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PRINTED: 11-16-2011

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: CONGRESS

ALTERNATE NAMES:
- CONGRESS MINE, PATENTED 878
- FRACTION, PATENTED 883
- NIAGARA
- NIAGRA
- GOLDEN KEY
- HERSKOWITZ PROPERTY
- QUEEN OF THE HILLS
- OHAHA
- PLANET MIER
- JAQUAYS
- B AND M
- PATENTED CLAIMS MS 2888 & 3523

YAVAPAI COUNTY MILS NUMBER: 440C

LOCATION: TOWNSHIP 10 N RANGE 6 W SECTION 23 QUARTER N2
LATITUDE: N 34DEG 12MIN 05SEC LONGITUDE: W 112DEG 50MIN 54SEC
TOPO MAP NAME: CONGRESS - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
- GOLD
- SILVER
- COPPER SULFIDE
- FELDSPAR

BIBLIOGRAPHY:

- ADMMR CONGRESS MINE FILE
- ADMMR CONGRESS COLVO FILE
- ADMMR NIAGARA MINE & MILL FILE
- ADMMR GOLDEN KEY FILE
- REPORT OF THE GOVERNOR OF AZ 1899 P 54-56
- WILSON, E.D. ETAL. AZ LODE GOLM MINES AZBM
- METZGER, O.H. GOLD MINING & MILLING IN THE WICKENBURG AREA USBM IC 6991 1938 P 45

CONTINUED ON NEXT PAGE

CONTINUATION OF CONGRESS

USGS BULL 782 P. 5
USGS PP 610 P 49
USBM IC 8969 P. 16, 19-21, 22
BLM MINING DISTRICT SHEETS 309, 310
LAND ALSO IN SEC. 13, 14, 15 & 23
PHOTO FILE - P10, 11, 12, 13

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Congress Mine — Date September 18, 1961

District Martinez Weaver Dist., Yavapai Co. — Engineer Lewis A. Smith

Subject: Interview with D.W. Jaquays

Mr. Jaquays reported that his new tunnel is now in over 1700 feet and had connected with an old workings. The tunnel has over 700 feet to go to reach the Congress shaft. He also stated that some ore was encountered in the tunnel. Some difficulty has been caused by poor land surveys, but Jake now is certain that these are resolved.

Congress Mine (continued)

if necessary, to reach the company's immediate objective which is the downward projection of the Queen of the Hills vein below the old shaft workings on that vein. Compressor, mucking machine, tools, truck, timber etc. had been moved in and drifting was expected to get under way within the next day or so. The job will start on a one shift per day schedule but is expected to go to 2 shifts per day soon after with 5 men working, including Sayre.

The face of the adit was in 860'. At 840' the crew was preparing to crosscut into the north wall to explore in that direction. The course of the adit is approximately N 53° W, and when work is resumed at the face the adit is expected to intersect, at 1400 feet, the Queen of the Hills incline winze at some distance above its bottom. A good quantity of ore was mined in the past in the area served by the winze and some ore reserves are believed to exist here. The winze workings are presently inaccessible. Two men, Sutton and son, were working under Pat Sayre's contract.
TPL Memo 11-29-60

Visited Congress adit job. The adit is in 1200' toward the main Congress workings area. About 200' of lateral exploration has been done a short distance back from the present face.
TPL WR 4-15-61

Visited the Congress adit job. The adit is advancing in hard barren rock at 1500' from the portal. TPL WR 7-22-61

Mr. Jaquays stated that he had the Congress tunnel in 1700 feet and had 750' to go to the shaft. Some good ore was also encountered. LAS WR 9-15-61

The face of the adit was at 1800' from the portal and was being advanced. The crew comprises 4 men including the contractor, Pat Sayre. At 1050 feet from the portal a drift had been run toward the hangingwall at an angle of 45° with the adit and at about 350' the Bellick shaft was cut at the 575' level. The old drift and a small stoped area were only partially accessible. No information was available re the vein values where cut. TPL Memo 10-18-61

This property active Feb. 1962 - 5 men working

In an interview at Congress learned that the Congress adit was continuing at 2300' from the portal. TPL WR 2-17-62

Visited the Congress adit project. The contractor, Pat Sayre, and another man were working preparing to crosscut northerly from the adit at 1600' from the portal. TPL WR 6-29-62

Active Mine List Oct. 1962 - 5 men working

Mr. Jaquays advised that mine closed down. EGW 3-20-63

Interviewed Dan Jacobs at Arrowhead Service Station. Learned that Jaquays has stopped all activities. EGW WR 6-11-63

Production to 1910 $8,700,000 - major metal gold - J.W. Still figures - corres. file

Interview with Dan Jacobs at Arrowhead Service Station - he said that Young and Peterson of Oatman had optioned the Congress Mine to obtain uranium from the mine waters. FTJ WR 6-21-68

CONGRESS MINE YAVAPAI COUNTY

Leased to W. A. Murray, Box 152, Wickenburg, Arizona. Has started some work at mine. Gold and uranium possibilities. EGM 8-18-55

This property idle. Mark Gemmill 5-27-57

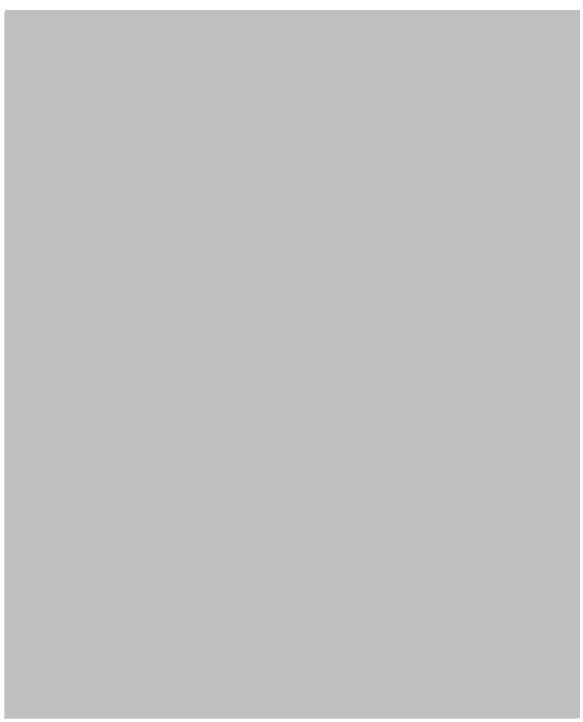
Interviewed Mr. Colburn at Wickenburg. He reports that Jaquays is maintaining his contract (from Colburn) on the Congress Mine by payment of monthly rentals. TPL WR 6-20-59

Visited the Congress Adit development begun a short time ago by Glendel Mining Co., 1219 S. 19th Avenue, Phoenix, Arizona. No one was present at the job site. Ike Kusisto, contractor, has advanced the adit 100 feet to date.

The tunnel portal is on the east slope of a ridge separating Martinez Creek from the area of the old Congress Mine. It is being driven southwesterly toward the old workings on a horizon equivalent to the 650' level of the mine. The ultimate objective in the mine is at a distance of 3000' and in its traverse the adit will intersect the projections of the main veins and a number of other promising veins. TPL WR 10-19-59

Active Mine List Oct. 1959
Active Mine List Feb. 1960

Visited the Congress tunnel project of Glendel Mining Co. Inc. No work was in progress. It is rumored that driving of the tunnel will be resumed soon. The corporation has put out a Prospectus concerning a public offering of 400,000 shares at $1.50 per share. TPL WR 5-14-60



Mining World 10/1955
12/1959
9/1960

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

February 19, 1958

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

GOLDEN KEY	GOLD SILVER
(Property)	(ore)

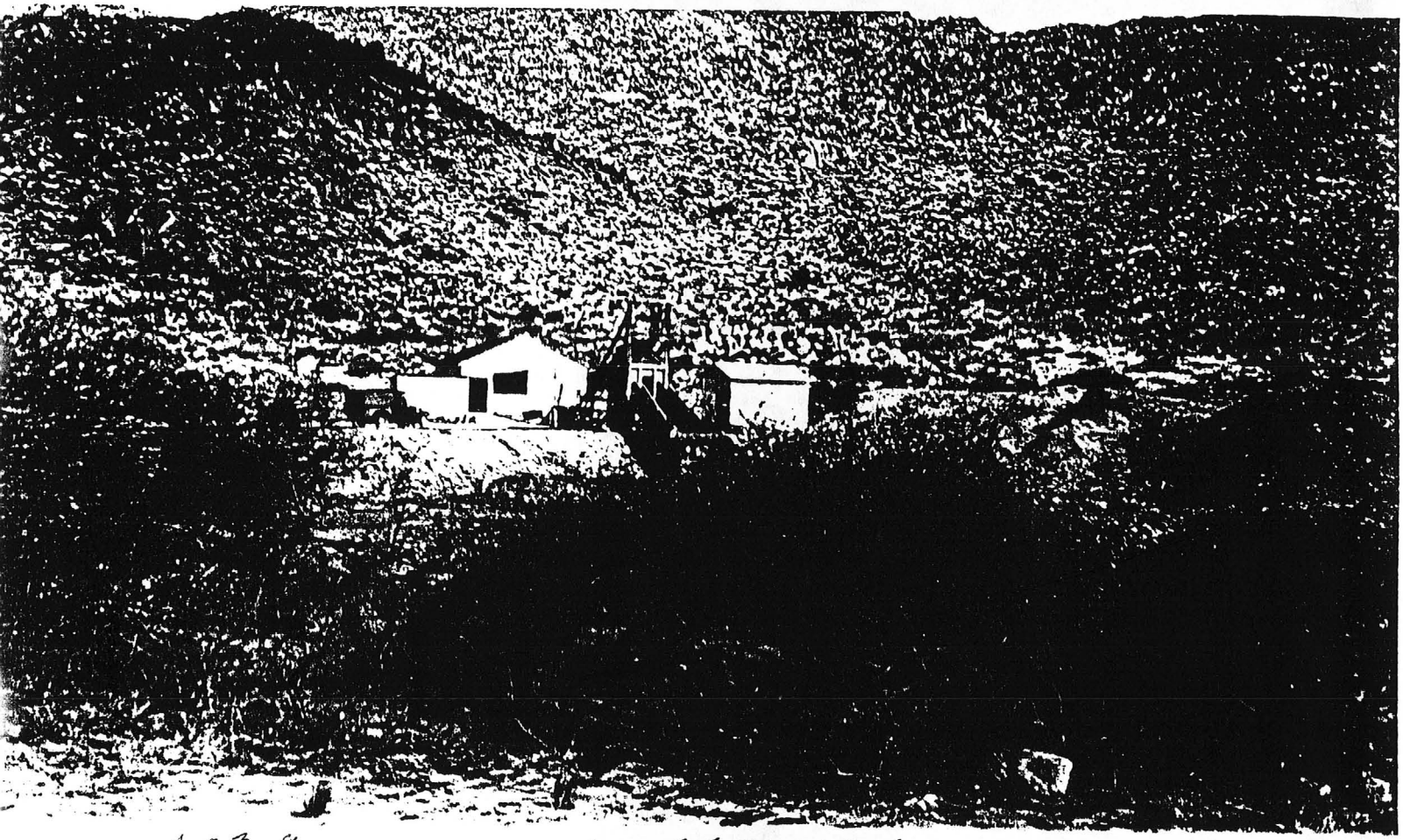
We have an old listing of the above property which we would like to have brought up to date.

