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VEKOL MINE.

Casa Grande Mining District
Pinal County, Arizona.

Reconnaissance Report

by

J. S. Coupal, Mining Engineer.
Phoenix, Arizona. July 10, 1946.

CONCLUSION. The Vekol mine has shown a large recorded production of high grade silver ore. A misconception of the relation between the ore occurrence and the steep faulted limestone series resulted in a comparatively large area of virgin ground being left unexplored. The virgin area justifies intensive exploration and development and I do so recommend.

PROPERTY. The property consists of six patented mining claims and should include a few of the adjoining unpatented claims. Title to the property was under litigation at one time but has since been cleared and is now, I believe, free from any and all incumbrance. Located in the Casa Grande Mining District, Pinal County, Arizona about 35 miles southwest from Casa Grande and in the Papago Indian Reservation. It is at an elevation of about 1600 to 1700 feet above sea level. The route from Casa Grande, the nearest rail point, is over practically level desert road, a good part of which is maintained by the gas line company. Ample water is available both for domestic and milling purposes from a deep well on the patented claims. Operating conditions are favorable for year around operations.

GEOLOGY. The geology is fully covered in a transcript, from the "Economic Geological Reconnaissance of the Casa Grande Mining District, Pinal County, Arizona by J. E. Tenney" which is attached. Briefly it may be summarized as a mineralized replacement in an altered shale horizon in a block faulted limestone series. The ore bearing shale horizon is capped by hard gray limestone and underlain by an altered iron stained dolomitized lime.

DEVELOPMENT. The ore bodies have not been systematically mined but have been irregularly opened up and mined by several thousands of feet of drifts, raises, stopes, open cuts and shafts. The strike of the block faulting is not normal to the dip of the lime bedding in which the ore occurs and the major development has been roughly parallel to the strike of the block faulting so that the major working level is a gentle incline dipping from 5 to 8 degrees downward from the portal. This results in a high cost for removal of the mined ore. The workings are very irregular.

DEVELOPMENT. (cont)

Mr. Chas. A. Mitke, a mining engineer of high national standing, acquired a lease and option on the property and spent the greater part of his time from 1932 and 1933 in an intensive study and mapping of the property. He plotted the results of these studies on a sectional glass scaled model of the geology and the underground workings. This model shows the location and existence of several unexplored blocks of virgin area where the productive ore horizon is practically assured.

The earlier workings were all in oxidized ore. At the southeast end of the developed ore body the Argosy shaft was sunk to a depth of about 300 feet and exploration and development work from the bottom of this shaft opened up a sizable body of sulphide ores as well as connecting with the old workings for ventilation and for an easier and less costly way of removing the mined ore.

Due to the irregularity of the mine workings and the unsystematic method of development it is impossible for me to call any of the ore "blocked ore". From the habit of the ore occurrence and from the observations made I believe it is safe to say that there is practically assured about 15,000 to 20,000 tons of sulphide ore near the Argosy shaft and from 3,000 to 5,000 tons which can be recovered from the oxidized ores when adequate means of removing that ore can be provided.

There is also a sizable tonnage of dump ore which, when the proper metallurgy is worked out, might show a substantial profit. This can only be determined by intensive sampling and by careful testing to outline the proper mill flow sheet required. In addition to this there is the possibility of being able to handle a large tonnage of outcrop by open cut shovel work. This also calls for careful sample work and flow sheet study.

RECORDED PRODUCTION. From partial records, a production of in excess of \$1,000,000 in silver is reported by Mr. J. B. Tenney. It is known that these records were incomplete. From other authentic sources the recorded production is placed at between \$3,000,000 and \$7,000,000.

The records of the mine have been lost. Mr. Chas. A. Mitke had a complete set of records with him while in the Philippines during the late war and they were all lost.

RECOMMENDATIONS. The property justifies systematic and intensive development and exploration and it is so recommended by me.

The work should be done in stages. When the results obtained from the first stage are known a decision can be soundly made as to the following stage and in a similar manner as to the following stage.

NEXT

RECOMMENDATIONS. (cont)

Stage 1.	Rehabilitation of camp and partial mine workings. Survey, sample and plot sites for diamond drilling. Equip and diamond drill for new ore. Estimated cost of stage 1.	\$25,000.00
Stage 2.	Open up newly exposed ore shown by drilling and prepare for the efficient mining of this ore. Estimated cost of stage 2.	\$25,000.00
Stage 3.	Erect and install adequate mill, 50 to 100 tons daily capacity, and provide working capital for production. Estimated cost of stage 3.	\$100,000.00
Total commitment.		<u>\$150,000.00</u>

CONCLUSIONS. I believe the project thus outlined to be sound
and that the records and the history of the
Vekol mine fully justify carrying out this program.

It is entirely possible and well within reasonable expectation
that the work outlined under stage 1 may reveal the occurrence of
sufficient high grade ore, within a comparatively short time
and expense to start production within the amount, \$25,000
allocated for stage 1.

One of the major recommendations for the future of the property
is the personal time and expense made by Mr. Witke in his study
and the results obtained by him. The low price of silver and
the conditions at the time made it advisable for him to abandon
the project.

The present price of silver, 90.5 ¢ an ounce, and the favorable
position of silver in the world markets make the project most
attractive at this time.

I take pleasure in being able to recommend it highly.

Respectfully submitted

J. S. Coupal.

J. S. Coupal. Mining Engineer.
307 Arizona Title Building.
Phoenix, Arizona.

*
July 31, 1946.

UNITED STATES
DEPARTMENT OF THE INTERIOR.

Bureau of Mines.
June 18, 1946

Western Region
Economics and Statistics Division.

340 Federal Bldg.
Salt Lake City, Utah.

Dear Sir:-

The production of the Vekol Mine from 1901 to the present time is as follows:-

<u>Year</u>	<u>Ore</u> (tons)	<u>Concentrates</u> (tons)	<u>Gold.</u> (oz)	<u>Silver</u> (oz)	<u>Copper</u> (lb)	<u>Lead</u> (lb)	<u>Zinc.</u> (lb)
1903	100	---	---	3,000	1,000	2,500	---
1904	200	5	---	4,000	---	3,334	---
1905	200	---	---	4,000	---	3,500	---
1908	11	---	---	1,500	316	3,685	---
1909	416	---	---	3,938	338	6,343	---
1914	3	---	6.09	16	26	---	---
1915	1,690	27	---	4,050	---	6,480	---
1916	610	61	3.00	6,032	392	26,476	---
1917	73	---	1.00	188	7,039	---	---
1921	56	---	3.00	1,229	41	13,928	---
1922	12	---	---	1,498	328	1,713	---
1931	1	---	---	165	18	---	---

Where the year is omitted there was no production.

With best regards, I am,

Very truly yours,

s/s Paul Luff
Statistician
Salt Lake Section.

*

VEKOL MINE.

News Clippings from the files of the Mining Journal.

Dec. 5, 1925.

A 25 year lease has been taken on the Vekol Mine by W. J. Forback of Casa Grande, Ariz. Much high-grade silver ore was produced by the Vekol when operated 30 years ago, and additional development work was started about 10 years ago by Wm McDermot, then of Tucson. Mr. Forback is to proceed at once with development.

July 25, 1926.

P. P. Dagges, the owner of the Vekol Mine, Casa Grande, Arizona has announced that the property has been leased to a Mexico Mining company and that they will start work at once with W. J. Forback as manager. The mill and other machinery are now at the mine.

Feb. 27, 1927.

The famous old Vekol silver mines in the desert near Casa Grande, Arizona, are again at work. The Vekol Mining and Milling Company, capitalized at \$750,000 has been incorporated by F. E. Carrow, 616 First Ave., Phoenix, Arizona, M. J. Carrow and Walter F. Lee.

Oct. 15, 1927.

P. P. Daggs, president of the Vekol Mine, Casa Grande, Arizona, has returned to the mines from Claremont, California. Mr. Daggs expects to spend the winter at the mine. The group of Phoenix people who have a lease and bond on the property, expect to start operations.

Oct. 10, 1930.

P. P. Dagges, 75 year old mining man of Casa Grande, Arizona died on January 8th, 1930.

Sept. 19, 1931

The Vekol Mine, 50 miles southwest from Casa Grande is now under lease to Drake and Harrison of Casa Grande. This mine was formerly owned by P. P. Daggs, who passed away early this year. Tom G. Young and associates of Los Angeles are continuing work at the Great Eastern property, adjoining the Vekol.

Apr. 9, 1932.

Charles A. Mitke, the well known mining engineer, who has recently been doing much work on mining methods for the Mt. Isa properties in Australia, is spending sometime in the southwest. He has the old Vekol mine, south of Casa Grande, under lease and bond and has been

taking out some high grade silver-lead ore. The Vekol is an old time silver-lead producer with a good production record, but it has been in litigation many years which prohibited operation.

Nov. 2, 1932.

Mark Clardy has joined the engineering staff of Chas. A. Mitke at the Vekol mine, Casa Grande. Clardy holds degrees of Bachelor of Science in engineering and Master of Science in Metallurgy from the University of Arizona.

Feb. 11, 1933.

Percy G. Dobson, mining engineer and geologist of Vancouver, British Columbia has just completed an examination of the Vekol Mine.

June 20, 1934.

An extensive study of the geology of the Vekol Mine, near Casa Grande, is being made by J. B. Tenney, geologist, of Tucson, Arizona. He is also directing the assessment work which is being performed by a small crew of men. The Vekol is under option to Chas. A. Mitke, who has been in Washington, D.C., the past year, directing the fight being made by claim owners of Southern Arizona against the order of the Secretary of the Interior, withdrawing all Papago reservation lands from mineral location. Mr. Mitke is expected back in Arizona at an early date, at which time he will direct further work to be done at the Vekol and at the Davis mine, which he also has under option.

Journal office note. June 26, 1934.

Wire from Mitke requests we withhold publication of this item. Letter gives further reason that battle on claims on Indian Reservation not won and he wishes to attract as little attention as possible to mineral deposits.

*

128/65
VEKOL MINE

FILED
JUL 14 1965
VEKOL MTNS. DIST.
PINAL COUNTY
(mailed 5/28/65)

Conference with Al Wilson, Pres. Federal Mines, Inc. Box 519, Casa Grande 5/19/65.

Mr. Wilson stated that Federal Mines, Inc. is composed of three individuals, all of Casa Grande: Al Wilson, President; Norman Twenstrup, and Richard Clemans (an attorney). They have little capital and were negotiating with Frank Snyder and his group. They want to lease the mine and rework the dumps that are said to contain \$6-\$7 in silver per ton. Wilson believes there may be 700,000 tons in these dumps. Preliminary tests of surface outcrops on the Argosy and Mount Vernon claims indicate copper possibilities, but no appreciable testing has yet been done. The main silver workings are on the Vekol Claim and these are not in good condition, and the stoping was largely confined to high-grade pockets, Wilson did not know what the intervening areas between stopes would run but assumes that they would be low-grade as compared to the stoped material.

The property comprises 6 patented claims (Vekol, Grandfather, Flat Iron, Lookout, Mount Vernon, and Argosy), The Lookout partly being a fraction. The Mineral Survey Number is 4143. The claims according to the plat, lie in the E $\frac{1}{2}$, S34, and the W $\frac{1}{2}$ Sec.35, T9S, R2E. Access is now made from Stanfield south to the natural gas line and thence SW on the gas line road to the Vekol Mine road turnoff that extends several miles to the southeast (this portion of the road is not too good).

The last operators were the Elliott Brothers who shipped some silver ore in 1951-1952, but made very little.

Charles and Paul R. Daggs owned the property for many years, their father having previously owned it. The older Daggs also made some shipments, but Wilson did not have a record of these. Prior to 1951 the Daggs had leased the property to several people at various times.

MEMO LAS 5/19/65

According to Ed Ware & Norman Twenstrup, Casa Grande, work is going to begin again at the Vekol shortly. Dumps are to be sorted at first. Twenstrup is one of the owners along with Richard E. Clemans and Al Wilson of Casa Grande. 42 tons were shipped before the floods, according to Wilson's partner in the Chevron station and this checks. Wilson is now drilling for Newmont et al at the Republic Lease with his own drill.

MEMO LAS 1/26/66

Conference with Art Wilson, Casa Grande, 5/10/66

Wilson said that his group had leased the Vekol to Coombs and Son, and Oregon firm. They plan further exploration soon. (The Vekol is owned by Art Wilson, Richard Clemmons, Casa Grande Attorney and Norman Twenstrup of Casa Grande.) Coombs has not started work as yet. It is planned to confer with Clemmons next trip.

MEMO LAS 5/10/66

*

MV-9

Silver

OR

6 patented and 15 unpatented claims in Casa Grande Mining Dist., Pinal Co. Series of tunnels, raises and stopes 1070 ft. in length, over 320 ft. width. 300 ft. shaft untimbered. 400 ft. 2 compartment timbered shaft. Irregular replacements in Limestone (Pennsylvanian) Vein or ore horizon beds vary from few ft. up to 10 ft. Production 1882-1916 - 1,003,486 oz. of silver, Valued at \$1,000,000. Similar ore zones exists to SW. Apply for terms.

12/7/40

PAGE, JOHN H.
Luhrs Bldg.,
Phoenix, Ariz.

12-7-40

VEKOL GROUP, Pinal Co.

Daggs, Paul R. (John H. Page & Co., Agents)
Upland, California (Luhrs Bldg., Phoenix, Ariz.) 12-7-40

See MV-9 - Re Owners Mine Report - VEKOL GROUP, Pinal Co.

VEKOL GROUP

Ag

Pinal

11 - 5

S 34, T 9 S, R 2 E

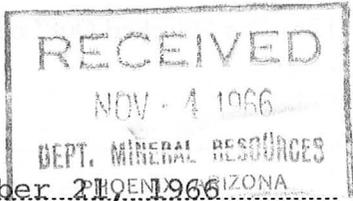
Paul R. Daggs, Upland, Calif.

12/7/40

DEPARTMENT OF MINERAL RESOURCES

State of Arizona

MINE OWNER'S REPORT



Date: October 21, 1966

- 1. Mine: Vekol
- 2. Location: Sec. 34&35 Twp. 9S Range. 2E Nearest Town Stanfield Distance 30 mi.
 Direction Southwest Nearest R.R. Southern Pacific Distance 45 mi.
 Road Conditions Fair
- 3. Mining District and County: Arizona, Pinal
- 4. Former Name of Mine: Vekol
- 5. Owner: Federal Mines
 Address: 1652 North Pinal Avenue *Casa Grande*
- 6. Operator: Mineral Harvesters, Inc.
 Address: Box 606 Stanfield, Arizona
- 7. Principal Minerals: Lead, silver and zinc.
- 8. Number of Claims: Lode 6 Patented 6 Unpatented 0
 Placer 0 Patented 0 Unpatented 0
- 9. Type of Surrounding Terrain: Tilted lime mountains.
- 10. Geology and Mineralization: Secondary Enrichment, replacement deposit, dolomitized lime strata.
- 11. Dimension and Value of Ore Body: Completely underlaying all 6 claims
varying in depth from 20' to 80'.
Varying from \$5 to \$30 per ton with some high grade
enrichment.

Please give as complete information as possible and attach copies of engineer's reports, shipment returns, maps, etc. if you wish to have them available in this Department's files for inspection by prospective lessors or buyers.

*

12. Ore "Blocked Out" or "In Sight": Approximately 1 million tons.

Ore Probable: Approximately 6 million tons, in present deposit.

With the probability of much greater enrichment at depth.

13. Mine Workings—Amount and Condition: 10 miles of tunnel Fair to Poor.

No.	Feet	Condition
Shafts	No. shafts worked since the 1st day of Aug., 1966 due to the determination that additional equipment and machinery was required for the efficient operation of Vikol Mine. Steps are now being taken to secure said additional equipment.	
Tunnels		
Crosscuts		
Stopes		

14. Water Supply: At the time the required additional equipment is secured water supply will be developed. Cost should be reasonable since the depth thereof of water is approximately 300 feet.

