUCT. N5 < RHYOLITE FORMS DIKES AND INTRUSIVE SHEETS IN LIMESTONE >
*TECTONIC SETTING N15 < UX RANCH FAULT BLOCK >
*SIGNIFICANT LOCAL STRUCT. N70 < LIMESTONE BEDS DIP 40 WNW >
*SIGNIFICANT ALTERATION N75 < SURFACE OXIDATION TO DEPTH OF ABOUT 40 FT; ORE BED APPEARS TO BE A >
*PROCESS OF CONC./ENRICH. N80 < OXIDATION; MINERALIZATION, OR SECONDARY ENRICHMENT, ACCOMPANIED OR >
*FORMATION AGE N30 < E.CRET. >
*FORMATION NAME N30A < BISBEE FORMATION >
SECOND FM AGE N35 <>
SECOND FM NAME N35A <>
*IGNEOUS UNIT AGE N50 <>
*IGNEOUS UNIT NAME N50A <>
SECOND IG. UNIT AGE N55 <>
SECOND IG. UNIT NAME N55A <>
GEOLOGY COMMENTS N85 < LIMESTONE HOST ROCK IS IN PART SILICATED, CHERTY, OR FLINTY, WITH SOME INTERBEDDED STRATA OF QUARTZITE >

GENERAL COMMENTS

GENERAL COMMENTS GEN <>

of the company's power houses was partially flooded. The financial loss to the company amounted to about $45,000, and operations were suspended for 48 hours. The chief loss was that of about 1500 tons of coal, which is difficult and costly to bring to the property; this was washed away by the flood. The concrete dam was constructed to insure a constant supply of water for the compressors and it is stated that the company will probably be somewhat cramped for water this summer.

Miami Copper Company

GLOBE CORRESPONDENCE

J. Parke Channing, vice-president and consulting engineer of the Miami Copper Co., is making a visit of inspection to the mine and speaks optimistically of its future.

"The 570-ft. level is looking remarkably good, the ore being opened by the development work now in progress containing fully as much copper per ton as the average for the orebody. I have never estimated more than 50 ft. of ore below this level, but I am confident that it will extend much deeper, and in time a crosscut will be driven from the main shaft on the 720-ft. level.

"Unexpected ore is being disclosed on the 420-ft. or present extraction level. It has been determined that on all the levels above, the orebody is limited on the north by an approximately east and west fault, but on the 420-ft. level a drift north through this fault has passed through clean ore for a distance of 100 feet.

"Seven shrinkage stopes are in different stages of operation above the 420-ft. level. One is completed and is full of broken ore; mining is being done in three, and three others are in the preparatory stage. After the stopes are finished and filled with broken ore, the pillars will be removed by top slicing, at the same time the ore will be drawn from the stopes so that the capping may settle evenly. Conditions may arise that will permit modifications of this method, such as blasting and weakening the pillars so that they will be crushed and then the ore from the stopes and pillars will be drawn together.