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



A-23-9 GOLDEN KEY 250' SHAFT

GOLDEN KEY

Au, Ag

Yavapai 13 - 8 T 10 N, R 6 W

Savage, Weisback & Homes, Congress '39
unclaimed - 8-5-46

OWNERS

SAVAGE, WEISBACH & HOMES,
~~Congress~~, Arizona.
unclaimed - 8/546

MINE

GOLDEN KEY

Morgan, P. J., Pres. Route 10, Box 205
Golden Key Mining Co., Inc. Phoenix, Arizona
~~Congress, Arizona~~ 10-20-39

See GOLDEN KEY - Re Field Engineers Report
(Owner-Savage, Weisbach & Hongs)

T 10N R6W Sec 23 (Mills)

May 27, 1957

GOLDEN KEY

YAVAPAI COUNTY

No information on this property.

MARK GEMMILL

Eagle-Picher File Geology

10/2/81
Bill Nelson of BLM says this property is in Section 14 ~~of~~ not Section 23 as Mills states.

Golden Key Mining Co.Inc. This is the extension of the Niagra Vein of the Congress workings. Property was located by three local men when the claims lapsed. Mc.Donald has option to purchase. Details in News Item.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Date Oct. 20, 1939

Mine Golden Key

Engineer Carl G. Barth, Jr.

District Martinez

Location 4 miles north of Congress on Santa Fe Railroad

Former name

Owner Savage, Weisbach & Hongs

Address Congress

Operator Operator - Golden Key Mng. Co., Inc.

Address Congress

President P. J. Morgan

Gen. Mgr. R. R. McDonald

Mine Supt.

Mill Supt.

Principal Metals Gold, silver

Men Employed

Production Rate

Mill: Type & Cap.

Power: Amt. & Type Gasoline

Operations: Present None

Operations Planned Trying to finance mill.

Number Claims, Title, etc. 12 unpatented.

Description: Topog. & Geog. Low ground - Date Creek Mts.

Mine Workings: Amt. & Condition Shaft 275' (Niagara Vein)
Drifting 300'

(over)

DEPARTMENT OF MINERAL RESOURCES

News Items

Date June 22, 1939

Mine Golden Key

Location West Ext. Congress Mine

Owner Savage, Weisbach & Hogg estate

Address Congress

Operating Co. Golden Key Mng. Co., Inc.

Address Congress

Pres. F. J. Morgan, Cleveland, O.

Genl. Mgr. R.R.McDonald

Mine Supt. "

Mill Supt.

Principal Metals Gold

Men Employed 12 (2 shifts)

Production Rate 30 tons - shipping

Mill, Type & Capacity

Power, Amt. & Type Gas enginer. 300' Gardner-Denver Portable Comp. Gas Hoist

Signed Carl G. Barth, Jr.

(Over)

DEPARTMENT OF MINERAL RESOURCES

News Items

Date Dec. 10, 1939

Mine Golden Key

Location Congress

Owner

Address

Operating Co. Equipment had been installed for

Address unwatering the shaft for examination

Pres. under the direction

Genl. Mgr. of Oscar Hoagen

Mine Supt. for

Mill Supt. J. R. Findley

Principal Metals of Phoenix, Ariz.

Men Employed

Production Rate

Mill, Type & Capacity formerly operated by Golden Key

Power, Amt. & Type Mng. Co.

Signed Barth

(Over)

Operating Co. Golden Key Mng Co

Address

Morgan & McDonald

Pres.

Genl. Mgr.

Mine Supt.

Mill Supt. Closed

Principal Metals temporarily

Men Employed

Production Rate

Mill, Type & Capacity

Power, Amt. & Type

Signed Barth

(Over)

C Y Cong. 1943

NOTES RE CONGRESS

FROM CONFERENCE WITH W. M. SNOW 10/19/43

The shaft which he sampled and of which I found a map was not on the Congress property but was part of a small mine lying north-west from Yarnell. Therefore this map is of no interest.

RE TAILINGS

Snow says that during the last operations every effort was made to reclaim the higher grade material and that whenever possible they dug right down to the bed rock in the central portion and then in some cases pulled the lower grade stuff back over the hole also they stopped digging whenever the grade seemed to be falling off and therefore altho the average grade of the treated tailings was $2.90 he does not believe that the average of the 150,000 tons which remain will prove to be nearly so good and would expect them to carry less than $1.50 so that he is doubtful if it would pay to reclaim them.

This statement does not agree with Rockwood or Ramsden and I think that Snow is pessimistic but very likely the remaining portion of the dump might yield a recovered value of only about $1.50 per ton in which case the profit in treating them would be only about $0.30 per ton unless they could be reclaimed and treated at a lower cost than the $1.20, which was estimated on page 104 of my report.

RE DUMPS

Snow confirms the statement that the grade of #1 and #5 Dumps had proved to be very good and thinks that the remaining rock will be quite as good as estimated on page 48 of my report. He also thinks

that the small tonnage left in #4, #6 and Queen of the Hills will be good but he does not speak well of #2 or #3 and thinks that in both cases they will run very low unless a large amount of waste is sorted out with corresponding increase in the working costs.

MINE FILLS

He crawled thru as many of the old workings as possible and took some samples but not many and he helped Carlisle to sample and thinks that work was very reliable as far as it went.

From all the data which he obtained it is his opinion that the gob will average at least $5.00 per ton in all of the accessible portions of the mine down to the 1500' level. This confirms my estimate. He has no basis for estimating the total tonnage, but Staunton's figure seemed reasonable. Snow says that he does not believe that Ramsden ever did any sampling in the mine as Ramsden was afraid to go underground except in a few places.

LOW GRADE ORE

Snow has but little information on this point but such samples as he took in the pillars were mostly disappointing except in the vicinity of #2 Shaft and #5 Shaft and in certain parts of the Queen of the Hills where he found ore running $10.00 and better.

He says that the workings in the Queen of the Hills are really much more extensive than shown on the map as there was a placard at the collar of a winze which shows that this penetrated to a depth of 1750' with numerous levels and altho he could only get down about 500' he is sure that a large tonnage of ore must have been mined here and probably the work was not recorded in the data given by Staunton.

While there was some ore left in sections of the pay shoot and the gob carried good values much of the development work carried out in the Queen of the Hills was in a quartz vein which looked good to the eye but assayed very low and it was evident that the operators were disappointed with the results of much of their development altho there still seem to be good possibilities in this section of the property.

METALLURGY OF ORE

Snow carried on many experiments on both dumps and gob material and his final conclusion was that these should be treated by flotation and the flotation concentrates roasted and cyanided. In this way he feels confident that 90% of the gold values will be recovered and he believes that the values left in the flotation tailings will be too low to justify cyaniding them either with or without roasting as was suggested in my report.

This statement does not seem to check with some of the data which I found in the laboratory from which it appeared that no such high recovery could be expected without some retreatment of the flotation tailings.

OUTSIDE MINES

Snow does not believe that the grade of ore in the Sullivan Mine will prove to be as good as represented and thinks that much of it will carry less than $5.00 per ton.

He knows of no other mines in the vicinity of Congress which would justify investigation except the Yarnell where he worked for several months after leaving Congress.

in the Shear Zone

He says that this mine has been worked out down to the main adit level, but below that point he thinks that a very large body of $4.00 ore will be found in the foot wall of the vein, both in the south shoot and in the main shoot. This ore body may prove to have a length of 1500' and a width of 100' which would mean a tonnage of over 10,000 for every foot of depth and it could all be explored by diamond drills. The mining and milling cost should not exceed $2.00 and during the last operation the 50 ton cyanide mill at the mine was treating up to 75 tons per day with a recovery of 94% of the gold values. No work has recently been done near the Human Shaft and Snow knows about that section of the mine only from heresay.