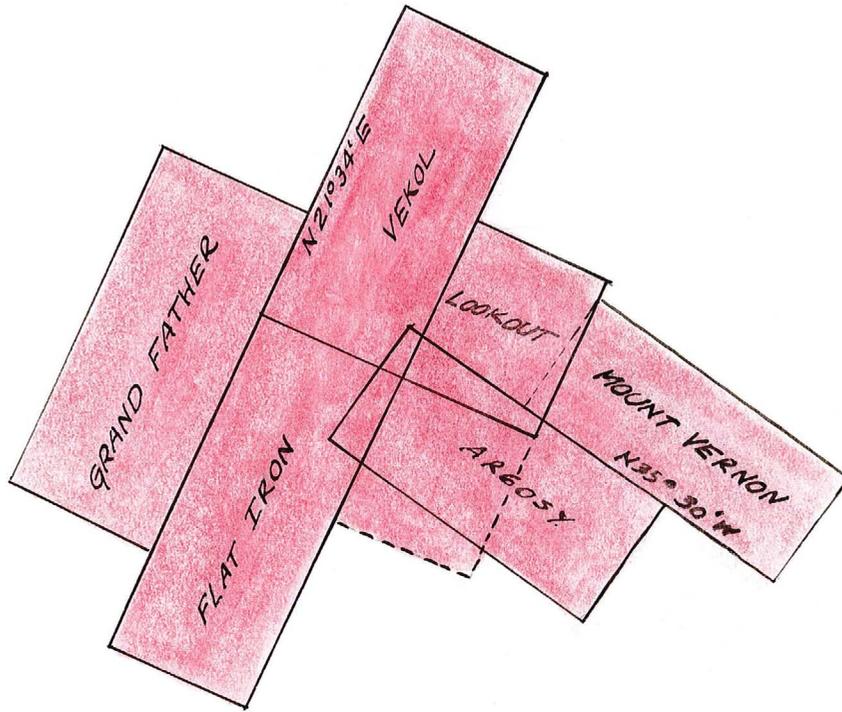
15. Brief History: In the 1800's it was first opened and worked intermediately until the 1930's. Estimated total past production 7 million dollars consisting mostly of silver. It was recently purchased by Federal Mines and leased to Mineral Harvestors.

16. Remarks: Present intentions to start an open pit operation.

17. If Property for Sale, List Approximate Price and Terms: Not presently for sale.

18. Signature: Mineral Harvestors Inc. Pres.

Donald P. Comber
Mineral Harvestors, Inc.
Box 606
ST. LOUIS, MISSOURI



VEKOL CLAIMS

(Patented 1933)

Federal Mines, Inc, May 1965.

Mineral SUR. 4143.

*

Tucson,
May 26



Mr. Lewis A. Smith,
Phoenix , Arizona.

Dear Lew:

The Vekol Mine is reported to have been sold recently. 3 parties are reported to have each purchased 1/3 interest. One of these parties is -----
Norman Twenstrup, partner in the Albacore Drilling Co., P. O. Box 519,
Casa Grande, Arizona.

Sincerely,

Axel L. Johnson,
Box 5047,
Tucson, Ariz.

*

VEKOL MINE

PINAL COUNTY
CASA GRANDE MINING DIST

Conference with George Freeman at Casa Grande 9/16/64 Lewis A. Smith.

Mr. Freeman said that there had been no activity in the Vekol area in the past few weeks. He has been doing assessment work at Pinal Copper which is on the road to Vekol and Reward Mines. Also he revealed that the Albacore Drilling Co., et al, reported 6/17/64 as having taken over at the Vekol Mine were not financially able to do much as far as he knew they were not mining people. This property was owned by Paul Daggs of Upland, California.

Bennie Richell, 8041 N. 28th Avenue, Sunnyslope (943-1980) was in relative to the Vekol Mine (see memo). He stated that the Federal Mines, Inc. now hold the Vekol. This consists of Clemins (20%), Wilson (51%), and Norman Twenstrup, of Casa Grande (29%). (old Albacore Drilling Co no longer active). Richell is considering taking a fourth interest.

LAS WR 1/8/65

Ira Wagon, P. O. Box 382, remarked that a new group reportedly had been organized and he believed that they were called Trans America Resources, and were reportedly taking over the Vekol, and possibly the Copperosity and that George Freeman was to do some test drilling for them. (Wagon owns Sofpa Claims Group 1 mile north of the Orizaba and his father operated the Vekol years ago.) Ralph Smith at the Pico Claims also mentioned that a new group had taken over the Vekol but so far had done nothing. They are reported to have an office in the San Carlos Hotel in Casa Grande. Their business agent is said to be Richard Clemons, lawyer in Casa Grande. Efforts to contact them failed. Al Wilson, who owns a service station opposite the Texaco station in Casa Grande is another party said to be affiliated. Wagon said that it was rumored that money was being obtained from Texas.

MEMO LAS 4/8/65

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Casa Grande phone book list a Richard S. Clemons, 108 W 4th, Casa Grande

VEKOL MINE

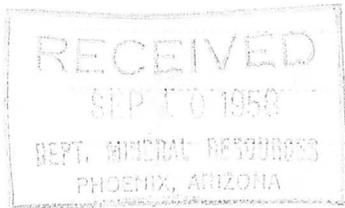
PINAL COUNTY
VEKOL DIST.

Conference with Art Wilson and Richard Clemans in Casa Grande and D. E. Coombs
at Stanfield (At Phoenix)

According to these men, Coombs is now running his mill on dump material. The machine is a straight line motion jig of Coombs own type, ^{with} little vertical component. The jig works dry and is said to give about an 8:1 concentration ratio. The dump material runs \$8.00 in lead and \$4-5 in gold and silver to the ton. It will not exceed (in concentrate) 5 percent SiO_2 . However, the tailings seem to slightly favor zinc in the oxidized material, and will run about the same in SiO_2 and CaO ; running 17 and 28 percent respectively. Tests indicate that the dump material after screening will run about \$23 per ton and that dump is of fairly even grade throughout. The lead-silver grade is better at 8 mesh, but coarser material seems to favor zinc and copper.

The Company* consists of D. E. Coombs, President
O. C. Coombs, Vice Pres.
Mrs. O. C. Coombs, Stockholder
Stanley Wilson, Stockholder
Carol Antona, Stockholder

* Mineral Harvesters, Inc., Donald E. Coombes, Pres., Box 606, Stanfield, Ariz.
MEMO IAS 5/7/66



DEPARTMENT OF MINERAL RESOURCES

State of Arizona

MINE OWNER'S REPORT

Date: Sept. 1 - 1958

- 1. Mine: *Vekal mine, Casa Grande Mining Dist.*
- 2. Location: Sec..... Twp..... Range..... Nearest Town..... Distance.....
 Direction..... Nearest R.R..... Distance..... *Casa Grande, Ariz.*
 Road Conditions: *fair*
- 3. Mining District and County:.....
- 4. Former Name of Mine:.....
- 5. Owner: *Chas D. Daggis*
 Address: *1681 - Lisbon Lane*
- 6. Operator: *El Cajon, Calif.*
 Address:.....
- 7. Principal Minerals:.....
- 8. Number of Claims: Lode..... Patented..... Unpatented.....
 Placer..... Patented..... Unpatented.....
- 9. Type of Surrounding Terrain:.....
- 10. Geology and Mineralization: *5 Lode claims, patented & not worked for many years.*
- 11. Dimension and Value of Ore Body:.....

Please give as complete information as possible and attach copies of engineer's reports, shipment returns, maps, etc. if you wish to have them available in this Department's files for inspection by prospective lessors or buyers.

12. Ore "Blocked Out" or "In Sight":
.....
.....
.....

Ore Probable:.....
.....
.....

13. Mine Workings—Amount and Condition:.....

No.	Feet	Condition
Shafts.....		
Raises.....		
Tunnels.....		
Crosscuts.....		
Stopes.....		

14. Water Supply:.....
.....
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15. Brief History:.....
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16. Remarks:.....
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.....
.....

17. If Property for Sale, List Approximate Price and Terms:.....

X \$5000⁰⁰ - any reasonable Terms -

18. Signature: *Charles W. Laegs*

REPORT on the VEKOL MINE

by
W. J. FORBACH, Mine Superintendent, 1907-1908.

Superior, Arizona.
July 12, 1946.

To Dr. H. A. Moore,
Arizona Club,
Phoenix, Arizona.

Dear Sir:

Referring to the Vekol Mine, this property was discovered by Papago Indians and samples taken to the J. D. Walker ranch on the Gila River, where samples were sent out for assaying, the results of which showed high values in silver; whereupon J. D. Walker, P. R. Brady and Lucien Walker located the property in 1880 and jointly began the operation as a co-partnership. For some reason or other, Brady and the Walkers failed to agree on the manner of operating the property, and the net result was the sale of Brady's one-third interest for \$60,000.00 to the Walker Brothers, who jointly operated the property from 1880 to 1892. During this period, several million dollars worth of ore was shipped to various smelters, and the lower grade ores were milled in a 10-stamp mill followed by pan amalgamation.

In 1892 J. D. Walker became ill and died a short time later. Following the death of Mr. Walker, the property was involved in a series of legal entanglements which extended over a period of ten years, and following this period of litigation, I secured a lease and option for the sum of \$200,000, and interested some southern gentlemen to take it over. At that time I had recommended a campaign of diamond drilling to determine the exact displacement of the ore-bearing series which occur between the highly altered shale beds and a dolomitized limestone which had been faulted by post-mineral east dipping faults, displacing the ore-bodies which follow the bedding planes, which dip approximately 32° to the west-south-west.

The Walkers, in operating the property, followed in along the strike for a distance of some 1400 feet from the discovery point, and in the extreme southern workings of the mine the ore-bodies became much more base -- the lead and zinc increasing -- thus rendering their method of milling inadequate for the treatment of the sulphide ores. The displacement of the ore-bearing blocks increased from a throw of 63 feet from the western extremity of the ore-blocks to a distance of 113 feet on the last fault to the east. These are the two faults, in my estimation, that make the Vekol a very interesting mining venture, as there is a large block of ground, lying to the south and east, of virgin territory which is exposed on the brow of the hill, where it is said that two carloads were shipped from this outcrop which averaged 1200 ounces silver per ton.

*
To the west of the Argosy shaft there is a very strong probability that the Vekol ore bodies can be picked up in comparatively short diamond drill holes and that was the reason why I became interested in the mine

in 1907, besides the fact that the records then in the office safe, which were not complete by any means, but which, showed by smelter settlement sheets, accounted for a million, six hundred thousand dollars, the average value in silver being 312 ounces and 12% lead. The mill book then in the safe showed some \$388,000 odd dollars as return from bullion indicating an average of 39 ounces of silver per ton. I had also been told by the book-keeper, Mr. Mitchell, that the total production of the Vekol, at the time of Mr. Walker's death, was approximately seven million dollars.

I had proposed to the people interested that we initiate a diamond drilling campaign prior to attempting constructive development, but unfortunately I was over-ruled by the president of the company, and was instructed to sink a two-compartment working shaft adjacent to a 680-foot water-well which had been drilled to supply water for the mill and camp. The reason for the insistence of the president on sinking the two-compartment working shaft at this point was based on a drunken well-driller's story that in drilling the water-well, they had passed through 29 feet of 30-ounce silver ore. However, when the shaft reached the depth of 120 feet, we encountered an east-dipping post-mineral fault which made it clear to me that the collar of the shaft had been started at a point where the ore-bearing series had long since been eroded, and was below the ore-bearing strata, there being a canyon extending from a pass in the mountains downward, forming a V-valley at the place where the shaft was sunk. I stopped the work at the 120-foot level, and advised the president of the company of the true conditions. They ignored the advice so furnished and instructed me to continue the shaft to a depth of 400 feet. No ore-bodies were encountered, proving the deductions previously given were correct.

This shaft, however, will be worth a good deal of money in the future operations in entering into the extension of the ore-bodies to be determined by future drilling, there being a long cross-cut to the east which encountered the displacing fault on the east block of the worked-out ore-bodies, affording a good working level through which the ore-body can be picked up by raising to the mineralized horizon. There is also a drift near the shaft along the strike of this post-mineral fault, extending some 850 feet to the south under the old workings, which by extending can be utilized as a haulage way for the ore encountered to the south and west. This drift was run on the advice of Professor Tollman, then professor at the University of Arizona; however, the work was stopped short of the distance recommended.

It is my firm conviction that by carrying out a campaign of drilling comparatively short drill holes, the ore-bodies will be bound to continue on the downward dip to the west and also be located to the east where there is a large block of ground to be prospected. The drift to the south can be utilized in proving the southerly extension of the known ore-bodies to the south and west.

Trusting that this report will give you a general outline of the conditions at the Vekol property, I am

Respectfully yours,

W. J. Forbach,
Superior, Arizona.
P.O. Box 21.

EXPERIENCE RECORD - J. S. COUPAL - MINING ENGINEER.

Born in Lawrence, Mass. September 25, 1883.

1900 Graduated from Mechanic Arts High School, Boston, Mass.
1900 - 1903 Yacht Designing with B. B. Crowninshield, Boston, Mass.
1903 - 1907 Graduated in 1907 from the Massachusetts Institute of Technology with degree of S.B., in mining and metallurgy.
1907 - 1908 U.S. Mining, Smelting & Refining Co., Kennett, California as assistant engineer on smelter, mine and construction.
1908 - 1909 Alaska Treadwell Gold Mines Co., Juneau, Alaska; miner, as machine man in stopes, raises and drifts.
1909 - 1910 U. S. Mining, Smelting & Refining Co., Chrome, New Jersey. Experimental roasting and blast furnace foreman.
1910 - 1912 Providencia Mines Co., Parral, Chihuahua, Mexico. Mine manager, development, mining, mill erection and operation.
1912 - 1914 Santa Lucia Mines, Oaxaca, Mexico. Mine manager, mining and shipping high grade ores.
1914 - 1915 Boston, Mass., in conjunction with P. A. Coupal, father, private experimental work on machine design and building.
1915 - 1916 Etna Chemical Co., Pittsburg, Pa. Superintendent of erection of munition works, maintenance and operation.
1916 - 1919 Engineering Management Corp., New York City, partner with Kirby Thomas; consulting, examination and mine management; operations in Western United States, Mexico, Venezuela and Peru, South America.
1920 - 1922 Arizona Tip Top Mines Co., Arizona. General Manager. Development, rehabilitation and operation.
1923 - 1926 Private Consulting Mining Work with headquarters in Boston, Mass. Examination and operating consultant for mines in western states, Mexico and Peru, South America.
1927 - 1928 Florence Lead Silver Mine, Ray, Arizona. General Manager in development and shipping.
1928 - 1929 Arizona-Eastern Gold Mines Co., Octave, Arizona. General Manager, mill installation, mining and shipping concentrates.
1930 - 1933. Private Mining Consulting work. Headquarters, Boston, Mass.
1934 - 1935 Engineer on mine development, Cave Creek, Arizona.
1935 - 1937 Manager of Tip Top Mine, Yavapai County, Arizona. Erection of mill, mining and milling operations.
1938 - 1939 Field organization work of the Arizona Small Mine Operators Association.
1939 - 1944 Director of the Department of Mineral Resources of the State of Arizona.
1944 - date Private Consulting Mining Engineer with headquarters at 307 Arizona Title Building., Phoenix, Arizona.

Member of the American Institute of Mining and Metallurgical Engineers and the American Mining Congress. Registered Mining Engineer in Arizona.

EXPERIENCE RECORD -- WILLIAM J. FORBACH. -- P.O. Box 231, Superior, Arizona.

Born in Sacaton, Arizona. Speaks Spanish and Papago Indian Languages.

- 1892-1895 5 years private instruction in organic and inorganic chemistry, under Prof. Mandol, graduate of Freiberg, Germany.
- 1895-1898 3 years in assay office doing assaying and metallurgical work.
- 1898-1900 Operating silver-lead property in Arizona as leaser, the Silver Nugget Mine.
- 1901-1902 Assaying and metallurgy for Gilbert J. Root at the Turning Point Mine, near Casa Grande, Arizona.
- 1902-1904 Superintendent of the Desert Queen Mining Co., Casa Grande, Arizona. Built and operated small cyanide plant for gold recovery.
- 1904-1906 Superintendent of the Silver Reef Mining Co. Installed cyanide equipment and worked out flow sheet for dry silver ores.
- 1905-1907 Operated and shipped ore from mine near Papago Indian Reservation.
- 1907-1909 Organized Vekol Mining Co. Sunk shaft to 400 feet and did about 2,000 feet of drifting. Was superintendent of development.
- 1909-1912 Co-partnership with Harry Nowett, Tucson, Arizona. Assaying and engineering office.
- 1912-1913 Leased First Home Mine, Yavapai County, Arizona. Retimbered shaft, caught up caved workings, shipped ore and sold property.
- 1913-1915 Examining various mining properties in Arizona, New Mexico, and in Mexico.
- 1915-1916 Employed in mechanical work in flotation mill for Binghamton Copper Co., near Mayer, Arizona.
- 1917-1919 Shift boss and leaser boss for Blue Bell Copper Co., Mayer, Ariz.
- 1919-1920 Mechanical work in Texas.
- 1920-1922 Examining mining properties for self and associates in Durango, Zacatecas, Chihuahua, Nayarit, Sinaloa, Jalisco, and Sonora, Mexico.
- 1922-1923 Leased and optioned Vacao Mine in Durango, Mexico. Operated and reconditioned old milling plant and installed a 300-ton flotation plant for treating 342,000-ton tailing dump.
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- 1932-1934 Reconnaissance work in Arizona, Colorado, and New Mexico.