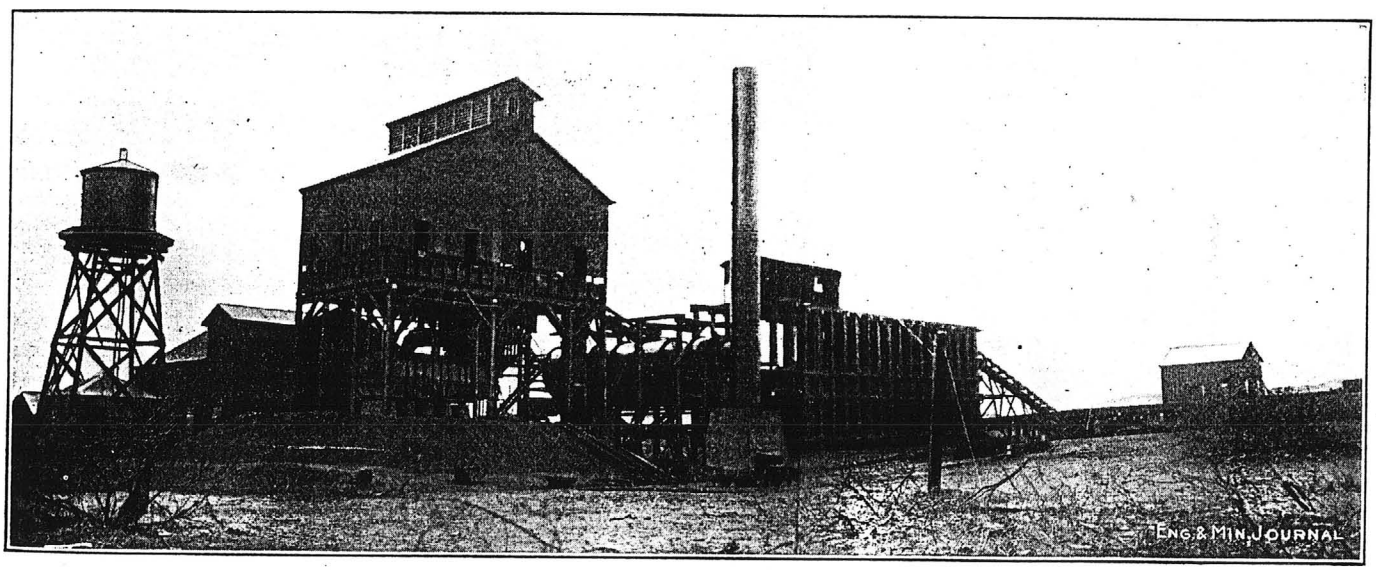
"The cost of mining for last year, as shown in the company's annual report, was $1.21 per ton. It might have been 40c. less if it had been the desire to mine wastefully and without regard to the safety of the men. The excessive cost was due to the large amount of square setting and top slicing done around the top and sides of the orebody for the purpose of forming a mat of timber between the capping and the ore. From many years' experience in similar large ore deposits, I can say unhesitatingly that it is absolutely impossible to mine the ore clean and with safety to the miners without placing a timber mat between the ore and the capping.

"Copper is being produced at the rate of a little less than 3,000,000 lb. per month, but it is hoped soon to bring production up to that figure. Excellent results are being obtained with the Deister tables in the mill, but some changes will be made in the crushing machinery. The Hardinge pebble mills have been demonstrated superior to chilean mills for fine grinding and probably will eventually replace them in all units. It is also probable that the rigid rolls used for the intermediate crushing will be gradually replaced in all units by heavy spring-rolls. The Traylor Engineering & Manufacturing Co. is building an unusually heavy set of spring rolls for use in the mill. They will be of the same size as the spring and rigid rolls now in use, 16x42 in., but the frame will be more massive and the construction throughout heavier. Seven Crocker-Wheeler 150-hp. motors have been ordered to replace the 100-hp. motors now used in driving the rolls. Hardinge ball mills have been tried, but have not thus far proved equal to rolls; the consumption of steel is apparently greater than with the rolls.

The Pioneer Smeltery, Arizona

BY A. L. WATERS*

The new smeltery of the Pioneer Smelting Co. will be blown in about May 1, 1912. It is situated at Corwin, Pima County, on the Twin Buttes railroad spur, 1½ miles west of Sahuarita station and 20 miles south of Tucson, Ariz. It is a custom plant at which ores from the Twin Buttes, Mineral Hill, Helvetia, Tip Top and many of the smaller mines of the district will be smelted. These ores are low grade, containing from 3 to 4½% copper with iron or garnet gangue and for the most part are nearly self fluxing. None of the ore from any one property is entirely self fluxing, nor does any contain enough copper to be profitably shipped out of the district.



GENERAL VIEW OF THE PIONEER SMELTERY, NEAR TUCSON, ARIZ.