He claims that working costs were very low even during this last small operation when he says that mining cost was $1.10 per ton and milling about the same, but I am inclined to doubt these figures. Practically no development work has been done below the main adit level and the owners are in no position to do this as they are a small group of railway men from Winslow and the Company,--Winslow Gold Mining Co.,- Mitchell, president owes about $20,000 (write to Co; for information and permission to examine and note data in mine file). Snow thinks that a favorable deal could be made and that the prospects fully justify the expense of carrying on the exploration under an option agreement.

GENERAL OPINION

Snow is not encouraging in respect to the values in the remaining mill tailings and dumps and he knows too little about the low

grade ore left in the mine to express any worthwhile opinion.

He has obtained considerable data on the gob and his estimates confirm my own in that respect and he thinks that this gob is the most favorable and attractive feature of the proposition and makes it well worth while. He believes that the metallurgy can be fully solved and a 90% extraction of gold values made from the dumps and fills.

His opinion in respect to the Yarnell Mine merits consideration and should be checked by further investigation.

The Yarnell Mine is about 6 miles in air line distance from Congress and at an elevation of 5000' or 1540' higher than the Congress Mill.

A ropeway might be built going down along the slope near the highway and the length would probably be about 7 miles. It should operate by gravity.

Some water for Yarnell operations might be obtained from wells in Peoples Valley.

Inc.

SURVEY OF OPERATING MINES

JUNE 6TH 1942

By A. C. Nebeker

CONGRESS MINING CORP.

Congress Mining Corp.
Congress, Ariz

Percy H. Ramsden Supt.

There is not much to sa y now about this operation. It being a gold cyaniding plant they have decided to fold up for the duration.

Mr Ramsden remarked that they were putting through 350 tons of the tailings daily and have been making money, but as it was hard to get material, machine parts and men, and that they would be of more use to the Defense program , they were going to stop July Ist.

They have a good plant and in good running order now, some parts are new, but Ramsden said there was no telling when one of the main parts may give out and then they would be left on a limb.

Mr Ramsden thinks the plant should be used by the Government in treating the Manganese ores in this section of the country. He told me, he thought it possible to use the SO_2 process a nd that most of the plant they have could be put to that use very cheaply.

He sa id they had no salvage but there was the whole mill for somebody after the Ist July.

In as much as this plant was folding up right away, I saw no need of going into detail on their operations.

A C Nebeker

17

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Date Oct. 11, 1939

Mine Congress ✓
Engineer

District Martinez
Location 4 miles north of Congress on St. Fe. R.R.

Former name Same

Owner Congress Mining ✓ Corp.
Address N.Y. and
Address Congress

Operator Same

President
Gen. Mgr. W.A. Liddell

Mine Supt.
Mill Supt.

Principal Metals Gold ✓
Men Employed 35

Production Rate 150 - 250 tons
Mill: Type & Cap. ✓ 300 ton ?
Cyanide Mill.
Continuous decontation

Power: Amt. & Type 320 HP Worthington - Diesel Electric

Operations: Present

Milling Old Tailings

Operations Planned

Mill Old Dumps.

Number Claims, Title, etc.

Numerous patented

Description: Topog. & Geog.

Base of the eastern end of Date Creek Mts.
3400 ft. Elev.

Mine Workings: Amt. & Condition

See Pg 71, Ariz. Lode Gold Mines & Mining Bulletin #137 Ariz. Bureau of Mines

(over)

Geology & Mineralization Coarse grained Granite - Greenstone dikes Quartz veins accompanying greenstone at times Greenstone ore bearing at times — Fine grained pyrite Several veins — Congress - Niagara - Queen of the Hills.

Ore: Positive & Probable, Ore Dumps, Tailings

Said to be several years operations on tailings.

Mine, Mill Equipment & Flow Sheet

Ball Mill a Classifier — Dorr Continuous decontation Cyanide plant — Merrill-Crowe precipitation Diesel Shovel used to dig tailings - Trucking to Mill.

Road Conditions, Route

Good county road 4 miles north from Congress on the St. Fe. R.R.

Water Supply

Mine and Well on Martinez Creek

Brief History

Located & sold to "Diamond Joe" Reynolds 1887 Developed & installed 20 Stamp Mill. 1891 due to death of Reynolds oper. ceased. 1894 Congress Gold Co. to 1910. 1931 Southwest Metal Ext. Co 1934 Illinois Mng. Corp.

Special Problems, Reports Filed

1936 Congress Mng. Corp. purchased from Murphy Estate - R.F.C. Loan $104,000 for Cyanide plant now operating. - Reported Production $7,500,000

Remarks

See Pg. 71 Bulletin #137

If property for sale: Price, terms and address to negotiate.

Signed Earl G. Barth Jr

Use additional sheets if necessary. Separate sheets on each problem.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Date Oct. 11, 1939

Mine CONGRESS

Engineer

District Martinez

Location 4 miles north of Congress on S.F.R.R.

Former name Same

Owner Congress Mining Corp.

Address N. Y. & Congress

Operator Same

Address W. A. Leddell

President

Gen. Mgr.

Mine Supt.

Mill Supt.

Principal Metals Gold

Men Employed 35

Production Rate 150-250 tons

Mill: Type & Cap. 300 ton (?)
Cyanide Mill
Continuous decontation

Power: Amt. & Type 320 HP Worthington-Diesel Electri

Operations: Present Milling old tailings

Operations Planned Mill old dumps.

Number Claims, Title, etc. Numerous patented

Description: Topog. & Geog. Base of the eastern end of Date Creek Mts. 3400 ft. elev.

Mine Workings: Amt. & Condition See Pg. 71 Ariz. Lode Gold Mines & Mining Bulletin #137
Arizona Bureau of Mines.

(over)

Geology & Mineralization Coarse grained Granite - Greenstone dikes Quartz veins accompanying greenstone at times. Greenstone ore bearing at times. Fine grained pyrite several veins - Congress - Niagara - Queen of the Hills.

Ore: Positive & Probable, Ore Dumps, Tailings Said to be several operations on tailings.

Mine, Mill Equipment & Flow Sheet Ball mill & Classifier - Dorr continuous decontation Cyanide plant - Merrill-Crowe precipitation. Diesel shovel used to dig tailings - trucking to mill.

Road Conditions, Route Good county road 4 miles north from Congress on the S. Fe R. R.

Water Supply Mine and well on Martinez Creek

Brief History Located & sold to "Diamond Joe" Reynolds 1887. Developed & installed 20 stamp mill. 1891 due to death of Reynolds oper. ceased. 1894 Congress Gold Co. to 1910. 1931 Southwest Metal Ext. Co. 1934 Illinois Mng. Corp. 1936 Congress Mng. Corp. purchased from Murphy estate. R. F. C. Loan $104,000 for Cyanide plant now operating. Reported production $7,500,000.

Special Problems, Reports Filed

Remarks See Pg. 71 Bulletin 137

If property for sale: Price, terms and address to negotiate.

Signed Carl G. Barth, Jr.

Use additional sheets if necessary. Separate sheets on each problem.

DEPARTMENT OF MINERAL RESOURCES

News Items

Date 9/18/39

Mine √Congress Mine

Location Congress

Owner

Address

Operating Co. √Congress Mining Corp

Address Congress.

Pres. Overhaul Worthington

Genl. Mgr. Diesel - Run continuously

Mine Supt. 16 mos.

Mill Supt. 24 hour shut down.

Principal Metals √Gold

Men Employed Concentration

Production Rate of values at

Mill, Type & Capacity bottom of

Tailings Dump

Power, Amt. & Type many times

above average of dump

Signed Burth

(Over)

Present Operation

One Auxiliary 80 HP Atlas Diesel is being installed to augment the Power

New Work Planned

Life of property has been extended. Renewal deeds by being able to mill the dumps

Miscl. Notes

R.F.C. Loan $104,000.00

New equipment consist mill and crushing

DEPARTMENT OF MINERAL RESOURCES

News Items

Date Dec 26. 1939

Mine Congress Mog Corp.

Location

Owner Have been operating

Address recently installed

Primary Jaw Crusher

Operating Co. & Gyratory

Address Secondary Crusher

on Dump Forest

Pres. Combinations with

Genl. Mgr. tailings at total

Mine Supt. Combined capacity

Mill Supt. of 300 tons

Principal Metals A Carry all

Men Employed tractor is used

Production Rate to load trucks

Mill, Type & Capacity from the dumps.

Bitter operations of the

Power, Amt. & Type 300 ton Cyanide

Plant has been the

result

Signed Bank

(Over)

REFERENCE: BANK OF AMERICA
MAIN OFFICE, SACRAMENTO

TELEPHONE MAIN 2085
CABLE ADDRESS: "VANCO"

VANDERCOOK CO. » GOLD «

BUYS IN ANY QUANTITY
GOLD DUST : GOLD ORES : AMALGAM
ORE ANALYSIS
CHEMISTS : ENGINEERS : METALLURGISTS
ASSAYERS

VANDERCOOK MERCURIC CYANIDE
PROCESS OF ORE REDUCTION

BROKERS AND MANUFACTURERS
AGENTS

FARMERS & MECHANICS BUILDING
1014 EIGHTH STREET, SACRAMENTO, CALIFORNIA

December 29, 1936

Mr. E. A. Colburn, Jr.
Mammoth Mines, Inc.
Wickenburg, Arizona

Dear Sir:

Your samples were received. I put two tests under way on December 26, and I have obtained very favorable results.

Amount ore used ----------	500 grams
Mercuric Cyanide solution used ----------	2500 C.C's.
Sample used as received.	
Ratio Solution to ore ----------	5 to 1
Strength Solution (Na Cn) ----------	1.5 lb. per ton Sol.
Ground in Laboratory Ball Mill ----------	15 minutes
Removed and agitated for ----------	18 hrs.
Total time of treatment ----------	18¼ hrs.
Cyanide consumption - Total ----------	0.5 lb. per ton ore

The above is the procedure and results on "Belle" and "Mammoth" samples.