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- 1941-1942 Reconnaissance mining work in Colorado, Arizona, Utah, and New Mexico.
- 1942-1946 Reconnaissance mining work in Arizona.

EXCERPT.

THE COPPER HANDBOOK - Vol. 9. 1909.

by H. J. Stevens.

Page 1387. Vol 9.

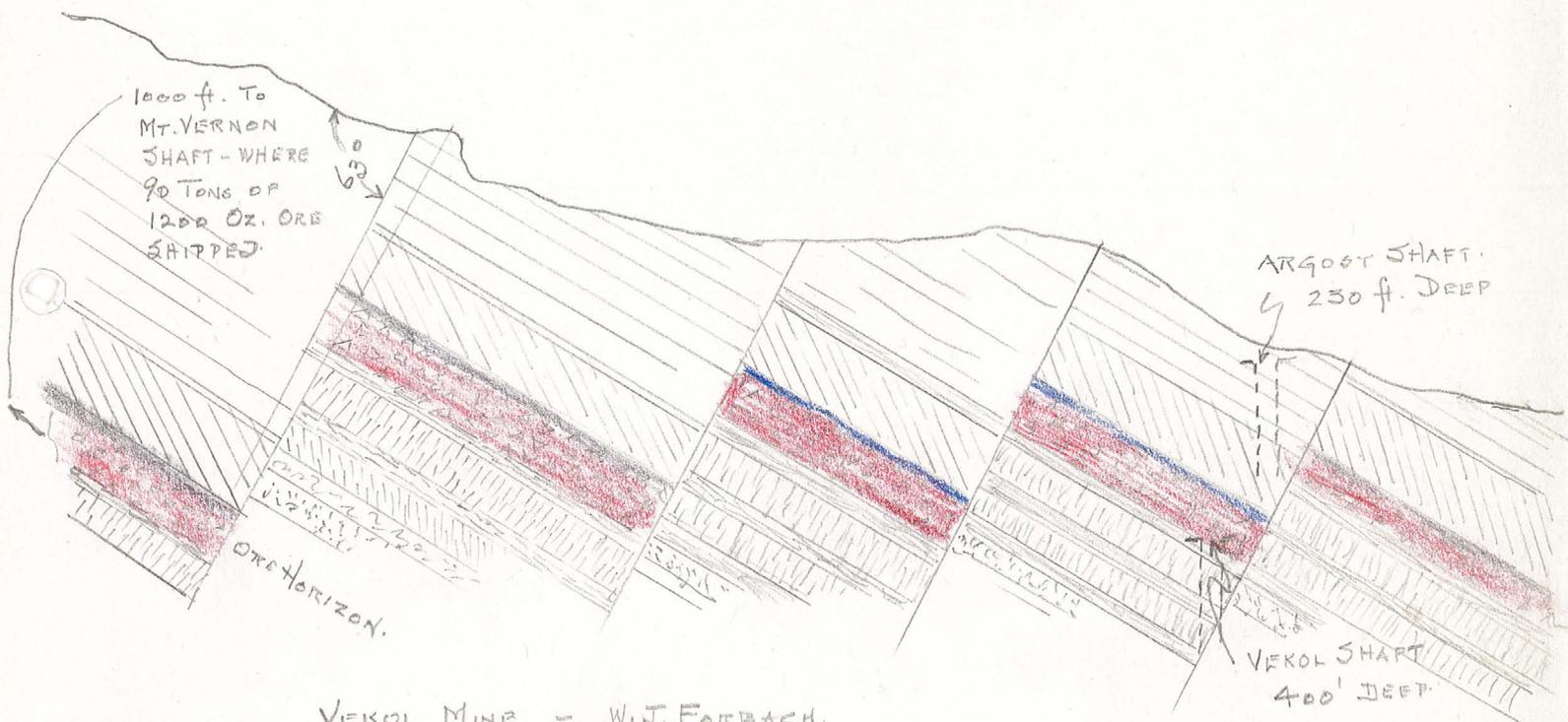
" VEKOL MINING COMPANY.

OFFICE: Tucson, Arizona. Mine Office; Vekol, Pinal County, Arizona. Employs circa 50 men. Maj. E. S. Garnett, president; J. V. Neuhaus, vice-president; J. M. Cotton, treasurer; S. J. Garnett, secretary; Wm. Forbach, supt.

LANDS: 42 claims, said to have been bought for circa \$200,000.00, in the Vekol Mountains, about 35 miles southwest of Casa Grande. Lands include 6 old properties, dating from 1881, with about 6 miles of workings, said to have produced in the past circa \$2,000,000.00 in silver and lead, and the old ore dumps are said to contain 350,000 tons of second grade ore that probably can be treated at a profit. The old mines shipped some ore carrying up to 4,000 ounces silver per ton, with considerable lead and a small amount of copper, with strong indications of increased copper values in depth. The mine has a new 380 foot two-compartment shaft, said to show good ore.

EQUIPMENT includes steam power, air compressor and 3 hoists, one good for 1,000 foot depth. Buildings include a smithy shop, machine-shop, carpenter shop, office and laboratory. The mill is of 40 tons rated daily capacity. Property considered promising. "

*



VEKOL MINE. - W. J. FORBACH.

ILLUSTRATIVE E-W GEOLOGICAL SECTION.

THIS SKETCH SHOWS THE ORE OCCURRENCE IN A WELL DEFINED LIMESTONE SERIES. APPROXIMATELY 10% OF THE MINERALIZED LIMESTONE STRATA HAS BEEN EXPLORED, DEVELOPED & MINED. THIS DEVELOPMENT WORK CONSISTS OF SOME 10 MILES OF TUNNELS & DRIFTS, 13 SHAFTS & 16 SURFACE CUTS. THE WORKINGS EXTEND SOME 1400' ON THE STRIKE.

*

VEKOL MINE

PINAL COUNTY
VEKOL DISTRICT

The Vekol Mine is reported to have no work in process, although the 3 Coombs are at the property and have set up a multiple screening outfit that did not appear to have been worked. The report is that it cost them \$35 to produce a ton of \$31 concentrates (obtained from dump material) and they were trying to reduce the costs.

MEMO LAS 10/4/66

FILED

NOV 23 1966

*Mailed to Donald
E. Coombs
10-11-66
Reply - 11/24/66*

VEKOL MINE

PINAL COUNTY
VEKOL DISTRICT

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MEMO LAS 10/4/66

Newmont Development Co. is engaged in extensive drilling on several square miles of mineralized zone in the Vekol mining district. The Vekol Mine within the Reservation boundary is owned privately, and has been leased by Mineral Harvestors, an Oregon exploration Group.

E & M J Dec. 1966

Mr. Robt. F. Playter said he was advised that Newmont had left this property.
10/24/67

Visited property 1/17/68 - Closed down GWI (verbal).

Engineer was informed that Newmont is just sitting on Vekol property.
GWI WR 1/20/68

See: Casa Grande (Mines File) Casa Grande History Report

*

MV-9

Silver

OR

6 patented and 15 unpatented claims in Casa Grande Mining Dist., Pinal Co. Series of tunnels, raises and stopes 1070 ft. in length, over 320 ft. width. 300 ft. shaft untimbered. 400 ft. 2 compartment timbered shaft. Irregular replacements in Limestone (Pennsylvanian) Vein or ore horizon beds vary from few ft. up to 10 ft. Production 1882-1916 - 1,003,486 oz. of silver, Valued at \$1,000,000. Similar ore zones exists to SW. Apply for terms.

12/7/40

PAGE, JOHN H.
Luhrs Bldg.,
Phoenix, Ariz.

12-7-40

VEKOL GROUP, Pinal Co.

Daggs, Paul R. (John H. Page & Co., Agents)
Upland, California (Luhrs Bldg., Phoenix, Ariz.) 12-7-40

See MV-9 - Re Owners Mine Report - VEKOL GROUP, Pinal Co.

VEKOL GROUP

Ag

Pinal 11 - 5 S 34, T 9 S, R 2 E

Paul R. Daggs, Upland, Calif.

'40

*

VEKOL MINE

PINAL COUNTY
VEKOL DIST.

Conference with Art Wilson and Richard Clemans in Casa Grande and D. E. Coombs
~~at~~ Stanfield (At Phoenix)

According to these men, Coombs is now running his mill on dump material. The machine is a straight line motion jig of Coombs own type, ^{with} little vertical component. The jig works dry and is said to give about an 8:1 concentration ratio. The dump material runs \$8.00 in lead and \$4-5 in gold and silver to the ton. It will not exceed (in concentrate) 5 percent SiO_2 . However, the tailings seem to slightly favor zinc in the oxidized material, and will run about the same in SiO_2 and CaO ; running 17 and 28 percent respectively. Tests indicate that the dump material after screening will run about \$23 per ton and that dump is of fairly even grade throughout. The lead-silver grade is better at 8 mesh, but coarser material seems to favor zinc and copper.

The Company* consists of D. E. Coombs, President
O. C. Coombs, Vice Pres.
Mrs. O. C. Coombs, Stockholder
Stanley Wilson, Stockholder
Carol Antone, Stockholder

* Mineral Harvesters, Inc., Donald E. Coombs, Pres., Box 606, Stanfield, Ariz.
MEMO LAS 6/7/66

REPORT on the VEKOL MINE

by
W. J. FORBACH, Mine Superintendent, 1907-1908.

Superior, Arizona.
July 12, 1946.

To Dr. H. A. Moore,
Arizona Club,
Phoenix, Arizona.

Dear Sir:

Referring to the Vekol Mine, this property was discovered by Papago Indians and samples taken to the J. D. Walker ranch on the Gila River, where samples were sent out for assaying, the results of which showed high values in silver; whereupon J. D. Walker, P. R. Brady and Lucien Walker located the property in 1880 and jointly began the operation as a co-partnership. For some reason or other, Brady and the Walkers failed to agree on the manner of operating the property, and the net result was the sale of Brady's one-third interest for \$60,000.00 to the Walker Brothers, who jointly operated the property from 1880 to 1892. During this period, several million dollars worth of ore was shipped to various smelters, and the lower grade ores were milled in a 10-stamp mill followed by pan amalgamation.

In 1892 J. D. Walker became ill and died a short time later. Following the death of Mr. Walker, the property was involved in a series of legal entanglements which extended over a period of ten years, and following this period of litigation, I secured a lease and option for the sum of \$200,000, and interested some southern gentlemen to take it over. At that time I had recommended a campaign of diamond drilling to determine the exact displacement of the ore-bearing series which occur between the highly altered shale beds and a dolomitized limestone which had been faulted by post-mineral east dipping faults, displacing the ore-bodies which follow the bedding planes, which dip approximately 32° to the west-south-west.

The Walkers, in operating the property, followed in along the strike for a distance of some 1400 feet from the discovery point, and in the extreme southern workings of the mine the ore-bodies became much more base -- the lead and zinc increasing -- thus rendering their method of milling inadequate for the treatment of the sulphide ores. The displacement of the ore-bearing blocks increased from a throw of 63 feet from the western extremity of the ore-blocks to a distance of 113 feet on the last fault to the east. These are the two faults, in my estimation, that make the Vekol a very interesting mining venture, as there is a large block of ground, lying to the south and east, of virgin territory which is exposed on the brow of the hill, where it is said that two carloads were shipped from this outcrop which averaged 1200 ounces silver per ton.

* To the west of the Argosy shaft there is a very strong probability that the Vekol ore bodies can be picked up in comparatively short diamond drill holes and that was the reason why I became interested in the mine

in 1907, besides the fact that the records then in the office safe, which were not complete by any means, but which, showed by smelter settlement sheets, accounted for a million, six hundred thousand dollars, the average value in silver being 312 ounces and 12% lead. The mill book then in the safe showed some \$388,000 odd dollars as return from bullion indicating an average of 39 ounces of silver per ton. I had also been told by the book-keeper, Mr. Mitchell, that the total production of the Vekol, at the time of Mr. Walker's death, was approximately seven million dollars.

I had proposed to the people interested that we initiate a diamond drilling campaign prior to attempting constructive development, but unfortunately I was over-ruled by the president of the company, and was instructed to sink a two-compartment working shaft adjacent to a 680-foot water-well which had been drilled to supply water for the mill and camp. The reason for the insistence of the president on sinking the two-compartment working shaft at this point was based on a drunken well-driller's story that in drilling the water-well, they had passed through 29 feet of 30-ounce silver ore. However, when the shaft reached the depth of 120 feet, we encountered an east-dipping post-mineral fault which made it clear to me that the collar of the shaft had been started at a point where the ore-bearing series had long since been eroded, and was below the ore-bearing strata, there being a canyon extending from a pass in the mountains downward, forming a V-valley at the place where the shaft was sunk. I stopped the work at the 120-foot level, and advised the president of the company of the true conditions. They ignored the advice so furnished and instructed me to continue the shaft to a depth of 400 feet. No ore-bodies were encountered, proving the deductions previously given were correct.

This shaft, however, will be worth a good deal of money in the future operations in entering into the extension of the ore-bodies to be determined by future drilling, there being a long cross-cut to the east which encountered the displacing fault on the east block of the worked-out ore-bodies, affording a good working level through which the ore-body can be picked up by raising to the mineralized horizon. There is also a drift near the shaft along the strike of this post-mineral fault, extending some 850 feet to the south under the old workings, which by extending can be utilized as a haulage way for the ore encountered to the south and west. This drift was run on the advice of Professor Tollman, then professor at the University of Arizona; however, the work was stopped short of the distance recommended.

It is my firm conviction that by carrying out a campaign of drilling comparatively short drill holes, the ore-bodies will be bound to continue on the downward dip to the west and also be located to the east where there is a large block of ground to be prospected. The drift to the south can be utilized in proving the southerly extension of the known ore-bodies to the south and west.

Trusting that this report will give you a general outline of the conditions at the Vekol property, I am

*
Respectfully yours,

W. J. Forbach,
Superior, Arizona.
P.O. Box 21.

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by H. J. Stevens.

Page 1387. Vol 9.

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EQUIPMENT includes steam power, air compressor and 3 hoists, one good for 1,000 foot depth. Buildings include a smithy shop, machine-shop, carpenter shop, office and laboratory. The mill is of 40 tons rated daily capacity. Property considered promising. "

*

August 9, 1949

Mr. R. W. Hughes
Miami Copper Company
Miami, Arizona

Dear Mr. Hughes:

The Vekol Mine south of Casa Grande is owned
by:

✓ Paul R. Daggles, Upland, California.

Local representative is:

✓ John R. Page & Co.,
Box 3706
Phoenix, Arizona.

While we know of the mine we have no authentic
detailed information.

Trusting the above will help you.

Yours sincerely,

Chas. H. Dunning
Director

CHD:mh

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OWNERS MINE REPORT

Date December 7, 1940

1. Mine Vekol Group
2. Mining District & County Casa Grande Mining Dist. Pinal County
3. Former name Vekol Group
4. Location Casa Grande, Arizona
5. Owner Paul R. Daggs
6. Address (Owner) Upland, California
7. Operator None
8. Address (Operator)
9. President None
10. Gen. Mgr.
11. Mine Supt.
12. Mill Supt.
13. Principal Metals Silver
14. Men Employed
15. Production Rate
16. Mill: Type & Cap.
17. Power: Amt. & Type
18. Operations: Present Idle
19. Operations Planned None
20. Number Claims, Title, etc. 6 patented and 15 unpatented

See
John H. Page & Co
P. O. Box 3706
Phoenix
Lubers Bldg.

21. Description: Topography & Geography

For no. 21 to 26 inclusive see page 4 of
"Economic Geological Reconnaissance of Casa Grande
Mining District". by J. B. Tenney, published by
permission of the Arizona Bureau of Mines, a copy
of which is attached.

22. Mine Workings: Amt. & Condition

23. Geology & Mineralization

24. Ore: Positive & Probable, Ore Dumps, Tailings

24-A Vein Width, Length, Value, etc.

25. Mine, Mill Equipment & Flow Sheet

26. Road Conditions, Route

27. Water Supply **Good supply on the property**

28. Brief History

29. Special Problems, Reports Filed

30. Remarks

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

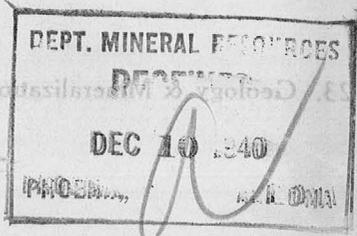
See John H. Page & Co.
Phoenix, Arizona

P.O. Box 3706

32. Signed.....**Paul R. Daggs**.....

33. Use additional sheets if necessary.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
MINE OWNER'S REPORT



Date Dec. 7, 1940.