The Pioneer company owns the Plumed Knight mine adjoining the Mineral Hill property. It has been opened to a depth of 335 ft. The last 1000 tons shipped to the smeltery assayed: 20c. gold and 1.3 oz. silver per ton, 4.25% copper, 2.5% sulphur, 16.8% iron, 15% lime, 34.24% silica. From this mine 40 tons per day is being shipped to the smeltery, and the Twin Buttes company is shipping 50 tons per day; the ore contains silver and copper, is rich in iron and poor in silica. The Morning Glory mine at Patagonia is shipping 10 tons per day of ore containing 2 oz. silver, 2% copper, 43% sulphur,

*Managing director, Pioneer Smelting Co., Tucson, Ariz.

40% iron and 10% silica. The Gould mine, 12 miles west of Tucson, is controlled by the Pioneer company and is now being unwatered and prepared to ship 30 tons of ore per day which, judged by the production of 1907, is expected to contain 1 oz. silver, 3% copper, 20% sulphur, 24% iron, 14% lime and 23% silica.

Ore Hauled in Motor Trucks

The various mines are several miles from the railroad. The country is gently sloping tableland, running down from the foothills where the ores are found, to the center of the valleys where are the railroads. Several motor trucks have been tried in the vicinity of Tucson and all have been commercial failures. In spite of these discouraging examples, the management considered that the conditions under which the Pioneer plant was to be operated were more suitable and a 6½-ton capacity Saurer truck was acquired to haul ore from the Plumed Knight mine to the smeltery; the distance is 7.7 miles with a fall of 600 ft. There are two hills against the load coming down. Each hill is 300 ft. long and 8% grade. For a long distance there is a steady 3% down grade in favor of the load. The road packs hard and there are no rocks in it to cut the tires. Several small sand washes have been filled with soil that packs well. The truck makes the round trip in two hours; 20 minutes is required for loading and unloading. It travels 94 miles, or makes six trips per day, with two shifts of drivers and uses 18 to 20 gal. of gasoline costing 22c. and 1 gal. of oil at 56c. per gal. The rubber tires traveled 6000 miles and are believed to be good for 2000 miles more. The total cost, including 15% depreciation, interest on investment, insurance, repairs and replacements is 75c. per ton moved. The cost with teams would be from $1.50 to $2 per ton.

Ores are brought in by railroad, truck or teams and weighed on "Strait" scales, all parts of which are above ground and are easily accessible for inspection of the working parts. The ore is unloaded on a trestle 8 ft. above the level of the ground and $^1/_{10}$ is taken in wheelbarrows to storage sample-bins. From these bins it is taken to the mill by a belt conveyor. The mill is small and simple, consisting of a 7x11-in., Dodge crusher, one elevator, a Vezin automatic sampler which delivers to 16x20-in. rolls; the last discharge the sample upon the coning plates where the final cutting down is done by hand and the final pulp is ground by a Braun disk sample-grinder.

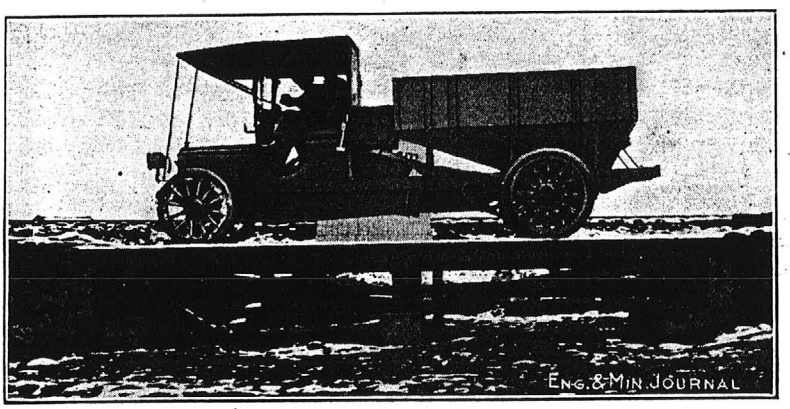
The plant is built on ground that has a general grade of 1 ft. per 100 and drops off 4 ft. per 100 directly in front of the blast furnace. Preliminary plans were drawn for a plant of 1500 tons daily capacity, including reverberatories and converters, and arranged so that the plant could be enlarged. The ores are bedded under the trestles and along the [illegible] of the embankment and are also delivered by belt conveyor to the first unit of six bins, capable of holding 4000 tons of ore. After the ore mixture is made up, it is dumped into a hopper and when wanted is sent to the feed floor on a belt conveyor which discharges into a bin from which the furnace charge is fed through a swinging iron spout. By this method of feeding all the fine material is thrown to one side of the furnace, a distribution which has been found to be necessary in the type of furnace used.