Assays ----- Sample marked "Belle"

our sample .60

Heads	--	.56 oz.	gold --	Value	$19.60
Grind	--	.17 "	" --	"	5.95
18 hrs.	--	.03 "	" --	"	1.05

Extraction during Grind in 15 minutes -- 69.6% (This is very remarkable to recover in 15 mins.)

" " 18 hours ---------- 94.7%

Assays ---------- Sample marked "Mammoth"

our sample .52

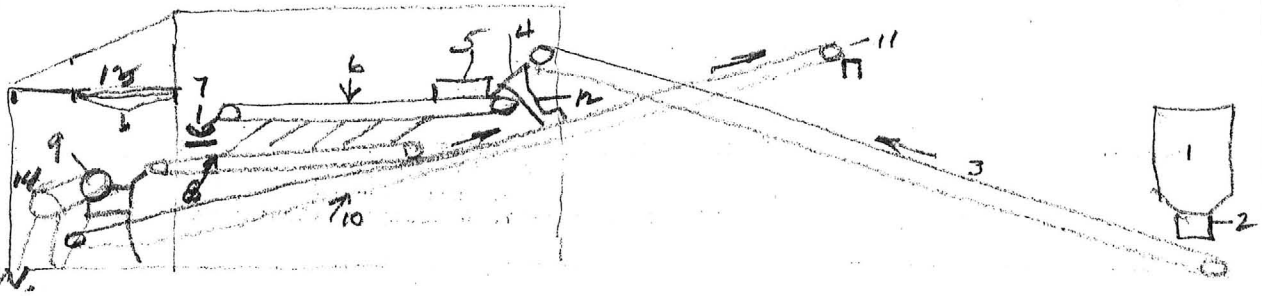
Heads	--	.44 oz.	gold --	Value	$15.40	
Grind	--	.22 "	" --	"	7.70	-- 15 minutes
18 hours.	-	.02 "	" --	"	0.70	-- Tails

Extraction during Grind ------ 50.0%
" " 18 hrs. ---- 95.4%

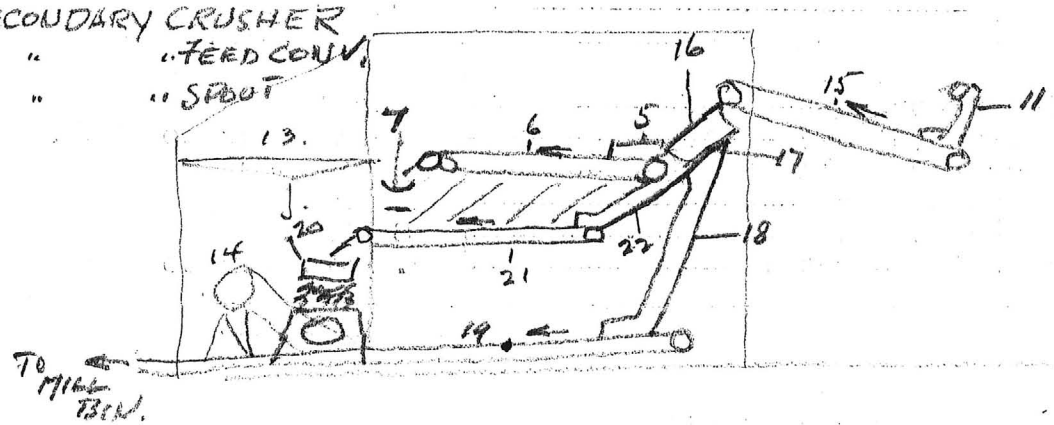
Both samples show traces of silver which I did not consider. Am confident that equal, if not higher results will be obtained in actual milling practice.

1. MINE BIN
2. FEEDER
3. CONVEYOR
4. 3" GRIZZLY
5. WASHER
6. SORTING CONV.
7. WASTE "
8. ORE +3" "
9. PRIMARY CRUSHER
10. CRUSHED ORE CONV.
11. TRANSFER TO -3" SECTION
12. -3" MATERIAL
13. CRANE.
14. CRUSHER MOTOR
15. -3" CONV
16. SCREEN 1½"
17. " ⅝"
18. FINAL PRODUCT CHUTE
19. CONV TO MILL.
20. SECONDARY CRUSHER
21. " " FEED CONV.
22. " " SPOUT

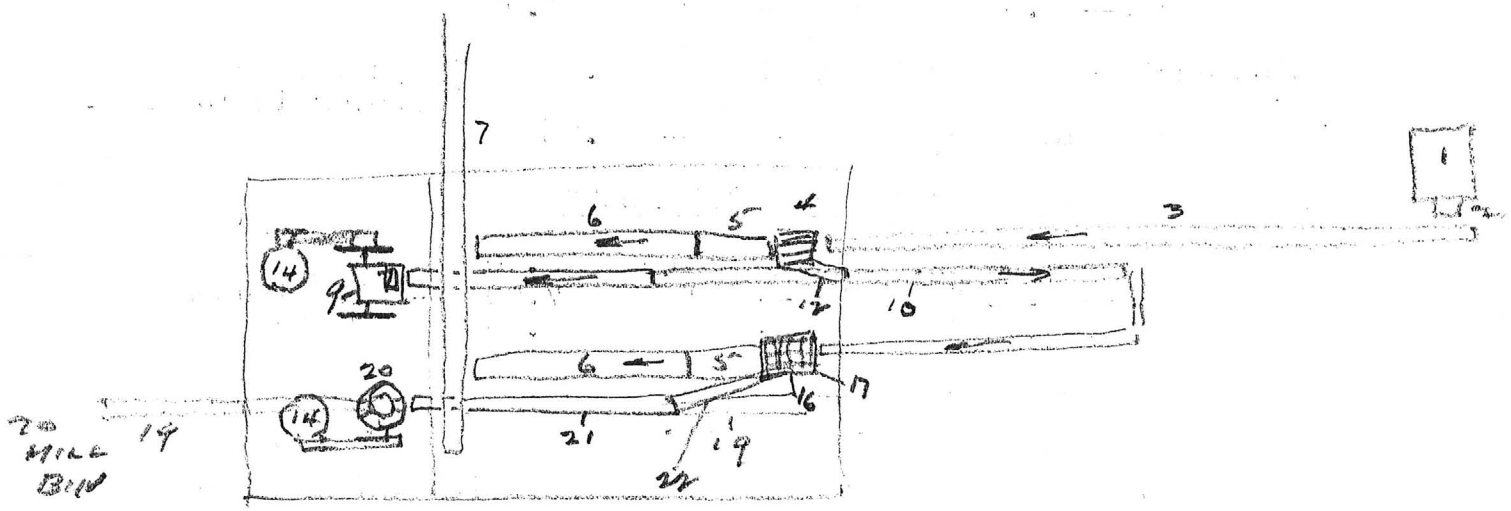
SECTION THRU +3" SECTION



SECTION THRU -3" SECTION



PLAN



per ton, and all the work I have done on the stringers within the dyke has made ore of this average grade. Sampling by Mr. Arms has given greater returns, As high as $14 per ton on the fill at the 750 level. He also sampled the dyke 10 ft. wide on the 800 ft level and got over $10 per ton and says that below 1400 ft. level, which is now covered with water, the whole dyke is a mass of stringers showing mineral. I myself grabbed a sample of the fine fill on the 1400 ft. level over a horizontal distance of at least 200 ft. and got $14. per ton. This dyke containing stringers may be selectively mined and obtain a very good grade of ore, but it is also my opinion that dyke, fill and all to a width of from 10 to 12 ft. may be mined at a fine profit. The feeders are merely veinlets, from ½ to 1 inch wide, extending from footwall to hangingwall. In variably these seams are pay ore. In value they go quite well as a sorted shipment last summer gave $51 per ton at the smelter. This Congress vein alone is a better mine than any in the vicinity. The A. S & R at Octave, about 10 miles east had no such showing when they started, and they are now operating a hundred ton mill. The Alverado, about 5 miles east, had nothing to compare with the Congress showing when they started, yet they have opened a large tonnage of $10 ore. Their expense has been very heavy as they had to pump out 1000 ft of water, retimber shaft and spile through many caves. Neither of these properties had the background of the Congress from the standpoint of production, vein size, continuity of ore, etc. In fact the Congress is the only mine in the vicinity that has made big money.

B. The Niagara vein has not been developed to such an extent as the Congress but has produced a great deal of good ore. The workings are not as continuous nor as deep as those on the Congress vein, but the vein offers very good opportunities for further development and several faces of good ore are now exposed for mining. This vein has not been bottomed and large areas are still undeveloped on the upper levels. Recent lease operations on the Niagara vein within 30 ft. of the Congress Co. line show $40 ore about 18" wide almost on surface.

C. The new vein on the hill is a very nice showing of combined milling and shipping ore. Selected ore from this source will average 2 oz. or $75 per ton. Sufficient work has not been done here to determine much about it except that it is opened for over 100 ft on surface, has a width of about 18" and will average better than $10 in the mill. Contrary to expectations this vein contains free gold which does not occur in the other veins. It is also opened up at intervals for 300 ft. with good values.

D. Many sets of leasers can be put to work on the Congress property as soon as a mill is ready to receive their production. I have had many years experience with leasers in Cripple Creek and know that they can mine small isolated streaks of ore that would be impossible for the company to make a profit from. I would say that within a period of six months from the time the mill starts taking their ore I could get a production from the Congress of at least 50 tons per day from this source alone. On the Ajax Mine in Victor, Colo. I raised the net profits from zero to $30,0000 the first year by the use of leasers and without doing any company work underground at all. This is merely to give an idea of what can be done under a controlled leasing system on small veins that it is thought inadvisable to work on company

account.