1. Mine Vekol Group
2. Location Casa Grande, Ariz
3. Mining District & County Casa Grande Mining District, Pinal Co.
4. Former name Vekol Group
5. Owner Paul R. Daggs.
6. Address (Owner) Upland, Calif.
7. Operator None
8. Address (Operator)
9. President, Owning Co. None
- 9A. President, Operating Co.
10. Gen. Mgr.
14. Principal Minerals Silver
11. Mine Supt.
15. Production Rate
12. Mill Supt.
16. Mill: Type & Cap.
13. Men Employed None
17. Power: Amt. & Type
18. Operations: Present Idle
19. Operations: Planned None
20. Number Claims, Title, etc. Six patented and fifteen unpatented
21. Description: Topography & Geography for no. 21 to 26 inclusive see page 4 of
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Mines, a copy of which is attached.
22. Mine Workings: Amt. & Condition

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
MINE OWNER'S REPORT

Date 7, 1940.

23. Geology & Mineralization

24. Ore: Positive & Probable, Ore Dumps, Tailings

24A. Dimensions and Value of Ore body

25. Mine, Mill Equipment & Flow-Sheet

26. Road Conditions, Route

27. Water Supply good supply on the property.

28. Brief History

29. Special Problems, Reports Filed

30. Remarks

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

See John H. Page & Co.
Phoenix, Arizona.

32. Signature Paul R. Dagg

33. Use additional sheets if necessary.

A
COMPILATION OF
REPORTS
ON
THE VEKOL SILVER.

by

Hamilton A. Higbie, Registered Geologist
Scottsdale, Arizona

January 12, 1969

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COMPILATION OF
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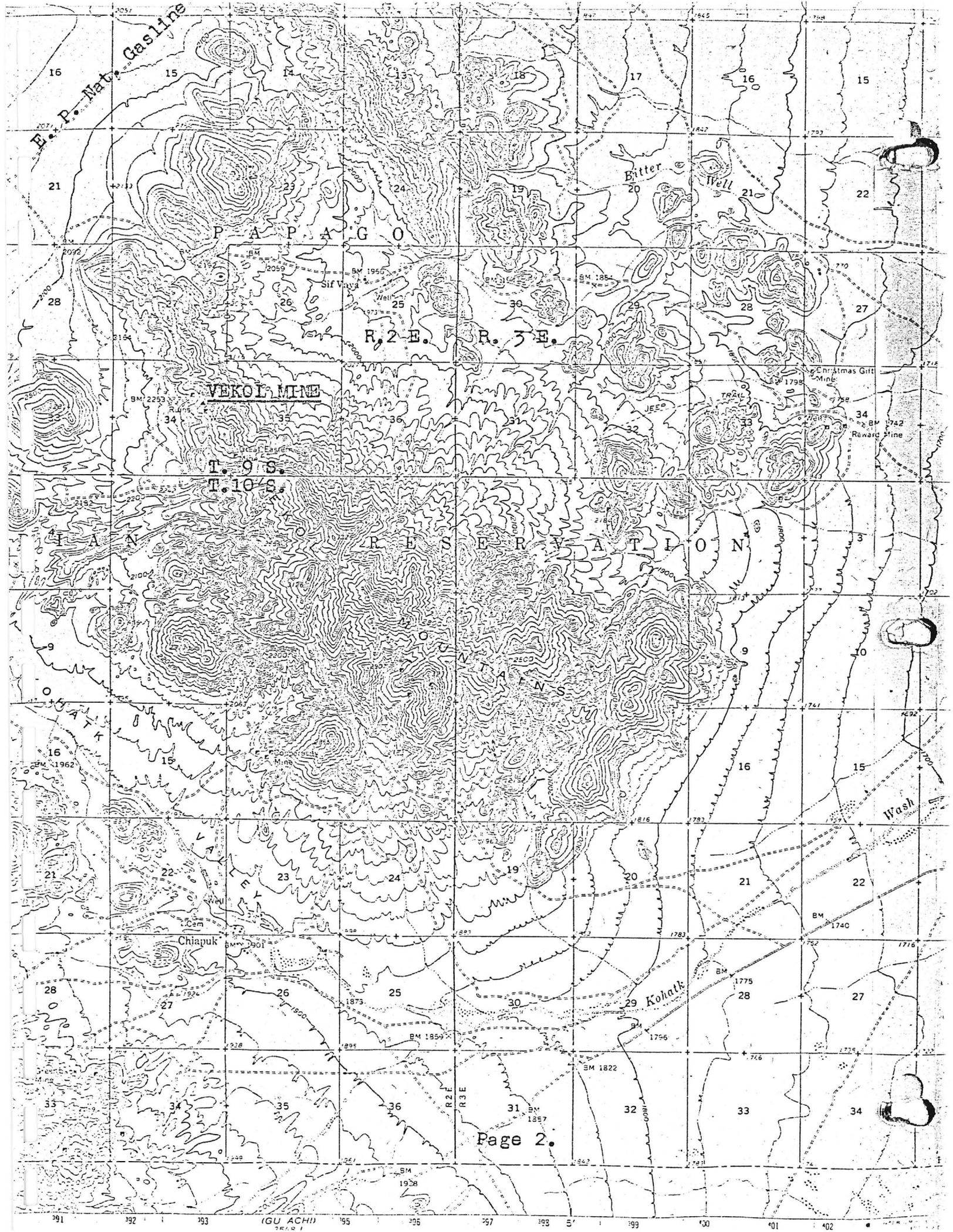
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General Information	3.
Results of Chemical and Geological Investigation	5.
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VICINITY MAP.

The Vekol Property (large arrow and circle due south of Phoenix) is reached by approximately 12 miles of graded-gravel road south from the community of Stanfield (on State Route 84). At this point the road junctions with an El Paso Natural Gasline road, and the west portion is driven for approximately 14 miles. Here there is a side desert road turning to the south; it is about 1/2 mile west of mile-post marker 34 on the gasline road. Three mile on this desert road brings one to the Vekol townsite ruins and the mine itself on the west flank of the Vekol Mts.



January 12, 1969

Vekol Mine
Pinal County, Ariz.

General Information.

by

Hamilton A. Higbie, Registered Geologist.
Scottsdale, Ariz.

- Six patented claims, surrounded by the Papago Indian Reservation.
- Approximately 25 miles southwest of Casa Grande, Ariz. by airline, and approximately 29 miles south and west of Stanfield by graded gravel road. Railhead to the smelter at El Paso, Texas would be Casa Grande.
- Mining commenced in 1879-80 with shipment of hand-sorted high grade ore. Total, through 1916, estimated at over \$1,000,000. Only mined intermittently since then.
- Recent assays (with silver currently around \$2.00 per oz.) show an average of 25 oz/Ton. One recent assay from the Argosy shaft yielded 141 oz/ton of silver.
- Firmly shown that an average of about \$50/ton shipping ore is present.
- An I.P. recently run by Geo-Ex (of Tucson) indicates an anomaly at some 650' depth, indicating the possibility of a large low-grade copper deposit below the silver.
- Gunnex Limited of Canada sampled dumps (100,00 tons est.) which averaged \$5.00/Ton (see report attached).
- Silver would be mined by underground methods, and the country rock is such that no timbering would be necessary.

- If copper deposit present below silver, additional property would have to be arranged through and with the Papago Tribal Council. They appear willing to negotiate.
- There is a well with good water on it near the main shaft. It is reportedly drilled to a total depth of 650 feet.
- Present owner is Harry Westling of Casa Grande. Owns 27% of the mine and has the remainder under lease from two other partners.
- Deposit is one of secondary enrichment, a replacement deposit in dolomitized lime strata.
- Orebody completely underlies all 6 claims, varying in depth from 20 feet to 80 feet.
- Dumps include values in lead, copper, and zinc, as do the underground workings.
- Pb-Ag grade better at 8 mesh, but coarser material seems to favor Zn-Cu.
- Originally consisted of 22 claims, of which only the six mentioned were patented, others were allowed to revert to the Papago Reservation.
- There are approximately 8 miles of workings (tunnels, etc.) on the property.
- The orebodies seem to be controlled by a series of closely parallel faults of small throw.
- Claims are recorded as Mineral Survey #4143, April 2, 1933, Book 52 (deeds) page 138, Pinal County court house, Florence, Arizona.
- Approximately $\frac{1}{4}$ mile of road would have to be bulldozed from the present road to open access to the Argosy shaft and dumps. If any drilling and shooting were necessary it would be minimal. The present road from the property to the El Paso Natural Gasline road could also be bladed with a minimum of time and expense to make it more accessible to truck traffic.
- The dumps can be worked immediately offering the quickest returns for investment. This could then be used to open up the existing underground workings to shipping grade ore.
- Further drilling is necessary to delineate any possible deep-seated low-grade copper deposit.

I.

VEKOL SILVER MINE.

Pinal County,

Arizona.

Results of chemical and geological
investigation for Rare Metal Products
Company of Phoenix, Arizona.

June 1968

by
Don Stout.

"The purpose of this investigation has been to evaluate the Vekol Silver Mine to determine what possibilities, if any, exist for the discovery of unmined high-grade silver ores in the near surface. This has involved attempts to outline the major structural controls of mineralization, the nature of mineralization, and its possible source. Aside from field

mapping, the principal method I have employed is a fairly intensive sampling program. Heavy emphasis was placed on emission spectrographic analysis to determine what elements were present, and their approximate concentration. This work was performed by me in the laboratory of Research Chemicals, Phoenix, Arizona. Silver assays performed by Arizona Testing Laboratories, Phoenix, Arizona were used as a cross check on the spectrographic work, and pulp from these used for secondary spectrographic standards.

Major structural controls consist of faults and probable joint fractures, with a possibility of some shearing at the extreme south end of the old workings. The faults, for the most part, show no measureable deflection although strong dip-slip slickensides are common in the tunnels. To further complicate the picture, the large E-W fault at the south end of the property is strongly reflected in the underlying Escabrosa Dolomite, but shows only minor silicification of the zone along its strike in the overlying Naco Limestone. It appears that all of the mineralized zones in the main workings are poorly reflected in the upper limestone, if at all. The E-W fault at the north end of the workings, however, appears to have cut the limestone with substantial strike-slip displacement. This is the only fault with notable displacement, and is concluded to be younger than the other features, and probably post-mineral. The great majority of the faulting is pre-mineral

and indeed probably existed as faults and/or joint fractures before the unconformable deposition of the Naco Limestone. Later hydrothermal action was undoubtedly responsible for the mineralization, and intersections of faults and/or fractures together with the base of the much more chemically reactive limestone were the loci for higher grade ores. The mineralized fault zones delineated by the old workings trend N. 10 to 15 degrees W., but a strong case can be built for the existence of an intersecting set of fractures showing a trend of N. 80 to 85 degrees W., which are also mineralized.

Mineralization consists for the most part of a very low-grade, highly calcareous fracture filling whose metallic constituents are iron, zinc, lead, manganese, silver, antimony, and copper, in order of concentration. The lead and silver, and to some extent the zinc, will concentrate by gravity. I feel that all the metallics are present as carbonates and oxides, with the possible exception of some silver present as the chloride. This is the nature of the great bulk of the material in the fractures, which are metal-bearing along the entire length of the workings. In the small pockets of higher grade ore, probably all formed in the intersection of fractures, lead, copper, and silver combine in a complex sulfide probably best described as bournonite. Silver-bearing carbonates of zinc and lead are accessory minerals. One sample of this ore from the Argosy dump assayed 241 oz. of silver per ton. Spec-

trographic analysis showed this to be antimonial, with a trace of mercury, and lead higher than copper. Underground investigation and chemical analysis indicated that this probably came from the extreme south end of the workings under the Argosy Claim. On the Mount Vernon Claim 150 feet south of the E-W fault which crosses the south end of the property, a pocket of sulfides was mined which showed copper higher than lead, with silver down to 75 oz. per ton, and antimony replaced by arsenic. This, together with the presence of antimony in the western workings, and its absence in the eastern workings in stopes further north, would indicate that the source of the mineralization either is closer to the surface on the east side of the property, or may actually lie east of the claims. The chemical makeup of the mineralization would indicate, from my experience in Arizona, an andesitic source.

Future exploration for unmined higher grade silver ore should be directed along the strike of the southernmost E-W fault, but the expense is apt to be prohibitive unless geochemical methods are employed as a guide to promising areas along the fault. Also, the temperature zoning of the property seems to point to higher grade silver ores to the west of the main workings where this fault is presumed to extend. The 25 degree westerly dip of the beds puts the base of the limestone at a rapidly increasing depth to the west. This could conceivably force explorations into highly speculative underground drifting, but it also could easily be worth the risk."

Don Stout.

II.

PRELIMINARY REPORT
VEKOL MINE AREA.

BY

Arthur G. Blucher

"Mr. Harry Westling, Mgr.,
Vekol Mining and Exploration Co.,
1198 E. Rodeo Road,
Casa Grande, Arizona 85222

February 27, 1968

Dear Mr. Westling:

Following is my report on the preliminary study of the old Vekol Mine Area. The engineering aspects of the report or study were handled by Mr. Albert S. Johnson, an engineering consultant with offices at 5215 North Oracle Road, Tucson, Arizona. His discussion of the drilling methods to be recommended here, and his cost and time estimates, are included as an appendix to this report. In addition to data gathered

during this examination, information was drawn from previous work by Tenney, Mitke, Carpinter, and geologists of the Duval Corporation.

Introduction and Conclusions

The old Vekol Mine is located on the western flank of the northern Vekol Mountains about 30 miles S. 55 W. of Casa Grande, Arizona. It can be reached by about 30 miles of fair dirt road turning south off U.S. Highway 80 at Stanfield, Arizona.

Discovered in 1879, it had a reported production of about one million ounces of silver between 1882 and 1916. There has been little exploration or production since that date.

The property consists of six patented mining claims (Mineral Survey 4143). The surrounding ground is part of the Papago Indian Reservation, and is controlled by the Tribal Council.

Present geologic and mineralogic information is sufficient to show that this prospect warrants drilling -- either as a prospect of shallow and small high-grade silver orebodies, or as a prospect of a large volume of base metal-silver ore from deeper stratigraphic horizons. The exact location and number of drill holes will depend on the results of recommended detailed geologic studies.

Summary

Mineralization at the old Vekol Mine consisted of lenses and pods of silver minerals enriched from a low grade deposit

of primary Cu-Pb-Zn-Ag minerals in dolomitized and fractured Escabrosa Limestone near the base of the overlying Naco Limestone. These secondary orebodies, though rich in silver, were quite small in physical dimensions.

Primary ore controls appear to have been N-S to N 30 W striking faults, N 75 E striking faults with attendant andesite porphyry dikes, and the lower surface of the Naco Limestone. Secondary enrichment producing high grade silver orebodies may have been controlled by the coincidence of these geologic features with an ancient water-table.

There are two exploration possibilities here: (A) The search for near surface, high grade, secondarily enriched silver deposits in areas not explored by the old workings; and, (B) A test of deeper and more favorable replacement horizons in the underlying formations.

Either or both of these proposals offer a clear possibility of success. It should be pointed out that proposal A will require a large expenditure in the search of targets of modest total potential worth, while proposal B will require a modest expenditure in search of a target of great potential worth.

Regional Setting

This is a desert region of small mountain ranges separated by broad valleys. Although the maximum relief of the mountain ranges is not great, they are commonly quite rugged in detail. Premineral bedrock outcrops are almost entirely confined to the

mountains, and a large part of the region is covered by valley fill or post-mineral volcanic rocks.

Although the geologic history of the region is quite complex when considered in detail, it may be simplified as follows:

At the beginning of late PreCambrian time the land surface was fairly even and consisted of Early PreCambrian schist and granite.

Upon this surface there was discontinuous deposition of sediments from Late PreCambrian until the end of Mesozoic time. There was little deformation or faulting during this period.

Active crustal movement beginning in Mesozoic time continued well into Tertiary and was accompanied by the intrusion of various igneous rocks. With some of these intrusives there was associated mineralization.

Uplift and erosion during Middle Tertiary was followed by the deposition of post-mineral detrital deposits and the extrusion of a considerable thickness of volcanic rocks. During the period of uplift and erosion some of the above mentioned mineral deposits were exposed to oxidation and leaching, and the consequent redistribution of mineral values between the surface and the water table. This process resulted in the enrichment of the very large chalcocite-copper deposits of the southwestern U.S. as well as some of the small but high grade silver deposits.