Oil Engines Used

The prime movers are two 90-hp. De La Vergne crude-oil engines. While there is nothing novel about this type of power, it was looked upon with great suspicion by local mining men and is believed to be introduced for the first time at a copper smeltery. These engines drive the blowers, compressor, deep-well pump and the 55-kw. generator, which furnishes power for the sampling mill, belt conveyor, and lights. The engines are operating smoothly on 20° California crude oil with asphalt base. The oil costs $1.47 per bbl. of 42 gal. laid down at the engines. The engines are guaranteed to deliver one brake horsepower hour on 0.6 lb. of this oil and in preliminary tests delivered that power on 0.44 lb. The management estimates that these engines will be more economical by $47 per day than an oil-burning steam power plant of equal size; $40 for difference in cost of fuel and $7 for firemen and incidentals.

Crude Oil Used in Blast Furnace

The blast furnace was designed and built by the Colorado Iron Works Co. and is an application of the principles patented by the late John W. Nesmith, the founder and for many years the president of that company. The furnace is 106x42 in. at the tuyeres and is a modern, small, copper-matting, blast furnace except that a part of one side is removed and a crude-oil burning-chamber is attached. California crude oil will be used as smelting fuel except when the sulphur in [illegible] charge is sufficient to permit turning blast into the one set of tuyeres on one side of the furnace to aid in burning the hot sulphide ore. The combustion chamber really becomes a large hot-blast tuyere where oil is completely burned and driven into and through the column of ore in the furnace. Complete combustion before striking the ore prevents the formation of lampblack which would mix with the half-fused charge and make an infusible mass of balls which has stopped the career of many an experiment in blast-furnace smelting with oil. A 42-in. hexagonal oil-burning furnace was built and operated for many weeks in the yards of the Colorado Iron Works Co. and more than 900 tons of ores containing high percentages of magnetic iron and also alumina were successfully smelted in the furnace and the matte sold to the Golden smeltery. The first three weeks of those tests witnessed repeated freeze-ups and discouraging difficulties; during the succeeding two weeks less trouble was experienced and during the last two weeks the furnace ran smoother than an ordinary coke-burning furnace.



Saurer Truck Used at Pioneer Smeltery

California Oil in March

The net production of petroleum in all California fields in March was 6,923,908 bbl. In February, the total net production was 6,542,682 bbl., an increase for March of 381,226 in total production, but a decrease in daily average production from 225,609 for February to 223,352 for March. The shipments for March were 6,030,906 bbl.; a decline of 3128 in the total, and a decrease in the daily average of 13,528 bbl. Field consumption in March in all fields was 443,089 bbl. The stocks on hand at the end of March amounted to about 43,000,000 bbl., an increase over February of 900,000 barrels.

The record of field development showed 34 new rigs, 73 completed wells, 5464 active producing wells, 820 producing wells idle, 435 active drilling, 366 idle drilling, 21 abandoned.