E. The proposed mill can be easily arranged to take custom ore, or ore that originates on other properties and is brought to our plant for treatment. Under former operators ore has been handled by the Congress and hauled for distances of up to 60 miles. Most of the smelters will not accept ore in less than car lots and if they do there are very high freight and treatment costs to contend with. This leaves a wide margin in which to buy and treat these small lots of ore from the outside properties and opens a profitable source of income. Lower grades of ore than would be profitable to pay freight and treatment charges to the smelters can also be handled. A profit of about a dollar a ton is the usual return from such work.

F. The acceptance of custom ore puts a company, automatically, in a position of acquiring information regarding the character and amounts of ore shipped from all producing properties in the neighborhood, and this knowledge may be used in acquiring other good properties.

Cost of production and mill would be small, for we would have a simplifed process and a fair size mill (about 115-125 tons per 24 hrs.) and a large part of the machinery is available now in the old milling plant.

Mining cost per ton	$1.50
Milling " " "	1.50
Total cost	$3.00 per ton.

With an ore running $7.00 per ton a very handsome profit ~~profit~~ is possible and with a lower grade ore of say $4.00 per ton a profit of $1.00 per ton may be had. This is aside from the production of smelting ore which would be very considerable.

Respectfully submitted,

E. A. Colburn, Jr.

5/1/35

Supplimentary data regarding the
Congress mine and its operation on 100 ton
Milling basis.

The money making possibilities of the Congress Mine may be grouped as follows:

(A) Congress vein fills and new ground.
(B) Niagara vein fills and new ground.
(C) New Vein.
(D) Leasers.
(E) Custom ore.
(F) Acquisition of outside properties.

Under A we first have the fills and new ground on the Congress vein. This vein, or rather the ore shoot, has a known depth of 4000 ft and a length of 1000 ft., has produced in authentic records nearly $8,000,000. and is, according to those who know the mine, not much than half worked out. The old work is almost entirely along the footwall of the dyke leaving the hanging wall and stringers within the dyke between the two yet to be mined. The average of the ore mined was a little better than $12 per ton old price which would be in excess of $15 per ton now. I have conservatively estimated a tonnage of at least 500,000 tons of ore to be recovered from the fills and the ore standing in the dyke above same. A recent letter from the former manager says that there are 700,000 tons of fills alone in the mine. He also maintains that the fills have a good average value, and if he don't know about them no one does, as he was on the mine at the time they were made. The timbers in the various levels have given way so that it is hard to get at the fills for sampling, at least east of No 2 shaft where the best portion of the ore was mined, so that the value of these enormous reserves must be estimated from other evidence. In mining the ore it was necessary to take out considerable more of the rock than was milled on account of the added bulk caused by braking the ore. This material was placed on the dumps along with waste from development work which considerably diluted the ore. Recent milling of these dumps has given an average of $7.00 per ton and the fills should average at least this amount. In this connection it must be understood that in order to reach this grade considerable quantities of coarse waste included in the fills and found in breaking new ground will have to be discarded by screening, washing and sorting the ore. This is an inexpensive process of concentration and is now in use at the Alaska Juneau mine and is largely responcible for their success even with the great tonnage they handle. I have had extensive experience in the preperation of ores in the Cripple Creek, Colo. gold camp and from that work am able to decide how best to handle the ore here. In this connection I recently had confirmation of my tests and estimates regarding the quartz in the ore. Several years ago while screening the dump the operators sorted out the massive quartz which showed very little if any pyrite and was supposed to be valueless at that time, and shipped a car load to the smelter. This car ran over $6 per ton which would mean over $10. at present prices. They couldn't make any money on it by shipping to the smelter but it would make fine mill ore, and should constitute about 25% of the total production from the Congress vein.

My samples of the fills at available points has averaged about $7

Report on Study of Tailings at Congress Mine

Purpose of Investigation

(1) A study of the physical and metallurgical characteristics of the mill tailings at the Congress Mine was made in order to develop a method of treatment for the tailings which would yield a maximum recovery of the gold and silver with a minimum of treatment costs.

Conclusions

(2) The proceedure which gives the maximum recovery at a moderate cost is to regrind the tailings till substancially all passes 150 mesh and subject the pulp to all slime cyanide treatment with proper aeration and agitation. Table concentration, as an assistance to this method does not increase the recovery sufficiently to justify the installation of any new equipmentbut, inasmuch as the tables are already installed and can be operated cheaply, this addition to the slime treatment is well worth while.

This method was decided upon after many others were tried and proven inadequate for one reason or another. Corroboration of the results of the test work was obtained during an actual mill run from March 17 to April 1 during which period it was proven that the values could be released by fine grinding and adequatoky recovered if sufficient agitation was provided and a sufficient time interval allowed for the pulpto be in contact with the solution.

(3) Assay value of the tailings

It was necessary, due to the low margin of profit expected, to determine the average assay value of the entire tailings pile in a definate and conclusive mannerso that whatever figure was established as the value per ton could be relied upon. Fortunately many data were available to indicate the value of this material and when it was found that the determinations of this investigation closely checked the results from other sources it created confidence in the figures established.

Sampling

(4) Seven samples were taken in locations which not only afforded access to the nearly completed section of the dump from top to bottom, but also were sufficiently distributed to represent all the areas. These locations were made possible by some previous sluicing operations during which most of the depth of the dump was exposed in almost perpendicular walls. At the sample locations the face of these walls were cleaned of and channel samples were cut in the material thus exposed. The assays of the seven samples were as follows:

Number	Oz. Au.
1	.06
2	.04
3	.08
4	.06
5	.10
6	.06
7	.04
Average	.063

Since they were deposited wind and rain have dispersed a considerable tonnage and a lesser amount has been removed during the operation of the various reclamation attempts. It is estimated that about one third of the original tonnage has been removed and that there remain about 400,000 tons of tailings in a position to be recovered.

Effect of Milling on Mineral Characteristics

(10) The original mill employed concentrating tables anf Frue vanners following a stamp mill which ground to about 30 mesh. The cyanide plant consisted of leaching tanks only and no attempt was made to seperately treat sand and slime. For a period of five years the ore was partially concentrated, then roasted prior to cyaniding.

Due to this roasting a large part of the tailing pile exhibits the charactistic red color of iron oxides produced from the oxidation of the sulphides. These iron oxides are rather light and porous and do not respond to further gravity concentration by tables or other such means. Tests by panning on the roasted tailings failed to produce a satisfactory concentrate ot tailing, but the unroasted portions of the dump still contain some sulphides which react to gravity concentration, especially when partially ground.

Microscopic examinationshows that the iron minerals remaining in the tailings are in the form of true middlings, i,e. attached to grains of quartz and dyke rock. Some of the attached mineral particles are so minute that they would require grinding to 400 or 500 mesh to be released. This predominance of true middlings is, of course, to be expected as the ore has already been subjected to gravity concentration and has had no regrinding since.

The microscope also reveals the fact that the roasting of the sulphides was incomplete as there is much evidence of slag and oxide coatings over grains of sulphide. The slag coating renders the particle more or less impervious to cyanide solutions and necessitates a further grinding to break up these shells and expose the mineral within.

The cyanide leaching process used by the old company, owing to its tendency to channel and divert solutions around accumulations of slime left certain amounts of values in the fines which an all slime process will recover

Tests

(Below are given the various tests performed and the reasons for undertaking them and whether or not the results of the tests proved indicitive or the porpose sound.

Water Soluble Values

(11) One of the most astonishing results of the study was the discovery that an appreciable part of the gold value is in the form which is soluble in water. The exact form in which the gold exists was not determined and no reaction was obtained for free or combined cyanogen in the ore. However, a long series of trials revealed a water soluble gold content varying from a few cents to as high as 90¢ per ton. The significance of this is that some of the gold is in a form which will migrate from one part of the pile to another with each rain and will appear on the surface in the form of blossom or will seek lower strata and other protected parts of the pile where the moisture content is retained

important
Books letter

Los Angeles, California,
May 7th, 1934.

Dear Bun:

Your two letters arrived while I was away up north, and as I only returned this morning, have remained unanswered till now.

In going over your description and sketches, the situation comes back to me more clearly, and I find that my recollection of the drill-hole having been started on the 3rd, level was wrong. The drill hole you show is undoubtedly the one I had in mind, though I do not remember whether the nipple and ell were there or not at the time of my visit,--(This must have been almost if not quite twenty years ago.). I remember at the time, since going over your letters, that the 3rd, Level was where I had in mind the raise should start. Evidently I had confused this with the idea of the drill-hole being on that level. Your sketch clears this up.

At the time of my visit the No,2, Shaft you show, then called the No,5, Shaft, was filled with water to the 2100 ft, level, as I remember it, and was naturally inaccessible to me then. The maps showed the shaft to extend down to the 4400 Level, or big fault, as I rmember it, At that time the stoping was all done on the Congress Vein proper down to, I think, about the 1600 to 1700 level, where the shaft entered the hanging wall,--granite,--and apparently encountered the Spur or overlying vein, which was then stoped to the bottom of the shoot. The main Congress Vein at this point passed out of the shaft into the footwall, and I believe was never picked up again. Also at this 1700 ft, level, the dip of the Congress Vein became steeper, and the locality showed evidence of a sheared fault zone, which Staunton, the then Superintendent, concluded had lifted the north side to the position of the Spur Vein, which he believed to be the main Congress Vein which he had been following. If our dope is correct, as I think the evidence supports, the main Congress Vein below the fault at or about the 1700 level, is virgin, and the Spur Vein should be found virgin above this point. When you get far enough below the 1700 level in the Spur Vein,---I mean if the water is out so you can get down there, a short crosscut into the footwall should re-open the Congress Vein in virgin territory. Meantime, your raise from the 3rd, Level, when and if made, will be much easier and will either prove or disprove the theory on which the work will be based. If that shows as we hope and believe it will, then the work to pick up the Congress main Vein below will be warranted and you will have in effect a continuous, though disconnected ore-shoot clear to the bottom.