Geology and Mineralization

At the base of the stratigraphic column for the Vekol Mountains is the much contorted Early PreCambrian Pinal schist, intruded in places by Early PreCambrian granite. Unconformably overlying these rocks is the Apache Group -- a thick (1500 feet plus) sequence of shale, quartzite, and conglomerate, with one thin bed of limestone. At the top of this sequence is the Troy Quartzite, which may be either Late PreCambrian or Cambrian in age, depending on the authority quoted. Conformably overlying the Troy is the Cambrian Abrigo Formation, the Martin Formation of Devonian Age, and the Mississippian Escabrosa Limestone. Overlying the Escabrosa with an apparent slight disconformity is the Naco Limestone of Lower Pennsylvanian Age.

At the Vekol Mine the Naco Limestone and the underlying Escabrosa Limestone form a northwesterly trending ridge rising several hundred feet above the valley floor. These beds strike generally N 30 W and dip about 25 degrees to the southwest. Two sets of pre-mineral faults cut these formations with small (10 to 100 feet) apparent displacement. The N 10-20 W set show dips from 70 degrees east to 70 degrees west, and are commonly multiple structures of fractured and brecciated rock. The N 70-80 E set dip about 80 degrees N and are commonly straight and clearly defined. The largest of this second set cuts the north end of the old workings and is intruded in places by small andesite dikes. The faults of both types may have been channels of

mineralizing hydrothermal solutions, and the porphyry is of a type commonly associated with mineral deposits of southern Arizona.

According to reports the ore extracted from the old workings consisted of small nodules of horn silver, argentite, and silver-bearing tetrahedrite, which during most of the period of production was handsorted to a grade of several hundred ounces of silver per ton. This was mined from small pockets and lenses in the dolomitized upper horizon of the Escabrosa Limestone within a few tens of feet of the basal shale bed of the overlying Naco Formation. There was associated copper, lead, and zinc -- and carbonates and sulfates of these elements can be found on the dump and in the walls of the old workings. Assays of samples taken during an extensive examination by Duval Corporation averaged 0.02% Cu, 0.27% Pb, and 0.51% Zn.

Two samples taken during this examination from typical zones of what appeared to be remnants of strong mineralization left in the walls of old cuts and stopes assayed only 5.7 oz. Ag and 2.1 oz. Ag, with about 0.01 oz. Au. A large sample taken from the barren looking material immediately adjacent to these assayed only 0.2 oz. Ag and trace Au. A large (100 lb.) composite sample taken from holes dug in four places on the dump was rolled and split down to a small sample. This assayed 6.3 oz. Ag and 0.02 oz. Au. The results of Duval's sampling tend to confirm these values.

From the above sample results, the reported last production, and the size of the old stopes, it would appear that the high-grade ore was closely confined to small pods and had little or no low grade fringe. The overall area explored by the old workings amounts to about 300,00 sq. ft. The area of the old stopes shown on Mitke's map is about 6000 sq. ft. or about 2% of the total area explored.

It is clear then that the search for new orebodies in the Escabrosa - Naco contact horizon will require detailed geologic studies and close-spaced drilling.

A second observation that can be made is that this mineralization, though spotty, occurs over a wide area, in a stratigraphic horizon several hundred feet above the more favorable replacement horizons of the region, and is related to faults and intrusives which surely cut the deeper beds. This may reflect base metal deposits in the deeper formations. Newmont Mining Corporation has discovered such a deposit about five miles east of the Vekol Mine which is reported to contain about 75 million tons of low-grade copper ore.

Proposal A.

Geologic mapping should be done on a scale of 1 inch equals 100 feet to determine the location and attitude of faults and the subsurface level of the Naco-Escabrosa contact. Present geologic knowledge suggests that areas I, II, and III on the attached map might be favorable. This mapping might take one geologist about three weeks depending on the amount of geologic complexity encountered. For the purpose of Mr. Johnson's

drilling estimate, an arbitrary figure of 60 drill-holes averaging fifty feet in depth was chosen.

Proposal B.

For proposal B a second geologic map with two cross-sections should be prepared on a scale of one inch equals 500 feet. Some work will have to be done on outcrops outside of the immediate Vekol area in order to determine the thickness of the older formations beneath the Naco and Escabfosa limestones on Vekol Ridge.

The target horizons here are the lower Martin Limestone, the Abrigo Formation, and the upper Apache Group. Present knowledge indicates depths to these beds at the upper Vekol workings of about 600 feet, 700 feet, and 1000 feet, respectively.

On the attached geologic map are shown five proposed drill-hole locations. I, II, and III are a minimal test of Proposal B. The drilling of holes at sites IV and V is contingent on the geologic studies, the results encountered by the first three drill-holes, and the acquisition of adjacent property.

Recommendations.

Prior to further work on the Vekol Prospect a property study should be made including an accurate survey of the six patented claims, a check of public records, and an inquiry as to the possibility of acquiring adjacent ground on the Indian Reservation.

Following this the geologic studies described under Proposal A and Proposal B should be completed. The results of this work will determine the amount of drilling necessary as a mineral test of the property -- either as proposal A, or Proposal B, or a combination of both.

Very truly yours,

Arthur G. Blucher

ARTHUR G. BLUCHER

MINING GEOLOGIST

201 SUN BLDG.

2030 EAST SPEEDWAY

TUCSON, ARIZONA 85719

326-4807

February 29, 1968

Mr. Harry Westling, Mgr.,
Vekol Mining and Exploration Co.,
1198 East Rodeo Road,
Casa Grande, Arizona 85222

Dear Mr. Westling:

Enclosed is my report on your Vekol Prospect, including Mr. Johnson's estimates of exploration costs. Also enclosed are data as follows:

1. Vekol Mine - Surface Geology Map - colored, with surface assay data,
2. Copy of Map - Vekol Mine dated September 2, 1932, Mitke - on which assay values are plotted from our underground sampling, 2 copies,
3. Certificate of Assay for assays made on the surface and underground samples taken, and
4. Copy of a Total Intensity Airborne Magnetic Survey made by Heinrichs Geoexploration Company complete with map and report.
5. Plat of Patented claims of Vekol Mine.

You have a good property, and I trust that this study by Mr. Johnson and myself has contributed to its development.

Very truly yours,



Arthur G. Blucher

AGB:fw

Encl.

cc: Westling extra
ASJohnson
File

III.

Vekol Mine.

Estimate of Exploration Costs.

by

Albert S. Johnson
Consulting Engineer
Tucson, Arizona.

"Mr. Harry Westling:

The following is a report in which an estimate is made of the costs of exploring your claim group known as the Vekol Mine in Pinal County, Arizona. This estimate is based upon the exploration program outlined by Mr. Arthur G. Blucher, and is an attachment to Mr. Blucher's report.

Introduction.

The drilling and coring procedures recommended in this report are designed to produce the best quality geologic information possible at the lowest cost possible consistent

with the objective. The nature of the area and the type of rock to be penetrated dictate the methods to be used.

The estimate also includes anticipated costs of road building, assaying of drill cuttings and cores, engineering and geologic supervision, and the miscellaneous labor required in handling and splitting samples, cores, etc.

Summary.

The program as outlined by Mr. Blucher consists of five holes to be drilled to an average depth of 1,000 feet, plus the 60 holes drilled to a depth of 50 feet. The deeper holes are for the purpose of exploring for a deep-seated orebody. The shallow holes will explore for additional pockets and veins of high-grade silver not mined out in the early life of the mine.

The cost of this program is estimated as follows:

1. Roads and drill sites	\$6,000.00
2. Drilling and coring	\$52,750.00
3. Supervision and miscellaneous labor	\$15,000.00
4. Assays and miscellaneous services	\$4,050.00
	<hr/>
	\$77,800.00

Discussion.

A. Drilling problems and costs.

The most outstanding characteristic of the rock in the Vekol mine area in regard to drillability is its hardness. Two general rock types will be encountered: (a) a massive

limestone with probable quartz veining, and (b) a quartzite. Every hole will be spudded in limestone.

There is a possibility of loss of mud circulation. The holes in the area are in a zone of faulting, and it can be assumed that fracturing of the rock has occurred in conjunction with movement along the faults. This fracture system could create a loss of circulation problem. Old records of the area indicate that water will be encountered at a depth of 300 feet.

Taking the above conditions into account, the following drilling procedure is recommended:

1. Drill to water-table (300') with air using a downhole hammer.
2. Set 4" O.D. casing at 300'.
3. Core from 300' -- total depth (1000') with 3.25" x NX diamond core bit using low solids mud as circulating fluid.

The drilling costs for such a program are estimated as follows:

1. 5 holes to average depth of 1,000'	\$42,250.00
2. 60 holes to average depth of 50'	\$10,500.00
Total	\$52,750.00

B. Roads and drill sites.

A system of old existing roads is present in the mine area. Where possible these roads will be reconditioned and put to use. New roads will have to be built in areas which have not been explored in the past. These roads will be built in massive limestone and will require sidehill cuts. A hydraulic ripper

will be used where possible, but parts of the area will have to be drilled and blasted. The estimated cost of road and drill site preparation is \$6,000.00.

C. Supervision and miscellaneous labor.

Into this category fall three types of personnel:

1. Geology.-- Drill cuttings and cores will be logged, and as information accumulates, successive steps in the exploration program will be conducted based on the accumulated information. Detailed geologic mapping will proceed in conjunction with the drilling.

2. Engineering.-- General planning and supervision of construction and drilling will be an engineering responsibility.

3. Miscellaneous labor.-- Miscellaneous labor costs will arise from the work involved in handling and splitting drill cuttings and cores and in assisting in field mapping.

Supervision and miscellaneous labor costs are estimated at \$15,000.00.

D. Assays.

The primary target for the shallow holes is silver. A silver assay will be made on each five-foot section of hole drilled. In addition two samples on each hole will be assayed for lead, gold, copper, and zinc.

On deep holes assays will be run on 10 foot samples taken in the interval from 500' to total depth. Samples will

be assayed for lead, zinc, copper, and silver.

The estimated cost for assay work is \$4,050.00,

E. Total cost.

The total cost for the project is estimated at \$77,800.00.

Respectfully submitted,

Albert S. Johnson"

Registered Professional Engineer

(Petroleum) Ariz. #6777

A.H. Ross and Assoc.

October 22, 1968

Mr. J. N. Betsford
Gunnex Limited,
Suite 1707,
80 Richmond Street, West,
Toronto 1, Ontario.

Dear Mr. Betsford:

We enclose a copy of our memorandum on the results of the preliminary tests performed by Lakefield Research of Canada, Limited on the sample of silver bearing material from Arizona.

The test data has been reviewed to provide information on what might be expected from the installation of a very simple gravity concentration flowsheet for treatment of this material.

We would appreciate the opportunity to review the project status with you at a convenient time.

No additional test work had been scheduled at the present time.

Yours very truly,

K. R. Coyne, P. Eng.

KRC:gg

C.C. Mr. W. Dix (with enclosure)

Gunnex Limited

Arizona Silver Sample.

1. Laboratory Test Results

1.1 Ore sample

The as received ore sample was analyzed as follows:

<u>Screen Size</u>	<u>% weight Distribution</u>	<u>Assay Oz/Ton Ag</u>	<u>Percent Ag Distribution</u>	<u>Spec. Gr.</u>
Plus 1 inch	16.5	0.71	4.43	2.80
1 x $\frac{1}{2}$ inch	22.7	0.59	5.06	2.68
$\frac{1}{2}$ x $\frac{3}{4}$ inch	11.5	2.79	12.14	2.93
$\frac{3}{4}$ x 8 mesh	12.6	3.23	15.39	2.87
8 x 14 mesh	15.6	4.22	24.89	2.85
14 x 28 mesh	6.6	3.09	7.71	2.85
Minus 28 mesh	<u>14.5</u>	<u>5.54</u>	<u>30.38</u>	<u>2.89</u>
Calc. head	100.0	2.64	100.0	-
Assay head	-	1.97	-	2.88

An X-ray fluorescence scan of the head sample shows a high zinc reading and the presence of lead and copper.

1.2 Heavy Liquid Separations

Tests were made with a liquid specific gravity of 2.95

<u>Screen size</u>	<u>% Wt.</u>	<u>Float</u>		<u>Sink</u>		<u>Calculated head</u>	
		<u>Assay oz/T. Ag</u>	<u>%Ag Dist.</u>	<u>% Wt</u>	<u>Assay oz/T Ag.</u>	<u>%Ag Dist.</u>	<u>Assay oz/T Ag.</u>
$\frac{1}{2}$ x 8 mesh	98.20	0.38	18.35	1.80	91.06	81.65	2.01
8 x 14 mesh	97.55	0.62	29.35	2.45	59.43	70.65	2.06
14 x 28 "	96.37	0.62	16.17	3.63	85.31	83.83	3.69
Minus 28 "	96.04	2.37	40.88	3.96	83.14	59.12	5.57

1.3 Table Test

A sample of the minus 14 mesh ore was subjected to tabling with the following results:

	<u>Table Products</u>			<u>Calculated</u>
	<u>Concentrate</u>	<u>Middling</u>	<u>Tailing</u>	<u>Feed</u>
% Weight	1.94	53.97	44.09	100.0
Assay Ag. oz/T	137.58	1.97	2.50	4.83
% Cu	0.31	0.005	0.14	0.07
% Pb	18.34	0.36	0.93	0.96
% Zn	12.72	1.70	0.36	1.32
Distribution				
% Ag	55.21	21.99	22.80	100.0
% Cu	8.52	3.84	87.64	100.0
% Pb	37.06	20.24	42.70	100.0
% Zn	18.65	69.35	12.00	100.0

2. Evaluation of Test Data

2.1 Feed Sizing

The screen analysis data shows that by screening at $\frac{1}{2}$ inch and rejecting the oversize some 39.2% of the ore can be discarded with a loss of only 9.5% of the silver content.

The minus $\frac{1}{2}$ inch ore would then be upgraded to

$$\frac{90.5\% \times 2.64 \text{ oz/T}}{60.8\% \text{ weight}} = 3.93 \text{ oz/T in silver.}$$

The float product from heavy liquid separation of the $\frac{1}{4}$ " x 8 mesh fraction assayed 0.38 oz/T Ag. Recovery from the plus $\frac{1}{2}$ " ore (0.64 oz/T Ag) might be less than 50%.

Treatment of the plus $\frac{1}{2}$ " material would require installation of a crusher or equipment for treating coarse feed if the silver is sufficiently liberated.

It would seem advisable to treat only the minus $\frac{1}{2}$ " fraction of the ore and consider treatment of this fraction at a later date when its metal content has been established more firmly.

2.2 Gravity Concentration

Heavy liquid tests show that a reasonable recovery could be obtained by gravity concentration.