RAL RESOURCES
zona
airgrounds
ZONA

Returned to
Unknown
Insufficient address
Moved, Left no address
No such office in state
Do not remail to this address

4 cm

PHOENIX, ARIZ.
JUN 13
9 - PM
1958

Mr. J.B. Schriever
Schriever's Studio Incorporated
115 Washington Avenue
Scranton, Penna.

2

ARIZONA DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA

June 12, 1958

Mailed MOR To E.W. McFarland, Box - Hayden 5-13-62 Per AJS

To the Owner or Operator of the Arizona Mining Property named below:

Morning Glory mine	Copper
(Property)	(ore)

We have an old listing of the above property which we would like to have brought up to date.

Please fill out the enclosed Mine Owner's Report form with as complete detail as possible and attach copies of reports, maps, assay returns, shipment returns or other data which you have not sent us before and which might interest a prospective buyer in looking at the property.

Frank P. Knight

FRANK P. KNIGHT,
Director.

Enc: Mine Owner's Report

Mr. J. B. Schriever
115 Washington Avenue
Scranton, Pennsylvania

Dear Mr. Schriever:

I have your letter of June 17 relative to the copper survey which we are making. I am very sorry that you did not give us the information that we are trying to get and which is fundamental to our report; that is, the quantity of copper that can be produced annually, the price necessary to produce it, and the capital investment required.

Under the present economic setup there is very little private capital available for developing copper mines, but nevertheless there is an emergency existing in copper production which the government is going to have to fulfill. It is, therefore, our idea to have it done with government financing. However, in presenting the case to government authorities we must give them the data as to what can be done, the cost of doing it, and some information regarding the ability of the mine to live up to its proposed production.

I am sending to you, and also to Mr. Evans, copies of the questionnaires, and I hope that you can let us have this data in time to include it in our report regarding the Morning Glory Mine. I hope that you can get this information back to us very promptly as we are supposed to complete this report and get it back to Washington by the end of this month.

Thanking you and with kindest personal regards, I am

Yours very truly,

Chairman, Board of Governors
Arizona Department of Mineral Resources

CFW:LP
Enc.

cc: E. H. Evans

SCHRIEVER'S STUDIO INCORPORATED
J. B. SCHRIEVER, *President*
Photographs of Quality
115 WASHINGTON AVENUE
SCRANTON, PENNA.

MINIATURES
WATER COLORS
SEPIA PORTRAITS
PICTURE FRAMES

Scranton Pa. June 17th.1941

Charles F.Willis
Chairman Board of Governors
Arizona Dept.of Mineral Research
Phoenix, Arizona.

Dear Sir;

I am in receipt of your letter with questionaire and appreciate your interest in the Copper mining in Arizona. As President of the Gold Hill Mining and Milling Co. successors of the Morning Glory Mining and Smelting Co. I own the Morning Glory property, but during the depression the mine was striped of all equipment except buildings to pay debts.

Just about the time of the start of the depression we had a mill installed and were shipping copper, then the price was such that we could operate at a profit, but since then the prices have been below cost of mining, Our Ore was all low grade running from 1½ to 2% . We had at that time a proposition from the Anaconda Co. to sell them a half interest at a good price they were to diamond drill five holes to a depth of 1000 feet to reach the richer ore body, but due to the depression they canceled their contract.

If we could interest some one in this property who would diamond drill as formally contemplated I believe they would find a very valuable higher grade Copper besides the large body of low grade ore. but I have not the means to do so.

If you know of any one interested I would be glad to make a very interesting contract with them for the opening up of this ore body. I have a representative in Tucson Arizona. by name of E.H.Evans 1945 Hawthorne St. Tucson,Ariz. who will be pleased to go over the matter with them, unless they prefer writing me direct.I do want to dispose of this property, as we have expended over $700.000.00 developing the property to date. I do want to hold an interest in the property as I have great faith in the ultimate outcome of Morning Glory mine.

To the right party I will make them a contract that will be satisfactory to all concerned.

Very truly,
J.B.Schriever
J.B.Schriever Pres.
Gold Hill Mining & Milling Co.