The Spur Vein I refer to, cuts into the main vein at a point somewhere-(Not far.)-west of your No,2, Shaft, and is, or was easily traceable on the surface extending eastwardly and above the main Congress Vein.

I do not recall whether the dike you speak of extended below the 2100 ft, Level, but I should expect to encounter it there

as it accomanies the Vein and was evidently the genetic source of the mineralization above that point, as I remember it.

I note what you say about those dumps and the chance of successfully treating them, but I do not think much of the chance. They,--the dumps,--run too low to work I think, even with gold at its present higher price. Hope I am mistaken. I have a lot more confidence in that raise, and cross-cutting for parallel veins out in the walls, than in working those dumps.

I hope I have made myself understandable, or at least intelligible in what I have said, and that it will be some help.

Give my regards to Billy Goeglein, if he is still there, and let me hear how you get on when you have the time.

With best regards, yours etc,

Edmund O'Brooks

Data on Mill Run on Tailings.

Mar 17 - Apr 2-1934 Inc.

1	Tons Tailings Milled	1958.0
2	" Custom Ore "	45.1
3	Total Tons "	2003.0
4	Concentrates Produced - Tons	4.06
5	" " %	0.20
6	Gold Recovered in Cts - Ounces	12.00
7	" " in Precipitates "	79.59
8	Total Recovery "	91.59
9	" " Ounces Per Ton	.0457
10	Assay Tails	.022
11	" Tail Solution	.017
12	Tailing Loss - Total	.039
13	Computed Heads	.085
14	Assay Heads	.091
15	Extraction From Assays - %	58.
16	" From Computed Hds %	55.
17	" Recovery ÷ Assay Hds %	50.
18	Tons Per Day Milled	118.
19	Custom Ore - Aver. Value - Oz	1.06
20	" " Total Ounces	48.07
21	Cyanide Consumption #/Ton	.37
22	Lime " #/Ton	6.4

DATA FROM MILL RUN ON DUMP MATERIAL
DEC 9-1933 TO MAR 16-1934 INC.

			DEC 9-31	JAN	FEB	MAR 1-16	WHOLE PERIOD
1	EST TONS DUMP MATERIAL HANDLED		6140	7305	10570	6130	30145
2	TONS HAULED (THRU 3½" GRIZZLEY)		4605	5478	7934	4604	22621
3	" THRU ½" SQ MESH SCREEN		1413.5	2522.9	2564.4	1641.7	8142.5
4	% FINES TO DUMP.		23.2	34.5	24.3	26.8	27.4
5	TONS HAND PICKED ORE		32.5	33.7	50.4	31.0	147.6
6	" CUSTOM ORE		0	19.4	24.2	77.3	120.9
7	TOTAL TONS MILLED (3+5+6)		1446.0	2576.0	2639.0	1750.0	8411.0
8	TONS CONCENTRATES PRODUCED		14.57	13.325	14.73	12.75	55.365
9	% " "		1.00	.51	.56	.73	.66
10	OUNCES GOLD RECOVERED IN CONCENTRATES.		55.34	51.50	53.62	46.38	206.84
11	" " " " PRECIPITATES.		51.21	80.40	81.22	127.41	340.24
12	TOTAL RECOVERY IN OUNCES		106.55	131.90	134.84	173.79	547.08
13	RECOVERY OUNCES PER TON		.074	.051	.051	.099	.065
14	AVERAGE ASSAY TAILINGS		.01	.012	.0036	.0025	.0068
15	" " TAIL SOLUTION		.012	.0063	.0064	.0093	.0079
16	TOTAL TAILING LOSS. (14+15)		.022	.0183	.0100	.0118	.0147
17	COMPUTED HEADS (13+16)		.096	.069	.060	.111	.0797
18	AVERAGE ASSAY - HEADS.		.144	.097	.080	.063	.092
19	EXTRACTION - BY ASSAYS	%	85	81	88	82	85
20	" FROM COMPUTED HEADS	%	77	74	84	89	82
21	" RECOVERY ÷ ASSAY HEADS	%	51	53	64	176	76
22	HAND PICKED ORE - AVERAGE VALUE	OZ	.36	.69	.50	.50	.53
23	" " " TOTAL OUNCES GOLD		11.7	23.3	25.2	15.5	75.7
24	CUSTOM ORE - AVERAGE VALUE	OZ	—	.21	.37	.82	.63
25	" " TOTAL OUNCES GOLD		—	4.19	8.95	63.65	76.79
26	CYANIDE USED LBS PER TON		.27	.35	.36	.36	.35
27	LIME " " " "		3.94	9.80	7.8	8.1	8.8
28	AVERAGE TONS MILLED PER DAY		63	83	94	109	86

(COPY)

OFFICE OF
W. A. MURRAY
STOCKS & BONDS

Los Angeles, Calif.
Oct. 27, 1933

Mr. Gerald Sherman
120 East 85th St.
New York, N. Y.

Dear Mr. Sherman:

I have not been able to answer your letter of the 14th as soon as I should have done. It was welcome, however, and I am quite willing to give you any information I may have relating to the Congress Mine about which you wrote. Also, your letter brings to mind meetings with you many years ago, when you were at Bisbee, which I remember with pleasure.

I have no doubt that somewhat better metallurgical results could be had today, and considerable reductions in costs also, as compared with our rather crude methods of thirty years ago. For one thing, our practice involved bedding and drying the tailings from the concentrating mill and then reclaiming them for cyanidation, all the cost of which would be eliminated today. I think that our recovery was a little better than your figures seem to show. The concentrate recovery was very low. I have yearly figures from 1894 to 1910 showing the amount of gold to account for in the concentrating mill, by tons milled and battery assays, as $7,118,644, and gold actually paid for, as $4,062,239. This would indicate a saving of only 57.20%. The cyanid plant figures for the same time show $3,192,219. contained and $2,796,566. paid for a recovery of 86.76%. Taken together, the total recovery seems to have been 94.33%. It is partly confirmatory that nobody has as yet succeeded in reworking our tailings, although many have tried.

You mention our smelter recovery. I find a memorandum of a yearly contract I made in 1894 with the Kansas City Works (shipment probably to El Paso) showing the following rates: Silver 95% at market price, Gold $19.50 per oz. Freight and treatment, $15.00 per ton f.o.b. Prescott, Iron, 15¢ up or down from neutral basis. As the excess of iron was about 30% this gave a net rate of about $10.50 frt and trt. f.o.b. Prescott. It cost us $12.80 a ton to haul the concentrates to Prescott, so that the total charges on concentrates was $23.30. a ton. As the average grade was 7 oz., this meant a charge of $3.33 per oz. of gold. Adding the $1.11 difference between $19.50 and $20.67 makes a total charge on the gold of $4.44 per ounce.

We did better after the railroad was built, but the last contract I have a memorandum of, made for three years in 1901, was: Silver 95%; gold $19.50; freight and treatment

f.o.b. Congress Junction, $16.00 per ton, with 15¢ per unit for iron in excess of silica (say $4.50), leaving a net charge of $11.50 freight and treatment.

I do not think there is much to be looked for in increased mill recovery; possibly 50¢ a ton at most. But if the concentrates should prove susceptible to cyanide treatment so as to put the whole product into bullion, there would be a large saving, perhaps $1.00 per ton.

The really big difference today is, of course, the 50% increase in the price of gold. We used to consider $7.00 a ton as about the splitting point as between ore and waste, tha is roughly, 0.35 oz. Today with $30 gold, this would be only 0.233 oz. It seems probable that, allowing for savings under modern conditions, anything above 0.2 oz would pay. The question is, how much above that grade can be reasonably counted on, and I don't see any way of arriving at an answer to that than actual examination and sampling. I believe there is a large tonnage in the Niagara mine, but this is a mere guess.

In the Congress mine itself, as distinguished from the Niagara, I think there are possibilities in the old stope fillings, on account of the way in which mining was done. This vein being narrow and flat, about 25 degrees dip, it was usually necessary to blast some of the hanging wall, which, however, frequently carried high grade stringers. This wall rock constituted the filling which was kept close to the stoping faces. The mineral was very brittle and high grade and while attempts were made to keep split lagging between the working face and the filling, a great deal of fine mineral was undoubtedly blasted into the filling and lost. This condition may easily prove to have given sufficient value to the gob to make reworking profitable under modern conditions, as for instance, the use of drag scrapers and local separation of fine and coarse and perhaps some hand sorting, the reject going directly back into the stopes, saving hoisting on all but rough concentrates.

In regard to the tonnage of such gob available, there should be at least as much as, and roughly more than, the amount of ore produced, say, 700,000 tons.

Certain parties have undertaken to work the surface waste dumps. I have never regarded them as valuable.