Applying the recovery of silver in the heavy liquid sink to the original ore sample, the following approximate overall recovery might be expected from the minus $\frac{1}{2}$ " ore:

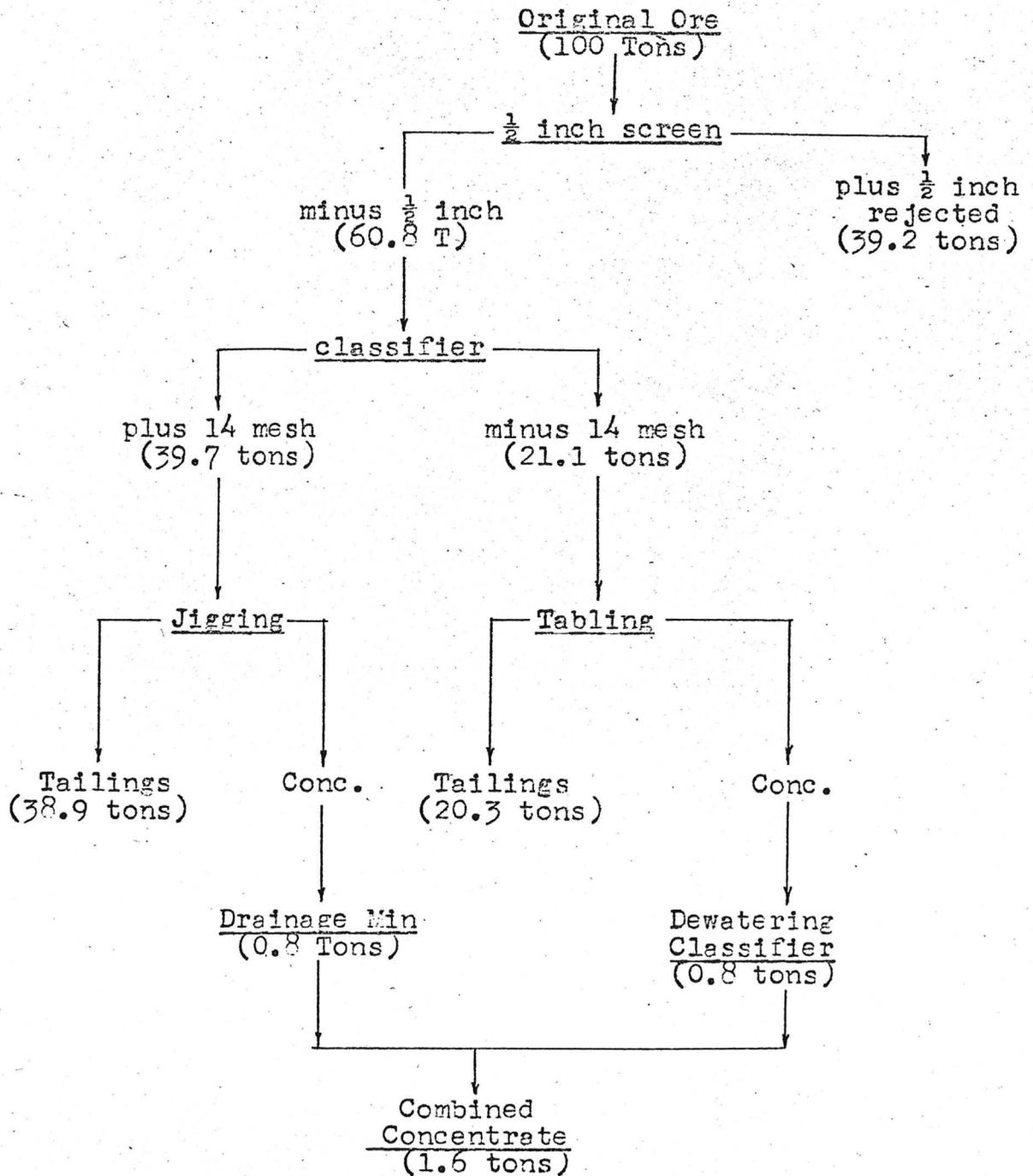
Screen Size	Feed to Gravity Concentration			Concentrate	
	% Wt.	Ag-oz/T	% Ag Distribution	% Wt.	Recovery -% Ag
1/2 x 1/2	11.5	2.79	12.14	0.21	9.9
1/2 x 8	12.6	3.28	15.39	0.23	12.6
8 x 14	15.6	4.22	24.89	0.38	17.5
14 x 28	6.6	3.09	7.71	0.24	6.5
Minus 28	14.5	5.54	39.38	0.57	17.9
Total	60.8	3.98	90.51	1.63	64.4

The concentrate would have an average assay of

$$\frac{64.4\% \times 2.64 \text{ oz/T}}{1.63 \text{ Wt.}} = 104 \text{ oz/T of silver}$$

Further test work could probably increase overall recovery, particularly in the minus 28 mesh fraction where heavy liquid separation showed a low recovery of 59%.

The following flowsheet might be used to accomplish the above upgrading. Figures represent dry tons of material:



2.3 Grade of Concentrate

The initial table test has shown that a higher grade concentrate can be produced with a corresponding reduction in silver recovery. The grade-recovery relationship used in practice would be dependent upon shipping costs and smelter contracts.

It is likely that the Pb, Zn, and Cu content of the concentrates would generally follow the grade of silver. On this assumption, the combined gravity concentrate as developed in item 2.2 might have the following metal content:

$$\text{Ag} = 104 \text{ oz/ton}$$

$$\text{Cu} - \frac{104}{137.58} \times 0.31\% = 0.2\%$$

$$\text{Pb} - \frac{104}{137.58} \times 18.34\% = 13.8\%$$

$$\text{Zn} - \frac{104}{137.58} \times 12.72\% = 9.6\%$$

2.4 Value of Concentrate

Based upon September 1968 E & M.J. metal prices, each 100 tons of original ore would produce the following gross concentrate value premised on the concentrate assay developed in item 2.3. Shipping and smelting charges would have to be deducted from this gross value.

Ag	- 1.63 tons x 104 oz/ton x \$2.1945/oz	--	\$372.01
Cu	- 1.63 tons x 4 lbs/ton x \$0.417/lb	--	2.72
Pb	- 1.63 tons x 276lbs/ton x \$0.123/lb	--	55.33
Zn	--1.63 tons x 192lbs/ton x \$0.135/lb	--	<u>42.25</u>
	Total Value	--	\$472.31 U.S.

Gross value of recovered concentrates per ton of original ore
= \$4.72 U.S.

Gross value of one ton of concentrates $\frac{\$472.31}{1.63} = \289.76

3. Conclusions

Very preliminary bench scale test work has indicated that a simple gravity concentration flowsheet could yield about 64% recovery of the total silver content in a concentrate weight of 1.6% of the original ore sample. In addition some lead and zinc would be recovered.

Additional small scale test work would be required to confirm and possibly improve the metallurgical predictions and to obtain data for sizing of the equipment.

K. R. Coyne:gg
October 22, 1968

VEKOL MINE.

EXCERPT from

Economic Geological Reconnaissance
Casa Grande Mining District
Pinal County, Arizona by
J. B. Tenney.

VEKOL MOUNTAINS.

This range has been the most extensively mineralized of any in the district and has furnished the greatest bulk of the ore produced in the past. The principal mines are the Vekol, Reward, Copperosity, Great Eastern, Christmas Gift, Republic and Spondulix.

HISTORY AND PRODUCTION.

The outcrop is said to have been shown to the original locator by a Papago Indian about 1879, about three years after the completion of the Southern Pacific Railroad from Yuma to Casa Grande which, until 1880, was the eastern terminus of the road. The locations were acquired in 1880 by Judge John D. Walker who started development at the mine by a series of open cuts and tunnels. The ore extracted was carefully sorted to a grade of 200 ounces up to several thousand ounces in silver and was shipped to the Selby Smelter in San Francisco, to the El Paso smelter, and to smelters in Colorado. Operations were gradually expanded as the development proceeded, and in 1884, Judge Walker enlisted the financial aid of his brother Lucian to further expand the scale of operations by building a mill to obviate the expense of sorting, and to beneficiate the accumulation of rejects from past sorting.

The mill was completed in 1885 and consisted of ten stamps followed by pan-amalgamation. It was moved from a former site in Queen Creek near the Silver King mine in 1884, but litigation with the former owners prevented its use until 1885. Water for milling was developed at the mine by drilling a 350 foot well. The stamps commenced dropping July 3, 1885 and the mill was run until April 1889 at an average of rate of 470 tons per month. It was finally closed due to the lowering of the mill heads below the economic limit. Shipments of sorted high grade ore were resumed which were made to the El Paso smelter until the death of John D. Walker in 1894 followed shortly by the death of his brother. Litigation then ensued between the heirs of the brothers, and the mine was closed except at intermittent intervals.

It was not reopened until 1903 when it was bonded to a New Orleans and Texas company. This company confined itself almost entirely to prospecting. A four hundred foot shaft was sunk and several hundred feet of deep-level prospecting was done with negative results. The mine was closed after four years of work during which time but little production was made. It was reopened in 1913 by a group of Phoenix men. The mill was reconditioned and concentrating tables were added to treat the large accumulation of mine dump as a low grade ore, but the attempt was a failure. A few shipments of concentrate were made.

The property is now owned by Paul R. Dagg of Upland, California. The production figures for the mine have been derived from the U. S. Mint

Reports, partly from the yearly production figures published each year by the Tucson Star, in large part from smelter settlement sheets in the possession of the owners of the ore shipped and a partial milling record, and in part from the yearly reports of the United States Geological Survey on mine production. After allowing for ore stolen and unrecorded production a figure very close to \$1,000,000 was arrived at, almost entirely in silver. A summary is shown in the following table:-

VEKOL MINE PRODUCTION.

Period	Price of Silver.	How treated	Ounces Silver Produced.	Value in \$.	Source of Information.
1832	\$1.14	Sorted & Shipped	19745	\$22,509.	Aris Star.
1833	1.11	" "	75676	84,000.	" "
1834	1.11	" "	79279	83,000.	" "
1835	1.07	" "	47121	51,171.	Company records
1835 to 1839	0.93	Milled and bullion shipped	525030	523,752.	Company rec. to march 1838 Esti- mated to Apr. 1839.
1839 to 1893.	0.93	Sorted & Shipped	209345	207,664.	Company records plus estimated un- recorded shipm'ts.
1908	0.53	Sorted & Shipped	3961	2,256.	U.S.G.S. Min. Res. A little Pb credit.
1909	0.52	" "	5329	3,000.	(same as above)
1915	0.51	Concentrated.	30000	16,620.	" " "
1916	0.66	"	8000	5,816.	" " "
GRAND TOTAL.			1,003,486 oz.	\$1,004,788.	

LOCATION AND MINING PROPERTY.

The mine is situated on the western side of the Vekol mountains about midway of the length of the range. There are twenty-two mining claims owned, of which six are patented. They lie in T 9 S R 2 E Section 33 and in T 10 S R 2 E Section 4 (Gila and Salt River Meridian). The mine is twenty-nine miles southwest of Casa Grande to which it is connected by a forty-three mile fair road, twenty-nine miles of which is partly-graded and the remaining twelve miles of which is a fair desert road pass-able except in wet weather. The camp, consisting of frame and adobe buildings, four of which are in good repair, has been built in a west-flowing arroya heading in a low pass in the westernmost ridge of the mountains.

MINE DEVELOPMENT.

The major workings of the mine have been driven from a series of tunnels starting from the southern side of the arroya. Most of these tunnels were driven at a down grade of from one to ten degrees in a south ten to thirty degree east direction. They are inter-connected by irregular stopes, raises, and inclines, the whole forming an extremely intricate network of workings, which extend a total distance of about 1070 feet to the southeast of the outcrop with a width of about 320 feet. At the south-east end, the workings are connected to the Argosy shaft, an

untimbered nearly vertical shaft 300 feet deep. In the arroya northwest of the tunnel entrances, the main shaft, a vertical two-compartment timbered shaft, has been sunk to a depth of 400 feet, the bottom 100 feet of which is now under water. At the 250-foot level two drifts have been driven under the upper workings to which they are connected by raises. Very little timbering was necessary and little of the work has been filled. About eight miles was done, the greater part of which is accessible.

GEOLOGY AND ORE OCCURRENCE.

The ore occurs as irregular replacements of Pennsylvania Limestone within a horizon varying in thickness from a few feet up to ten feet, locally known as the "shale" horizon. It is capped by hard fractured limestone, and underlain by compact dolomitized limestone. All of the ore was either highly oxidized or enriched. The only primary ore or "protore" (as the primary ore is not commercial) was found at the southeastern end of the occurrence in the underlying dolomitized beds near the Argosy shaft. The ore bodies were controlled by a series of closely parallel faults of small throw, striking from north-south to north 30 degrees west, with dips varying from 50 degrees to the east to an equal inclination to the west. The width of this zone of faulting is about 400 feet. The dip of the limestone beds varies from ten to thirty degrees about south seventy degrees west, nearly at right angles to the strike of the fault system. The ore horizon in this zone also dips with the limestone beds so that the high part is at the eastern edge and the lower part at the western edge. The surface expression of the fault zone is a partial replacement of limestone beds, especially those with abundant chert, by limonite. No lateral work was done outside of the fault zone in the search for other possible zones. A second equally strong or stronger belt of limonite stained limestone occurs about 400 feet to the west of the prospected zone, under which no work has been done.

At the northwest end of the ore zone, outcropping in the arroya, is a steeply dipping dike classified in the field as diorite porphyry, 20 to forty feet thick, striking northeast. It is little altered and contacts with the limestone are generally barren except at the intersection with the northwest faults. About 3000 feet west of the outcropping ore is an outcrop about 3000 feet in diameter of andesite lava, tuffs and breccias, dipping to the southwest at about the same inclination as the limestone. It is separated from the limestone by about 2500 feet of recent detritus.

At the southeast end of the workings occur a series of north 60 to 75 degrees east faults, apparently limiting the northwest series or forming fault blocks with them. The limonite stained outcrops of the known ore zone also end at this northeast series of faults.

The ore, judging by the very sparse remaining seams on the edges of the steep slopes, was almost entirely oxidized. It consisted of small nodules, locally termed nuggets, of horn silver, argentite, and silver-bearing tetrahedrite (freibergite?) in a gangue of iron-stained slightly copper stained kaolinized limestone with abundant secondary calcite veins. Very little silification exists except at the southeast end of the mine where mineralization was stronger.

There were two bodies found and mined: the Corkscrew, which outcropped in the arroya, and was followed into the hill to the southeast, and the Argosy to the southeast of the Corkscrew, associated with a continuation of the same series of faults and separated from it by about 170 feet of kaolinized limonite-stained limestone with lean silver values. The Argosy ore body at its southeast end is capped by over 300 feet of limestone. The ore here is said to be less oxidized. Extraction drifts in the underlying dolomite cut a few beds replaced with galena, zinc blend and pyrite with a little attendant silver.

The occurrence of a bedded deposit nearly horizontal on the strike and inclined at a small angle across the strike, consisting of highly enriched silver ore well above the present water table, cannot be explained by the usual processes of vein enrichment. The only satisfactory explanation is that the enrichment was effected by the leaching of values out of a series of closely spaced nearly vertical veinlets and their redeposition at an old water table. The fact that the ore horizon is now inclined with the dip of the limestone and overlying lavas shows that this old water table was established before the tilting of the beds to their present attitude. The limestone below the old table was altered to dolomite, and all that remained fixed in the old leached area above the water table was the iron, oxidized to the stable form of limonite. The occurrence in this respect closely parallels those of Magma¹ and Miami² where mineralization and enrichment took place before the development of the Basin Range structure, of tilted faults blocks.

¹ Short N.M. and Ettliger, I.A. Ore Deposition and Enrichment at the Magma Mine, Superior, Arizona. Trans. Am. Inst. Min. and Met. Eng. Vol LXIV, 1926, pp 194, 195.

² Ransome, F.L. The Copper Deposits of Ray and Miami, Arizona. U.S. Geol. Surv. Prof. Paper No. 115, 1919, pp 148-149.

FUTURE POSSIBILITIES.

The ore bodies already exploited have been almost completely denuded of commercial ore. The favorable horizon at the ancient water table has been so well prospected in the one fault zone prospected that the possibility of the existence of hidden sizeable ore bodies in this zone is remote.

As previously mentioned, there exists on the property a second parallel strongly mineralized northwest belt of limonite-stained limestone to the southwest of the prospected zone. No work has been done at the old water table horizon under this belt. It is quite possible that high grade enriched silver ore underlies this belt at the same horizon as that of the known ore bodies.

There is also a possibility of an ore zone at the old water table horizon at the zone of north east faults to the south of the Argosy ore body. Evidence to strengthen this possibility is that at the Great Eastern property about 2000 feet to the south of the Argosy shaft, the ore is associated with an east-west system of faults at the old water table horizon. Additional evidence strengthening this hypothesis is the occurrence of a small outcrop at the same horizon on the eastern slope of the ridge, known

VEKOL MINE.

-5-

as the Mount Vernon, 900 feet distant, closely associated with the same series of northeast faults that limits the Argosy ore. A zone such as this one would be an inclined one, and therefore more difficult to prospect and mine.

THE COLORADO ASSAYING COMPANY

(Incorporated)

ASSAYERS AND CHEMISTS

2244 BROADWAY

DENVER, COLO. 80201

March 14, 1966

OUR MOTTO: -

"What there is in it,
no more, no less."

Report on Spectrographic Analysis submitted by Mr. Donald E. Coombes, Brooks, Oregon

ELEMENTS PRESENT	APPROXIMATE PERCENTAGES
Silicon - - - - -	Major
Calcium - - - - -	10.-15.
Magnesium - - - - -	5.
Zinc - - - - -	5.-10.
Aluminum - - - - -	5.-8.
Iron - - - - -	5.
Lead - - - - -	2.-5.
Sodium - - - - -	1.
Potassium - - - - -	.5
Manganese - - - - -	.05-.1
Titanium - - - - -	.1
Arsenic - - - - -	.01
Antimony - - - - -	.2-.5
Barium - - - - -	.01-.03
Cadmium - - - - -	.005
Chromium - - - - -	.01
Copper - - - - -	.3-.5
Lithium - - - - -	.001
Mercury - - - - -	.05-.1
Nickel - - - - -	.002
Strontium - - - - -	.01
Silver - - - - -	.01
Vanadium - - - - -	.002
Yttrium - - - - -	.01

Gold .01 oz./ton @ \$35./oz. - \$.35/ton
 Silver 3.80 oz./ton @ \$1.30/oz. - \$4.94/ton
 Copper - 0.35% @ \$6./unit - \$2.10/ton
 Lead - 3.0% @ \$2.50/unit - \$7.50/ton
 Zinc - 7.3% @ \$1.50/unit - \$10.95/ton
 Uranium, Thorium - None detected

REMARKS:

The heavy white minerals in this sample are Cerussite (lead carbonate) and Smithsonite (zinc carbonate).
 The gangue consists of soft Dolomite (calcium and magnesium carbonate), fine Sand (mostly silica), soft Clay (complex hydrous aluminum silicate) and the red-brown Hematite (iron oxide).
 The Silver, Copper, Lead and possibly Zinc and Mercury contents are of interest.

Respectfully submitted,

THE COLORADO ASSAYING COMPANY

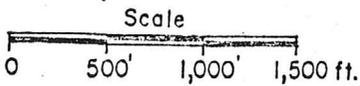
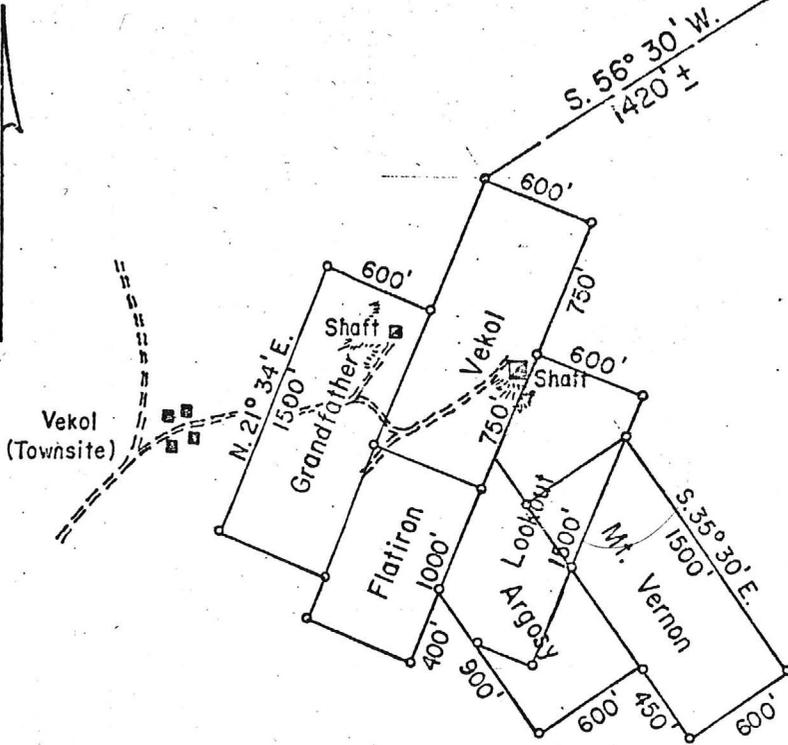
BY Ed Phillips

T. 9 S. R. 2 E.

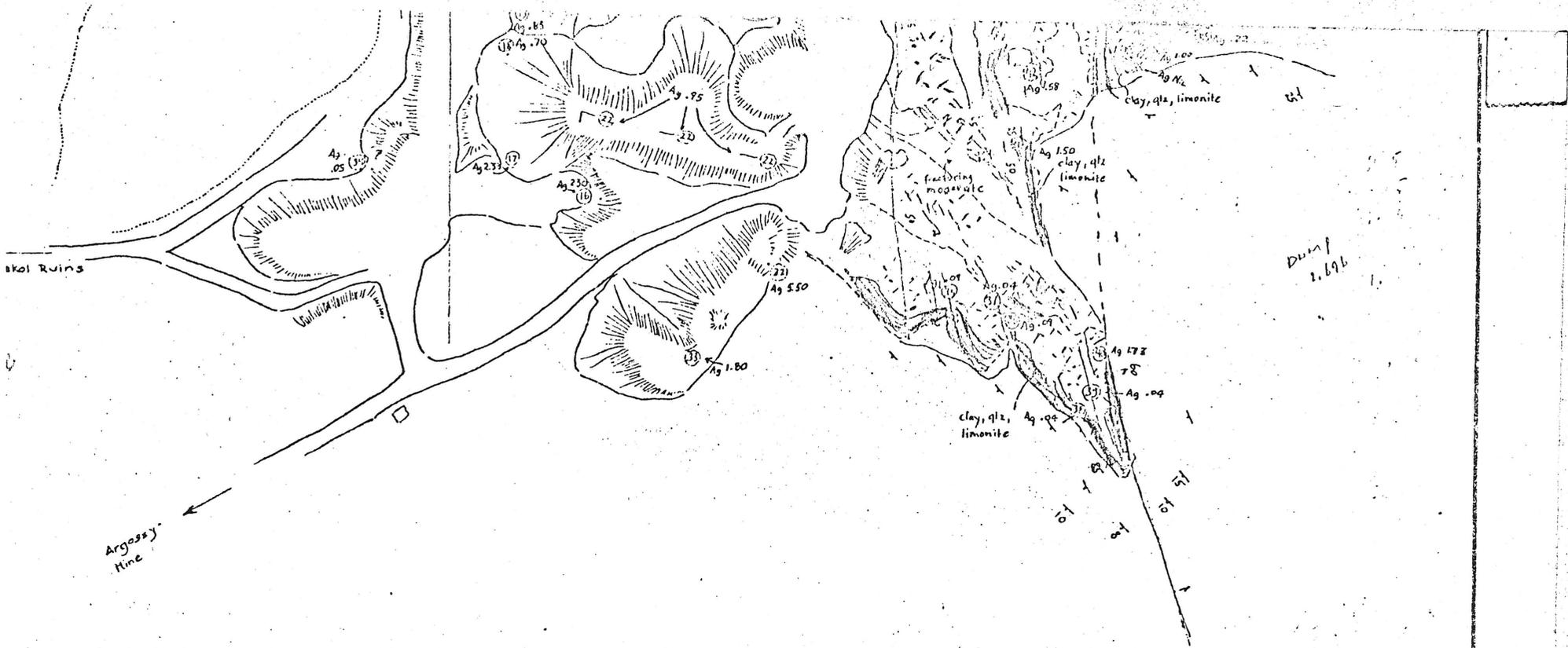
27 26

34 35

N



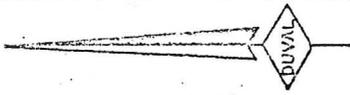
CLAIM MAP
VEKOL PROPERTY

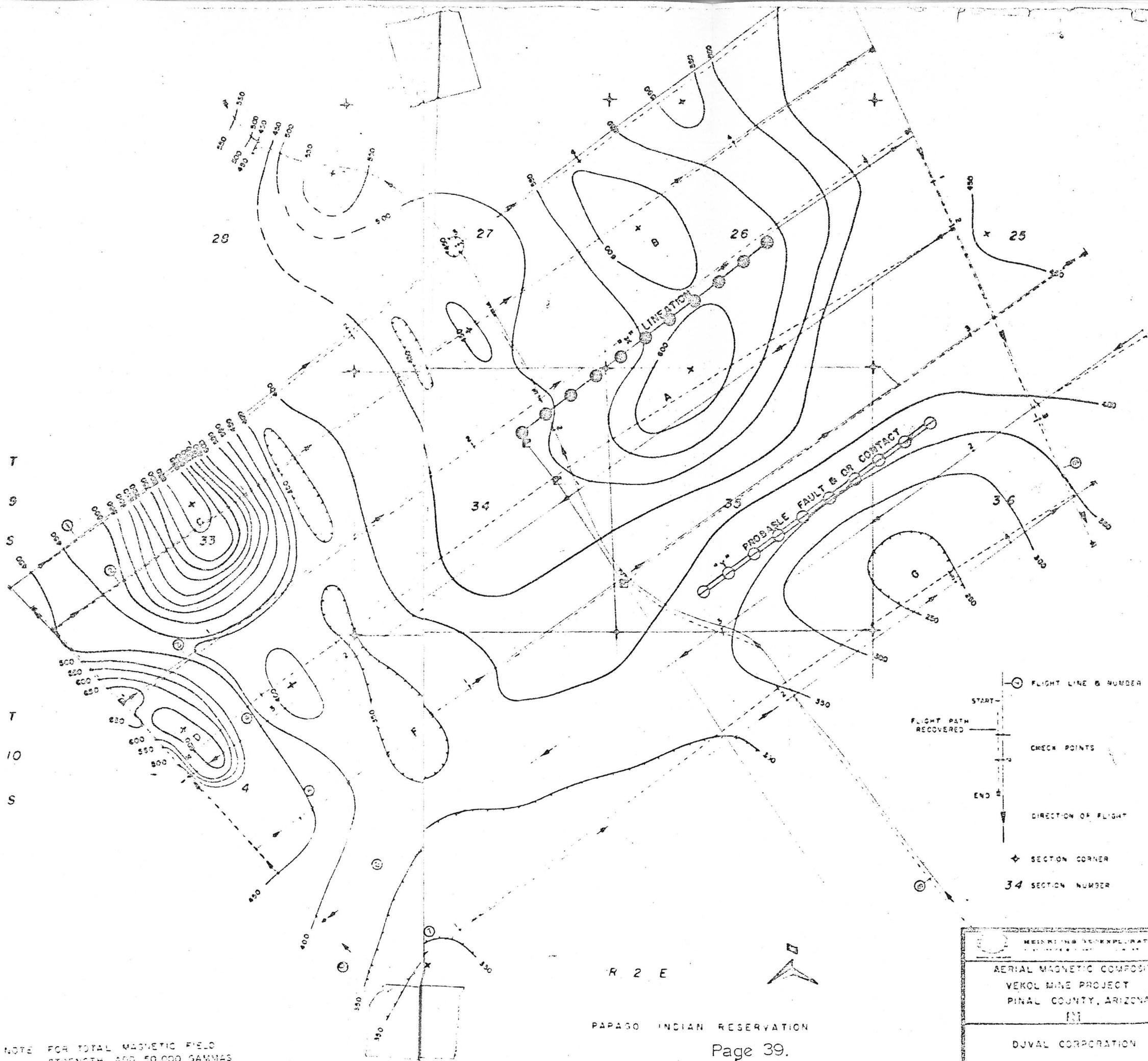


EXPLANATION

- LIMESTONE, UPPER LEVELS
- DOLOMITE
- DIORITE — DIABASE
- STRUCTURES
- STRONG MINERALIZATION / ALTERATION
- FRACTURING

DUVAL CORPORATION-EXPLORATION DEPT.			STATE ARIZONA
VEKOL MINE			COUNTY. PINAL
TYPE SURFACE GEOLOGY			TOWNSHIP, RANGE T9S, R2E
DATA BY C.W.L.	DRAWN BY C.W.L.	DATE AUGUST 22, 1966	MAP NO.
100	0	100	200
SCALE			STATE





NOTE FOR TOTAL MAGNETIC FIELD STRENGTH ADD 50,000 GAMMAS

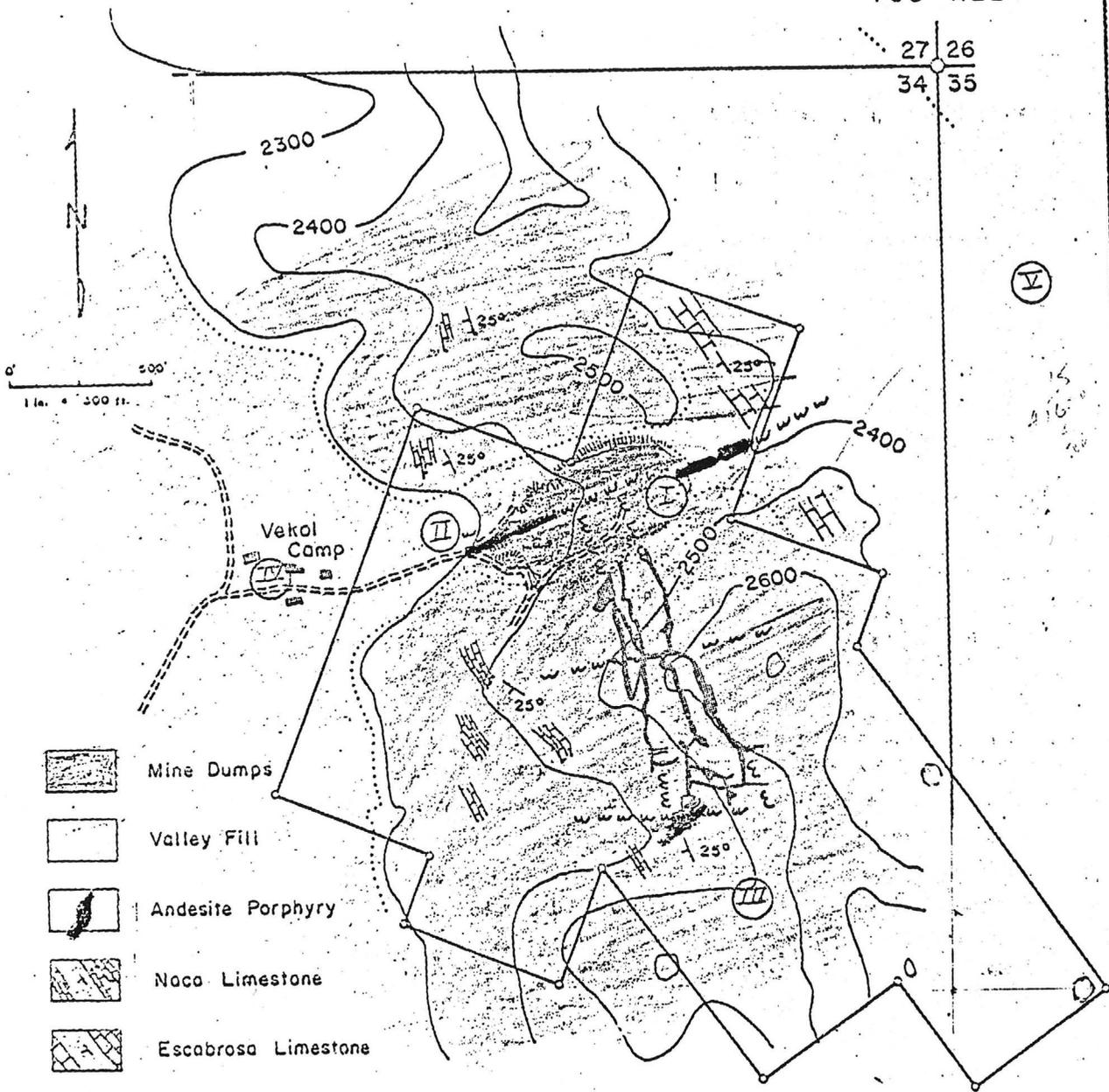
PAPAGO INDIAN RESERVATION

- ① FLIGHT LINE & NUMBER
- START
- FLIGHT PATH RECOVERED
- CHECK POINTS
- END
- DIRECTION OF FLIGHT
- ✦ SECTION CORNER
- 34 SECTION NUMBER

 MINING EXPLORATION CORPORATION
AERIAL MAGNETIC COMPOSITE VEKOL MINE PROJECT PINAL COUNTY, ARIZONA 1951
DJVAL CORPORATION

T9S · R2E

27 26
34 35



-  Mine Dumps
-  Valley Fill
-  Andesite Porphyry
-  Naco Limestone
-  Escabrosa Limestone
-  Underground Workings
-  Major Faults
-  Property Boundary (Approximate)
-  Roads