Owing to the increased price of gold, there are certainly some possibilities in reworking the old stope fills on the Congress vein, and in milling ore already opened on the Niagara vein, but I think there is really a good chance in the Niagara, in new ground at greater depth. Underlying the Niagara

vein, which has an easterly-westerly strike and a dip of perhaps 40 degrees, there is a greenstone dyke with slightly different strike and a dip of around 25 deg. This dyke is almost identical in character with the Congress dyke which carried the ore in that mine. The Niagara vein intersected this dyke at about 1975 feet depth in the extreme easterly part of the mine close to the big fault. The dyke was heavily mineralized at the intersection and the ore in the dyke was of the same character and grade as in the Congress as distinguished from the Niagara vein, which belongs to the class of veins entirely in the granite. This high grade extended easterly to the big fault, where it was cut off. To the west the work was at first confined to the dyke, but as the distance from the intersection increased the high grade gradually failed and crosscuts were run into the hanging wall to the Niagara, and thereafter the work was done on that vein. The line of intersection would run downward to the northwest.

The Niagara shaft is an incline on the vein and its course happens to coincide with the course of the intersection of the planes of the two veins. It seems highly probable that a new line of high grade stopes can be opened by sinking the Niagara shaft a few hundred feet below the present depth of 2050 feet. The 1900 level is connected to the No. 4 shaft 700 feet west, so that there is good ventilation. Sinking of this character is comparatively cheap. The little water met with is readily bailed. It amounts to little more than running a drift on an incline.

You will perhaps be surprised at having drawn down on yourself such a wordy reply. My apology is my interest in the old Congress, from my many years connection and my belief that it has a future, for somebody.

Sincerely yours,

(signed) W. F. Staunton.

Note. Water hoisted from 2050 level, No. 5 shaft, for year Apl 1/06 - Mar. 31/07; 12,983 tons, equivalent to a flow of 6 gallons per minute.

Note 2. The above seems to be predicated on gold price of $30 per ounce, while the price now (Sept 24/34) is $35. per ounce.

University of Arizona
TUCSON
COLLEGE OF MINES AND ENGINEERING
AND
ARIZONA BUREAU OF MINES

OFFICE OF THE DEAN AND DIRECTOR

August 22, 1932.

Mr. Wm. B. Maitland,
205 Manhattan Ave.,
Palo Alto, California.

Dear Sir:

The two principal producing mines of the Martinez district were the Congress and Octave mines, both of which are inactive at the present time. At both properties the ore occurred as shoots in narrow but persistent veins sometimes associated with greenstone dikes, cutting granite. The veins characteristically dip at small angles with the horizontal (from 25° to 40°). They are characteristically quartzose and contain abundant pyrite and some galena together with gold associated with the sulphides. At Rich Hill and Weaver creek, the erosion of the veins has resulted in extensive placers which were rich but are now nearly exhausted.

The production of the two principal veins and that of the placers has been about as follows:

Congress Mine	$7,649,408
Octave Mine (approx.)	2,500,000
Rich Hill & Weaver Creek	500,000

The yearly rainfall in the district is approximately eleven inches, mostly concentrated in the summer and winter rainy seasons (July to September and January to March).

We have no definite information on wells in the district, but both mines were able to develop ample water from wells in the valleys to operate their mills of 300-tons capacity and to furnish water for town use. I should judge that three or four inch pipe lines were used and lifts of about 200-300 feet to the mines in the mountains.

Trusting this answers your queries.

Yours very truly,

J B Tenney

Geologist.

TAKEN FROM THE REPORT OF THE GOVERNOR 1896

CONGRESS MINE

The Congress group of mines is located in Martinez mining district, Yavapai County, Arizon. near the line of the Santa Fe, Prescott and Phoenix Railway, about 70 miles north of Phoenix, and 77 miles north of Prescott. The mines are the property of the Congress Gold Company, a company incorporated under the laws of Arizona.

The town of Congress and the mines and reduction works are located at the mouth of a short canyon broad enough at the bottom to give ample room for the necessary buildings for town and works. The outcrops of the veins are on the mountain sides, giving abundant fall for waste dumps and the proper arrangements of the mills.

The water supply comes from Martinez Creek, 1 mile away. It is raised 500 feet by a steam pump to get over the ridge and runs into the camp by gravity.

Three hundred and fifty men are employed in the mines and surface works. The mills, mine, and all company buildings are lighted by electricity. The company owns and operates its own railroad from the junction to the camp. By a system of switch backs the cars are taken up the mountain side so as to delivery coal, timber, and other mine freight directly at the mines.

The company operates a general merchandise store and boarding house, and provides sleeping rooms lighted by electricity for its men. A hospital is also maintained, where the injured and sick are cared for.

The wires of the Postal Telegraph and Cable Company come into the camp, and the Congress company maintains a regular office.

Twenty-two claims are owned or controlled by the company, but the greater part of the work has been done on only two-the Congress and the Why Not-although the others all carry promising veins and will be explored in the future.

Besides the Congress vein, described above, and upon which nearly all the work has been done, there are several others of great promise on the surface and holding out well to the extent of the development work that has been done upon them. The principal of these is the Niagara vein, running nearly parallel with the Congress, but unlike the latter, seeming to be entirely inclosed in the granite without the accompanying dike which is such a marked feature of the Congress vein. Preparations are now being made to thoroughly explore the Niagara vein with a view to large increase the ore output. A cross cut is being run from the Congress workings on the 1,375-foot level to cut the Niagara vein, and a new shaft is being started (on the outcrop) which will be pushed down to a connection with this cross cut on the vein at the 1,375 level. There are already two shafts on the vein, one on the Remnant 250 feet deep, and the other on the Why Not, 150 feet, both showing the vein strong and continuous to these depths and carrying ore which gave concentrates assaying 15 ounces gold and 55 ounces silver. The high silver is a peculiarity of the Niagara vein, distinguishing it from the Congress, the concentrates from which rarely carry over 3 ounces of silver per ton. There are numerous smaller veins carrying good ore and running approximately parallel to the Congress and Niagara, but none of them have been explored to any extent.

There are 3 principal shafts on the Congress, all sunk on the vein and conformably to its dip. The No. 2 shaft is at present the main working shaft, and has attained a depth on

the vein of 1,740 feet. The 1,700-foot level is now being opened, and shows the dike and ore to be continuous and strong to that depth. The No. 1 shaft is also used for working purposes and will be carried down with the No. 2 and connected with it at intervals of about 300 feet for air and to block out the ground preparatory to stopping. The No. 3 shaft is at present merely an air connection, but a hoist has been ordered capable of sinking it 2,000 feet, and it will ultimately become of great importance in the operation of the mine.

The present reduction works consist of a 40-stamp mill and a cyanide plant for treating the tailings. In the spring of 1895 a cyanide plant was built to work the tailings.

The present production of the company is at the rate of about 3,600 ounces of gold per month, all from the Congress vein. With the opening of the Niagara vein, and the largely increased milling plant now in contemplation, this rate of production will probably be doubled in the near future. Present indications point to the probable adoption of the direct cyanide treatment of all ore, preceded by roasting.

1897

The Congress is developed to a depth of 1,700 feet, has a 40-stamp mill in operation, besides a large roasting and cyanide plant, the latter being used exclusively in the treatment of the tailings from the mill. The ore is sulphide, and the product of the mill is shipped in the form of concentrates.

1899

Production-The gross production of the mines to date is in the neighborhood of $5,000,000, and notwithstanding the fact that the reduction works have been continuously operated at full capacity, the development of the mines has been kept so far in advance of stoping that there is now more ore in sight than at any time since the company began operations.

TAKEN FROM REPORT OF THE GOVERNOR OF ARIZONA 1895

Plants in operation	Number of Stamps	Daily Capacity of Smelter Tons	Annual Product
United Verde (Gold, copper, and silver)		150	$3,500,000.
Congress	40		
Congress (cyanide)		60	750,000
John S. Jones (Little Jessie)	20		240,000
Roberts	5		20,000
Crowned King	10		360,000
Mescal Co	20		25,000
Barrett's	5		10,000
Whipsaw	10		150,000
Swallow	5		20,000
Harlan's	5		25,000
Senator	10		75,000
Groom Creek	5		24,000
Morse's	10		60,000
Lane's	10		150,000
Wade's	5		15,000
Marshe's	10		30,000
Schureman's	5		12,000
Sattes & Co.	5		12,000
Ryland	20		40,000
Humbug	20		20,000
Last Chance	10		20,000
Venezia (not working)	10		
Big Bug	5		25,000
Sines & Co.	3		15,000
Dekhunes (not working)	10		
Del Pasco	5		40,000
Prescott Sampling Works		100	75,000
Phelps, Dodge & Co.		100	50,000
Santa Maria	5		15,000
Callen & Co.	10		25,000
Yarnell	10		35,000
Catoctin (not working)	10		
Gladiator (not working)	10		
Rupert's (not working)	5		
Turkey Creek (not working)	10		
Peck	20		50,000
Total Quartz mines	350	410	5,949,000
Placer mines			250,000
Shipments			750,000
Aggregate production			6,949,000

2/19/1918

CONGRESS GOLD MINE

Comment on Brooks [illegible] by Smith

Brooks assumes that the operators of the mine did not know their business and left unstoped 300 feet in length of the "Spur Vein" from the 2700 foot level on the incline to the surface and about 300 feet of the "Congress Vein" from the 1250 level downward to the fault or to the bottom of the vein. It is of course, improbable that the whole length would be an ore shoot, but let us give the proposition the best of it and assume that it is. Brooks says stoping width varies from 3 to 15 feet. Let us assume an average of 5 feet.

Possible tonnage

$$\frac{300 \text{ X } 5 \text{ X } 4000 \text{ (depth)}}{13 \text{ (cu. ft. to ton)}} = 460{,}000 \text{ tons}$$

Brooks says average value $12.00 per ton for all ore produced.