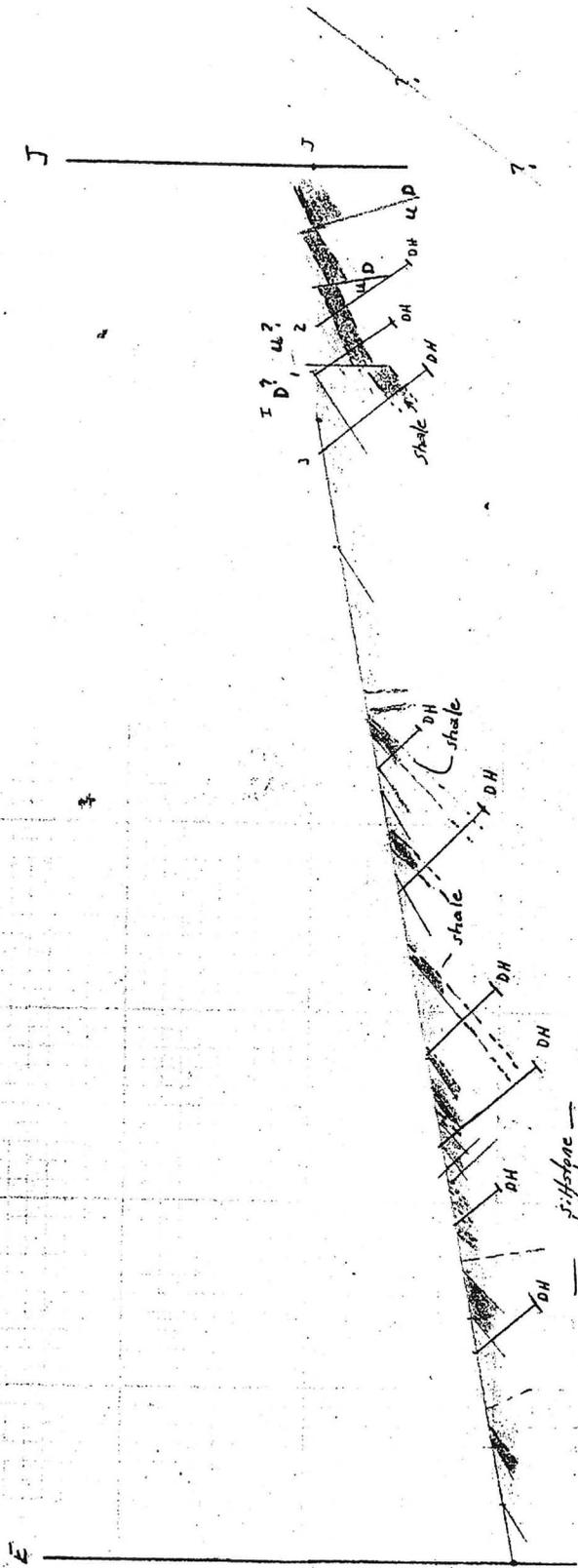
PRELIMINARY MAP
 VEKOL MINING AREA
 Pinal County, Arizona
 Contour Interval 100 ft.
 Topography after Vekol Quadrangle U.S.G.S.
 A.G.B. Feb. 1968



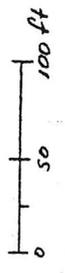




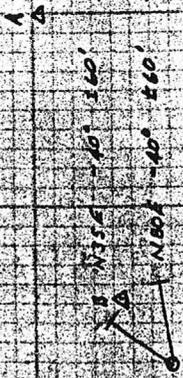
Generalized E-W Cross Section
 along portion of road leading to
 Argary shaft from main Vokol workings
 showing drill hole projected shale/siltstone
 intercepts



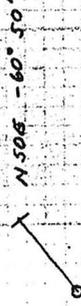
Looking NORTH



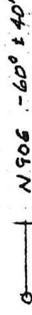
Plan map showing drill hole locations



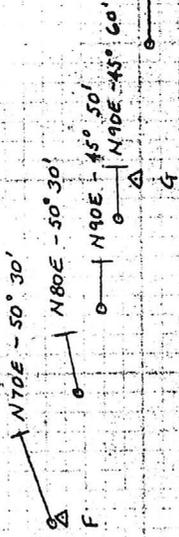
C



D



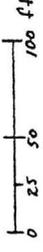
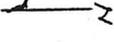
E



F

G

H

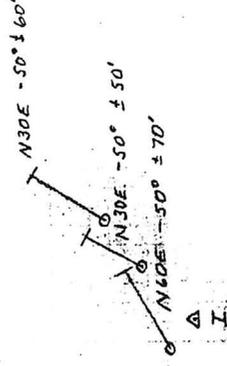


Survey point F



Proposed drill hole with bearing, angle, length is approximate

J



I

Sketch showing portion of road leading from Vekol main workings to the Argory shaft

Argory shaft



38

38

38

38

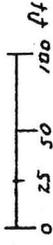
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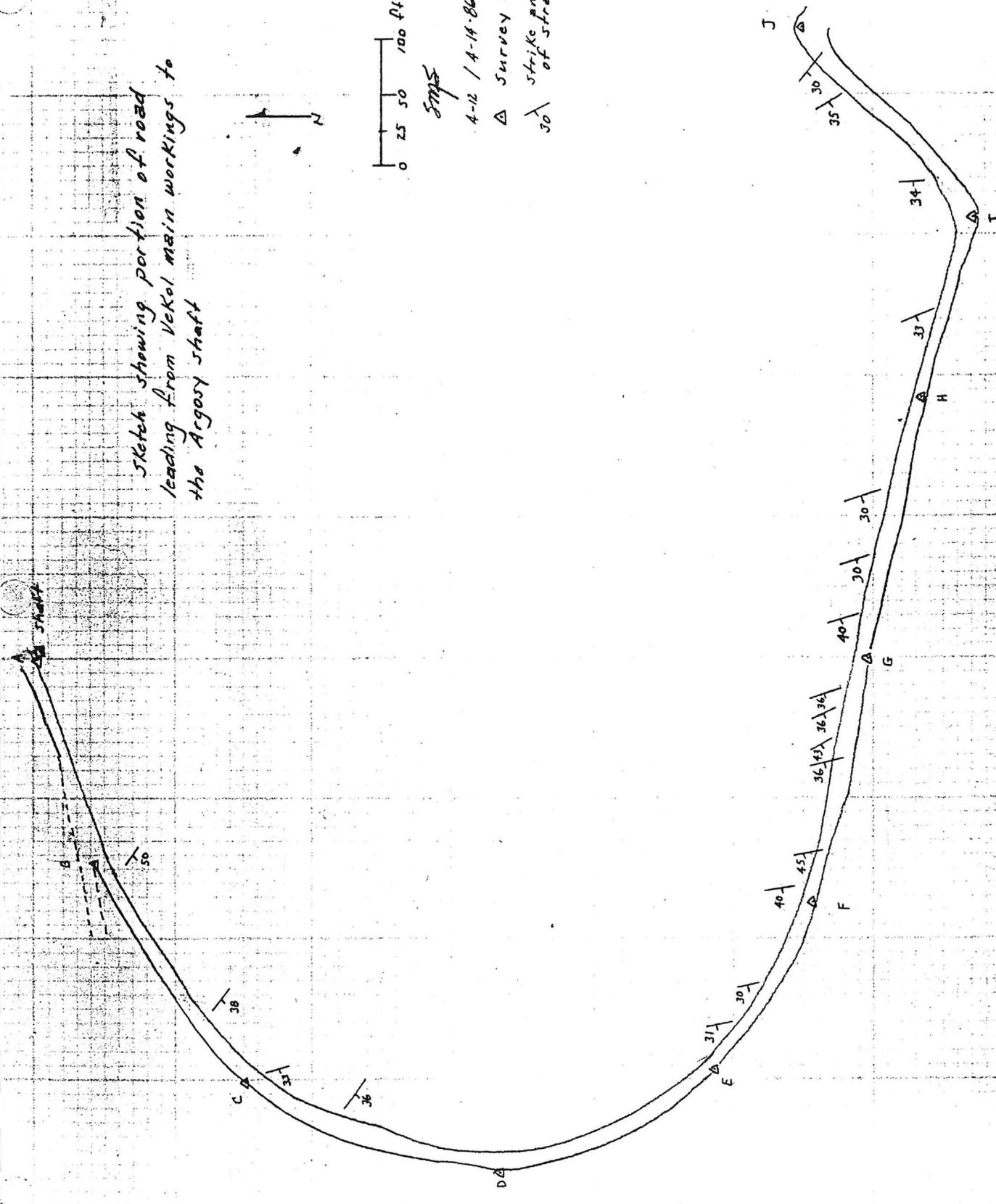
SMS

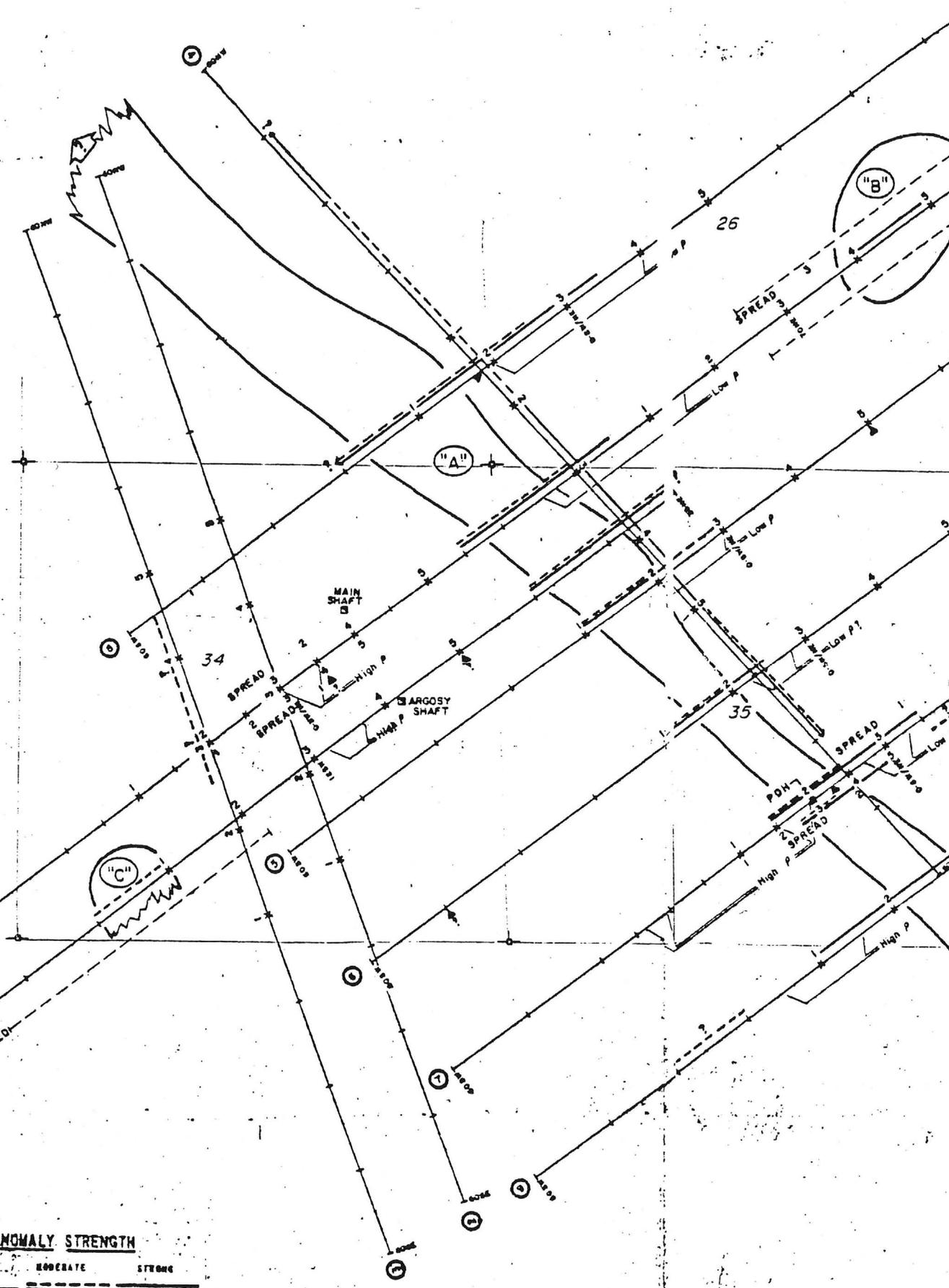
4-12 / 4-14-86

Survey Point

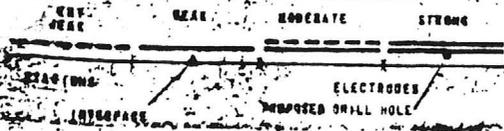
30 strike and dip of strata

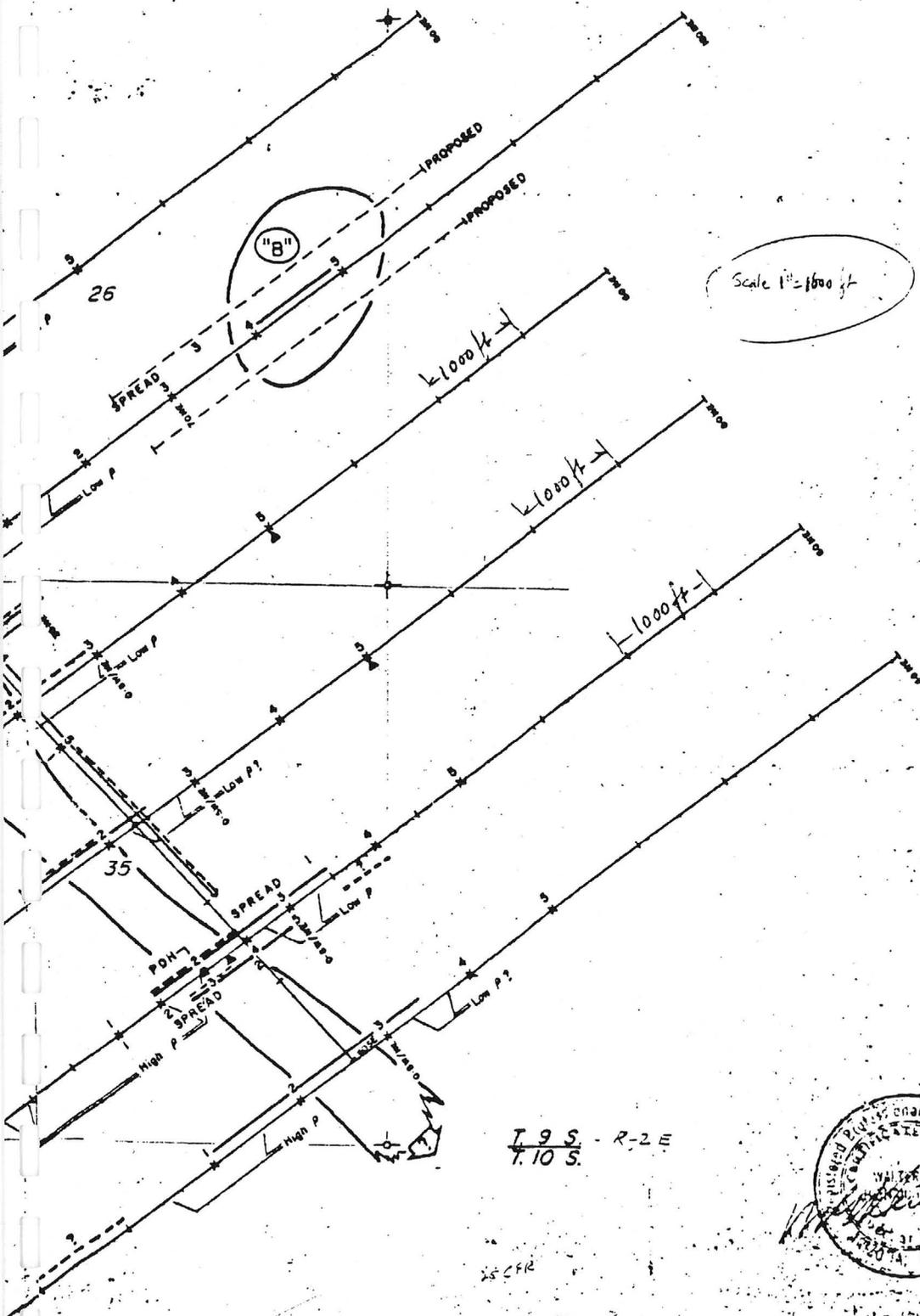
To Argory Shaft





RELATIVE ANOMALY STRENGTH





T. 9 S. - R. 2 E.
T. 10 S.

25 CFR



BITUMCH
GEOEXPLORATION
 6040 SOUTH 900 WEST
 SALT LAKE CITY, UTAH 84119
 (801) 487-1000

**INDUCED POLYMER
 AND INTERFACIAL
 TENSILE
 PUMP**

Sunburst Mining Company, Inc.

201 S. Roosevelt Ave. • P.O. Box 659 • Chandler, Arizona 85224 • (602) 899-0450

VEKOL SILVER PRODUCTION

THROUGH 12-31-78

1.	Silver Refined, Sold and Delivered:	
	4,098 ounces at an average of \$5.60/oz =	\$22,948.80
	Landlords \$4,614.80 = 20.1% of above	
2.	Silver Refined and on Hand for Sale:	
	600 ounces estimated value at \$5.80/oz =	3,480.00
3.	Silver Crystals Ready for Refining:	
	400 ounces estimated value at \$5.80/oz =	2,320.00
4.	Estimated Silver in Solution:	
	2,088 ounces estimated value at \$5.80 =	<u>12,110.40</u>
	Estimated Total Value Recovered or in Process =	\$40,859.20
	Landlords Share paid to date 11.3%	

Gold Recovered from above 2 ounces	Not Sold
Gold Estimated in Anode Mud on hand 1 to 3 ounces	Not Sold