COSTS		CONCENTRATES	
Devel. & Mining	$3.00 per ton ore.	Assume ration of conc. 10	
Milling of (conc)	1.50	Loading etc.	$ .50
Metal losses in conc.	2.00	Freight($100 value)	4.00
Freight & smelting	1.50	Smelting	5.50
Mill & plant			
Amortization	.50	Metal losses in	
Royalty per ton assume	.50	smelt. 5%	5.00
Total cost -	$9.00		$15.00
			= $1.50 per ton ore

CONCLUSIONS:

If there is a good tonnage of $12.00 ore (say 200,000 tons or more) there should be a profit of $3.00 a ton in it. I would, of course, be most skeptical. In the first place we know Brooks; second, his whole report constitutes little more than a "hunch," third, I've met Staunton,

who operated the property, and he's nobody's fool and probably had good reason for not mining the ground Brooks thinks should be ore.

It would, though, be interesting to try to follow this up a little by obtaining information from Staunton, Norris and the Murphy estate and by inspection of the mine if in the vicinity. In this connection, though, it is to be noted that the No. 3 incline is filled with water below the 1700' level and Brooks information about the "Spur vein coming in from above at the 2700' level" must be taken from maps or hearsay.

2/19/18 E.S.S.

ORE POSSIBILITIES AT THE CONGRESS MINE, YAVAPAI COUNTY, ARIZONA.

Geological History of This Interesting Old Property Suggests Advisability of Further Exploratory Work and Development.

By -- W. F. Staunton, Mining Engineer,
Los Angeles, Calif.

(NOTE: This article is re-printed through the courtesy of the Engineering and Mining Journal. Mr. Staunton is now in charge of development work at the Verde Central, during the absence of Major Dickson, who is spending a vacation in Europe.)

The original locations of the Congress mine in the Martinez mining district, in Yavapai County, Arizona, were made by Dennis May and sold by him to "Diamond Joe" Reynolds about the year 1887 for approximately $65,000, the purchase having been made by the advice of Frank M. Murphy, of Prescott.

Reynolds developed the property to some extent and built a 20-stamp mill with Frue vanner tables for concentration. No amalgamating plates were used, as there was practically no free gold, all of the value being in the sulphides, which consisted principally of marcasite. The surface ores were much oxidized, in spite of which no saving of consequence could be made by amalgamation or by concentration. The cyanide process was in its infancy then andlittle known, so that it was commonly said of the Congress mine in its early history that though it showed much good ore, there was no known method of extraction. The finding of sulphides by sinking solved the problem to a certain extent, as such ores were amenable to concentration andthe concentrates could be shipped to custom smelters. This furnished the means to profitable operation, but the crude methods employed at that time -- fine crushing by stamps followed by simple unclassified concentration on Frue vanners -- necessarily resulted in high tailing losses on account of the large amount of sliming that took place. Flotation, as practiced today, was then unknown. Fortunately the tailings from the early operations were saved and were re-treated later by cyanide with good extraction.

The property was operated from March, 1889, to August, 1891, when owing to the death of Mr. Reynolds, and to await the construction of the Santa Fe, Prescott and

Phoenix R. R., active operation was suspended except for a certain development work and the enlargement of the mill from 20 to 40 stamps with the necessary additional Frue vanners. The No. 2 shaft had been sunk to a depth on the vein of 1,000 feet, but no stoping had been done below the 650-foot level.

Production during this early period was as follows:

March 3, 1889 to August 31, 1891, ore shipped, 1,129.4 tons; net returns $155,652.29.

September 26, 1889 to January 28, 1891, concentrates shipped, 2,500.8 tons; net returns, $335,308.87.

June 3, 1891, to August 31, 1891, concentrates shipped, 1,062.8 tons; net returns, $101,113.73.

Total number of tons, 4,693.0; Total net returns, $592,074.89.

In March, 1894, new interests acquired control of the company, the name of which then was the Congress Gold Co., with E. B. Gage, president, and active operations were resumed, continuing thereafter until the end of 1910. In April, 1901, the company was reorganized as the Congress Consolidated Mines Co., Ltd., E. B. Gage continuing as president. The writer had direct supervision, first as superintendent and later as vice-president and general manager, from 1894 to 1910.

The production during this second period was as follows:

March, 1894, to December, 1910, cyanide bullion shipped, net returns, $2,797,851.45.

March, 1894, to December, 1910, ore and concentrates shipped, net returns, $4,259,571.30.

Total net returns, $7,057,422.75.

Thus the total recorded production in actual returns for gold and silver sold was $7,649,497.64.

GEOLOGY -- CONGRESS VEIN IN GRANITE

The country rock is granite, the westerly slope of the Bradshaw Mountains. A series of greenstone trap dikes exists over an area of several square miles, having

a strike that is generally east and west and dipping north 20 to 30 degrees. These dikes are generally mineralized to some extent and the Congress vein is in one of them and perhaps it can be said that the dike is the vein, for ore occurs in it in all possible positions from one granite wall to the other but generally near the footwall and accompanied by a clay salvage. The dike has a thickness of about 15 feet. Another series of dikes of fine grained quartz porphyry is of later origin, apparently post-mineral, and strike northeasterly with nearly vertical dip. The following analysis of an average specimen of the greenstone was reported from the Sheffield Scientific School: SiO_2, 52.20 per cent; Al_2O_3, 13.40; FeO, 9.75; MnO, 1.90; CaO, 9.60; and MgO, 1.16.

There are other veins, entirely in the granite and unaccompanied by the greenstone so characteristic of the Congress vein. These strike east and west, but dip more steeply, from 40 to 50 degrees. The development of quartz is more extensive than in the Congress vein and the average grade is lower. One of these veins, the Niagara, carried large bodies of ore of commercial grade to a depth of 2,000 feet. A characteristic of these allgranite veins is the presence of a small amount of galena and higher silver contents.

Minor faulting is in evidence throughout the mine working and there has been considerable relative movement of the walls of the Congress vein, resulting in local crumpling of the greenstone. The mine workings terminate to the east against a heavy fault, beyond which the vein has not been definitely located. This fault cuts off both the Congress and Niagara veins.

MINE WORKINGS DRY

The mines were practically dry down to the deepest point reached. 4,000 feet on the Congress vein at an approximate inclination of 25 degrees from the horizontal, the small amount of surface water which found its way in being easily handled by bailing tanks in the shafts. No mine pumps were ever put in or needed.

Although the Congress vein is continuous and well defined for a mile or more to the west of the mine workings and shows both the characteristic quartz and sulphides, the pay ore was practically confined to a shoot in the vein pitching to the northwest

and coinciding closely with the intersection of one of the fissure veins in the granite. The granite vein is faulted by the Congress vein so that the intersection is obscure in the mine workings. The portion of the granite vein in the hanging wall of the Congress carried bodies of pay ore.

The Congress pay shoot varied greatly in length on different levels, being longest on the 650 foot level, where it was stoped continuously for 1,800 feet. The average thickness of pay ore was less than three feet. Several pinches were met in following the vein down, the most serious being at the 1,700 foot level, where there was no stoping ground. On the theory that if pay ore existed below that point it would probably be found on the general line of trend of the ore shoot above, a deep prospecting winze was sunk from the 1,700 foot level, in the vein but with a northwesterly pitch corresponding to the established trend of the pay ore in the upper workings. This winze was sunk 1,000 feet and bore out fully the theory upon which it was projected, the pay ore coming in again as good as ever after a few hundred feet of lean ground.

The 3,900 foot level was the deepest point at which any considerable amount of development was done. For several levels above this there had been a gradual pinching of the pay shoot, which became small and irregular, although retaining its mineralogical characteristics and the small amount of sulphides which remained still showing the characteristically high gold contents, about 7 oz. per ton. The conditions wer similar to those existing at other horizons in the mine where persistent deeper wo had been rewarded by expansion of the ore shoot to normal size.

Seven shafts were sunk, all of them inclines following the veins. Three of these were on the Congress vein, designated as No. 1 (1,000 feet), No. 2 (1,700 feet), and No. 3 (4,000 feet). On the Niagara vein three shafts were also sunk, No. 4 (1,000 feet), No. 5 (2,050 feet), and No. 6 (1,900 feet). On the Queen of the Hills vein one shaft was sunk to a depth of 200 feet below the tunnel level.

TOTAL TONNAGE PRODUCED 692,332

Figures on tonnage of crude ore are not available for the first period from March 3, 1889, to August 31, 1891, but on account of the great uniformity of the

ore they may be closely approximated from the figures of the later period, on which basis the amount of ore milled in the first period appears to have been about 70,000 tons, all of which came from the Congress vein, as also did the shipping ore, together making a total of 71,129 tons, in the second period the amount of ore milled was 617,542 tons and shipping ore 3,661 tons, a total of 621,203 tons. The figures may be grouped as follows:

March 3, 1889, to August 31, 1891, tons from Congress, 71,129.

March 1, 1894, to December 31, 1910, tons from Congress, 307,863; tons from Niagara, 293,315; tons from Queen of the Hills, 20,125.

Total number of tons 692,332.

The recorded production of gold and silver in shipments shows a total of 388,477 oz. of gold and 345,598 oz of silver. As this came from 692,332 tons of ore, a recovery is indicated of $11.81 a ton, gold being figured at $20.67 and silver at 60¢ per ounce. Average tailing assays were about $1.20, which indicates a gross average value of all ore mined of $13,01.

The history of the Congress mine, its remarkable persistence due probably to its association with an intrusive dike of profoundly deep origin, and the existence of similar parallel veins in both hanging and footwall over a wide belt, suggest a careful study of the whole situation to determine the feasibility of a broadly planned scheme of exploration by means of a vertical shaft so arranged as to cut the Congress vein at greater depth than has been attained and incidentally to cut and explore the other similar veins, many of which not cut by the shaft could be reached by crosscuts.